USDA Forest Service
Caribou-Targhee National Forest
http://www.fs.fed.us/r4/caribou-targhee

1405 Hollipark Drive
Idaho Falls, Idaho 83401
(208) 524-7500

USDI Bureau of Land Management
Idaho Falls District
http://www.id.blm.gov/

Dear Reader:

Enclosed for your review is the Final Environmental Impact Statement (EIS) for J.R. Simplot Company's Smoky Canyon Mine, Panels F and G Lease and Mine Plan Modification Project. Simplot is proposing to: 1) enlarge lease IDI-01441 to accommodate an expansion of the previously approved East overburden disposal aea (ODA); 2) modify the approved mine plan for Panel F to allow for construction and use of an ore conveyance system between Panel F and the existing mill; 3) increase the ODA on the southwest side of existing lease IDI-01441 by 20 acres for the temporary storage of chert to be used for reclamation; and 4) utilize a geo-synthetic clay laminate liner (GCLL) in Panel G instead of the currently approved geologic store and release cover to reduce impacts to groundwater. The Final EIS was prepared by the Bureau of Land Management (BLM), Pocatello Field Office (lead agency) and the U.S. Forest Service, Caribou-Targhee National Forest (joint lead agency) with cooperation from the Idaho Department of Environmental Quality.

In addition to the Proposed Action, the Final EIS analyzes two Action Alternatives and the No Action Alternative. The action alternatives were formulated from public comments and agency concerns. Alternative 1 would be similar to the Proposed Action, except a combination of GCLL and geologic store and release cover would be used on the seleniferous overburden in Panel G. Under Alternative 2, the proposed lease modification area and expanded East ODA disturbance area would be smaller than under the Proposed Action or Alternative 1, and a combination of GCLL and geologic store and release cover would be used on the seleniferous overburden in Panel G. The No Action Alternative would be mining Panels F and G as currently authorized by the 2008 Records of Decision (RODs), issued by the BLM and USFS, and based on the 2007 Final EIS. Because these documents provide information related to the current analysis, copies of the 2007 Final EIS and 2008 RODs are included via CD for ease of reference.

Concurrent with the distribution of the Final EIS, the U.S. Environmental Protection Agency (EPA) published a Notice of Availability (NOA) of the Final EIS in the Federal Register. On the publication date of the EPA's NOA in the Federal Register, a 30-day availability period commenced. In addition to the EPA's NOA, the BLM published a separate NOA with additional information in the Federal Register and in local newspapers.

The Final EIS is a completed document. If you have information for agency consideration in making our decisions, it can be sent to the following addresses and must be received by the end of the 30-day availability period:

Email: blm_id_scm_panelsfg@blm.gov
Fax: (801) 942-1852
Mail: Panels F and G Lease and Mine Plan Modification Project EIS, Stantec, 8160 S. Highland Dr, Sandy, Utah 84093

Information provided for agency consideration, including names and street addresses of respondents, will be available for public review at the BLM Pocatello Field Office and subject to disclosure under the Freedom of Information Act (FOIA) If you wish to withhold your name and/or address from public review or disclosure under the FOIA, you must state this prominently at the beginning of your written comment. The BLM will honor such requests to the extent allowable by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, are available for public inspection in their entirety.

The portion of the proposed project related to USFS special use authorizations for off-lease activities is subject to the objection process pursuant to 36 CFR 218 Subparts A and B. Only those who previously submitted specific written comments on the Project during designated opportunities for public comment are eligible as objectors (36 CFR 218.5). BLM appeal procedures found in 43 CFR 4 apply to the portion of the Project related to the federal mineral lease(s).

The BLM and USFS will each issue separate RODs for decisions regarding their respective jurisdictions. A draft USFS ROD is available for review concurrent with the Final EIS; opportunities to object to the draft ROD within the 45 day-objection period are described in that separate document. The draft USFS ROD is being made available to people and entities on the Project mailing list, as well as the general public via the internet. The USFS will issue their final ROD for activities under their jurisdiction following the close of the objection period, and resolution period if needed, on the draft ROD. If no objection is filed on the draft USFS ROD, the USFS can implement their decision after five business days following the end of the 45-day objection period. If objections are received on the draft USFS ROD, the USFS must respond in writing to all objections and address all concerns and instructions identified in the objection response before signing the ROD and implementing the decision.

The BLM will issue a ROD for activities under their jurisdiction following the close of the 30-day availability period on the Final EIS. After publication of the BLM ROD there will be a 30-day appeal period before the BLM's decision becomes effective; the ROD will contain the appropriate instructions for appeal. Each final ROD will be made available to people and entities on the Project mailing list, as well as the general public via the internet.

Questions can be directed to Diane Wheeler, Project Lead, BLM at (208) 557-5839 or via email at dkwheeler@fs.fed.us.

Joe Kraayenbrink
District Manager
BLM Idaho Falls District

Garth Smelser
Forest Supervisor
Caribou-Targhee National Forest

FINAL ENVIRONMENTAL IMPACT STATEMENT

SMOKY CANYON MINE, PANELS F & G

LEASE AND MINE PLAN MODIFICATION PROJECT

LEAD AGENCY:	U.S. Department of the Interior Bureau of Land Management Idaho Falls District Pocatello Field Office
JOINT LEAD AGENCY:	U.S. Department of Agriculture Forest Service Caribou-Targhee National Forest
COOPERATING AGENCY:	Idaho Department of Environmental Quality
PROJECT LOCATION:	Caribou County, Idaho
DATE FINAL EIS FILED WITH EPA:	Same as date of publication in the Federal Register
QUESTIONS ON THE FINAL EIS CAN BE DIRECTED TO:	Diane Wheeler, Project Lead BLM Pocatello Field Office 4350 Cliffs Drive Pocatello, Idaho 83204 (208) 557-5839

ABSTRACT

This Final Environmental Impact Statement analyzes impacts related to lease and mine modifications for the Panels F and G Mining and Reclamation Plan at the J.R. Simplot Smoky Canyon Mine in southeast Idaho. The Proposed Action includes construction and operation of an ore conveyor system at Panel F; lease modification and expansion of the East overburden disposal area; expansion of the South overburden disposal area; replacing the currently approved geologic store and release cover with a geo-synthetic clay laminate liner, and implementation of associated stormwater control measures. Use of existing support and mill facilities would continue. Two Action Alternatives to the Proposed Action are analyzed. Alternative 1 is the same as the Proposed Action; however, a mixed cover would be used to cover overburden in Panel G. Under Alternative 2, the Agency Preferred Alternative, the proposed lease modification area and expanded East overburden disposal area disturbance would be smaller than under the Proposed Action or Alternative 1 and a mixed cover would be used to cover overburden in Panel G. Under the No Action Alternative, the 2008 Record of Decisions, based upon the 2007 Final Environmental Impact Statement would continue to govern development of the phosphate resources of Panels F and G, and the currently approved Mine and Reclamation Plan would be executed.

RESPONSIBLE OFFICIAL FOR FEIS:	Joe Kraayenbrink BLM Idaho Falls District Manager
EIS NUMBER:	ID-I020-2013-0028

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The following information is provided as a convenient synopsis for the public. However, this synopsis is not a substitute for review of the complete Final Environmental Impact Statement (FEIS). If there are any inconsistencies between this Executive Summary and the FEIS, the FEIS controls.

BACKGROUND

Smoky Canyon mining and milling operations were authorized in 1982 by records of decision (RODs) issued by the Bureau of Land Management (BLM) for the mine and reclamation plan (M&RP) and U.S. Forest Service (USFS) for related off-lease activities. The adjacent mine pits are referred to as Panels A, B, C, D, E, F, and G. Mining operations began in Panel A in 1984. As mining progressed through each mine panel, mine and reclamation operations were reviewed and the environmental effects assessed under the National Environmental Policy Act. Mining operations are complete in Panels A, C, D, and E and those areas are currently undergoing reclamation.

The BLM and USFS published the Smoky Canyon Mine, Panels F and G Final Environmental Impact Statement (2007 FEIS; BLM and USFS 2007) and issued RODs in 2008 approving the M&RP for Panels F and G subject to special conditions. The potential impacts of the East overburden disposal area (ODA) expansion onto 18 acres of off-lease National Forest System lands were analyzed in the 2007 FEIS. However, at the time the 2008 RODs were issued, it was determined neither the BLM nor the USFS had the legal authority to approve the expansion. The BLM regulations were revised in 2009 to allow the modification of a lease for purposes of permanent disposal of overburden materials if specific criteria are met and, as anticipated by the 2008 BLM ROD, Simplot has applied for a lease modification to accommodate an East ODA expansion, which would allow for the maximum amount of ore to be recovered from their phosphate lease.

PROPOSED ACTION

The Proposed Action consists of five distinct components:

- Modification of the existing M&RP to allow construction and operation of an ore conveyor system between Panel F and the mill,
- Modification of Lease IDI-01441 by 280 acres to accommodate the 160-acre expansion of the previously approved East ODA (Panel G),
- Increase of the on-lease disturbance area of the previously approved South ODA (Panel G) by 20.0 acres for the temporary storage of chert to be used for eventual reclamation of the Panel G pit,
- Utilization of a geo-synthetic clay laminate liner (GCLL) instead of the currently approved geologic store and release cover over the in-pit backfill and the East ODA (Panel G), and
- Implementation of on- and off-lease stormwater control measures associated with the GCLL.

ACTION ALTERNATIVES

Two Action Alternatives to the Proposed Action were developed and fully analyzed in this FEIS. Under both of the Action Alternatives, the Panel F ore conveyor system and South ODA portions of the Project would be the same as under the Proposed Action.

Alternative 1: Proposed Action with Mixed Cover

The only difference between Alternative 1 and the Proposed Action is the use of a mixed cover. Under Alternative 1, approximately 143 acres would be covered with a GCLL and 250 acres would be covered with the geologic store and release cover approved by the 2008 RODs.

Alternative 2: Reduced East ODA Expansion with a Mixed Cover

Under Alternative 2, the proposed Panel G lease modification area would be 240 acres and the size of the East ODA expansion would be reduced. The location of the disturbance would be within the footprint of the Proposed Action. During reclamation, approximately 138 acres would be covered with a GCLL and 257 acres would be covered with a geologic store and release cover.

NO ACTION ALTERNATIVE

Under the No Action Alternative, the decisions from the 2008 RODs would continue to govern development of the phosphate resources of Panels F and G. The currently approved M&RP would be executed and Lease IDI-01441 would not be modified. Approximately 50 percent of the phosphate ore in Lease IDI-01441, previously considered economically recoverable, would not be mined since there would not be sufficient storage area for the associated overburden/waste rock disposal external to the Panel G pit. There would be no reduction in the duration of mining Panel G, and overall disturbance would remain essentially the same as that approved in the 2008 RODs. Ore mined from Panels F and G would continue to be delivered to the mill via haul trucks. The geologic store and release cover described in the 2007 FEIS and approved by the 2008 RODs would be used in reclamation of overburden storage to limit or prevent the potential release of contaminants to the environment.

AGENCY PREFERRED ALTERNATIVE

Following their review of the environmental impacts as discussed in the FEIS, the BLM and USFS have identified Alternative 2: Reduced East ODA Expansion with Mixed Cover as their Preferred Alternative for this Project because this alternative:

- Reduces the size of the proposed lease modification area by 40 acres.
- Reduces the amount of new surface disturbance by approximately 46 acres.
- Reduces the amount of disturbance within the Sage Creek IRA by approximately 47 acres.
- Includes a GCLL for the 138-acre expansion of the East ODA for additional protection of water resources, and allows for an increase in GCLL coverage in the final decision to provide greater conservatism.

- Includes use of the previously approved geologic store and release cover for approximately 257 acres, which would be protective of water resources and result in a more natural appearance after reclamation.

The Agency Preferred Alternative would reasonably accomplish the purpose and need for the federal action, while giving consideration to environmental, economic, and technical factors. This action is responsive to public input for limiting the amount of GCLL to be used and for reducing the amount of new disturbance within IRAs.

ENVIRONMENTAL IMPACTS

The environmental effects of the Proposed Action were evaluated and compared to the Action Alternatives in **Chapter 4** of this FEIS. A listing of the primary environmental impacts for the Proposed Action and the Action Alternatives are shown in **Table 2.8-1**. This FEIS tiers to the 2007 FEIS (BLM and USFS 2007) and uses as much information as possible from that document as applicable to the Project to be analyzed. The environmental impacts of the Proposed Action and Action Alternatives are summarized in the following narrative.

Geology, Minerals, Topography, and Paleontology

There would be no impacts to geology, minerals, or topography for the Panel F component of the Project as the majority of the 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.

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 for reclamation. Impacts to topography from the ODA expansions would be considered major for the mining period and moderate when reclamation would blend most of the regraded area with the adjacent terrain. Effects to paleontological resources from the development of the ODAs and the stormwater features would be negligible. 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. The potential for acid rock drainage would be the same or less than was analyzed in the 2007 FEIS.

Impacts to geology, minerals, topography, and paleontology would be the same for Alternative 1 and Alternative 2 as under the Proposed Action, although there would be slightly less disturbance under Alternative 2. The use of a GCLL or geologic store and release cover would have no measurable impact to these resources.

Air Resources and Noise

Air Resources. The majority of emissions that would be generated from the Proposed Action would be similar to those described and assessed in the 2007 FEIS and would be from fugitive (dust) and mobile equipment (tailpipe) sources. 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.

Intensity of the air emission impacts from the Project would be minor at the site-specific perspective and negligible at the local and regional perspective. Metal and other potential pollutants (i.e., selenium) that would make up a small percentage of the dust generated would be considered insignificant.

In regards to climate change, the Proposed Action would not represent an increase over anticipated levels for the previously approved mining of Panels F and G. The use of an ore conveyor system would result in a reduction in haul truck traffic that would reduce the amount of CO_2 annually.

Under Alternatives 1, the acreage of disturbance and equipment operation would be the same as the Proposed Action; therefore, impacts to air resources and climate change would be the same. This would also be the case for Alternative 2, except there would be 46 acres less disturbance which may slightly reduce the overall impacts.

Noise. No noticeable noise effects would be anticipated at current residences along the Crow Creek road from the Panel F ore conveyor system under any of the Action Alternatives. The Proposed Action at Panel G is not anticipated to introduce any increased noise from what was analyzed in the 2007 FEIS.

Under Alternative 1, the acreage of disturbance and equipment operation would be the same as the Proposed Action; therefore, impacts to noise would be the same. Under Alternative 2, new surface disturbance would be approximately 46 acres less which would slightly reduce the overall impacts.

Water Resources

Panel F. Under all Action Alternatives, 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. 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.

Panel G – Groundwater. The proposed Panel G component of the Proposed Action would change infiltration characteristics (and thus, groundwater recharge) compared to the approved Panel G M&RP because: 1) the proposed GCLL cover would reduce deep percolation through the seleniferous overburden, compared to rates predicted for the approved geologic store and release cover analyzed in the 2007 FEIS; and 2) the areal extent of seleniferous overburden in Panel G would increase under the Proposed Action. Specifically, the GCLL would cover approximately 392 acres, compared to the approximately 366 acres to be covered by the geologic store and release cover as analyzed in the groundwater model for the 2007 FEIS. The reduced recharge due to the GCLL (compared to the previously 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.

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. Because the proposed GCLL cover would allow approximately 44 percent of the

recharge volume that was predicted for the approved geologic store and release cover, one would expect the same percentage effect on contaminant loading, and thus on final concentration in groundwater after mixing. This represents an 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.

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, 143 acres would be covered by a GCLL and 250 acres would receive the previously approved geologic store and release cover, which would increase recharge (almost double) and groundwater flow (by an estimated 8.5 feet) over the Proposed Action. This alternative would have a long-term, moderate decrease in groundwater quality, compared to the Proposed Action, beneath and down gradient of Panel G, including locations where groundwater discharges to the surface. Alternative 2 would have essentially the same effect on groundwater quantity and quality as for Alternative 1.

Panel G – Surface Water. Compared to the approved M&RP for Panel G, the Proposed Action would result in a greater disturbance area that would have runoff directed to stormwater control features (ponds and ditches), thus potentially incrementally reducing runoff that reaches Deer Creek and the Wells Canyon drainage and intermittent stream. This would likely result in a minor to moderate change in stormwater runoff flows in these two stream channels. Implementation of the proposed GCLL would have a negligible, long-term impact to surface water quantity in Deer Creek, Books Spring, and lower Crow Creek. Baseflow reduction may change due to long-term topographic alteration; however, the proportional net change to baseflows would likely be negligible. The Proposed Action disturbances 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. The Proposed Action effect on selenium concentrations in Deer Creek, Crow Creek east of Panel G, and Books Spring 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. However, the analysis in **Chapter 4** found that the Proposed Action would have no additional surface water quality impacts due to sediment releases.

Effects to surface water quantity would be essentially the same under Alternatives 1 and 2 as they would be under the Proposed Action. The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek, although 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 Alternatives 1 and 2 would be identical to those described under the Proposed Action. Selenium concentrations under Alternative 2 are predicted to be somewhat greater than they would be under the Proposed Action and slightly more than Alternative 1, although the selenium criterion would continue to be met.

Soils

Under all Action Alternatives, 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. The Panel G portion of the Project would result in the new disturbance of approximately 161 acres of soil resources under the Proposed Action and Alternative 1. This represents an approximate 12 percent increase in the total amount of soil disturbance analyzed and approved in the 2007 FEIS. 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, which 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. Growth medium would salvaged from disturbed areas and eventually used for reclamation under all Action Alternatives.

Vegetation

Under all Action Alternatives, 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.

Under The Proposed Action and Alternative 1, expansion of the South and East ODAs and development of the stormwater features would result in direct and indirect impacts to approximately 161 acres of vegetation resources. Areas reclaimed with a GCLL would never be allowed to reforest; this would be 392 acres for the Proposed Action and 143 acres for Alternative 1.

The 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. 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. No threatened, endangered, proposed, candidate, or sensitive plant species are known or expected to occur in the Project Area based upon previous surveys and suitable habitat requirements. With the implementation of environmental protection measures, impacts from noxious weeds would be site-specific, short-term, and minor.

The same types of impacts would be anticipated under Alternative 2, but to 46 fewer acres. Approximately 138 acres (254 acres less than the Proposed Action) would be covered by the GCLL, which would only be reseeded with shallow-rooting species. Approximately 257 acres would receive a geologic store and release cover, which could be reseeded with deeper rooted species. This would eventually result in a more natural vegetation community than that described for the Proposed Action and Alternative 1.

Wetlands

No waters of the U.S., including wetlands, were identified within the Project Area for the Panel F ore conveyor system, thus there would be no impacts under any of the Action Alternatives. No waters of the U.S., including wetlands, would be impacted by the expansion of the South and East ODAs and development of the stormwater features related to the GCLL, although there are several wetland areas immediately adjacent to proposed disturbance areas.

Wildlife

The Proposed Action would disturb approximately 170 acres in a variety of habitats that are currently utilized by threatened, endangered, proposed, candidate, or sensitive species and other wildlife. All disturbance would be within or immediately adjacent to existing mining activities associated with Panels F and G. The Panel F ore conveyor system would disturb approximately 8 acres of aspen habitat, within or immediately adjacent to mining activities. All wildlife crossing the conveyor at the four crossing locations along the existing haul road would be at risk from vehicle collisions and predation due to funneling of the wildlife along the haul road to one of the four crossing locations, and concentrating crossing wildlife in these locations.

The Proposed Action at the Panel G area would disturb approximately 161 acres of wildlife habitat including approximately 150 acres of forest, 6 acres of mountain snowberry and sagebrush, and 5 acres of forbs.

Losses in forb/graminoid habitats would be short term. Disturbances in most 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.

Preliminary determinations for threatened, endangered, proposed, candidate, or sensitive species and specific impacts to other wildlife species include the following:

- The Project May Affect, but is Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor.
- Approximately 13 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat would be disturbed. If the species is listed, the Project May Affect, but is Not Likely to Adversely Affect greater sage-grouse as a candidate species.
- Overall, potential impacts to wolverines and their prey species would be site-specific, short- to long-term, and negligible to minor.
- The Project would have No Impact on spotted bat, peregrine falcon, or boreal toad.
- Impacts to bald eagles and amphibians and reptiles would be site-specific, short-term, and negligible.
- Approximately 56 acres of marginal unoccupied habitat for boreal owls would be disturbed.
- Indirect impacts to boreal owls, flammulated owls, and Townsend's big eared bat would be site-specific, long-term, and negligible to minor.
- Impacts to Columbian sharp-tailed grouse, great gray owls, and three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor.
- Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate.

- Neither peregrine falcon individuals nor suitable habitat for this species is known to occur within the analysis area, thus there would be no impact to this species.
- Impacts to gray wolves would be site-specific, short-term, and negligible to minor.
- Impacts to migratory birds, including neotropical landbirds, would be site-specific, short-term, and minor to moderate.
- Overall impacts to big game are expected to be site-specific, short- to long-term, and minor.
- Impacts to predators, raptors, and upland game birds would be site-specific, short-term, and negligible to minor.

Impacts to wildlife resources under Alternative 1 would be the same as those described for the Proposed Action. Impacts to wildlife resources under Alternative 2 would also be the same, with the exception that approximately 46 acres of habitat impacts would not occur. Use of a mixed cover under Alternatives 1 and 2 would not be expected to change impacts to wildlife resources from those described under the Proposed Action.

Fisheries and Aquatics

No 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.

Negligible impacts to surface water and groundwater from the Proposed Action are anticipated. The GCLL would be expected to reduce potential long-term impacts to the quality of potentially impacted water resources to an even greater extent than the previously approved geologic store and release cover. Thus, no impacts to Yellowstone cutthroat trout are expected from the Proposed Action. Aquatic influence zones would be impacted by components of the Proposed Action in and around the Panel G area. These impacts would be site-specific, long-term, and negligible to minor.

The substitution of a geologic store and release cover for a GCLL on approximately 250 acres under Alternative 1 would not affect the ability to meet water quality standards, so no associated impacts to fisheries and aquatics would be anticipated. As such, impacts to fisheries and aquatics under Alternative 1 would be the same as described under the Proposed Action.

Overall, impacts to fisheries and aquatics under Alternative 2 would generally be the same as described for the Proposed Action and Alternative 1. The location of the disturbance for Alternative 2 would be within the footprint of the Proposed Action, but there would be approximately 46 fewer acres of disturbance, including 1.8 fewer acres of impacts to aquatic influence zones.

Grazing Management

Under all Action Alternatives, there would be a minor impact to grazing due to reduction in suitable acreage and direct loss of animal unit months. Should the reduced animal unit months be shifted to another allotment, there would be a minor increase in the impacts of grazing on that allotment. Such a 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 the Project Area has been reclaimed and forage is matured, use of the allotment reduced by the Project would be restored. Implementation of the GCLL would be expected to permanently increase the area available for grazing because that area would not be allowed to reforest.

Impacts to grazing under Alternative 1 would be the same as described under the Proposed Action, except 250 acres would be covered by a geologic store and release cover instead of a GCLL. Impacts to grazing under Alternative 2 would be similar to those described for the Proposed Action, except there would be 46 acres less disturbance overall and 257 acres would receive a geologic store and release cover rather than a GCLL. Under Alternatives 1 and 2, the geologic store and release cover would be revegetated with deeper rooted species, thus the amount of forage would not be increased as much as under the Proposed Action in the long term.

Recreation and Land Use

Recreation. The Panel F ore conveyor system would cross an area surrounded by mining-related development and result in the isolation of small areas from the recreational land base. This would result in negligible impacts to recreation because the recreational experience in these areas is already diminished by the surrounding mining activities.

The ODA expansions and stormwater control features in Panel G would remove these areas from the recreation land base for the life of the Project. Given the surrounding available recreation resource, impacts from temporary restriction of these areas from the recreation land base due to the Proposed Action would be minor.

Short-term impacts to recreation under the Action Alternatives would be the same as described under the Proposed Action. Under Alternatives 1 and 2, the area covered by a GCLL would be reduced by substituting a geologic store and release cover on portions of seleniferous overburden. 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 would result in approximately 46 acres of less disturbance to the recreation land base in the vicinity of Panel G.

Land Use. Under the Proposed Action, the Panel F ore conveyor system would cross lands designated as 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 allowable sale quantity. Suitable timber, a portion of which contributes to the allowable sale quantity, would be cleared for temporary (short-term) construction access and for the conveyor system route (long-term). Because of the extremely small amount of acreage impacted, the Proposed Action would have a negligible impact on Management Prescription 5.2, aspen-conifer suitable timber, and to the allowable sale quantity for the life of the Project.

Under the Proposed Action, the Panel G portion of the Project would impact lands with Management Prescription 6.2, Rangeland Vegetation Management, and disturb suitable timber; however, suitable timber within Prescription 6.2 does not contribute to the allowable sale quantity. Under the Proposed Action, the lease expansion area would be converted from Prescription 6.2 to Prescription 8.2 and suitable timber would be cleared. 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 allowable sale quantity. Because of the relatively small amount of acreage impacted, the Proposed Action would have a minor impact on Management Prescription 6.2, suitable timber, and to the ASQ for the life of the Project.

Impacts to land use under the Action Alternatives would be similar to those described under the Proposed Action. Under Alternatives 1 and 2, the area covered by a GCLL would be reduced by substituting a geologic store and release cover on approximately 250 and 257 acres respectively, 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.

Inventoried Roadless Areas

Within the Project Area, the Sage Creek and Meade Peak Roadless Areas are 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. During active mining, as authorized for Panels F and G, the Project Area would not be available for recreation, grazing, or timber production. Upon completion of active mining and reclamation, the Project Area would again be available for multiple uses under the General Forest Theme.

Impacts to certain wilderness attributes of the affected Inventoried Roadless Areas (IRAs) would be degraded by the Project and return to a stable condition post-reclamation. The Proposed Action would affect the Sage Creek Roadless Area portion of 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 Sage Creek and Meade Peak Roadless Areas 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.

Because of the relatively small proportion of the Sage Creek and Meade Peak Roadless Areas that would be impacted by the Project, the overall impacts to the roadless characteristics of the both IRAs within the Project Area would be short-term and minor. Overall long-term impacts to roadless characteristics of both IRAs were judged to be negligible because most characteristics would be stable after reclamation.

Compliance with the Idaho Roadless Rule for the Sage Creek Roadless Area under the Action Alternatives 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 Alternatives 1 and 2, a geologic store and release cover would be substituted for the GCLL on approximately 250 and 257 acres respectively. Compared to areas covered with a GCLL, the geologic store and release cover would eventually host a more diverse vegetation community, including trees and shrubs, and would thus be more likely to resemble the surrounding natural vegetation scheme. As such, there would be a lower level of impacts to wilderness attributes and roadless characteristics from the Action Alternatives compared to the Proposed Action.

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

Visual and Aesthetic Resources

Project disturbance would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. During daylight hours, the Panel F conveyor system would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the existing mining disturbance. The conveyor system would be lit at night and, depending on the angle of view, would appear as an even series of lights or blend to appear as one bright light. Overall impacts to visual resources from the Panel F portion of the Project under all Action Alternatives would be negligible to minor as the conveyor system would be viewed in the context of existing mining disturbance that has had a major impact on visual resources, does not meet the visual quality objectives, and occurs in an area of low scenic integrity.

Under the Proposed Action, the East ODA expansion would slightly expand the area of disturbance that would be visible as a result of the mining activities approved by the 2008 RODs. This would make the disturbance slightly more noticeable than with the No Action Alternative. During mining of Panel G, the East ODA disturbance would grow over time. Activity associated with the Proposed Action would not be noticeable during daylight hours, although dust columns may be perceptible. The glow of lights or intermittent headlights may be visible at night. Overall impacts to visual resources from the Panel G portion of the Project would be minor as viewed in the context of other approved mining activities, which were found by the 2007 FEIS to have a major impact on area visual resources, to not meet the visual quality objectives for the area, and to result in low scenic integrity. In the long term, the area covered by the GCLL would never be allowed to reforest and would not resemble its pre-disturbance vegetation scheme. As the natural contours could never be fully restored, differences in topography may always be noticeable to a certain degree.

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 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. The geologic store and release cover would cover 250 acres and would be revegetated with deeper rooted species including shrubs and trees; therefore, it would appear more natural and consistent with the surroundings than the GCLL, which would never be allowed to reforest. As such, impacts to visual resources under Alternative 1 would be somewhat less than those described for the Proposed Action. Compared to the Proposed Action, Alternative 2 would result in 46 acres less disturbance associated with the East ODA. The area covered by a GCLL would be 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. 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 visible from the eastern viewpoint along Trail 103.

Cultural Resources

No cultural resource sites are located within the Panel F portion of the Project Area, thus there would be no impacts to eligible cultural resources from the ore conveyor system under all Action Alternatives. Two historic sites are present in the Panel G portion of the Project Area; however, neither are eligible for the National Register of Historic Places and these sites do not require further management. No prehistoric sites were found. Despite the fact that there would be 46 acres less disturbance under Alternative 2, impacts to cultural resources would not be reduced or avoided. Therefore, impacts to cultural resources would be the same under all Action Alternatives.

Native American Concerns and Treaty Rights Resources

None of the Action Alternatives would impact land status, tribal historical/archaeological sites, rock art, sacred sites, socioeconomics, environmental justice, or air quality associated with Treaty Rights. Beneficial impacts to water resources would be expected from implementation of the GCLL. Adverse impacts to resources of concern or associated with Treaty Rights under the Proposed Action and Alternative 1 would be negligible to minor. Under Alternatives 1 and 2, substitution of a geologic store and release cover for the GCLL on approximately 250 and 257 acres respectively would not affect the ability to meet water quality standards, and no additional impacts to fisheries would be anticipated. Because Alternative 2 would disturb 46 fewer acres than the Proposed Action or Alternative 1, overall impacts to Native American concerns and Treaty Rights resources would be slightly less than under the other Action Alternatives.

Transportation

Because the Panel F ore conveyor system would not impact any public access routes, it would have no impact on public transportation. The conveyor would not affect employment at the mine, and thus would not result in indirect impacts to transportation on public access routes in the area surrounding the mine.

Under all Action Alternatives, access to Panel G would occur along the previously approved haul road. As a result, there would be no new impacts to transportation from Project activities at Panel G beyond those previously analyzed in the 2007 FEIS. There would be no traffic associated with the any of the Action Alternatives to the Panel G area via Crow Creek Road or the Wells Canyon Road. Use of the mixed cover under Alternatives 1 and 2 and the reduction in disturbance under Alternative 2 would not affect transportation.

Social and Economic Resources

Employment at the mine would not change under any of the Action Alternatives or No Action Alternative.

Property values along Crow Creek Road may be affected by the Proposed Action due to perceived changes in the environment of the Project Area, as 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 Proposed Action would result in continued economic benefits to Bannock, Caribou, and Power counties in Idaho, and Lincoln County, Wyoming, in the form of royalty payments and property taxes. These payments would be estimated to remain unchanged under the Proposed Action. However, under the No Action Alternative, royalty payments may be reduced as approximately 50 percent of the phosphate ore in Lease IDI-01441would not be mined.

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.

Impacts under Alternatives 1 and 2 would be the same as the Proposed Action because neither use of a mixed cover under the alternatives nor the reduction of disturbance under Alternative 2 would affect socioeconomics.

Under the No Action Alternative, 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.

Environmental Justice

Impacts to environmental justice would be the same under all Action Alternatives. While there are individual households that are either minority or low income, the communities of Afton and Fairview in Wyoming and the loose community of ranchers along Crow Creek Road as a whole are not considered environmental justice communities. Members of the Shoshone-Bannock Tribes, based in Fort Hall, Idaho, have reserved Treaty Rights to utilize federal lands in the Project Area for hunting, fishing, and gathering. The Shoshone-Bannock Tribes represent both a population (readily identifiable collection of persons) and a community (readily identifiable social group who reside in a specific locality, share government, and have a common cultural and historical heritage) that could be affected under environmental justice. Analysis contained in **Chapter 4** of this FEIS determined that this Project would not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice.

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CHAPTER 1

INTRODUCTION, PURPOSE AND NEED

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CHAPTER 1 INTRODUCTION, PURPOSE AND NEED

1.1 INTRODUCTION

This Environmental Impact Statement (EIS) is being prepared by the Bureau of Land Management (BLM), Pocatello Field Office, and the U.S. Forest Service (USFS), Caribou-Targhee National Forest (CTNF), in response to the proposed lease and mine plan modifications for the Smoky Canyon Mine, Panels F and G (the Project), submitted by the J.R. Simplot Company (Simplot) in January 2013 (Simplot 2013). Simplot proposes to: 1) enlarge lease IDI-01441 by 280 acres to accommodate the expansion of the previously approved east overburden disposal area (ODA); 2) modify the approved mine plan for Panel F to allow for construction and use of an ore conveyance system between Panel F and the existing mill; 3) increase the ODA on the southwest side of existing lease IDI-01441 by 20 acres for the temporary storage of chert to be used for reclamation; and 4) utilize a geo-synthetic clay laminate liner (GCLL) in Panel G instead of the currently approved geologic store and release cover. The general location of the Project is shown on **Figure 1.1-1**. The Project Area is generally defined as the geographic area that includes the proposed disturbance footprints of the Project. Existing and proposed operations in relation to the Project Area are shown on **Figure 1.1-2**.

1.1.1 Background

Smoky Canyon mining and milling operations were authorized in 1982 by records of decision (RODs) issued by the BLM for the mine and reclamation plan (M&RP) and USFS for related off-lease activities. These authorizations were supported by the Smoky Canyon Phosphate Mine Final Environmental Impact Statement (FEIS). The original M&RP included mining and reclamation activities for five adjacent pits referred to as Panels A, B, C, D and E. Mining operations began in Panel A in 1984. As mining progressed through each mine panel, mine and reclamation operations were reviewed and the environmental effects assessed under the National Environmental Policy Act (NEPA). Supplemental M&RPs detailing the development and reclamation of each panel were approved with subsequent decisions made by the BLM for on-lease operations and by the USFS for operations conducted off lease. Mining operations are complete in Panels A, C, D, and E and those areas are currently undergoing reclamation.

In 2003, anticipating the need to meet market demand for phosphate and mine additional identified reserves, Simplot submitted a proposed M&RP to BLM for mining in Panels F and G. Panel F is contiguous with the south end of the existing mine and Panel G is located approximately one mile southwest of Panel F (**Figure 1.1-1**).

The BLM and USFS published the Smoky Canyon Mine, Panels F and G Final Environmental Impact Statement (2007 FEIS; BLM and USFS 2007) and issued RODs in 2008 approving the M&RP for Panels F and G subject to special conditions. Mining activities associated with Panel F were initiated in 2008 and are ongoing. Mining activities associated with Panel G have been initiated through haul road construction.

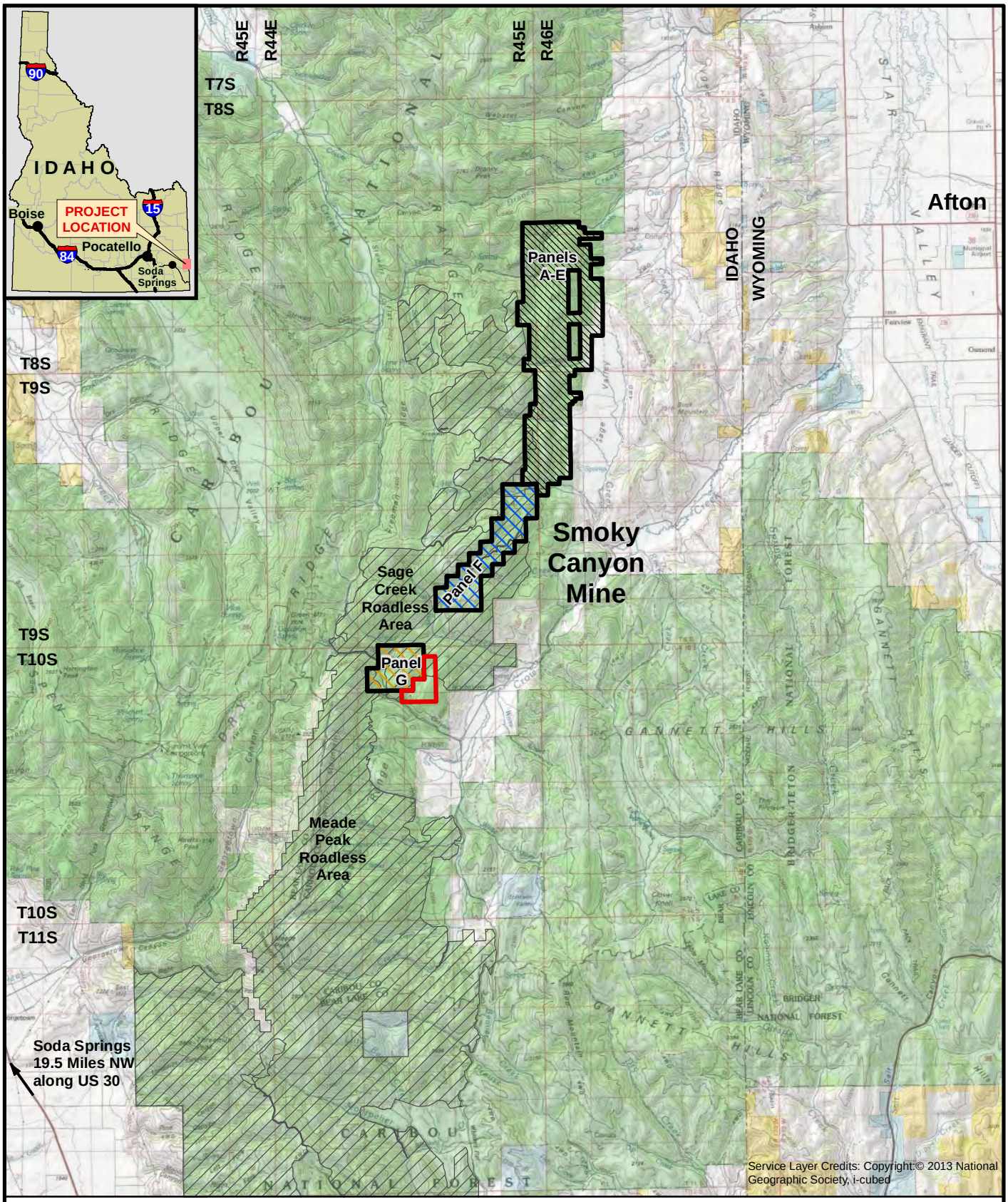
Simplot's original 2003 proposed M&RP included disposing of run-of-mine (ROM) overburden for Panel G in two ODAs located within the lease on the east and southwest side of Panel G. However, the environmental analysis indicated seleniferous overburden (i.e., a term used to describe overburden that contains selenium-bearing materials) stored in the southwest ODA (hereafter referred as the South ODA to remain consistent with the 2007 FEIS) had the potential to contaminate groundwater and impact a nearby spring. Simplot subsequently modified their proposal in 2005 to place seleniferous overburden in an ODA on the east side of Panel G and store only non-seleniferous material in the South ODA.

The potential impacts of the East ODA expansion onto 18 acres of off-lease National Forest System (NFS) lands were analyzed in the 2007 FEIS. However, at the time the 2008 RODs were issued, neither the BLM nor the USFS had the legal authority to approve the expansion. BLM regulations at 43 Code of Federal Regulations (CFR) 3510 did not provide for the modification of a lease for the purpose of permanently disposing of overburden, and overburden storage did not meet USFS special use authorization (SUA) screening criteria at 36 CFR 251.54(e)(ix). The BLM ROD recognized that the maximum ore recovery approved for Panel G would result in an East ODA too large to fit within the existing lease area, and that Simplot would either have to submit a new ODA design for BLM and USFS consideration prior to construction of Panel G or pursue a lease modification if regulations were to change in the future.

The BLM regulations (43 CFR 3510) were revised in 2009 to allow the modification of a lease for purposes of permanent disposal of overburden materials if specific criteria are met and, as anticipated by the 2008 BLM ROD, Simplot has applied for the current lease modification to accommodate the East ODA expansion which would allow for the maximum amount of ore to be recovered from their phosphate lease.

The proposed modifications to the existing approved Panels F and G mining operation would occur within the Caribou National Forest (CNF) portion of the CTNF on federal phosphate leases administered by the BLM. Portions of the ore conveyor system at Panel F and stormwater control features for Panel G would extend off lease on NFS lands.

The BLM is the lead agency for this EIS, the USFS is a joint lead agency, and the Idaho Department of Environmental Quality (IDEQ) is a cooperating agency (the Agencies). The Agencies will use this EIS to determine whether or not the mine plan modifications will be approved, the Panel G lease modified, and components off-lease authorized.



Explanation

- Smoky Canyon Mine
- Panel F (Lease IDI-27512)
- Panel G (Lease IDI-01441)
- Proposed Lease Modification Area
- Roadless Area

Land Ownership

- BLM
- Private
- State
- USFS

3 0 3 Miles

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Figure 1.1-1
General Project Area
Panel F & G Lease/Mine Plan Modifications EIS

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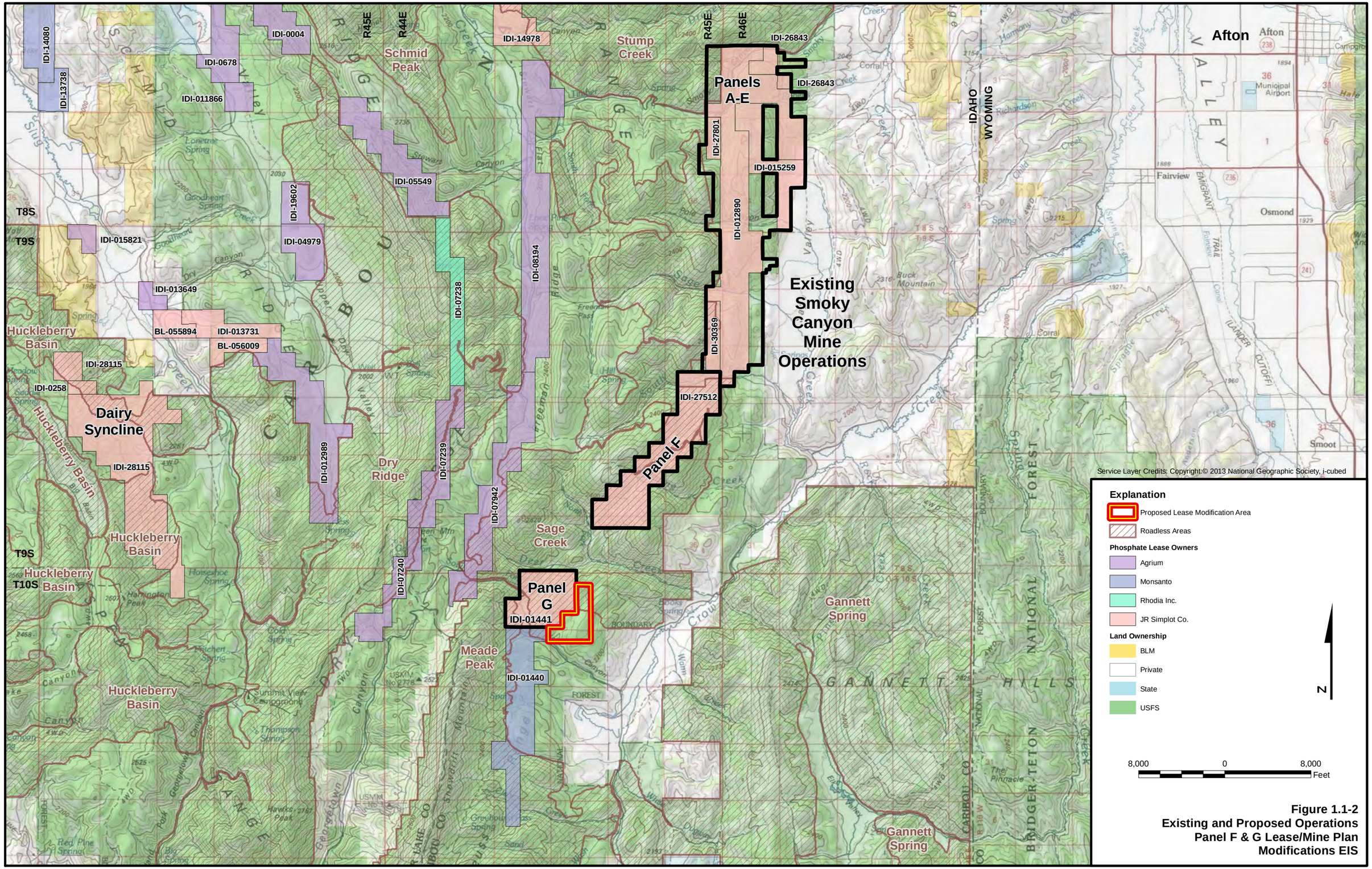

Figure 1.1-2
Existing and Proposed Operations
Panel F & G Lease/Mine Plan
Modifications EIS

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1.1.2 About This Document

This document follows regulations promulgated by the Council on Environmental Quality (CEQ) for implementing the procedural provisions of the NEPA (40 CFR 1500-1508), regulations promulgated by the Department of the Interior applicable to BLM for implementing the procedural provisions of the NEPA (43 CFR 46); regulations promulgated by USFS for implementing the procedural provisions of the NEPA (36 CFR 220); BLM's NEPA Handbook (H-1790-1), and the USFS Handbook of Environmental Policy and Procedures (FSH 1909.15). As directed by these regulations and handbooks, 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 to be analyzed. A compact disc (CD) version of the 2007 FEIS has been included as part of this EIS for ease of reference.

Chapter 1 describes the purpose of and need for the Smoky Canyon Mine Panels F and G Lease and Mine Plan Modification Project, the roles of the BLM and USFS, public participation in the EIS process, and general Project history.

Chapter 2 provides applicable background information on the Smoky Canyon Mine, including Panels F and G; describes existing and proposed operations; presents and compares alternatives to the Proposed Action; and lists potential mitigation actions to reduce or minimize impacts.

Chapter 3 summarizes the affected environment that is associated with the Proposed Action and Alternatives.

Chapter 4 details the environmental consequences that are associated with the Proposed Action and Alternatives.

Chapter 5 describes the potential cumulative impacts associated with the Proposed Action and Alternatives.

Chapter 6 describes consultation and coordination with state and federal agencies and provides a list of the EIS preparers.

Chapter 7 contains the public comments received in response to the Draft EIS (DEIS) and the agencies' responses to substantive comments.

Chapter 8 lists references cited in developing the EIS and provides a list of acronyms and abbreviations, a glossary of terms, and an index.

1.2 PURPOSE AND NEED

The purpose of the proposed federal actions for the BLM and the USFS is to evaluate and respond to Simplot's proposed lease and mine plan modifications for Panels F and G at the Smoky Canyon Mine (Simplot 2013). The lease modification would enlarge existing lease IDI-01441 to accommodate expansion of the East ODA, without which Simplot would be unable to maximize ore recovery in Panel G. The ore conveyance system would allow for more economic and efficient transport of ore from Panels F and G to the existing mill for beneficiation.

The need for the proposed federal actions for the BLM and the USFS is to evaluate Simplot's proposal pursuant to applicable laws and regulations. The BLM is required to evaluate mining proposals and issue decisions related to the phosphate leases, as directed by the Mineral Leasing Act of 1920. This includes ensuring economically viable development of the phosphate resources, in accordance with federal law and regulations governing federal leases, including the requirement for ultimate maximum recovery (43 CFR 3594.1), and allowing the lessee to exercise its right to develop the lease. Such is the case for consideration of whether to enlarge lease IDI-01441. USFS authorization is required for operations related to the Project located outside of the phosphate lease boundaries on NFS lands, such as portions of the ore conveyor and stormwater features associated with the proposed GCLL. The USFS must determine whether and how to authorize these operations. Since the on-lease operations would occur on NFS lands, the USFS is a joint lead agency in the analysis of potential effects to those lands, and the BLM has consulted with the USFS in completing the effects analysis for on-lease operations.

1.3 AUTHORIZING ACTIONS

1.3.1 Federal Decisions to be Made

The BLM and the USFS will make separate but coordinated decisions related to Simplot's proposed Panels F and G Lease and Mine Plan Modification Project. Decisions will be based on the EIS and applicable laws, regulations, and policies. The BLM will approve, approve with modifications, or deny the proposed lease and mine plan modifications. BLM's decision will consider any recommendations the USFS may have regarding surface management and mitigation of leased NFS lands. The USFS will make decisions regarding SUAs for off-lease disturbances/structures located within the CTNF and associated with the Proposed Action (e.g., stormwater control features and portions of the ore conveyor system).

1.3.2 Permits, Approvals, and Consultations

The existing and proposed mining operations must comply with laws and regulations for mining on public land. In addition to the BLM and USFS, other federal, state and local agencies have jurisdiction over certain aspects of the proposed Project and any potential action alternatives. **Table 1.3-1** lists the agencies and identifies their respective authorization or oversight responsibilities. Since mining activities for Panels F and G are already approved, some of the permits and approvals listed in the table have already been obtained or are existing and would need to be modified and/or amended as applicable to the proposed Project.

Table 1.3-1 Agency Involvement and Potential Affirmative Actions Required for the Smoky Canyon Mine, Panels F and G Lease and Mine Modification Project

ACTION	NATURE OF ACTION	APPLICABLE PROJECT COMPONENT	ANTICIPATED RESOLUTION
BLM			
M&RP Modification	Authority under the Mineral Leasing Act and compliance with 43 CFR 3590.2a, 3592.1a and applicable federal land use plans	Activities affecting federally leased mineral resources	The BLM will issue a ROD to approve or deny the M&RP modification
Lease Modification	Authorize expansion of existing lease boundaries in compliance with 43 CFR 3510	Expansion of existing federal phosphate lease IDI-01441	The BLM will issue a ROD to approve or deny the lease modification
Government to government consultation with the Shoshone-Bannock Tribes	Consultation with the Fort Hall Business Council of the Shoshone-Bannock Tribes is required on land management activities and land allocations that could affect treaty rights	All Project components	Consultation with the Fort Hall Business Council of the Shoshone-Bannock Tribes as required by law will continue throughout the EIS process
USFS			
Special use authorization	Required for surface disturbance on NFS lands off-lease	Off-lease portions of the Panel F ore conveyor system and Panel G stormwater features	The USFS will issue a ROD to approve or deny for SUAs of off-lease activities
Recommendation to BLM	Under the Mineral Leasing Act, the USFS makes recommendations to the BLM regarding mineral leasing and development activities on federal mineral leases with respect to compliance with the forest land use plan and other forest management concerns (these recommendations do not constitute or imply a permit or USFS decision)	Lease and M&RP modification approval	USFS recommendations issued to BLM after availability period for final EIS
Consultation with the Idaho State Historic Preservation Office (SHPO) for Section 106 Compliance	Protects cultural and historical resources under the National Historic Preservation Act	All ground disturbing activities, both on and off lease	SHPO concurrence required prior to issuance of USFS and BLM RODs
Government to government consultation with the Shoshone-Bannock Tribes	Consultation with the Fort Hall Business Council of the Shoshone-Bannock Tribes is required on land management activities and land allocations that could affect treaty rights	All Project components	Consultation with the Fort Hall Business Council of the Shoshone-Bannock Tribes as required by law will continue throughout the EIS process

ACTION	NATURE OF ACTION	APPLICABLE PROJECT COMPONENT	ANTICIPATED RESOLUTION
Consultation with the U.S. Fish and Wildlife Service (USFWS) for Endangered Species Act (ESA) compliance	As per Section 7 of the ESA, a biological assessment is submitted to the USFWS and consultation is conducted	Any on or off lease activity, such as displacement or habitat disturbance, potentially affecting listed or proposed threatened or endangered species	USFWS concurrence with determination of impacts required prior to issuance of USFS and BLM RODs
Evaluation of compliance with the Migratory Bird Treaty Act	Protects migratory birds	All surface disturbing activities, both on and off lease	USFS will evaluate and ensure compliance via required mitigation measures incorporated in the USFS and BLM RODs
Evaluation of compliance with the Bald and Golden Eagle Protection Act	Protects bald and golden eagles	All surface disturbing activities, both on and off lease	USFS will evaluate and ensure compliance via required mitigation measures incorporated in the USFS and BLM RODs
U.S. Environmental Protection Agency (EPA)			
National Pollution Discharge Elimination System (NPDES) Multi-Sector General Permit	Protects quality of surface waters from stormwater discharge under the Clean Water Act	Stormwater Pollution Prevention Plan (SWPPP)	Simplot will revise their SWPPP under the existing NPDES permit to include applicable features after the USFS and BLM RODs are issued; no new or amended permit anticipated
IDEQ			
Air quality permit	Release of air pollutants in compliance with the existing Smoky Canyon Mine permit	Elements that contribute to air quality issues, such as blasting, hauling, or crushing	Required air approvals for existing property already in hand; IDEQ determined in April 2013 that the proposed conveyor system meets permit to construct exemption requirements
401 Certification	Water quality certification required for NPDES	SWPPP	Existing waiver will be amended or certification issued by IDEQ after the USFS and BLM RODs are issued
Idaho Department of Water Resources (IDWR)			
Stream channel alteration permit(s) for road crossings	Protection of perennial stream channels	Potential stream crossings related to Panel G stormwater features	Simplot will apply to IDWR for permit(s) after the USFS and BLM RODs are issued

ACTION	NATURE OF ACTION	APPLICABLE PROJECT COMPONENT	ANTICIPATED RESOLUTION
Idaho Department of Lands (IDL)			
Coordination with the BLM and USFS for the M&RP modification	IDL permit required for all surface mining activities in Idaho	M&RP modification approval	The IDL will approve or deny permit in coordination with the BLM and USFS RODs

The U.S. Army Corps of Engineers (Corps) exerts regulatory jurisdiction over waters of the U.S. (WOUS), including wetlands, pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344). Section 404 of the Clean Water Act requires a Corps permit be obtained prior to discharging dredged or fill material into WOUS, which includes most perennial and intermittent rivers and streams, natural and man-made lakes and ponds, irrigation and drainage canals and ditches that are tributaries to other waters, and wetlands. Simplot currently maintains Corps permits for activities previously approved at Panels F and G. Since no impacts to waters of U.S., including wetlands are planned from this Project, no amendment or revision to the existing permit for Panel G is anticipated.

The enforcement of federal laws that protect migratory birds and endangered species lies with the USFWS. Compliance with those laws is the obligation of the land management agencies (BLM and USFS) and the proponent (Simplot). The USFWS will review a BA for listed plant and animal species prepared by the USFS for both the on and off lease portions of the agency-preferred alternative. The USFWS will conduct consultations with the land management agencies as they deem necessary and provide direction as required for protection of species within their regulatory authority.

Simplot's existing and current EPA NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity would be maintained and updated as needed.

1.4 RELATIONSHIP TO AGENCY AND OTHER POLICIES AND PLANS

1.4.1 Federal Land Management Plans

The Project has been specifically reviewed and determined to be in compliance with agency policies, plans, and programs. The BLM Record of Decision and Approved Pocatello Resource Management Plan (RMP; BLM 2012) states leasable minerals on the CNF will be managed consistent with that Forest Plan. The USFS CNF Revised Forest Plan (RFP), which guides land use developments and activities in the Project Area, which recognizes phosphate mining as an appropriate use of NFS lands in this portion of the CNF. The approach for active phosphate leases in the RFP (USFS 2003a) is to incorporate best management practices (BMPs) into the conditions of approval for site-specific M&RPs, and to allow for developments in research and technology over time to be incorporated into the prescribed practices and monitoring systems. A more detailed description of the RFP management prescriptions in this area is included in Section 1.3.1 of the 2007 FEIS (BLM and USFS 2007).

1.4.2 Inventoried Roadless Areas Management on the CTNF

The Sage Creek and Meade Peak Inventoried Roadless Areas (IRAs) are present in the Project Area. Idaho Governor James Risch presented a petition for rulemaking under Section 553(e) of the Administrative Procedures Act on behalf of the State of Idaho on November 29 and 30, 2006. That proposal, the Idaho Roadless Rule, designated a system of lands titled Idaho Roadless Areas and established five management themes for individual roadless areas: Wild Land Recreation; Primitive; Special Areas of Historic and Tribal Significance; Backcountry/Restoration; and General Forest, Rangeland, and Grassland. In August 2008, the Roadless Area Conservation, National Forest Lands in Idaho Final Environmental Impact Statement (USFS 2008) was issued, and the Final Rule and Record of Decision on Idaho Roadless Area Conservation were published in the Federal Register on October 16, 2008. The October 16, 2008 final Idaho Roadless Rule is currently the law of the land in Idaho.

The USFS presented the Project to the Idaho Roadless Commission on March 13, 2013 and no issues were identified. The Project would be in compliance with the Idaho Roadless Rule.

1.5 PUBLIC SCOPING

The proposed Smoky Canyon Mine Panels F and G Lease and Mine Modification Plan was submitted to the BLM and CTNF on January 31, 2013. The Notice of Intent (NOI) to prepare an EIS for the Project was published in the Federal Register on June 24, 2013. A copy of this NOI is included in the Public Scoping Summary Report, Smoky Canyon Mine Panels F and G Lease and Mine Modification Project Environmental Impact Statement (Scoping Report; JBR 2013a). Legal notices announcing the Agencies' request for public scoping comments for the Project were published in newspapers in Afton, Wyoming (June 26, 2013) and Pocatello, Idaho (June 27, 2013). A news release was submitted to 28 television stations, radio stations, and newspapers on June 24, 2013 and Project information was posted on BLM and USFS planning websites.

A public mailing list was compiled and 81 scoping letters sent to federal, state, and local government agencies, and members of the interested public. Three public meetings were held: one at the Civic Center in Afton, Wyoming, on July 10, 2013; one at the BLM Pocatello Field Office in Pocatello, Idaho, on July 11, 2013; and one at the Shoshone-Bannock Hotel Event Center in Fort Hall, Idaho, on July 12, 2013. The open house style meetings provided a description of the Project, maps and photo displays of the Project Area, and a forum for exchange of information and ideas or concerns related to the Project. Comment forms were available at the meetings and agency, proponent, and consultant representatives were present to answer questions as needed.

Public comments regarding the Project were solicited and compiled in the Scoping Report (JBR 2013a) to help determine the issues and alternatives for evaluation in the environmental analysis. By the close of the scoping period on July 26, 2013, six comment letters, one comment form, and one telephone call had been received for the Project. One internal comment regarding the proposed stormwater management plan was also included as part of the Scoping Report. Comments were submitted by agencies, entities, and interested citizens. A complete list and copies of all written comment letters, forms, and e-mails can be found in the Scoping Report (JBR 2013a).

Preliminary concerns identified included potential effects of the Project on IRAs, water quality, wetlands, wildlife and fishery habitats, livestock grazing, soils, air quality, socioeconomics, private property values, forested areas, recreation, development of BMPs for mine operations, and 1868 Fort Bridger Treaty rights.

1.6 TRIBAL TREATY RIGHTS AND NATIVE AMERICAN CONSULTATION

The Shoshone-Bannock Tribes have ancestral Treaty Rights to uses of the CTNF. The relationship of the U.S. government with Native American tribes is based on legal agreements between sovereign nations. The Fort Bridger Treaty of July 3, 1868, granted hunting, fishing, and gathering rights to tribal members on "all unoccupied lands of the United States so long as game is present thereon." This right applies to all public domain lands reserved for National Forest purposes that are presently administered by the CTNF. On ceded lands, the Tribes have also retained the right to graze domestic livestock. These rights are still in effect, and management actions recognize these rights. USFS managers have a responsibility to ensure consideration of those resources essential for the Tribes to exercise their treaty rights. Treaty rights are governed by the law of the United States as set forth by the U.S. Supreme Court. Consultation with the Fort Hall Business Council of the Shoshone-Bannock Tribes is required on land management activities and land allocations that could affect these rights. A more complete description of the Native American consultation process is provided in Sections 1.5, 3.14, and 4.14 of the 2007 FEIS.

BLM and USFS staff met with Shoshone-Bannock Tribal staff on February 20 and December 2 in 2013 to provide descriptions of the Project and discuss items of concern. A certified letter was sent to the Tribe Business Council Chairman on June 24, 2013 to describe the proposed Project and provide notice of the public meetings, one of which was held at the Shoshone-Bannock Hotel Event Center on July 12, 2013. Formal government to government consultation was conducted on January 23, 2014. Consultation with the Tribes as required by law will continue throughout the EIS process.

1.7 ISSUES

The issues to be evaluated in this EIS are derived from the Scoping Report (JBR 2013a). That document summarized the comments received during scoping from agencies and the public into categories, which became the basis for defining issues.

Pursuant to CEQ NEPA regulations (40 CFR 1501.8), it is through the scoping process that the lead agency (a) determines the scope and significant issues to be analyzed in depth in the EIS and (b) identifies and eliminates from detailed study the issues that are not significant, narrowing the discussion of such issues to a brief presentation in the EIS as to why they will not have a significant effect on the human environment. In brief, the scoping comments must be reviewed to determine the significant issues in the context of NEPA and for preparing an EIS.

During the EIS scoping period, a total of eight comments were received. Contained within those eight comments, 89 issues were identified and categorized into the 21 main issue categories shown in **Table 1.7-1**. In addition to the comments received from the external scoping process, internal scoping identified either similar issues listed in **Table 1.7-1** or additional issues covered in this EIS.

Table 1.7-1 Number of Scoping Comments Received by Issue

ISSUE CATEGORY	NUMBER OF ISSUES RECEIVED BY CATEGORY
Purpose and Need	1
Project History	1
Proposed Action	15
Alternatives to the Proposed Action	3
Monitoring and Mitigation	3
Reclamation and Financial Assurance	3
General Comments	4
Air Resources and Climate Change	3
Noise	4
Water Resources including Watersheds	18
Selenium	12
Vegetation	1
Wetlands and Riparian Areas	6
Threatened and Endangered Species	1
Roadless Areas	3
Native American Concerns	1
Social and Economic Resources	4
Transportation	2
Visual Resources	1
Cumulative Effects	2
Irreversible and Irretrievable Commitment of Resources	1
TOTAL	89

Issues raised and identified during scoping are summarized in **Table 1.7-2**. The table also identifies in which section of the EIS the issue is addressed. A complete summary of issues identified during scoping, including those issues that may not be specifically addressed in this EIS, is provided in the Project Scoping Report (JBR 2013a).

Table 1.7-2 Summary of Issues from Scoping

ISSUES	WHERE ADDRESSED IN EIS*
General:	
• The Agencies must thoroughly evaluate the potential impacts to water quality and quantity, fish and wildlife and their habitats, and inventoried roadless areas.	Chapter 4
• The analysis should evaluate the impact that the increased footprint would have on water quality, native vegetation and wildlife habitat and about the permanent storage of seleniferous material in these areas.	Chapter 4
• The analysis should identify existing disturbance from mine activities.	Chapter 5
Purpose and Need:	
• The purpose and need statement should specify that water quality and quantity, wildlife (including Yellowstone cutthroat trout) and their habitats, and roadless area values are protected or enhanced.	*
Project History:	
• The Agencies should reconsider their 2008 RODs and require cleanup action by Simplot before any mining takes place at Panel G.	*
Proposed Action:	
• The EIS description of the Proposed Action should clearly explain the lease enlargement acreage and benefits of the GCLL compared to the previously approved cover.	Chapter 2
• The Proposed Action should include placement of GCLL technology in the Pole Creek Diversion and Panels A, D, and E, which continue to fail compliance with the original EIS.	*
• If access is still needed for ore trucks on the haul road in conjunction with the conveyor system, the Agencies should consider a one-lane road with turnouts and improved communications to transport trucks as needed.	Chapter 2
• The analysis should consider the long-term effectiveness, design life, and operations and maintenance obligations associated with use of the GCLL cover systems.	Chapter 2 and Chapter 4
• Given the long amount of time the GCLL layers would be required to function according to specifications, the GCLL should be overlapped with a sufficient safety margin to account for potential separations due to solifluction, ground creep, and other types of mass movement.	Chapter 2
• Natural plant colonization should be a long-term component of the GCLL and other surface coverings. Vegetation such as Douglas fir and aspen may have the ability to penetrate the GCLL with their root systems, and those species may eventually colonize some sites covered by the GCLL. The GCLL should be designed to withstand tree colonization, root penetration, and tree toppling in the form of root tip ups.	Chapter 2
• Additional drainage/protective material and armoring may be necessary in zones of net soil loss where erosive forces may prevail.	Chapter 2 and Chapter 4
• The depth to the GCLL should be correlated to the maximum tree height potential for each site, based on slope, aspect, and soil type.	Chapter 2
• The impermeable layer must have a functional lifespan as long as or longer than the Contaminants of Potential Concern need to be isolated.	Chapter 4
• The Agencies should still assume that selenium contamination will occur even with the infiltration barrier and require ground and surface water treatment facilities at the bases of the disposal sites or enhanced anoxic attenuation in pit backfills.	Chapter 2

ISSUES	WHERE ADDRESSED IN EIS*
• Individual pond catchment run-off volumes need to be calculated to ensure ponds are sized appropriately. Future design details need to address ditch sizing, dimensions, and armoring. Also, when a series of ponds are used to handle calculate runoff the outflow design details will need to be included for review.	Chapter 2 and Chapter 4
Alternatives to the Proposed Action, Mitigation/Monitoring, and Reclamation/Financial Assurance:	
• Reasonable alternatives might include a more limited use of GCLL, no additional use of roadless areas or a land exchange to ensure no net loss of roadless areas, the expansion of the conveyor system to Panel G, a more limited area of mining of Panel G in order to keep the mine disturbance footprint limited to what was approved by the 2008 RODs, and/or no mining of Panel G until Simplot takes the necessary remedial actions to clean up selenium contamination resulting from its past mining operations at Smoky Canyon Mine.	Chapter 2
• Alternatives need to be considered if there will be impacts to WOUS, including wetlands.	Chapter 2 and Chapter 4
• The Agencies should require a monitoring plan to assess the effectiveness of the GCLL and other components throughout time – in perpetuity.	Chapter 2 and Chapter 4
• If the GCLL is functioning appropriately, groundwater quantity will be decreased in that area. The Agencies should mitigate for this decrease by either rechannelizing water back into this drainage if possible or through new restoration activities to increase hydrologic functioning in the area.	Chapter 2 and Chapter 4
• The amount and viability of financial assurance are key factors in a discussion of whether mitigation will be implemented. The amount and viability of financial assurance are critical factors in determining the effectiveness of reclamation and closure activities and, therefore, the significance of the environmental impacts.	Chapter 2
• We recommend that the NEPA analysis disclose the estimated cost to reclaim and close the site in a manner that achieves reclamation goals and post-mining land use objectives. The proposed financial assurance mechanisms should be identified. The analysis should disclose costs associated with implementing the reclamation plan, as well as costs associated with implementing contingency measures to deal with reasonably foreseeable but not specifically predicted outcomes.	Chapter 2
Air Resources and Climate Change:	
• The EIS should examine current climate change models and assess how predicted changes will affect the environmental effects of each alternative.	Chapter 4
• The analysis should consider the potential effect of the proposed Project on climate change and the effect of climate change on the proposed Project.	Chapter 4
• The EIS should analyze how the Project would impact overall diesel emissions from the haul road.	Chapter 4
Noise:	
• The EIS should disclose noise levels associated with the proposals, how noise levels would be monitored, and what input neighbors would have in determining acceptable noise levels.	Chapter 4

ISSUES	WHERE ADDRESSED IN EIS*
Water Resources including Wetlands:	
• Water routing, timing, evaporation, pond infiltration and stream hydrographic configuration (peak, volume, etc.) would be affected by the proposed GCLL, ditches, and catchment ponds. The EIS should portray watershed scale impacts, specifically showing the percentage of Wells Canyon and Deer Creek being altered by the GCLL, ditches, and ponds.	Chapter 4
• Failure to accurately design and implement effective runoff containment as a result of the utilization of a GCLL could create tremendous water quality issues throughout the entire Crow Creek watershed. The EIS should analyze the potential for increased runoff from the site, which may increase substantially due to the changed liner, which could reduce seepage over a large area and therefore generate more runoff. The analysis should demonstrate that the runoff design is robust enough to handle the peak runoff water loads.	Chapter 4
• The EIS should analyze the effects of the different seepage amounts flowing to Deer Creek, Books Spring, and the springs in Wells Canyon that will result from the proposed mine modifications as opposed to what was analyzed in the 2007 EIS. The analysis should include reliable modeling that discloses the seepage location and how that may affect Deer Creek and the locally important Books Spring.	Chapter 4
• Seepage and load could change because the area of seleniferous overburden stockpile will increase.	Chapter 4
• The use of a GCLL could cause recharge from runoff downhill of the dump to create a groundwater mound that then seeps back into the waste, causing a contamination problem that then manifests itself as the groundwater discharges into area surface waters.	Chapter 4
• Flows to Deer Creek and Crow Creek are likely to decrease based on covering such a large area with a GCLL.	Chapter 4
• The Agencies should consider increasing the depth of the growth media and expanding the type of vegetation on the GCLL to help address concerns about increased peak flows due to the GCLL. The Agencies should not rely on vegetation alone because a drought or wildfire could dramatically affect the vegetation's transpiration rate. Additional wetlands or aspen colonies could be established in drainage areas next to the GCLL.	Chapter 4
• The EIS should analyze the quality of groundwater and surface water in the Project Area resulting from current and proposed activities, and disclose surface water quality on site including any impaired/303(d) listed water bodies.	Chapter 4
• There is also potentially significant new information resulting from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) investigation regarding water resources at the site that should be considered in the EIS when disclosing current conditions, direct/indirect impacts, and cumulative effects.	Chapters 2, 3, 4, and 5 Chapter 1 and Chapter 4
• In the event that existing and/or proposed mine activities result in a direct discharge to WOUS, a Clean Water Act National Pollutant Discharge Elimination System permit would be required.	
• Because contamination generated from the Smoky Canyon Mine has impacted groundwater and surface water, the EIS should discuss the connection of groundwater to surface water, and state whether or not a direct hydrologic connection exists that results in a discharge of mine	Chapter 2 and Chapter 4

ISSUES	WHERE ADDRESSED IN EIS*
wastewater to surface water. • The water balance should be tied to characterization of the hydrogeologic setting through a site-wide water balance and state whether and how the plans will be revised for the mine expansion. • The adequacy, reliability, and operational uncertainty associated with proposed water management techniques over the range of operating and climatic conditions should be considered in the analysis. • The analysis should show changes in drainage contribution due to changes in Pit and ODA topographic configuration for Wells Canyon and Deer Creek, and disclose whether the topographic configuration changes are causing more or less precipitation to be contributed to Wells Canyon or Deer Creek.	Chapter 4 Chapter 4 Chapter 4
Selenium: • Simplot should be required to comply with the previous remediation agreements and complete the remediation to the agreed-upon selenium release standards. • The analysis should determine if the mining of Panels F and G would result in similar violations of federal and state selenium concentrations in the Clear Creek, Deer Creek, and Manning Creek watersheds and then ultimately into Crow Creek. • The analysis should specify what selenium discharge standards for the Deer Creek, Manning Creek, or Clear Creek watershed that Simplot would be held to. • The EIS should specify the experience the BLM, FS, and EPA have with the GCLL technique as it pertains specifically to selenium discharges at similar mining sites. • The diversion of Pole Canyon Creek around the cross-valley fill placed in Pole Canyon did not result in significant abatement of selenium in the Sage Creek drainage. • The EIS should specify what additional steps would be taken by the Agencies to protect water quality.	Chapter 4 Chapter 2 and Chapter 4 Chapter 4 * Chapter 2 and Chapter 5 Chapter 4
Vegetation: • Vegetation modeling should be informed by climate models.	*
Wetlands and Riparian Areas: • The Corps have preliminarily determined that as currently proposed Simplot's Project my involve work requiring a Department of Army authorization. The Project has the potential to be permitted as a modification of Simplot's U.S. Army Corps of Engineers permit(s) for development of Panel G and/or Panel F at the Smoky Canyon Mine. • The Project may impact "Wells Canyon", "Nate Canyon", and several unnamed streams, including wetlands, as well as upland areas, not previously addressed. • The Project proponent will need to provide a jurisdictional delineation of the modified Project Area for areas not previously surveyed. • The EIS should discuss how Clean Water Act Section 404 requirements for wetlands would be met, if there are activities that could have potential impacts to adjacent wetlands or indirect impacts to wetlands such as hydrologic changes due to increases in impervious surface will be evaluated. • The analysis should consider opportunities to restore stream/riparian function.	Chapter 1 and Chapter 4 Chapter 4 Chapter 4 Chapter 1 and Chapter 4 Chapter 2 and Chapter 4

ISSUES	WHERE ADDRESSED IN EIS*
TES Species: • Deer Creek and Crow Creek are important strongholds for the Yellowstone cutthroat trout.	Chapter 3
Roadless Areas: • The Idaho Roadless Rule FEIS requires full analysis of the effects of this current proposal on the Sage Creek and Mead Peak IRAs in the EIS. The EIS should evaluate the loss of another 70 acres of roadless areas to the damage caused by open pit phosphate mining. • The Sage Creek and Meade Peak Inventoried Roadless Areas provide important habitat for a wide range of wildlife species, including but not limited to elk, moose, deer, cavity-nesting birds, passerine species, and amphibians.	Chapter 4 Chapter 3
Native American Concerns: • The analysis should consider whether or not the proposed Project would affect tribal natural and/or cultural resources and address any concerns of the tribes in accordance with federal tribal trust responsibilities.	Chapter 4
Social and Economic Resources: • 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.	Chapter 3
Transportation and Traffic: • 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.	Chapter 2 and Chapter 4
Visual Resources: • The EIS should determine if the mine could be viewed from an off-site location.	Chapter 4
Cumulative Effects: • The cumulative effects analysis should include the ongoing selenium contamination of groundwater and the Sage Creek watershed, as well as Tygee Creek and its tributaries, resulting from previous mining at the Smoky Canyon Mine. In addition, the analysis should include the effects of the tailings impoundments, Panels A, D, and E, and the Pole Canyon cross-valley fill.	Chapter 2 and Chapter 5
Irreversible and Irretrievable Commitment of Resources: • The Project represents an irretrievable and irreversible commitment of resources. These permanent changes include landscape features such as pit walls and waste rock piles, altered drainage boundaries and flows, and potentially increased selenium levels requiring water treatment in perpetuity.	Chapter 4

***Please Note:** Some issues received during public scoping and listed in the table were determined to be out-of-scope for this analysis; therefore, they did not result in any changes in the EIS because the issue is not relevant or not appropriate to the NEPA analysis for this specific Project.

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CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

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CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter provides background information on Simplot's existing operations at the Smoky Canyon Mine, Simplot's Proposed Action, and alternatives to the Proposed Action. This includes alternatives that were considered and/or eliminated from detailed analysis, the No Action Alternative, and the Agency Preferred Alternative. The proposed changes to the mining operations of Panels F and G include addition of a conveyor system to transport ore from Panel F to the mill, modification of an existing lease to accommodate the expansion of the previously approved Panel G East ODA, increase of the on-lease disturbance area of the previously approved Panel G South ODA, utilization of a GCLL on Panel G, and implementation of on- and off-lease stormwater control measures related to the GCLL.

Alternatives considered in the EIS are based on issues identified by the BLM and the USFS, and comments received during the public scoping process. The alternatives were developed to reduce potential impacts associated with Simplot's Proposed Action. The Agency Preferred Alternative was identified by the Agencies after comparing predicted environmental impacts associated with all of the alternatives.

2.2 PROJECT HISTORY

2.2.1 Background

Simplot has been involved in phosphate mining in Southeastern Idaho since 1945. As described in **Section 1.1.1**, Simplot began extracting phosphate ore from deposits located on federal land at its Smoky Canyon Mine in eastern Caribou County, Idaho in 1984. The operation has included mining with standard open pit techniques in six mine panels (Panels A-F; mining of Panel G is authorized but has not yet commenced) and then concentrating the phosphate content of the ore in an onsite mill. The concentrate is pumped through a buried pipeline to Simplot's existing fertilizer manufacturing plant (Don Plant) in Pocatello, Idaho. Tailings from the Smoky Canyon milling operation are disposed in two on-site permitted tailings disposal ponds located on private land owned by Simplot.

2.2.2 Past Environmental Impact Reviews

There have been a number of environmental reviews conducted under NEPA for the Smoky Canyon Mine property and operations.

The first EIS for the Smoky Canyon Mine was prepared in 1981 by the U.S. Geological Survey, then in charge of administering phosphate mining, in conjunction with the USFS. This initial EIS was followed by numerous NEPA documents examining the environmental impacts of various components and expansions of the mine. Ultimately, mining of Panels A through E was authorized.

Leasing, lease modifications, and exploration activities in Panels F and G (also known as the Manning Creek and Deer Creek lease areas) were analyzed between 1994 and 2005 through several EA and EIS documents. Decisions based on these NEPA documents authorized the current leases and associated past exploration activities on these properties.

The mining of Panels F and G was authorized by the 2008 RODs issued upon the completion of the 2007 FEIS, which thoroughly evaluated potential effects on resources such as threatened, endangered, and sensitive species; water resources; IRAs; Native American concerns and treaty rights resources; as well as effects from selenium.

2.3 EXISTING OPERATIONS AND CERCLA STUDIES

2.3.1 Existing Operations

Figures 1.1-1 and **1.1-2** show the location and land ownership in and around the Smoky Canyon Mine. Section 2.3 of the 2007 FEIS contains detailed information about the Smoky Canyon Mine including descriptions of location, land ownership, facilities, mining operations, water management, mill and tailings operations, reclamation activities and mine closure, hazardous materials, petroleum management, hazardous waste, and safety.

The current Smoky Canyon Mine operations and facilities provide the infrastructure needed for mining Panels F and G. All necessary facilities, utilities, equipment, staff, and procedures are present and/or approved to recover the phosphate ore reserves in Panels F and G. The ore in the panels is readily accessible to the existing operations through the extension of the mining operation toward the south along the trend of the ore bodies. Mining currently underway in Panel F is being conducted as described in the 2007 FEIS, incorporating the environmental controls as described in Section 2.5 of that document. Ore is presently transported by haul trucks to the existing Smoky Canyon mill for beneficiation. Ongoing access to the operations for personnel and supplies is through the existing Smoky Canyon facilities.

The 2007 FEIS and 2008 BLM and USFS RODs authorizing mining of Panels F and G provide detailed information about that phase of mining activity. The 2008 RODs authorized the backfilling of Panel E with overburden from Panel F and the associated construction of the haul road between Panels E and F. Mining of Panel F commenced in 2009 and the initial overburden was backfilled into Panel E. Construction of the geologic store and release cover on Panel E was complete in 2013. Mining of Panel F is in progress (see following photo) and will continue for several years.

2.3.2 CERCLA Studies and Remediation

The CERCLA, legislated by Congress in 1980 and amended in 1986, was enacted to respond to pollution and the threats posed to human health and the environment resulting from the release, or imminent threat of a release, of Clean Water Act hazardous substances. CERCLA provides that the parties responsible for the pollution pay the costs to investigate and remediate contaminated sites, and that an orderly investigation is conducted.

Photograph of Mining at Panel F
(taken 10/29/13, looking southeast)

Beginning in 1996, livestock deaths associated with selenium poisoning were identified at a phosphate mine other than the Smoky Canyon Mine in Southeastern Idaho. The livestock deaths associated with selenium poisoning prompted response by the regulatory agencies, the phosphate mining members of the Idaho Mining Association, tribal agencies, and other stakeholders. In 2000, many of these parties entered into an Area-Wide Administrative Order on Consent (AOC) to further evaluate and address area-wide and site-specific human health and ecological risks related to past phosphate mining in Southeastern Idaho. Signatory agencies involved in the Area-Wide AOC include IDEQ, BLM, USFS, EPA, and Bureau of Indian Affairs (BIA). This agreement also included a process for separate AOCs at specific mining properties that would describe the approach to conducting site investigations (SIs) and Engineering Evaluations/Cost Analyses (EE/CAs) that would lead to removal actions necessary for remediation of environmental contamination from existing mining disturbances.

Concentrations of selenium in water sources in the vicinity of Smoky Canyon Mine began increasing in 1995, and this upward trend continued through testing reported in the 2007 FEIS. Simplot entered into AOCs for the Smoky Canyon Mine with federal and state agencies. The subsequent SI determined that selenium and other hazardous substances are being released from portions of the Smoky Canyon Mine into the environment. The SI found that rock mined as overburden provided the sources for releases. Most of these mine facilities were constructed prior to the discovery of selenium releases. Since discovery, mining companies and the regulatory oversight agencies have worked to understand release mechanisms and to develop best management practices to prevent releases.

The Agencies continue to work with Simplot to remediate selenium issues at the Smoky Canyon Mine. The EE/CA for Smoky Canyon Mine (Panels A, B, C, D, and E and their associated mining operations) was written in May 2006. Part 1 of Appendix 2A of the 2007 FEIS addressed the findings of the SI with regard to the Pole Canyon ODA contribution to increased selenium levels in Hoopes Springs and Sage Creek, and proposed removal action efforts. A separate report included in Part 2 of Appendix 2A addressed the reclamation and other actions proposed for the Panel E operations to reduce selenium concentrations at South Fork Sage Creek Springs. The CERCLA removal action specified for the Pole Canyon ODA was initiated in the fall of 2006.

Any potential water quality impacts related to the Smoky Canyon Mine are currently under CERCLA investigation. As of the writing of this EIS, the Smoky Canyon Mine is currently the subject of an Administrative Settlement Agreement and Order on Consent/Consent Order for Remedial Investigation/Feasibility Study (RI/FS) entered into by Simplot and the USFS, EPA, and IDEQ. The USFS is the lead agency, and the EPA, USFWS, BLM, IDEQ, and the Shoshone-Bannock Tribes have elected to participate as support agencies. The RI component is intended to document the nature and extent of contaminants (primarily selenium) at the Smoky Canyon Mine, as well as to determine the potential for, or implications of, release of those contaminants. The FS component is intended to evaluate various means to prevent, mitigate, or remedy such contamination. Formation Environmental (2014) issued a Revised Draft RI/FS Report (RI/FS Report) that (1) presents and summarizes data collected to date, (2) describes the fate and transport of contaminants using selenium as an indicator, and (3) presents key findings that will influence the direction taken in remediation plans. Appropriate future remedial actions will be determined based on the findings of the remedial investigation currently underway.

While remediation actions have been taken and will continue into the future for the Smoky Canyon Mine, they have no bearing on the previously approved mining operations at Panels F and G. Further, the mining of Panels F and G has no connection to existing water quality impacts at Smoky Canyon Mine that is currently under investigation because the South Fork of Sage Creek drainage, which essentially separates Panels F and G (to the south) and Panels A through E (to the north), is the low point for both areas and groundwater flows converge to this low point from both directions. For these reasons, this EIS will focus solely on the proposed mine and lease modifications for Panels F and G described in **Section 2.4**. However, a discussion on the potential cumulative impacts to groundwater will be addressed in this EIS in **Chapter 5**, as there would be a cumulative connection where the surface water from both areas converge.

2.4 PROPOSED ACTION

The Proposed Action consists of five distinct components:

- Modification of the existing M&RP to allow construction and operation of an ore conveyor system between Panel F and the mill,
- Modification of Lease IDI-01441 by 280 acres to accommodate the 160-acre expansion of the previously approved East ODA (Panel G),
- Increase of the on-lease disturbance area of the previously approved South ODA (Panel G) by 20.0 acres for the temporary storage of chert to be used for eventual reclamation of the Panel G pit,
- Utilization of a GCLL instead of the currently approved geologic store and release cover over the in-pit backfill and the East ODA (Panel G), and

- Implementation of on- and off-lease stormwater control measures associated with the GCLL.

2.4.1 Modification of M&RP to Allow Use of an Ore Conveyor System between Panel F and the Mill

Under the Proposed Action, the approved M&RP for Panels F and G would be modified to allow for construction and use of a 4.5 mile long ore conveyance system between Panel F and the existing mill, generally following the existing haul road. The conveyor system would replace the use of haul trucks to deliver ore from Panels F and G to the mill. The approved west haul road between Panel G and Panel F, currently in construction, would be used to haul ore mined from Panel G to the conveyor at Panel F for transport to the mill.

2.4.1.1 Background

The 2007 FEIS considered a conveyor system from Panel F to the mill as a transportation alternative but eliminated the alternative from detailed analysis. The Panel F ore conveyor system would have precluded backfilling of Panel E with overburden from Panel F. This would have required utilization of a larger external overburden site to dispose of the Panel F overburden than other alternatives considered, with associated greater environmental impacts. As configured at the time, the Panel F conveyor system would also have increased the capital costs for the Project.

One of the transportation alternatives (No. 6) that was analyzed in the 2007 FEIS was a 6.1 mile long conveyor system to transport ore from Panel G north to Panel F and then to the mill. The portion of that particular route between Panel F and the mill is generally the same area as that included in the current Proposed Action. The portion of that route from Panel G north to Panel F is no longer feasible due to the designation of that area under the Idaho Roadless Rule.

2.4.1.2 Description of Ore Conveyor System

The proposed Panel F ore conveyor system would be approximately 4.5 miles long, originating at the northern end of Panel F and terminating at the mill (**Figure 2.4-1**), following the haul road to the extent possible. Under the Proposed Action, ore from Panels F and G would be transported to a stockpile at the north end of Panel F and loaded onto the proposed conveyor. This operation would be located near the northern end of Panel F Lease IDI-27512 and situated within the disturbed and mined out northern portion of Panel F.

The Panel F ore conveyor system would include a 25 kilovolt (kV) distribution power line secured to the conveyor structure to supply power for control and communications. The entire length of the conveyor would be covered with a hood designed to protect the conveyor and cable tray running the length of the conveyor.

The conveyor would be supported on ground modules or elevated frames (referred to as support bents), and portions would be constructed in underground culverts or elevated to create "crossings."

Pipe Conveyor

Conventional conveyors carry materials, such as ore, along a flat or trough-shaped conveyor belt between a beginning point where the materials are loaded, and an ending point, where materials are collected. The Panel F ore conveyor system included in the Proposed Action is a pipe conveyor, in which the conveyor belt is rolled to form a pipe that would prevent material spillage along the conveyor route (see **Figure 2.4-2**).

Ground Module Supports

The majority of the Panel F ore conveyor system would be mounted on approximately 4,100 ground modules spaced generally at six foot intervals, closer together at some curves (see **Figure 2.4-2**). The ground modules would sit on either standard eight-foot long concrete or wooden railroad ties, which would sit on grade to maintain proper conveyor alignment. The centerline of the return belt located on the bottom of the ground module would be three feet above grade. The conveyor would have a continuous guard along each side of the conveyor, starting at the top of the concrete or wooden railroad tie and go to the bottom of the hood cover. The top of the hood cover would be approximately seven feet above grade and the conveyor would be about three feet wide.

Elevated Frame Supports

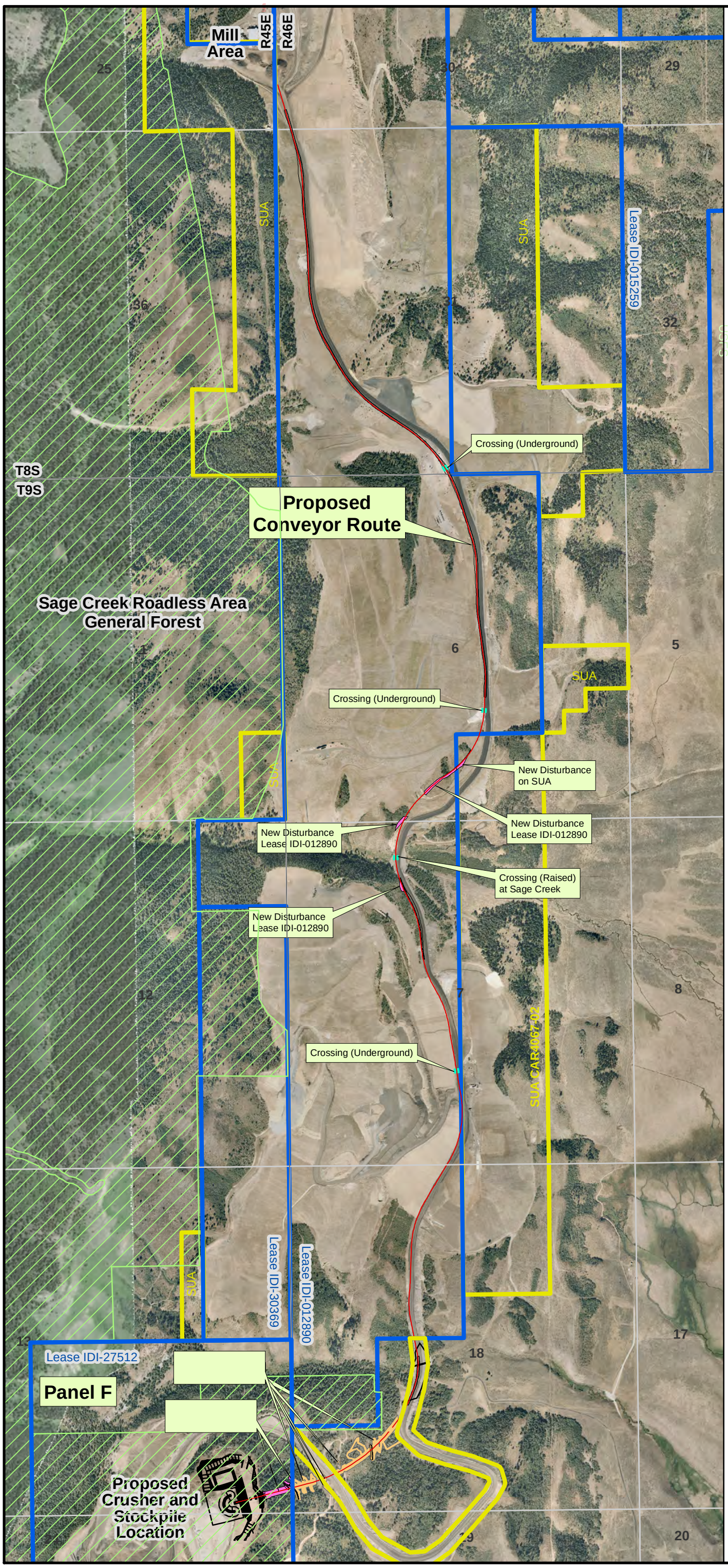
The portion of the Panel F ore conveyor system in the South Fork Sage Creek drainage area would be constructed on elevated frames (see **Figure 2.4-2**). In this area, the conveyor would be elevated on 16 support bents spaced at 120-foot intervals. The support bents would range in height from approximately 15 feet to 73 feet, with an average height of just over 45 feet (**Table 2.4-1**). Support bents would be constructed on concrete footings. The total distance for the 16 spans (**Figure 2.4-3**) of elevated conveyor would be approximately 1,920 feet. Along this elevated portion of the route, the conveyor would be enclosed on the top and both sides, and include a walkway for access for operations and maintenance purposes.

Table 2.4-1 Support Bent Heights by Span

SPAN NUMBER - APPROXIMATE BENT HEIGHT	SPAN NUMBER - APPROXIMATE BENT HEIGHT	SPAN NUMBER - APPROXIMATE BENT HEIGHT	SPAN NUMBER - APPROXIMATE BENT HEIGHT
Span #1 = 15 feet	Span #5 = 73 feet	Span #9 = 23 feet	Span #13 = 62 feet
Span #2 = 39 feet	Span #6 = 58 feet	Span #10 = 33 feet	Span #14 = 46 feet
Span #3 = 58 feet	Span #7 = 49 feet	Span #11 = 47 feet	Span #15 = 30 feet
Span #4 = 73 feet	Span #8 = 35 feet	Span #12 = 64 feet	Span #16 = 17 feet

*Span #1 begins at the northern portion of Panel F and is the western most bent and Span #16 is the eastern most bent. Approximated heights are based on aerial survey and may vary upon completion of ground survey.

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 2\Figure 2.4-1 Panel F Lease and Mine Modification and Proposed Ore Conveyor Route.mxd



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Explanation

- Proposed Conveyor Route
- New Disturbance
- New Disturbance (New SUA Required)
- JR Simplot Lease
- Existing Special Use Authorization (SUA)
- Roadless Area

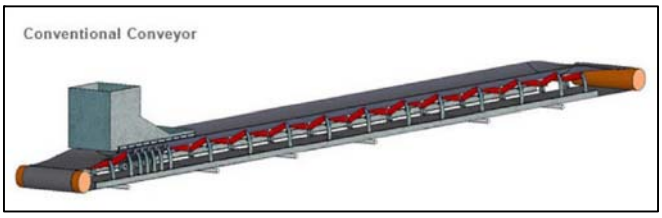
N

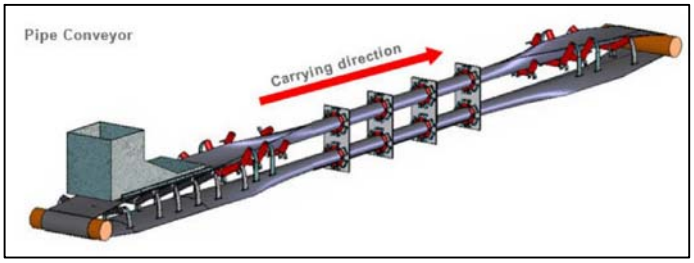
1,500 0 1,500 Feet

Figure 2.4-1
Panel F Mine Plan Modification and Proposed Ore Conveyor Route
Panel F & G Lease/Mine Plan Modifications EIS

Conveyor Design

Conventional conveyors carry materials, such as ore, along a flat or trough-shaped conveyor belt between a beginning point where the materials are loaded, and an ending point, where materials are collected. The conveyor system that would be part of the Proposed Action is a pipe conveyor, in which the conveyor belt is rolled to form a pipe that would prevent material spillage along the conveyor route.





Conveyor Route Preparation

The conveyor route would be graded like a road, to have smooth grade transitions and curves. Conveyors can operate on steeper slopes than haul trucks, so cuts and fills along the conveyor route are less than for a haul road. The conveyor would be supported on concrete or wood ties.

Ground Modules

The majority of the conveyor would be mounted on ground modules spaced generally at six foot intervals, closer together at some curves.

Elevated Segments

The portion of the conveyor system in the South Fork Sage Creek drainage area would be constructed on elevated frames spaced at 120-foot intervals and ranging in height from 15 feet to 73 feet, with an average height of just over 45 feet.

Figure 2.4-2
Conveyor Characteristics
Panel F & G Lease/Mine Plan Modifications EIS

Note: Photos are examples of similar conveyor systems.
Photos provided by Simplot and Conveyor Dynamics, Inc.

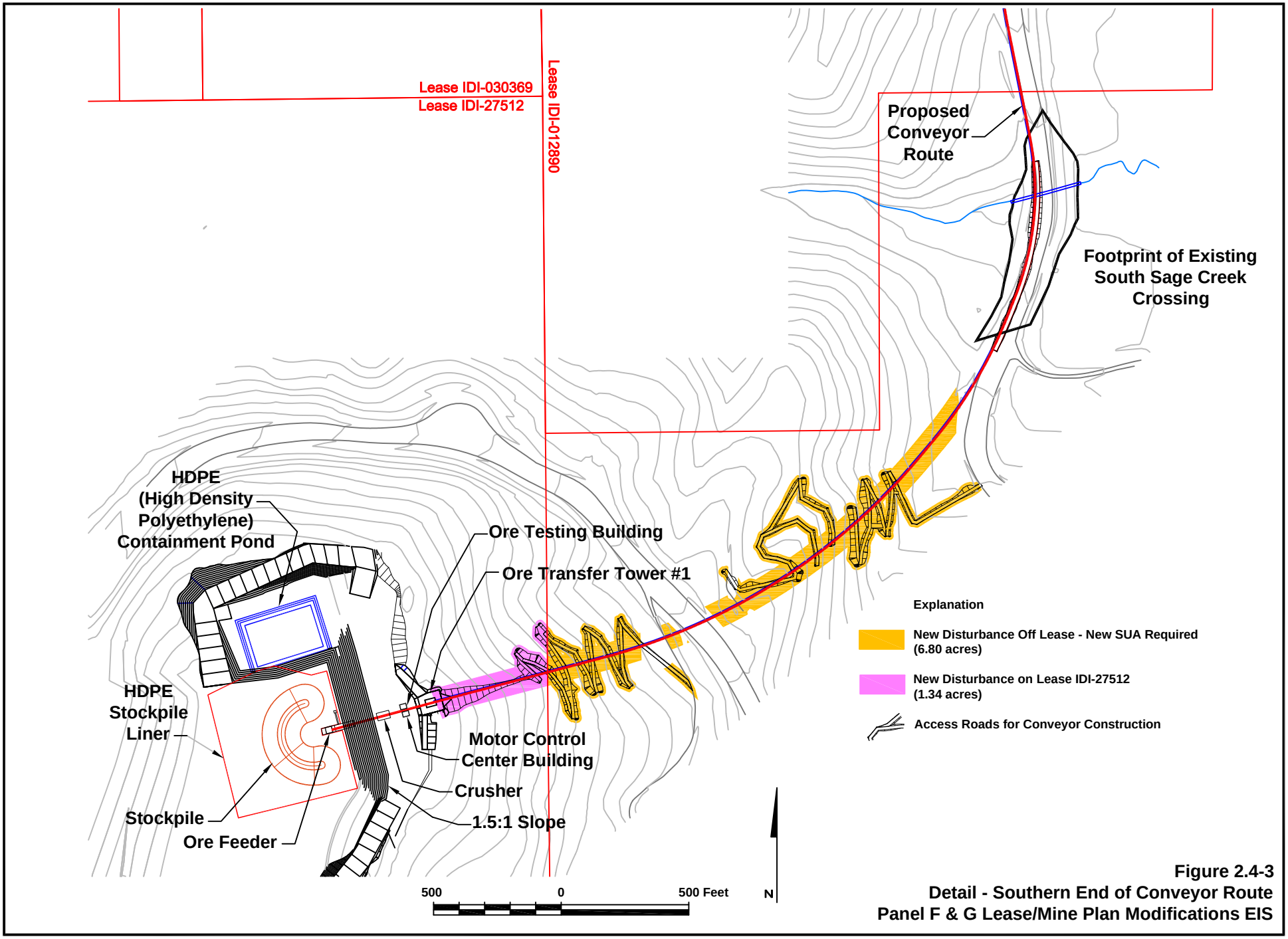


Figure 2.4-3
Detail - Southern End of Conveyor Route
Panel F & G Lease/Mine Plan Modifications EIS

Crossings

Four crossings for mine traffic and wildlife would be created along the proposed Panel F ore conveyor system route (**Figure 2.4-1**). Three of these crossings would be constructed underground at locations on the existing haul road. These crossings would each be approximately 100 feet wide and constructed with either a precast concrete culvert or a multi-plated archway to contain the conveyor. This would provide structural integrity for safe passage of mine equipment over the conveyor at the crossing locations. The conveyor would be supported by ground modules within the culvert.

One crossing would be elevated and located where the existing haul road crosses Sage Creek (**Figure 2.4-1**). In this location the proposed conveyor system would be constructed on elevated frame supports, which would raise the conveyor 8 to 10 feet above the haul road, allowing wildlife and horseback riders to pass beneath the conveyor.

Conveyor System Route

The primary design goal for the Panel F ore conveyor system alignment was keeping the conveyor located along the haul road where feasible to minimize cut and fill disturbances.

Pipe conveyor technology tolerates more curves and smaller curve radiuses than other conveyor technology, and allows for the conveyor to curve both horizontally and vertically. However, the maximum allowable concave, convex, and horizontal curve radiuses limit the conveyors ability to be constrained in all locations to the footprint of the existing haul road. Designing the best alignment for the conveyor is very challenging in that when the alignment of one section is changed, the alignments in all adjacent sections are impacted and have to be adjusted. Additionally, the allowable curves change with the type of belting used, travel speeds, width of belting (e.g., diameter of the pipe), loads, and temperatures.

While every effort was made to design the ore conveyance system to follow the existing haul road, there was no feasible way to design the Panel F ore conveyor system to follow the haul road off-lease east of Lease IDI-27512 and south of Lease IDI-012890 because of the steep downhill grade, tight horizontal curves, and distance away from the drive system for the conveyor. A SUA would be required for the conveyor in areas that would be off-lease and not previously authorized under an SUA (**Figures 2.4-1** and **2.4-3**).

All disturbance along the Panel F ore conveyor system route would be long-term. Approximately 450 feet of the proposed conveyor would be constructed within the Sage Creek IRA, resulting in up to 1.3 acres of long-term disturbance.

Changes to the Haul Road and Hauling Operations Associated with the Conveyor

Because the Panel E pit is now completely backfilled, the full width of the haul road between Panels F and E is no longer needed for hauling overburden. Placement of the Panel F ore conveyor system within the footprint of the existing haul road would still allow for safe travel of haul trucks and other mine equipment.

The creek crossings for the haul road have already been permitted with Section 404 Clean Water Act permits and are fully mitigated, and as such they cannot be changed without the potential for additional permitting. The Panel F ore conveyor system route was designed to avoid any additional impacts to the creeks and further permitting considerations. Therefore, these crossing locations were utilized as anchors in the conveyor alignment; the remainder of the conveyor

alignment was designed around the crossing points. The existing creek crossings would not be widened, which would restrict vehicle travel to one lane at the creek crossings, with a minimum running surface for equipment of approximately 40 feet. Aside from the creek crossings, a minimum of 80 feet of running surface would be maintained on the haul road and no widening of the existing haul road is proposed or needed.

Other Infrastructure, Lighting, Conveyor Operation, and Emissions

Stockpile and Containment Pond. The M&RP for Panel F would be modified to allow for development of an ore stockpile located within the footprint of the mined out north end of Panel F. The stockpile would contain a maximum of 140,000 tons of ore at any one time. The stockpile and point at which the ore would be loaded onto the ore conveyor system (ore feeder) would be located within a 250,000 square-foot area, and would be underlain by a protective liner (**Figure 2.4-3**). The liner, a high density polyethylene (HDPE) geomembrane, would be placed a minimum of 5 feet below the active working surface of the stockpile area to protect the liner system. A cushion layer (e.g., a geotextile or finely screened sand or gravel layer) would be placed directly above and below the liner as needed to prevent any damage to the liner during construction and operation. The material between the upper cushion layer and active working surface would be crushed and screened chert or limestone.

The 250,000 square-foot area would be sloped to manage drainage. Runoff would be directed to a HDPE-lined pond, which would be located north of the stockpile and designed to handle a 100-year, 24-hour storm event. The pond capacity would be 18.3 acre-feet and constructed to have a large surface area to allow for evaporation. Because the pond is designed to dry up every summer, the pond design includes two evaporation misters. While one mister would be sufficient to aid in evaporation, two would be installed to ensure that all accumulated water is evaporated before freezing conditions occur, and that full capacity of the pond would be available going into the winter. The stockpile and containment pond disturbance would be within a previously disturbed area and would not result in new disturbance.

Ore Testing Building and Motor Control Center. The proposed M&RP modification would also allow for an ore testing building and motor control center (MCC) to be constructed at the south end of the Panel F ore conveyor system (**Figure 2.4-3**). The ore testing building would be used to conduct ore sizing analyses. The MCC would provide the power and electrical instrumentation for the conveyor. These buildings would be fabricated off site and placed on concrete pads. Electrical service to these buildings would be supplied via the 25kV distribution power line affixed to the conveyor, but there would not be plumbing for water supply. The ore testing building and MCC disturbance would be within a previously disturbed area and would not result in new disturbance.

Transfer Towers. The two transfer towers for the Panel F ore conveyor system would be located at the beginning and ending points of the ore conveyor route within buildings or an enclosed tunnel. Transfer Tower 1, located at the Panel F loading point, would be approximately 40 feet tall. Transfer Tower 2, located near the mill where ore would be offloaded from the conveyor, would be approximately 50 feet tall.

Access Roads. New access roads for construction, operation, and maintenance of the Panel F ore conveyor system on Lease IDI-27512, east of the MCC; and off lease south of Lease IDI-012890 (**Figure 2.4-3**) would need to be constructed. An SUA would be required for the off lease area as previously described in this section. These access roads would result in approximately 1.3 acres

on lease and 6.8 acres off lease of long-term disturbance as they would remain open for future maintenance activities. Of the 8.1 total acres of long-term disturbance, 1.3 acres would be on lease within the Sage Creek IRA.

Lighting. Lighting would be installed at the following conveyor features:

- Inside the enclosed, elevated section,
- On Transfer Towers 1 and 2,
- Within the three underground crossings, and
- Along the overland portion at 500-foot intervals.

Conveyor Operation. Based on the mine's budgeted production rate and the Panel F ore conveyor system design, the conveyor would operate year-round, 24 hours a day, approximately three days per week. However, particularly during wet, freezing weather, the conveyor may need to operate more in order to avoid freezing up, which could create maintenance issues.

Drives. The Panel F ore conveyor system would be operated by three 1,250 horsepower motors at the end of the conveyor near the mill, and one 1,250 horsepower motor at the Panel F end of the conveyor. Noise would be generated by the drives operating the conveyor (approximately 85 decibels-A weighted (dBA)) and by rotating equipment (idlers) along the length of the conveyor (less than 55 dBA).

2.4.1.3 Benefits of the Conveyor System

In addition to increased efficiency in the mining operation, implementation of the Panel F ore conveyor system would alleviate the need to operate approximately six haul trucks between Panel F and the mill. This would result in a reduction of emissions produced by vehicles and equipment associated with the mining operation, as well as fugitive dust created by these vehicles operating on haul roads.

2.4.1.4 Disturbance Associated with the Proposed Conveyor System

Total new surface disturbance that would be associated with the proposed Panel F ore conveyor system is provided in **Table 2.4-2**.

Table 2.4-2 New Surface Disturbance Associated with the Proposed Conveyor System

LEASE/SPECIAL USE AUTHORIZATION	NEW LONG-TERM DISTURBANCE (ACRES)
On Existing Leases	1.3
Off Lease	6.8*
TOTAL	8.1
Disturbance within the Sage Creek IRA	1.3

*6.8 acres would require a new SUA

2.4.1.5 Operation and Maintenance of the Conveyor System

The proposed Panel F ore conveyor system would be expected to have routine operation and maintenance requirements consistent with other mechanical equipment. The portion of the conveyor that would be located along the haul road would be accessed via the haul road for any repairs or maintenance required. Maintenance or repair on the portion of the system located off-lease and permitted by SUA would be accessed via new access roads (**Figure 2.4-3**).

2.4.2 Modification of Lease IDI-01441 for Expansion of the East ODA

2.4.2.1 Background

Simplot's original 2003 proposed M&RP included disposing of run of mine (ROM) overburden for Panel G on-lease in two ODAs on the east and southwest side of Panel G. Subsequent environmental analysis indicated seleniferous overburden stored in the southwest location had the potential to contaminate groundwater and impact a nearby spring, so Simplot modified their proposal in 2005 to store only non-seleniferous material in that location and place the seleniferous overburden in the East ODA. Because the current lease boundary for Panel G is closely limited to the ore body and not large enough to allow for both maximum ore recovery and for ODAs sufficient to accommodate all the overburden, Simplot is proposing to modify Lease IDI-01441 to expand the East ODA for permanent disposal of the Panel G overburden.

The 2007 FEIS analyzed the potential impacts of increasing the lease area by 18 acres of USFS-administered lands to accommodate the seleniferous ODA. However, BLM regulations at 43 CFR 3510 in effect at the time the 2008 RODs were issued did not allow for the modification of a lease for the purpose of permanently disposing of overburden. In addition, permanent disposal of overburden off lease did not meet the requirements and criteria contained in USFS regulations at 36 CFR 251.54(e) (ix) for approval of a USFS SUA. The 2008 RODs required Simplot to keep disposal of all overburden on-lease; however, the BLM ROD recognized the potential for future consideration of off-lease overburden disposal:

> "...the impacts of the off-lease overburden storage were analyzed in the FEIS and if regulations change in the future, a separate decision could be considered at that time by both agencies. Otherwise, Simplot will have to submit a revised dump design for BLM and FS consideration prior to construction of Panel G."

2.4.2.2 Regulations Governing Lease Modifications

In 2009, BLM promulgated revised regulations (43 CFR 3510) that allow the modification of a lease for purposes of permanent disposal of overburden materials, if specific criteria are met. Regulations at 43 CFR 3510, Leasing of Solid Minerals other than Coal and Oil Shale, require that the following three criteria be met to allow for modification of a lease:

1. *The acreage to be added does not contain known deposits of the same mineral deposit*. Simplot's exploration and development drilling adjacent to the proposed lease modification area confirms the acreage that would be affected by the proposed East ODA expansion does not contain developable phosphate.
2. *The adjoining acreage would be used for surface activities that are necessary for the recovery of the mineral deposit on the original federal lease*. The East ODA expansion

area is necessary to accommodate ROM overburden that would be generated by full development of Panel G.

3. *Had the acreage been included in the original federal lease at the time of that lease's issuance, the original federal lease would have been reasonably compact*. The proposed lease expansion area is directly contiguous with Lease IDI-01441, resulting in an expanded and compact lease area.

2.4.2.3 Description of Proposed Lease Modification

The BLM's leasing regulations at 43 CFR 3403.36 state, "Generally a quarter-quarter section, a lot or a protraction block in the smallest subdivision for which you may apply [for a lease]. The lands must be in reasonably compact form." In following that direction, Simplot has proposed to enlarge Lease IDI-01441 by 280 acres; the disturbance currently proposed within that area is 131 acres for the East ODA (see **Section 2.4.2.4**) and eight acres for stormwater features (see **Section 2.4.5**), for a total of 139 acres. The current lease area for Panel G is not large enough to allow for maximum ore recovery and the necessary overburden disposal via pit backfilling due to existing topography constraints, re-handling issues, and safety concerns when disposing of overburden within the singular Panel G configuration. (It should be noted that approximately 70 acres of disturbance within the proposed 280-acre lease modification are currently authorized under a USFS SUA for a topsoil stockpile and access road as per the 2008 USFS ROD.) Any future disturbance beyond that currently approved and/or proposed by Simplot for the East ODA expansion and stormwater features would require additional and specific analysis under NEPA.

The proposed modification to the lease would occur within Township 10 South, Range 45 East, Boise Meridian, Idaho, and specifically:

SW ¼ NE ¼ Section 3

W ½ SE ¼ Section 3

SE ¼ SW ¼ Section 3

N ½ NW ¼ Section 10

NW ¼ NE ¼ Section 10

2.4.2.4 Proposed Increase in East ODA Disturbance Area

With modification of Lease IDI-01441, the East ODA would be expanded by 131 acres. This would result in a larger seleniferous footprint (i.e., a term used to describe the area of overburden that contains selenium-bearing materials) from what was analyzed by the 2007 FEIS. In addition, a portion of the area within the proposed lease modification area authorized for the topsoil stockpile and access road (**Section 2.4.2.3**) would eventually become part of the seleniferous footprint (see **Section 2.4-4**). Approximately 75 acres of the proposed new disturbance would be within the Sage Creek IRA within the General Forest, Rangeland, and Grassland theme under the Idaho Roadless Rule.

2.4.3 Proposed Increase in South ODA Disturbance Area

The 2008 RODs approved 96 acres of disturbance on the southwest side of Panel G, referred to as the South ODA. Approximately 22 acres of that total were for Dinwoody Formation material borrow areas and 74 acres were for storing non-seleniferous chert overburden removed prior to mining of Panel G and intended for use in final reclamation. Because the ROD approved the South ODA for chert only and not ROM as originally proposed by Simplot in 2003, Simplot had to reevaluate the mining sequence for Panel G to maximize backfill and minimize the size of the East ODA. Simplot determined mining Panel G from south to north would meet these objectives; however, this change would require an additional 20.0 acres of temporary chert storage in the South ODA. If this proposed expansion of the South ODA is approved, the South ODA would ultimately encompass approximately 116 acres.

During reclamation of the Panel G pit, the material stored in the South ODA would be used for backfill. The South ODA would be reclaimed and covered with a topsoil cap.

Approximately 19.4 acres of the increase in on-lease disturbance for chert storage in the South ODA would be within the Meade Peak IRA (General Forest, Rangeland, and Grassland theme).

2.4.4 Proposed GCLL

2.4.4.1 Background

The 2007 FEIS planned for mining Panel G as one large pit. Overburden generated from mining Panel G was planned to be largely used as backfill in the Panel G open pit, with excess overburden permanently placed in ODAs.

Scoping for the 2007 FEIS identified concerns over potential groundwater impacts from infiltration of precipitation into seleniferous overburden, which could then percolate out the bottoms of the overburden fills and eventually enter and contaminate the groundwater beneath these sites. In order to address these concerns, a number of alternatives were evaluated by the 2007 FEIS including Simplot's proposal to utilize a geologic store and release cover to reduce infiltration and water quality impacts to allowable levels. This geologic store and release cover was predicted to limit infiltration of meteoric water into the overburden fill and result in compliance with surface and groundwater standards for selenium. This cover, analyzed as Alternative D of the 2007 FEIS, was subsequently part of the Selected Alternative presented in the 2008 RODs and is the currently approved geologic store and release cover for Panels F and G. Current monitoring and assessment of the geologic store and release cover indicates that it will function as intended to reduce infiltration to meet surface and groundwater standards.

The 2007 FEIS also considered evaluation of a synthetic cover as an alternative. Synthetic covers, such as GCLLs, reduce overall infiltration rates to a greater degree than the approved geologic store and release cover, which in turn could provide more protection from potential selenium contamination. The use of a synthetic cover on top of overburden was dismissed from further consideration in the 2007 FEIS as economically unfeasible. Since that time, synthetic covers have been proposed, carefully evaluated, and approved for use at other phosphate mining and remediation sites, including the Blackfoot Bridge Mine and supplemental reclamation work at the South Rasmussen Ridge Mine.

2.4.4.2 Description of the Proposed GCLL

Overview

Under the Proposed Action, all seleniferous overburden in Panel G would be covered with a GCLL in an effort to further reduce or eliminate water quality impacts due to increasing the size of the currently approved mine. Approximately 392 acres in Panel G would be covered with a GCLL, including the in-pit backfill and the East ODA (**Figure 2.4-4**). The proposed GCLL cross section is diagrammed in **Figure 2.4-5** and detailed drawings (Geosyntec 2013a) are included in **Appendix 2A**.

The GCLL cover would be constructed on a maximum of 3 horizontal to 1 vertical slope, with slope lengths up to 2,075 feet. The cover would be constructed in phases dependent on the mining operations.

The GCLL consists of a layer of bentonite clay inserted between two geotextile layers. A geotextile is a woven sheet material that is resistant to penetration damage. The top geotextile layer would be laminated with a 20-millimeter textured HDPE geomembrane layer, which would provide an additional layer of protection against desiccation and ion exchange degradation.

Minimum roll width for the geotextile fabric would be 14 feet. Adjoining sheets of geotextile fabric would be overlapped by a minimum of 12 inches in accordance with the manufacturer's recommendations. During construction of the GCLL, should the geotextile layer be torn, the layer would be repaired by placing a patch over the defect. The patch would overlap the edges of the defect by a minimum of two feet in all directions and secured with a manufacturer recommended water-based adhesive; the patch would not be nailed or stapled.

The bentonite component of the GCLL is dry when manufactured, and becomes hydrated by contact with natural moisture present in the surrounding materials. When hydrated, the bentonite swells, and the voids and spaces between the bentonite granules close. This swelling allows the GCLL to attain low permeability.

Synthetic geotextiles are made of stabilized polymers resistant to long-term degradation. Studies have shown that the HDPE liners of the GCLL have lifetimes of at least several hundred years (Rowe and Sangam 2002 in Geosyntec 2013b) and the natural and synthetic components of a geo-synthetic clay liner will likely uphold hundreds of years under normal cover application conditions (Hsuan and Koerner 2010 in Geosyntec 2013b).

In preparation for installation of the GCLL, the ROM overburden would be overlain with a prepared subgrade surface consisting of earthen material that is smooth-drum rolled and inspected for desiccation cracks, protrusions, depressions, and rocks (which may damage the overlaying GCLL). The depth of the subgrade would vary.

The GCLL would be overlain with a 6-inch drainage layer of crushed chert or limestone. The drainage layer would be covered with a filter fabric that would separate the drainage layer from the overlying soils to prevent blinding or clogging of the drainage aggregate layer. A 12-inch layer of Dinwoody Formation material would be placed on top of the filter fabric and drainage layer. The Dinwoody Formation is a stratigraphic unit in the overburden of the mine panels that consists of interbedded clay, shale, and siltstone. Excavated Dinwoody Formation material is known through experience at the Smoky Canyon Mine to sometimes contain soft earthlike material that may be suitable for construction purposes and could act as a low-permeability

barrier when compacted (BLM and USFS 2007). The final or uppermost portion of the GCLL cover would be a 12-inch later of topsoil, resulting in a total cover thickness above the GCLL of at least 2.5 feet (Geosyntec 2013a).

The Dinwoody Formation material is an important component of the cover system and would provide benefits for storage of meteoric water for vegetation growth, as well as the benefit of a lower hydraulic conductivity material that would limit the net percolation of water that now would be further mitigated by the GCLL. The topsoil and Dinwoody material, both which would be salvaged during initial site disturbance, would act as a growth medium and retain water to encourage plant growth and protect the drainage and GCLL layers (Geosyntec 2013a).

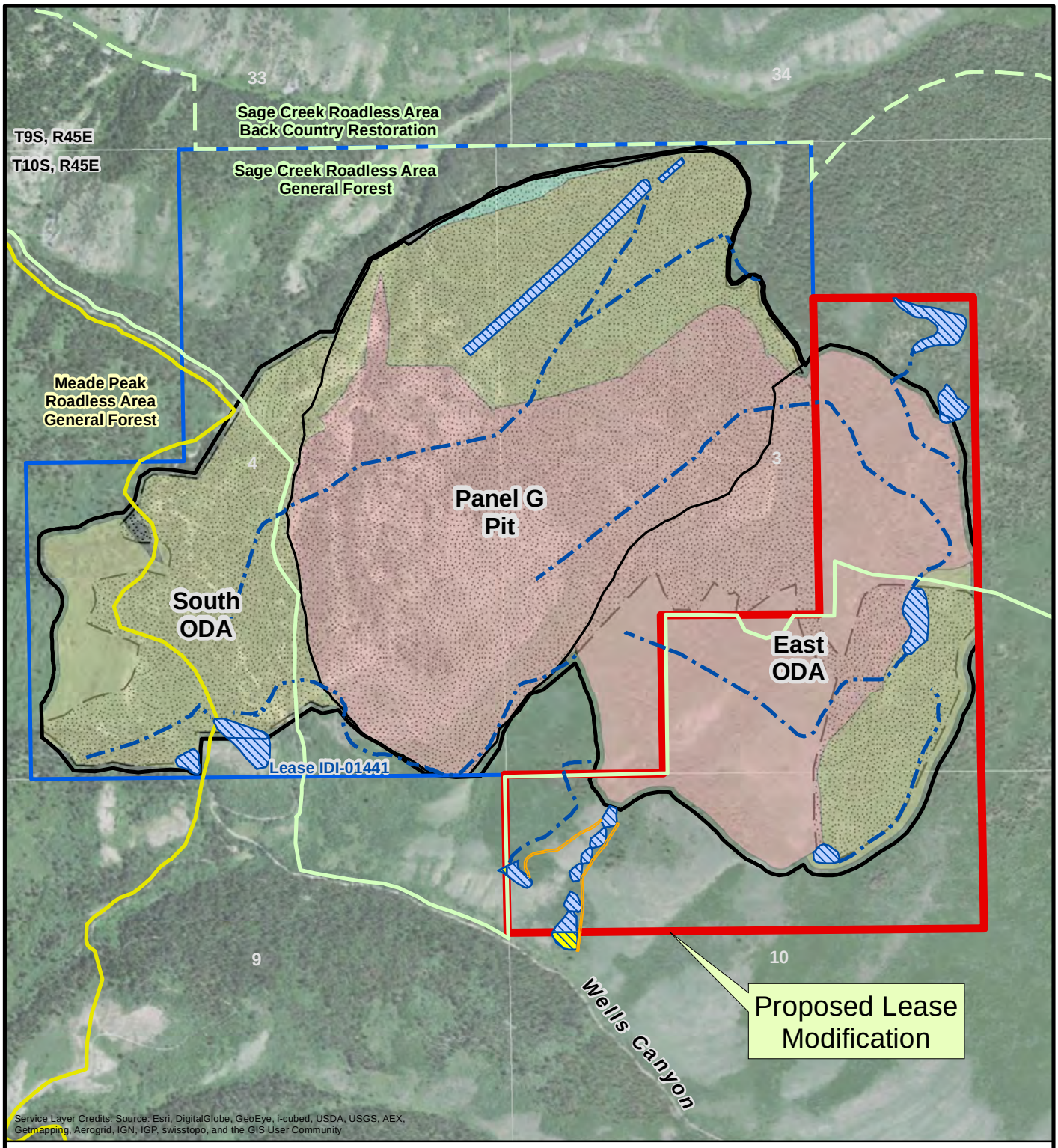
Construction of the cover system would occur in phases for concurrent reclamation. As overburden is placed in the East ODA, only those areas for which the GCLL and associated drainage features can be constructed prior to the onset of winter would be graded to the final 3:1 reclamation slope. Until that time, material would be left at angle of repose (i.e., not sloped) in order to minimize infiltration of snowmelt and stormwater. Final reclamation sloping would be done during the spring and summer months, so that the GCLL could be installed in the late summer and fall months. The cover system components would be staggered on the slope to allow placement of upslope GCLL with adequate material overlap onto lower slopes. During interim (e.g., seasonal) closure periods, a temporary geotextile would be placed on the filter geotextile to protect it from degradation due to ultraviolet (UV) light exposure. During the next phase of closure, the UV-protection geotextile would be removed to allow installation and overlap of the next phase of closure materials (Geosyntec 2013a).

A final design report for the GCLL would be prepared and approved by the Agencies prior to implementation of the Project. Installation of the GCLL would be coordinated with the Agencies each year.

Drainage System

A drainage system for the GCLL consisting of a drainage layer, lateral cover drainage, toe drains, and surface water drainage (stormwater channels and infiltration ponds) would drain water that has infiltrated the cover materials and transmit the water down slope. The drainage layer would consist of a minimum of six inches of crushed drainage rock (chert or limestone), with a filter geotextile placed between the drainage layer and cover material to reduce migration of fines. Depending on the design and performance needs, a cushion geotextile may be placed above the GCLL to provide puncture protection from the crushed rock drainage material (Geosyntec 2013a and **Appendix 2A**). Lateral drains, consisting of corrugated polyethylene pipes, would be installed at specific distances along the slope within the drainage layer. The pipes would connect to down drains or outlets at surface water management features on the cover surface. The lateral cover drainage would be sized to accommodate the anticipated flow, as determined through modeling of the cover layers (Geosyntec 2013a).

Toe drains would be installed along the toe of the slope to allow the water collected in the drainage layer to be conveyed to the stormwater management features away from the cover area. The toe drains would be constructed of drain rock separated from the overlying Dinwoody material and topsoil by a filter geotextile (Geosyntec 2013a and **Appendix 2A**).



Explanation

- Panel G Disturbance Boundary
- Panel G Pit Boundary
- Proposed Lease Modification Area (280 acres)
- JR Simplot Lease
- Approved Panel G Disturbance
- GCLL (392.3 acres)
- Topsoil Cover (266.6 acres)
- Unreclaimed Highwall
- Sage Creek Roadless Area
- Meade Peak Roadless Area
- Proposed Stormwater Control Ditch (On Lease)
- Proposed Stormwater Control Pond (On Lease)
- Proposed Stormwater Control Road Disturbance (On Lease)
- Proposed Stormwater Control Pond (Off Lease)
- Proposed Stormwater Control Road Disturbance (Off Lease)

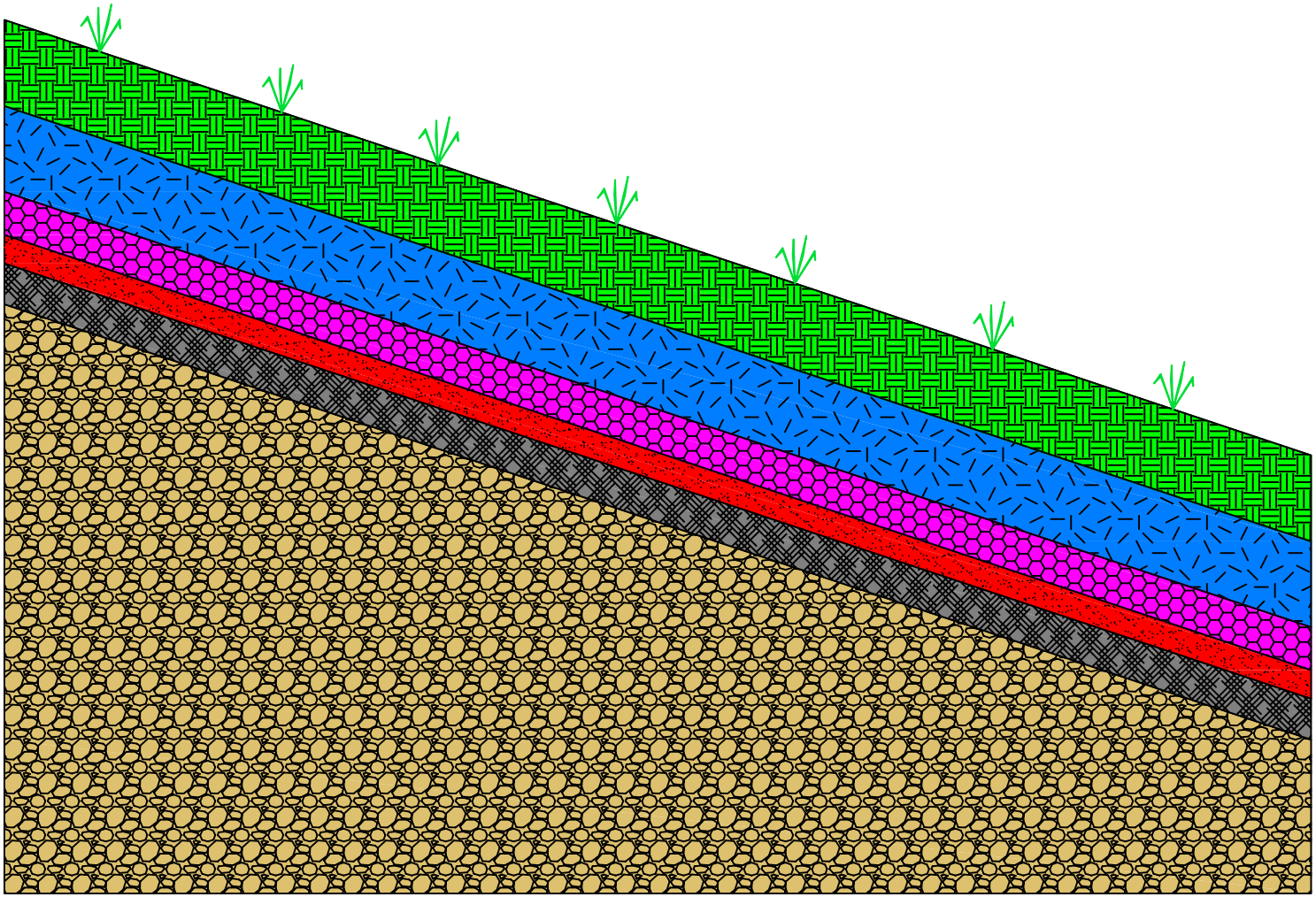
N

1,200 0 1,200
Feet

Figure 2.4-4
Proposed Action: Coverage Extent of the Geo-synthetic Clay Laminate Liner (GCLL)
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 2\Figure 2.4-4 Proposed Action Coverage Extent of the Geo-synthetic Clay Laminate Liner (GCLL).mxd

Z:\ID\Simplot Panel F & G\DWGs\Figure 2.4-5 Geo-synthetic Clay Laminate Liner (GCLL) Cross Section.dwg



12" Topsoil

12" Dinwoody

6" Drainage Layer (Crushed Chert or Limestone)

Geo-synthetic Clay Laminate Liner (GCLL)

Prepared Subgrade Surface (depth would vary)

Run of Mine Overburden

Figure 2.4-5
Geo-synthetic Clay Laminate Liner (GCLL) Cross Section
Panel F & G Lease/Mine Plan Modifications EIS

2.4.4.3 Benefits of the GCLL

Compared to the geologic store and release cover, the GCLL cover would reduce the amount of meteoric water reaching the materials below the cover, thereby reducing the amount of water that would come into contact with the seleniferous overburden. Meteoric water that reaches the reclamation cover surface would either run off, be intercepted by vegetation, or infiltrate into the surface. A portion of the water that infiltrates would be stored in the active zone (i.e., the layers above the GCLL) and subsequently evaporate or taken up by vegetation and removed by transpiration. The infiltration can also move laterally downslope within and below the active zone. A percentage of the infiltrating water would migrate beyond the active zone through gravity overcoming the influence of atmospheric forcing (i.e., evaporation) and result in net percolation to the underlying ROM (OKC 2013).

Preliminary one and two dimensional modeling of the proposed GCLL cover system compared to the geologic store and release cover design (approved in the 2008 RODs) found net percolation rates were between 59 and 98 percent less for the GCLL than for the geologic store and release cover, as shown in **Table 2.4-3**.

Table 2.4-3 Comparison of Net Percolation Modeling by Slope Aspect between the Proposed GCLL and the Geologic Store and Release Cover

	NET PERCOLATION BY ASPECT (INCHES/YEAR)		
	NORTH	WEST	SOUTH
Geologic Store and Release Cover Predicted Net Percolation	0.7	0.6	0.6
GCLL Predicted Net Percolation	0.3	0.1	<0.1
Percent Reduction of Net Percolation by GCLL Compared to Geologic Store and Release Cover	59%	80%	98%

Source: OKC 2013, and OKC 2006 in Geosyntec 2013a

2.4.4.4 Operation and Maintenance of the GCLL

Once construction is completed, operation and maintenance requirements of the GCLL would be limited. Lateral drains and down drains may require routine maintenance to maintain flow. The surface of the area where the GCLL is installed would be routinely inspected for erosion of the surface layers to assure that the GCLL or drain layer are not exposed.

The GCLL would be susceptible to damage from deep rooted species growing on the reclaimed surface of the area covered by the GCLL. The area covered by the GCLL would be revegetated with grasses and forbs, and would never be allowed to become revegetated by deep rooted tree and shrub species. Consequently, the area covered by the GCLL would be monitored in perpetuity and be maintained free of deep rooted tree and shrub species.

2.4.5 On- and Off-Lease Stormwater Control

Once the bentonite component of the GCLL becomes hydrated, the bentonite granules swell, effectively closing voids. This provides the GCLL with low permeability and inhibits percolation of water. Consequently, water would be expected to flow through the drainage layer, collect in drainage pipes, and outlet at surface control features thereby increasing the surface stormwater volume. The Proposed Action includes an estimated 10.3 acres of stormwater control features to address the drainage layer volume and surface runoff. Of that area, 9.6 acres would be on-lease or within the proposed lease modification area and 0.7 acres would be off-lease. The overall stormwater control features would include 13 ponds (three of them fully contained within East ODA boundaries), two infiltration basins on the reclaimed limestone within the pit boundary, ditches, and associated road disturbance as conceptually presented in **Figure 2.4-4**. These features have been conservatively designed and sized to manage 100 percent runoff from the GCLL that would result from a 100-year, 24-hour storm event (Geosyntec 2013a). Lateral cover drains (described in **Section 2.4.4**) would discharge to the surface water drainage system. Should the Proposed Action be selected, the preliminary stormwater plan would be further refined, with features more fully designed and engineered, and submitted for agency review and approval. Off-lease stormwater controls would be authorized through a SUA.

2.4.6 Relationship of Approvals for Proposed Action Components

Implementation of the proposed ore conveyor system between Panel F and the mill would not be contingent upon approval of modifications to the lease and M&RP for Panel G; however, should the BLM and USFS approve the conveyor system either with or without approval of the Panel G modifications, Simplot would evaluate the economic viability of implementing the conveyor system at that time. In the event the conveyor is approved by the Agencies, but not constructed by Simplot due to economic considerations, Simplot could still opt to install the 25 kV power line, but on poles rather than attached to the conveyor. The power line would be located along the haul road as previously approved by the 2008 RODs, except it would follow the conveyor route between the proposed stockpile area and the point where the conveyor route joins the haul road. The power poles would range in height from 35 to 60 feet and have an average estimated span of 250 feet. This would be less disturbance than would result from the support bents for the conveyor in this area, which would be spaced at 120-foot intervals and range in height from 15 to 73 feet.

2.4.7 Proposed Disturbance

This EIS analyzes impacts of the Proposed Action resulting from new disturbance to previously undisturbed areas. The amount of disturbance from the Proposed Action is summarized by Project component in **Table 2.4-4**. For purposes of this analysis, long-term disturbance is defined as disturbance that would not be reclaimed until completion of active mining and/or activities associated with active mining.

2.4.8 Reclamation of Disturbed Area and Financial Assurances

Reclamation specified by the currently approved M&RP includes shrubs and trees to be seeded or planted in clusters where they are most likely to establish and where there are no concerns relative to the integrity of the overburden covers or potential selenium uptake. Reforestation of reclaimed surfaces would not be implemented in areas covered by the GCLL in order to maintain

its integrity. A seed mix approved by the USFS would be applied during reclamation. All other disturbed areas would be reclaimed in accordance with the 2008 RODs.

Under its regulatory authority and prior to allowing Simplot to start Project ground disturbing activities, the BLM would require Simplot to post an actual cost reclamation performance bond that considers the cost of complying with all permit and lease terms including royalty and reclamation requirements (43 CFR 3504.50). The bond would ensure that adequate funds are available to the federal government to close and reclaim the Project in the event that Simplot is unable or unwilling to fulfill its reclamation responsibilities. This bond amount would be in addition to that already posted for the existing and currently permitted operations at Smoky Canyon Mine. Reclamation performance bonds are calculated according to BLM policy regarding bond requirement and calculation guidance for phosphate mining operations (BLM 2013). The ROD would describe the methodology to be used to calculate the performance bond amount for the Project. The calculation would cover the maximum reclamation liability during the life of the Project or the period of the bond. The bond for the mine is managed adaptively and can be increased if or as unforeseen issues arise. Periodic review and recalculation of the bond would occur, and any changes incorporated into the reclamation bond instrument, to account for factors such as inflation/deflation of fuel costs, equipment rental rates, wages, and materials. A similar actual-cost bond would also be required by the USFS for areas of Project disturbance permitted by SUAs (36CFR 251.56(e)).

Table 2.4-4 New Disturbance under the Proposed Action

PROPOSED ACTION COMPONENT	DISTURBANCE (ACRES)[1]			
	ON EXISTING LEASE(S)	LEASE EXPANSION AREA	OFF LEASE - SUA REQUIRED[2]	TOTAL
Panel F Ore Conveyor System – New Disturbance	1.3	N/A	6.8	8.1
Panel G East ODA Expansion Area	22.3	108.7	0	131.0
Panel G South ODA	20.0	N/A	0	20.0
Stormwater Controls (outside Panel G disturbance area)	1.6	8.0	0.7	10.3
TOTAL	45.2	116.7	7.5	169.4
New Disturbance within Sage Creek IRA	24.0	52.4	<0.1	76.5
New Disturbance within the Meade Peak IRA	19.4	0	0	19.4

[1]Includes only acreage of new surface disturbance and not redisturbance of previously reclaimed areas.

N/A – Not Applicable

[2]Off-lease disturbance acreage includes only those areas that would continue to be off lease under the Proposed Action.

2.5 ENVIRONMENTAL PROTECTION MEASURES COMMON TO ALL ACTION ALTERNATIVES

Environmental protection measures (EPMs) described in the 2007 FEIS and required by the 2008 RODs would continue to be implemented. EPMs specific to the Proposed Action and Action Alternatives for this Project would include the following:

2.5.1 Cultural Resources (including Paleontological Resources)

The proposed new disturbance areas for the Proposed Action and Action Alternatives were inventoried for cultural resources during recent baseline surveys. Reports on these investigations, including descriptions of any discovered sites or cultural materials, were provided to the regulatory agencies. SHPO consultation and concurrence on site evaluations has been received by the USFS for all inventoried areas.

If unanticipated cultural materials, historic sites, or vertebrate macrofossils are encountered during mining, the USFS and the BLM would be notified, and operations would be halted in the vicinity of the discovery until inspected by a qualified agency representative and a mitigation plan developed if determined necessary. At the discretion of the USFS or BLM, vertebrate macrofossils would be avoided for a length of time that is reasonable to allow Agency personnel to conduct field surveys and determine the significance of the fossils.

2.5.2 Air Quality

Dust generated from Project activities would be controlled with dust suppressant water applied by water trucks. Dust suppressing chemicals such as magnesium chloride and calcium chloride may also be used as needed.

2.5.3 Soil

Soil resources in the proposed disturbance areas have been described with baseline surveys. Suitable topsoil and growth medium from disturbed areas would be salvaged and stockpiled for use in reclamation. Soil stockpiles would be protected from erosion by seeding and establishment of short-term vegetation cover. Reclamation of disturbed areas that are no longer required for active mining operations would be conducted concurrent with other mining operations.

2.5.4 Vegetation

Timber would be cruised by the USFS and then harvested from proposed disturbance areas as directed by the USFS. Simplot would purchase the timber at the market value appraised at the time of harvest. Small brush and slash would be incorporated in the topsoil when it is salvaged.

Reclamation earthwork would be timed to ensure that no large areas of untreated lands are exposed during the winter months. Revegetation of disturbed areas would be conducted during reclamation activities by seeding and planting with the vegetation species mix approved by the USFS. Seeding would proceed no later than the first fall after earthwork is complete.

Revegetation would be conducted to stabilize reclaimed surfaces with perennial vegetation communities and restore a post-mining land use for multiple use management. Livestock grazing in reclaimed areas would be controlled until the areas have become stabilized and are deemed ready for grazing by the USFS.

In order to control and prevent the spread of noxious weeds, Simplot would comply with guidelines established by the USFS. This includes cleaning all off-road vehicles prior to entering and re-entering the Project Area and using only certified weed-free seed, mulch, straw bales, etc.

2.5.5 Surface and Groundwater

As required by the 2008 RODs, Simplot would continue to implement BMPs for erosion, sedimentation, and selenium control that would also apply to the design, construction, operation, and reclamation of this Project. Those BMPs and the following EPMs have been developed to reduce the types and severity of impacts to surface water and groundwater that have been experienced in the past with previous phosphate mining operations.

Surface Water

Drainage and diversion channels would be constructed to divert run-on water around disturbance areas and collect runoff from disturbed areas to route it to settling ponds and other sediment control features. Runoff from disturbed areas would be directed to sediment ponds to contain sediment in the runoff water. Sediment ponds would be designed and maintained to provide retention for the runoff from the 100-year, 24-hour storm event. These features are described in **Sections 2.4.1.2** and **2.4.5**.

The ponds would be used to collect stormwater runoff and snow melt runoff exclusively; no other waste streams would be allowed to enter the ponds and/or commingle with this runoff. Simplot would also minimize the potential for dissolved constituents that may be present in this stored runoff from entering area streams by minimizing the hydraulic connection between the ponds and surface water.

While these ponds would not often discharge, there would be no prohibition to them doing so on occasion under Simplot's existing stormwater permit. When discharge does occur, suspended solids would be reduced in the discharged water, compared to the incoming concentrations, due to settling in the ponds. To control any such discharges, all ponds would be designed with stable spillways so that discharge does not erode the spillways or instigate structural failure of the ponds. Discharges would be sampled and assessed for contaminants of potential concern (COPCs) under the current SWPPP.

Surface water would be monitored in accordance with the requirements of the Agency-approved monitoring plan.

Groundwater

Stormwater would be managed to reduce or eliminate contact with ROM. During construction of the East ODA, material would be left at angle of repose (i.e., not sloped) in order to minimize infiltration of snowmelt and stormwater. Once the slope is covered with a GCLL, runoff and sediment control facilities would be located off the ODA to the extent feasible in order to protect the reclaimed slope from erosion and damage related to heavy equipment use.

Stockpiled areas of snow would be controlled and placed in areas to reduce infiltration or mixing of snow or snow melt into/with external overburden to the extent practicable.

Seleniferous overburden would be mined and disposed of in a timely manner to reduce exposure of this material to surface weathering and oxidation, the process that liberates soluble selenium

compounds. Surface area of seleniferous overburden fills would be reduced by design to the extent practicable to limit the amount of water infiltration and potential release.

Groundwater would be monitored in accordance with the requirements of the Agency-approved monitoring plan.

Adaptive Management

An Adaptive Management Plan (AMP) (**Appendix 2B**) has been developed to effectively address any potential water quality management issues that may occur as a result of the Project. The AMP establishes specific contingencies and practices in the event that monitoring shows exceedance of numeric water quality standards for various constituents. The AMP would help ensure that the quality of surface water and groundwater downstream and down gradient of the Panels F and G modification areas would be protected to meet applicable water quality standards, both during operations and after reclamation, through the use of adaptive management.

2.5.6 Wildlife and Aquatics

Biological surveys would be conducted in areas planned for disturbance to identify any active nests for bird species. Avoidance plans would be developed as necessary before these areas are disturbed.

2.5.7 Inspections, Records, Monitoring, and Final Designs

During operations, daily inspections would be made by mine supervisory staff to ensure activities are conducted in compliance with conditions of approvals, applicable permits, and regulations. Records of these observations would be maintained at the mine.

Regular SWPPP inspections would be conducted to verify plan compliance and detect any conditions requiring modification or repair. Maintenance and repair actions would be documented in mine records.

Samples of stormwater, groundwater, soil, sediment, aquatic biota, vegetation, and surface water would be taken by mine staff and contractors as required by permits and conditions of approvals.

The BLM and USFS generally conduct mine inspections on a monthly or more frequent basis in order to determine compliance with M&RPs and SUAs.

The current M&RP and monitoring plans would be updated as applicable to include actions needed to ensure the long-term stability and functionality of the GCLL.

2.6 ALTERNATIVES TO THE PROPOSED ACTION

Two Action Alternatives to the Proposed Action are described in the following subsections. Under both of the Action Alternatives, the Panel F ore conveyor system and South ODA portions of the Project would be the same as described for the Proposed Action in **Sections 2.4.1** and **2.4.2**. Differences between the Action Alternatives and the Proposed Action include the type of cover that would be used over seleniferous overburden in the Panel G pit and East ODA and the consequent revegetation of the covered areas; the size of the lease expansion area; the size and composition of disturbance within the East ODA; and the size and location of stormwater control features.

2.6.1 Alternative 1: Proposed Action with Mixed Cover

Under Alternative 1, the proposed lease modification area, East ODA disturbance area, and associated stormwater controls would be the same as described for the Proposed Action; however, a mixed cover would be used to cover the seleniferous overburden in the Panel G pit and East ODA (**Figure 2.6-1**).

2.6.1.1 Mixed Cover

During reclamation, an area of approximately 143 acres containing the seleniferous footprint in the expanded East ODA would be covered with a GCLL. Aside from the amount of acreage covered by the GCLL, all other aspects of the GCLL would be as described in **Section 2.4.4**. The geologic store and release cover, previously approved by the 2008 RODs and described in Section 2.6.1 of the 2007 FEIS, would be used to cover the previously approved disturbance in the East ODA and in the Panel G pit.

2.6.1.2 Rationale for Alternative 1

Compared to the Proposed Action, Alternative 1 would retain use of the previously approved geologic store and release cover and reduce the area that would be covered by the GCLL. Use of a GCLL for the expanded portion of the East ODA disturbance would provide additional protection from potential surface and groundwater impacts. Areas covered by the GCLL would not be allowed to reforest (**Section 2.4.8**), whereas the geologic store and release cover would be revegetated as described in the 2007 FEIS (Section 2.4) with grasses and forbs surrounding "islands of diversity" (defined as native forbs, shrubs, and trees that would be seeded or planted in clusters where they are most likely to establish and where there are no concerns relative to the integrity of the East ODA cover or potential selenium uptake). Diverse vegetation is important to the functioning of the geologic store and release cover, and would also provide the benefit of a more natural appearance after reclamation. Combining the use of the GCLL with the geologic store and release cover would provide for a more diverse revegetation community, including pockets of forested areas, while assuring water quality standards would continue to be met.

2.6.2 Alternative 2: Reduced East ODA Expansion with a Mixed Cover

Under Alternative 2, the proposed lease modification area and expanded East ODA disturbance area would be smaller than under the Proposed Action or Alternative 1 (**Figure 2.6-2**). A mixed cover would be used over the seleniferous overburden in the Panel G pit and East ODA.

2.6.2.1 Modification of Lease IDI-01441 for Expansion of the East ODA

The proposed lease modification area would total 240 acres; 40 acres less than that under the Proposed Action. Any future disturbance beyond that currently approved and/or contained under this alternative for the East ODA expansion and stormwater features would require additional and specific analysis under NEPA.

The modification to the lease under Alternative 2 would occur within Township 10 South, Range 45 East, Boise Meridian, Idaho, and specifically:

SE ¼ SW ¼ Section 3

W ½ SE ¼ Section 3

N ½ NW ¼ Section 10

NW ¼ NE ¼ Section 10

2.6.2.2 Increase in East ODA Disturbance Area

The East ODA would be expanded by approximately 86 acres, which does not include the 70 acres of the previously approved topsoil storage area that would be relocated into the northeastern portion of the Panel G pit. The seleniferous footprint of the East ODA would be expanded into the area previously approved for the topsoil storage. Relocation of the topsoil storage would thus allow an overall reduction of approximately 46 acres (includes stormwater features) in the amount of disturbance within the originally proposed lease modification area under the Proposed Action and within the Sage Creek IRA.

2.6.2.3 Mixed Cover

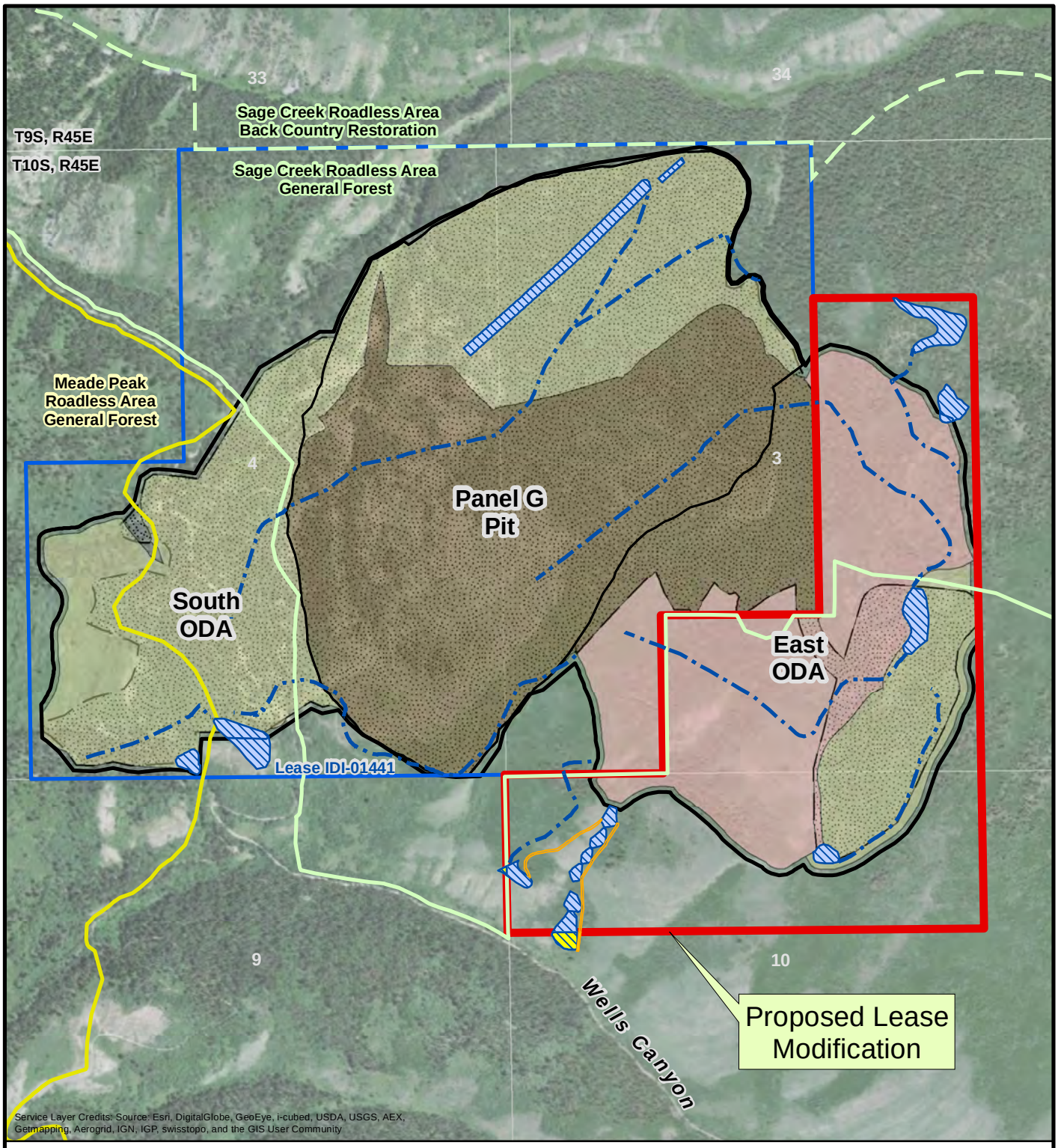
A mixed cover, as described in **Section 2.6.1.1**, would be used to cover all seleniferous overburden at Panel G. Approximately 138 acres would be covered by the GCLL and 257 acres of seleniferous overburden would be covered by the previously approved geologic store and release cover (**Figure 2.6-2**). As with Alternative 1, the geologic store and release cover would be used to cover the previously approved disturbance in the East ODA and in the Panel G pit. Aside from the amount of acreages covered, all other aspects of the GCLL and the geologic store and release cover would be as previously described. Under Alternative 2, the decision maker would have the option to increase the GCLL coverage to provide greater conservatism to the final decision.

2.6.2.4 On- and Off-Lease Stormwater Control

Stormwater controls under Alternative 2 would generally be as described in **Section 2.4.5**; however, they would be located and configured differently from the Proposed Action and Alternative 1 (**Figure 2.6-2**). These features would result in approximately 9.1 acres of new disturbance, a reduction of approximately of 1.2 acres of stormwater control features as compared to the Proposed Action. Of the total, 1.6 acres would be on-lease, 6.8 acres would be in the lease modification area, and 0.7 acres would be off-lease.

2.6.2.5 Rationale for Alternative 2

Compared to the Proposed Action and Alternative 1, Alternative 2 would result in the smallest area of lease modification, the least new disturbance, the least disturbance within the Sage Creek Roadless Area (SCRA), and the smallest area covered by the GCLL. As described for Alternative 1 in **Section 2.6.1.2**, combining the use of the GCLL with the geologic store and release cover would provide for a diverse revegetation community, including pockets of forested areas, while assuring water quality standards would continue to be met. The area that would not be allowed to reforest (that covered by the GCLL) is minimized under Alternative 2.



Explanation

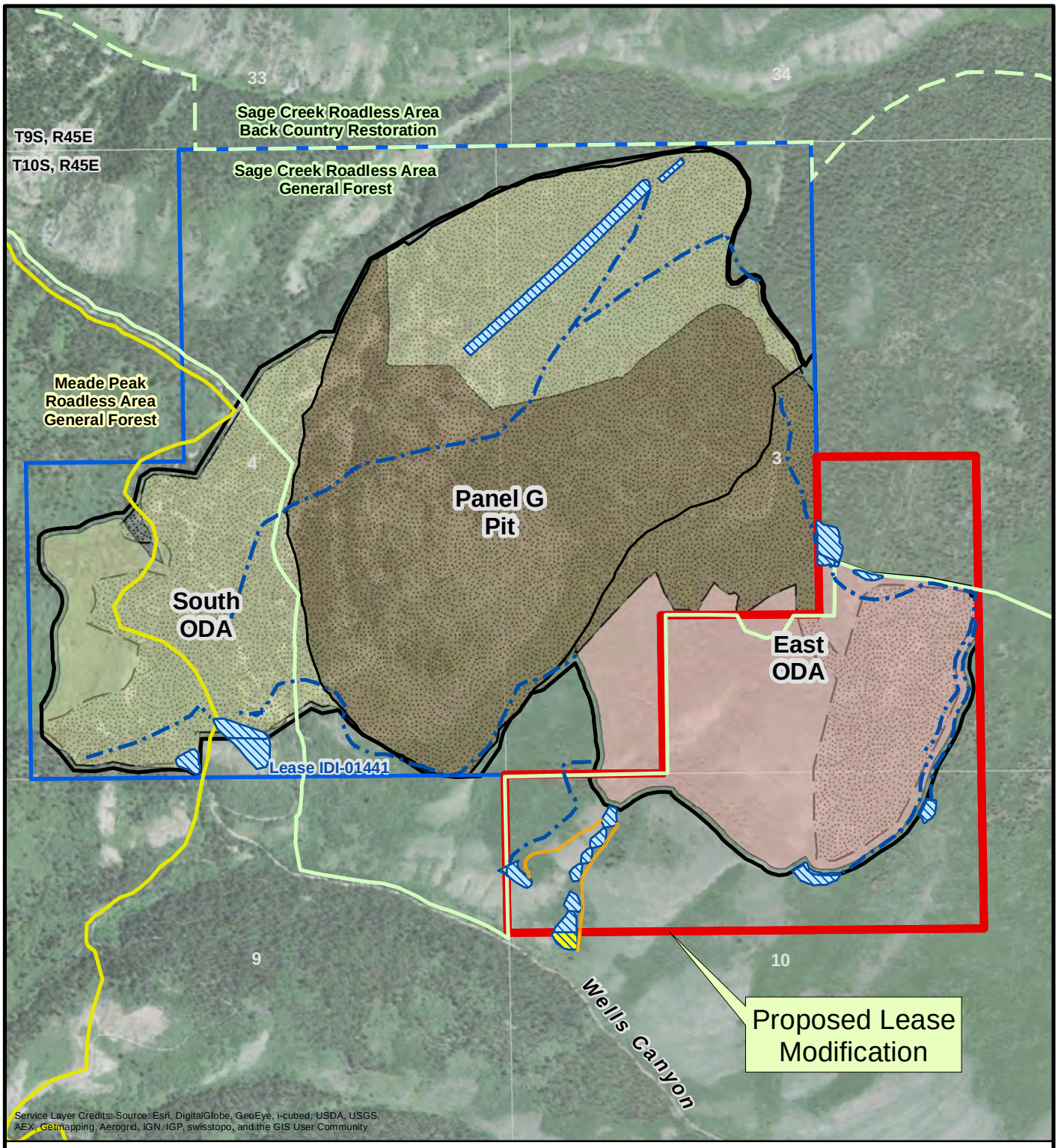
- Panel G Disturbance Boundary
- Panel G Pit Boundary
- Proposed Lease Modification Area (280 acres)
- JR Simplot Lease
- Approved Panel G Disturbance
- GCLL (142.5 acres)
- Geologic Store and Release Cover (249.8 acres)
- Topsoil Cover (270.4 acres)
- Sage Creek Roadless Area
- Meade Peak Roadless Area
- Proposed Stormwater Control Ditch (On Lease)
- Proposed Stormwater Control Pond (On Lease)
- Proposed Stormwater Control Road Disturbance (On Lease)
- Proposed Stormwater Control Pond (Off Lease)
- Proposed Stormwater Control Road Disturbance (Off Lease)

N

1,200 0 1,200 Feet

Figure 2.6-1
Alternative 1: Proposed Action with Mixed Cover
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 2\Figure 2.6-1 Alternative 1 Proposed Action with Mixed Cover.mxd



Explanation

- Panel G Reduced Disturbance Boundary
- Panel G Pit Boundary
- Proposed Lease Modification Area (240 acres)
- JR Simplot Lease
- Approved Panel G Disturbance
- GCLL (138 acres)
- Geologic Store and Release Cover (257.3 acres)
- Topsoil Cover (222.6 acres)
- Sage Creek Roadless Area
- Meade Peak Roadless Area
- Proposed Stormwater Control Ditch (On Lease)
- Proposed Stormwater Control Pond (On Lease)
- Proposed Stormwater Control Road Disturbance (On Lease)
- Proposed Stormwater Control Pond (Off Lease)
- Proposed Stormwater Control Road Disturbance (Off Lease)

N

1,200 0 1,200 Feet

Figure 2.6-2
Alternative 2: Reduced East ODA with Mixed Cover
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 2\Figure 2.6-2 Alternative 2 Reduced East ODA with Mixed Cover.mxd

2.6.3 No Action Alternative

Under the No Action Alternative, the decisions from the 2008 RODs would continue to govern development of the phosphate resources of Panels F and G, and the currently approved M&RP would be executed. The M&RP would remain unchanged and Lease IDI-01441 would not be modified. There would be no reduction in the duration of mining Panel G; however, Simplot estimates approximately 50 percent of the phosphate ore in Lease IDI-01441, previously considered economically recoverable, would not be mined because there is not sufficient storage area for the associated overburden/waste rock disposal external to the Panel G pit without expansion of the East ODA. Overall disturbance would remain essentially the same as that approved in the 2008 RODs. Ore mined from Panels F and G would continue to be delivered to the mill via haul trucks. The previously approved geologic store and release cover would be used for reclamation as described in the 2007 FEIS and approved by the 2008 RODs.

2.7 AGENCY PREFERRED ALTERNATIVE

The Agencies have identified Alternative 2: Reduced East ODA Expansion with Mixed Cover as the Agency Preferred Alternative for this Project because this alternative:

- Reduces the size of the proposed lease modification area by 40 acres.
- Reduces the amount of new surface disturbance by approximately 46 acres.
- Reduces the amount of disturbance within the Sage Creek IRA by approximately 47 acres.
- Includes a GCLL for the 138-acre expansion of the East ODA for additional protection of water resources, and allows for an increase in GCLL coverage in the final decision to provide greater conservatism.
- Includes use of the previously approved geologic store and release cover over approximately 257 acres, which would be protective of water resources and also provide a more natural appearance after reclamation.

The Agency Preferred Alternative would reasonably accomplish the purpose and need for the federal action, while giving consideration to environmental, economic, and technical factors. This action is responsive to public input for limiting the amount GCLL to be used and for reducing the amount of new disturbance within IRAs.

2.8 SUMMARY COMPARISON OF ALTERNATIVES

Table 2.8-1 provides a tabular summary and comparison of impacts from the components of the Proposed Action, Alternative 1, Alternative 2, and the No Action Alternative.

2.9 ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

Scoping comments provided a number of alternatives to the Proposed Action for consideration (**Table 1.7-2**, under the heading of Alternatives to the Proposed Action); however, these alternatives were ultimately eliminated from detailed analysis. The suggested alternatives, and the reasons they were eliminated from further consideration, are as follows:

- More limited use of the GCLL. While the commenter did not provide a rationale for the suggested alternative, two Action Alternatives have been developed to analyze a more limited use of the GCLL and are described above in **Section 2.6**. It is not feasible to analyze an alternative that eliminates the use of the GCLL because current volume estimates of Dinwoody material (needed in greater volumes for the geologic store and release cover than for the GCLL) indicates there is an inadequate volume to execute that design over the proposed additional disturbance.
- No additional use of IRAs. Review of the area surrounding the yet to be developed Panel G pit indicates that there is not another logical area for the East ODA expansion. The only non-IRA area occurs in Wells Canyon, and would not be a feasible alternative location because it would require a large area of fill due to existing topography and the existing USFS road in that drainage would need to be relocated. However, Alternative 2: Reduced East ODA with Mixed Cover, does reduce the amount of proposed new disturbance within the SCRA IRA by approximately 45 acres.
- A land exchange to ensure no net loss of roadless areas. Surface disturbance under the Proposed Action would be within the General Forest, Rangeland, and Grassland theme of the Sage Creek and Meade Peak IRAs. The Idaho Roadless Rule does not prohibit mining-related disturbance such as the Proposed Action within areas of that theme. There is no requirement for "no net loss" to roadless values.
- Expansion of the conveyor system to Panel G. The conveyor system to Panel G alternative was analyzed in the 2007 FEIS. This previously analyzed route for the conveyor from Panel G would not be allowable under the established theme of the lands within the IRAs under the provisions of the current Idaho Roadless Rule. Simplot has not proposed a different route for a conveyor system between Panel G and F, such as along the currently approved haul road (considered economically infeasible at this time).
- A more limited area of mining of Panel G to keep the mine disturbance footprint limited to that approved by the 2008 RODs. This alternative is the No Action Alternative, which is analyzed in this EIS. As described in **Section 2.6** under the No Action Alternative, the ODAs would not be expanded, and approximately half of the economically recoverable ore in Panel G would not be mined.
- Delay of mining Panel G until Simplot takes necessary remedial actions to clean up selenium contamination. Mining of Panel G was approved under the 2008 RODs and can commence as permitted, irrespective of ongoing remediation for selenium contamination.

Table 2.8-1 Alternative Comparison and Effects Summary

PROJECT COMPONENT OR RESOURCE		PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Project Component Acreages					
Panel F Ore Conveyor System New Disturbance Acreage		8.1	Same as Proposed Action	Same as Proposed Action	0
Panel F New SUA Acreage		6.8	Same as Proposed Action	Same as Proposed Action	0
Panel G Lease Expansion Acreage		280	Same as Proposed Action	240	0
East ODA Expansion New Disturbance Acreage		131.0	Same as Proposed Action	86.2	0
South ODA Expansion New Disturbance Acreage		20.0	Same as Proposed Action	Same as Proposed Action	0
Panel G GCLL Acreage		392.3	142.5	138.0	0
Panel G Geologic Store and Release Cover Acreage		0	249.7	257.3	As approved by 2008 RODs
Panel G Stormwater Control New Disturbance Acreage		10.3	Same as Proposed Action	9.1	0
Sage Creek IRA – New Disturbance Acreage	Panel F	1.3	Same as Proposed Action	Same as Proposed Action	0
	Panel G	75.2	Same as Proposed Action	27.9	0
	Total	76.5	Same as Proposed Action	29.2	0
Sage Creek IRA – Cover Acreage	GCLL	319.9	70.1	26.3	0
	Geologic Store and Release Cover	0	249.8	257.3	As approved by 2008 RODs
Meade Peak IRA New Disturbance Acreage – Panel G		19.4	Same as Proposed Action	Same as Proposed Action	As approved by 2008 RODs
Total New Disturbance		169.4	Same as Proposed Action	122.8	0

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Geology, Minerals, Topography, and Paleontology				
Panel F	No or negligible impacts to geology, minerals, topography, or paleontology.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved. However, only approximately half of the amount of ore from Panel G would be mined compared to the amount estimated in the 2007 FEIS.
Panel G	ODA expansion would result in long-term, major, and local impact. Potential for acid rock drainage (ARD) would be the same or less than described in 2007 FEIS.	Same as Proposed Action except a geologic store and release cover would be used to cover approximately 250 acres, and approximately 143 acres would be covered by a GCLL.	Same as Proposed Action except approximately 46 fewer acres would be disturbed, a geologic store and release cover would be used to cover approximately 257 acres, and 138 acres would be covered by a GCLL.	
Air Resources				
Panel F	424.0 tons of total annual emissions generated from conveyor. 4,832.5 tons of total annual emissions reduced through reduction in haul truck traffic due to the ore conveyor.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved. However, impacts to air resources may be reduced as the amount of ore mined would be approximately half that estimated in the 2007 FEIS.
Panel G	5,022.0 tons of total annual emissions generated.	Same as Proposed Action	About the same as the Proposed Action, although slightly less due to less overall new surface disturbance.	
Climate Change				
Panels F and G Combined	Reduction in haul truck traffic due to the ore conveyor would reduce the amount of carbon dioxide (CO_2) by approximately 23,335 tons annually. The overall contribution to climate change would be negligible.	Same as Proposed Action	About the same as the Proposed Action, although slightly less due to less overall new surface disturbance.	Operations at Panels F and G would continue under the existing M&RP as presently approved. However, greenhouse gases (GHGs) generated may be reduced as the amount of ore mined would be approximately half that estimated in the 2007 FEIS.
Noise				
Panel F	No noticeable noise effects are anticipated at current residences along the Crow Creek Road.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to noise as described in the 2007 FEIS.
Panel G	Same as 2007 FEIS	Same as Proposed Action	Noise from equipment would be further away from sensitive receptors, which may slightly reduce the overall noise impacts from those described for the Proposed Action.	

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Water Resources				
Panel F	Groundwater: No additional impact to groundwater quantity or quality. Surface Water: New sources of disturbed-area runoff and sediments would be negligible.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to water resources as described in the 2007 FEIS.
Panel G	Groundwater Quality: Long term and minor to moderate improved effect from use of a GCLL, as compared to the 2007 FEIS. Surface Water Quantity: Proportional net change to base flows would likely be negligible. Surface Water Quality: Effect on selenium concentrations due to GCLL represents a long-term and minor to moderate improved effect. No additional surface water quality impacts due to sediment releases.	Groundwater Quality: Use of a mixed cover would result in almost double the recharge through the cover compared to the Proposed Action condition. More recharge 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. Surface Water Quantity: Same as Proposed Action. Surface Water Quality: The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek, but concentrations are predicted to be slightly greater than they would be under the Proposed Action.	Groundwater Quality: Same as Alternative 1. Surface Water Quantity: Same as Proposed Action. Surface Water Quality: The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek, but concentrations are predicted to be somewhat greater than they would be under the Proposed Action, and slightly greater than Alternative 1.	
Soils				
Panel F	8.1 acres of soils disturbance. All disturbance would be reclaimed.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to soils as described in the 2007 FEIS.
Panel G	Approximately 161 acres of soils disturbance. All disturbance would be reclaimed with exception of 10.3 acres of stormwater controls.	Same as Proposed Action	46 acres less surface disturbance than under the Proposed Action, which 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.	
Vegetation				
Panel F	8 acres of disturbance, primarily aspen. All disturbance would be reclaimed.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to vegetation as described in the 2007 FEIS.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Panel G	Main vegetation communities impacted: 92.3 acres of aspen would be disturbed. 33.5 acres of aspen/conifer would be disturbed. 22.7 acres of subalpine fir would be disturbed. All disturbance would be reclaimed with exception of 10.3 acres of stormwater controls; and the GCLL area would not be allowed to reforest.	Same as described under the Proposed Action except: Approximately 143 acres would be covered by the GCLL, which would only be revegetated with shallow-rooting species. Approximately 250 acres on lease would receive a geologic store and release cover, which could be reclaimed with deeper rooted species, resulting in a more natural vegetation community than under the Proposed Action.	Same as described under the Proposed Action except: 46 fewer acres would be disturbed. Approximately 138 acres would be covered by the GCLL, which would only revegetated with shallow-rooting species. Approximately 257 acres on lease would receive a geologic store and release cover, which could be reclaimed with deeper rooted species, resulting in a more natural vegetation community than under the Proposed Action and Alternative 1.	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to vegetation as described in the 2007 FEIS.
Wetlands				
Panel F	There would be no impacts to WOUS, including wetlands. Route would follow present haul road, using existing creek crossing.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to wetlands as described in the 2007 FEIS.
Panel G	There would be no impacts to WOUS, including wetlands.	Same as Proposed Action	Same as Proposed Action	
Wildlife				
Panels F and G Combined	The disturbance of 170 acres of wildlife habitat would impact gray wolf habitat, migratory land birds, big game, and predators. The disturbance of 158 acres of forest habitat would impact Canada lynx habitat and potential roost trees for bald eagles. It would also affect the flammulated owl, northern three-toed woodpecker, great gray owl, North American wolverine, northern goshawk, other raptors, and upland game birds. Preliminary determination of May Affect, but Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor.	Same as Proposed Action	Same as Proposed Action, except approximately 46 fewer acres of habitat impacts would occur.	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to wildlife as described in the 2007 FEIS.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Panels F and G Combined (Continued)	If the species is listed as a Candidate, preliminary determination of May Affect, but Not Likely to Adversely Affect greater sage-grouse. Overall, potential impacts to wolverines and their prey species would be site-specific, short- to long-term, and negligible to minor. Approximately 13 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat would be disturbed. Approximately 56 acres of marginal unoccupied habitat for boreal owls would be disturbed. Indirect site-specific, long-term, and negligible to minor impacts to boreal owls, flammulated owls, and Townsend's big eared bat. No impacts to spotted bat, peregrine falcon, and boreal toad. Impacts to bald eagles and amphibians and reptiles would be site-specific, short-term, and negligible. Impacts to Columbian sharp-tailed grouse, great gray owls, and three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor. Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate. Neither peregrine falcon individuals nor suitable habitat for this species is known to occur within the analysis area, thus there would be no impact to this species. Impacts to gray wolves would be site-specific, short-term, and negligible to minor. Impacts to migratory birds, including neotropical landbirds, would be site-specific, short-term, and minor to moderate. Overall impacts to big game are expected to be site-specific, short- to long-term, and minor. Impacts to predators, raptors, and upland game birds would be site-specific, short-term, and negligible to minor. Implementation of the GCLL would reduce the potential for selenium uptake by wildlife, and may reduce or increase foraging areas (depending on the species) as the GCLL area would not be allowed to reforest.	Same as Proposed Action	Same as Proposed Action, except approximately 46 fewer acres of habitat impacts would occur.	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to wildlife as described in the 2007 FEIS.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Fisheries and Aquatics				
Panel F	No or negligible impact to fisheries and aquatics.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to fisheries and aquatics as described in the 2007 FEIS.
Panel G	Approximately 8.5 acres of aquatic influence zones (AIZs) would be disturbed.	Same as Proposed Action	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 would generally be the same as described for the Proposed Action.	
Grazing				
Panel F	Approximately 8.1 acres of grazing allotments would be disturbed.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to grazing as described in the 2007 FEIS.
Panel G	Approximately 161.6 acres of grazing allotments would be disturbed. Utilization of the GCLL on 392 acres may result in a permanent increase in forage, as the GCLL area would not be allowed to reforest.	Impacts to grazing would be the same as described under the Proposed Action, except only 138 acres would be covered by the GCLL. Approximately 250 acres would be covered by a geologic store and release cover and 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.	Impacts to grazing would be the same as described under the Proposed Action except there would be 46 acres less disturbance, which would reduce the adverse impacts to the Deer Creek allotment. The size of the area that would be covered by the GCLL would be approximately 254 acres of the area to be covered by GCLL under the Proposed Action would instead receive a geologic store and release cover and 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.	

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Recreation and Land Use				
Panels F and G Combined – Recreation	No direct impacts to developed recreation. Direct impacts to dispersed recreation due to reduced acreage available for recreation. Indirect impacts to recreation from noise, activity, and visual impacts.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to recreation and land use as described in the 2007 FEIS.
Panel F – Land Use	Approximately 7.7 acres of disturbance to Management Prescription 5.2 and aspen-conifer timber contributing to the allowable sale quantity.	Same as Proposed Action	Same as Proposed Action	
Panel G – Land Use	280-acre reduction in Management Prescription 6.2. Approximately 129 acres of suitable timber would be disturbed. Approximately 392 acres covered by the GCLL would be permanently eliminated from future contribution to the allowable sale quantity.	The lease modification area, ODAs expansion disturbance, changes to management prescriptions, and impacts to allowable sale quantity (ASQ) would be the same as described for the Proposed Action. Use of a geologic store and release cover on approximately 250 acres 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.	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. Use of a geologic store and release cover on approximately 257 acres under Alternative 2 would result in impacts as described for Alternative 1.	
Inventoried Roadless Areas				
Panel F – Sage Creek IRA	1.3 acres of new disturbance within General Forest Theme; in compliance with Idaho Roadless Rule. Negligible or no impacts to wilderness attributes and roadless characteristics.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to inventoried roadless areas as described in the 2007 FEIS.
Panel G – Sage Creek	76.5 acres of new disturbance within General Forest Theme; in compliance with Idaho Roadless Rule. Negligible to minor impacts to wilderness attributes and roadless characteristics.	Same as Proposed Action	29.2 acres of new disturbance	

PROJECT COMPONENT OR RESOURCE		PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Panel G	Meade Peak	19.4 acres of new disturbance within General Forest Theme; in compliance with Idaho Roadless Rule. Negligible to minor impacts to wilderness attributes and roadless characteristics.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to inventoried roadless areas as described in the 2007 FEIS.
Visual and Aesthetic Resources					
Panel F		Approximately 8.1 acres disturbed in Modification visual quality objective (VQO). Project-related disturbance would be viewed in context of, and may not be distinguishable from, other surrounding mining activities. Project would be visible from one of the observation points from the 2007 FEIS.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to visual and aesthetic resources as described in the 2007 FEIS.
Panel G		The ODA expansion areas are located in both Modification and Partial Retention VQOs. Project-related disturbance would be viewed in context of, and may not be distinguishable from, other surrounding mining activities. Project would be visible from one of the observation points from the 2007 FEIS. Because the GCLL would not be allowed to reforest, that portion of the Project would never resemble its pre-disturbance vegetation scheme. 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.	The acreage and the height of the disturbance under Alternative 1 would be the same as the Proposed Action. Overall impacts to visual resources would be somewhat less than those described for the Proposed Action because the geologic store and release cover would be substituted for some of the GCLL, resulting in more natural looking reclamation consistent with surroundings.	The height of the disturbance under Alternative 2 would be the same as described for the Proposed Action, but there would be 46 fewer acres disturbed. Less disturbance would be visible from the viewpoint along Trail 103, but a GCLL would be used to cover the area most visible from that viewpoint. 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 disturbance area visible from the Trail 103 viewpoint is smaller.	

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Cultural Resources				
Panel F	No impacts – No cultural resources located along the ore conveyor system route.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to cultural resources as described in the 2007 FEIS.
Panel G	Two historic sites in the Panel G portion of the Project Area are not eligible for the NRHP, and do not require further management. Impacts to heritage resources and values would be negligible to minor as disturbance would affect grazing allotments and exercise of Treaty Rights.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to cultural resources as described in the 2007 FEIS.
Native American Concerns and Treaty Rights Resources				
Combined Panels F and G	No change in land ownership; however, the Project Area would not be available to support Treaty Rights. No Tribal historical or prehistoric archeological sites, no occurrences of rock art, and no sacred sites have been identified in the Project Area. Temporary negligible impact to access; negligible to minor impacts on nearby ceremonial or traditional use sites.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to Native American concerns and Treaty Rights resources as described in the 2007 FEIS.
Transportation				
Combined Panels F and G	Would not impact any public access routes.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to transportation as described in the 2007 FEIS.
Social and Economic Resources				
Combined Panels F and G	Mine employment would be unchanged. Property values along Crow Creek Road may be affected by perceived changes in the environment; however, the prediction of value changes is beyond the scope of the EIS. Would result in continued economic benefit to Bannock, Caribou, Power, and Lincoln counties. Impacts to the 27-county area would be the same as described in the 2007 FEIS.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved. Impacts to social and economic resources would be as described in the 2007 FEIS except royalties paid for mining of Panel G would be reduced because approximately half of the ore would not be mined.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Environmental Justice				
Combined Panels F and G	The Project would not cause disproportionately high and adverse effects on any minority or low-income populations.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to environmental justice as described in the 2007 FEIS.

CHAPTER 3

AFFECTED ENVIRONMENT

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Appendix 3A Surface Water Data Collected Near Panel G (2006 – 2012)

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter describes the existing environment, including the physical environment, natural environment, and human-made resources and uses, which would be affected by either the Proposed Action or the Action Alternatives. The alternative with the largest amount of disturbance is the Proposed Action and all other alternatives would occur within that larger footprint. The description of the existing environment for each resource in this chapter includes the largest area of potential disturbance.

3.1.1 Tiering and Incorporation by Reference

As stated in **Chapter 1**, 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. Much of Chapter 3 of the 2007 FEIS provides general information about existing conditions in the Project Area. That information is generally not repeated in the sections following. Rather, where specific sections of **Chapter 3** are tiered to the 2007 FEIS, the text is incorporated by reference or briefly summarized for some resources, followed by any specific Project-related information. Any new data collected for this EIS, which was not contained in the 2007 FEIS, is clearly identified.

3.1.2 Resource Values and Uses Brought Forward for Analysis

Because this EIS is tiered to the 2007 FEIS, all resources analyzed in that document are analyzed in this EIS as well. Therefore, the following resources and uses are brought forward for analysis and are presented in this chapter.

- Geology Minerals, and Topography, presented in **Section 3.2**
- Air Resources and Noise, presented in **Section 3.3**
- Water Resources, presented in **Section 3.4**
- Soils, presented in **Section 3.5**
- Vegetation, presented in **Section 3.6**
- Wetlands, presented in **Section 3.7**
- Wildlife Resources, presented in **Section 3.8**
- Fisheries and Aquatics, presented in **Section 3.9**
- Grazing Management, presented in **Section 3.10**
- Recreation and Land Use, presented in **Section 3.11**
- IRAs, presented in **Section 3.12**
- Visual and Aesthetic Resources, presented in **Section 3.13**
- Cultural Resources, presented in **Section 3.14**
- Native American Concerns and Treaty Rights Resources, presented in **Section 3.15**
- Transportation, presented in **Section 3.16**
- Social and Economic Resources, presented in **Section 3.17**, and
- Environmental Justice, presented in **Section 3.18**.

3.1.3 General Setting of the Project Area

The Project Area (the area that would be directly impacted by the Project) is located within the large-scale ecological unit called the Webster Ridges & Valleys subsection discussed in the EIS for the CNF RFP (USFS 2003b). The Webster Ridges & Valleys subsection occurs at low-to-high elevations with slopes ranging from 10 to 65 percent. This landscape includes mountainsides, canyons, ridges, and valleys eroded from sedimentary rocks that are folded in generally north-south trending patterns.

In general, the climate of the Project Area is typical of Rocky Mountain areas influenced by major topographic features. Nearby mountain ranges (e.g. Snowdrift Mountain and Freeman Ridge) trend primarily north to south and have an impact on local winds, as well as temperature and precipitation patterns in the immediate area. Based on the Smoky Canyon Mine's SWPPP, the annual precipitation in the vicinity of the Smoky Canyon Mine is 30-35 inches (Simplot Agribusiness 2004).

Summers tend to be warm to hot and are typically dry and winters are typically cold and the ground cover is snow packed. Nearby Afton, Wyoming has a mean monthly average temperature of 61.7 degrees Fahrenheit (F) in July and a mean monthly average temperature of 16.4 degrees F in January (WRCC 2004).

3.1.4 Analysis Area

The analysis area varies by resource value or use, depending on the geographic extent of the resource or use and the extent of the effects of the Project on a resource or use. In some cases the analysis area is the Project Area because that is the extent of the effects of the Project on the resource. In other cases the analysis area is much larger, encompassing larger administrative or natural boundaries, because the effects on the resource extend beyond the Project Area boundary itself. Analysis areas for all resources were covered within the Study Areas described for each resource in the 2007 FEIS. However, for some resources, additional field surveys and/or information was updated from previously collected and presented data described in the 2007 FEIS. This updated and/or newly collected data is presented in the applicable resource sections in this chapter.

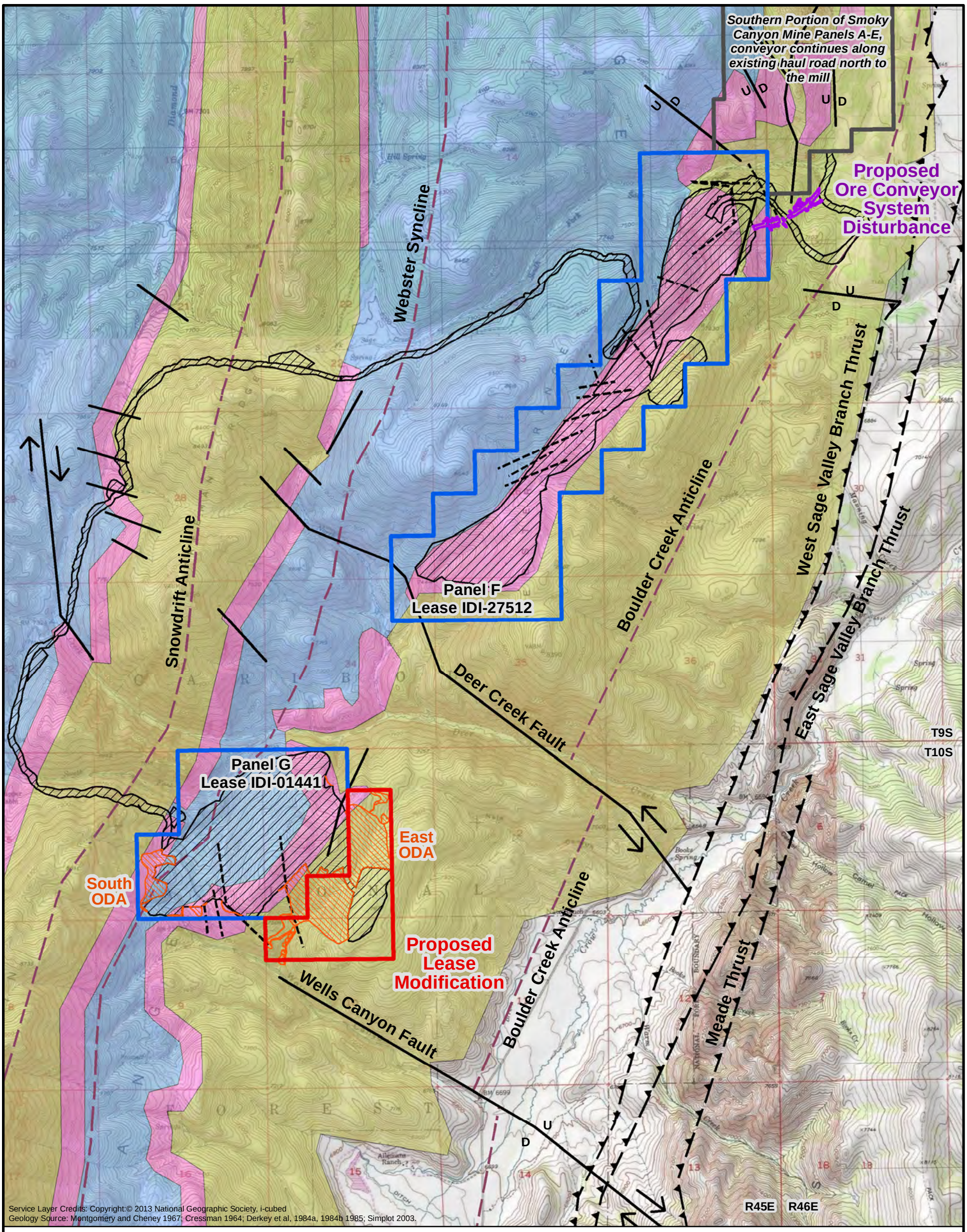
3.2 GEOLOGY, MINERALS, TOPOGRAPHY, AND PALEONTOLOGY

3.2.1 2007 FEIS Affected Environment

This section is tiered to Section 3.1 of the 2007 FEIS, titled Geology, Minerals, and Topography (pages 3-1 through 3-28), and applicable information is hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project. The following summary of the referenced information is specific to the Project.

3.2.1.1 Geology Resources

The Project Area is within the middle Rocky Mountain and Basin and Range physiographic provinces and is in the central part of the Over-Thrust Belt, a major orogenic zone extending through the North American continent in a general north-south trend. **Figures 3.2-1** and **3.2-2** show the general geology map for the Panels F and G portions of the Project Area under each alternative, and **Figure 3.2-3** provides a general stratigraphic section.



Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F & G Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine

Geology

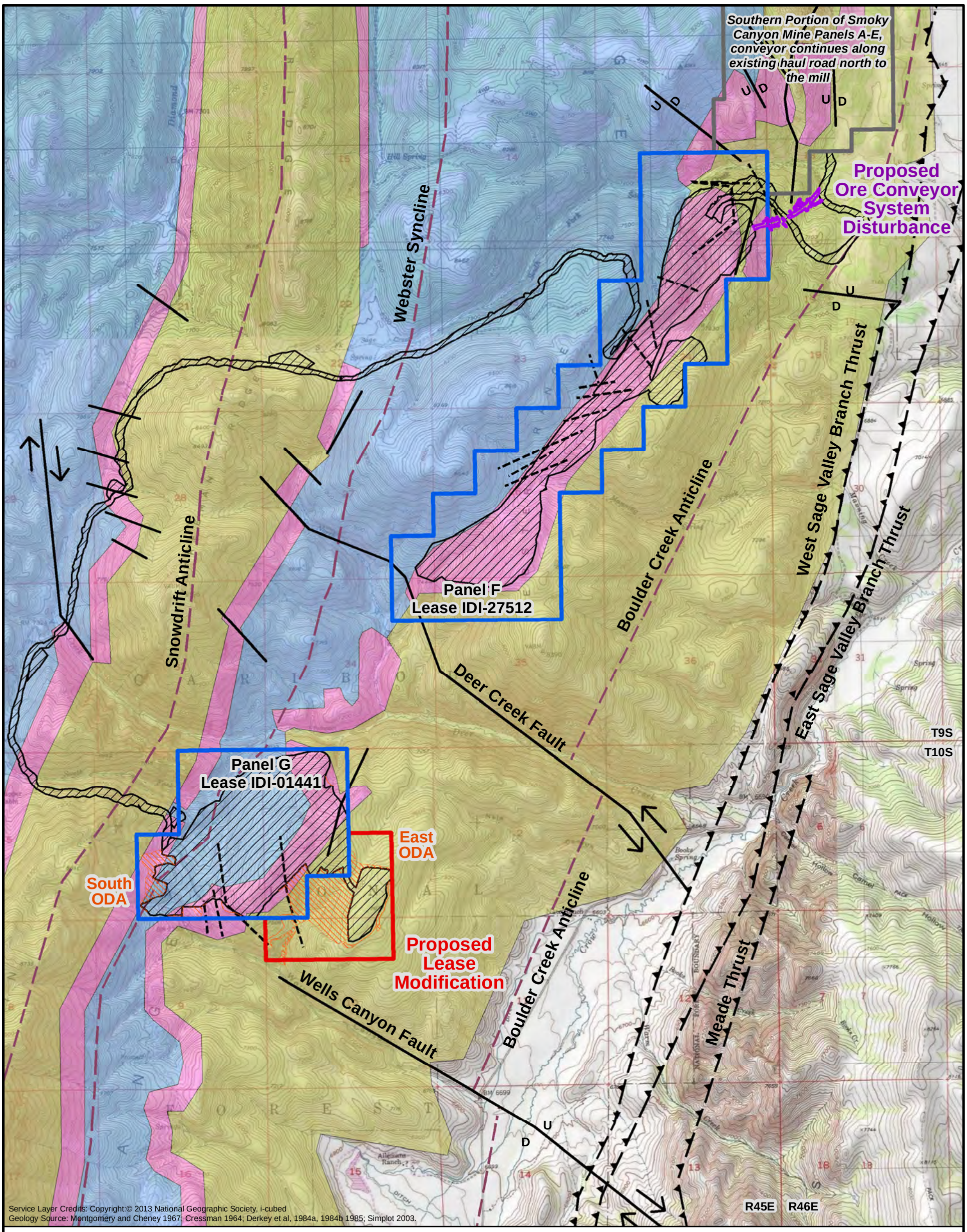
- Meade Peak Member
- Rex Chert Member and Dinwoody Formation
- Wells Formation and Brazer Limestone

- Anticline/Syncline
- Fault Interpreted by Simplot
- Normal Fault (U = upthrown; D = downthrown)
- Thrust Fault

N

3,000 0 3,000 Feet

Figure 3.2-1
Surface Geology and Faults:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS



Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F & G Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine

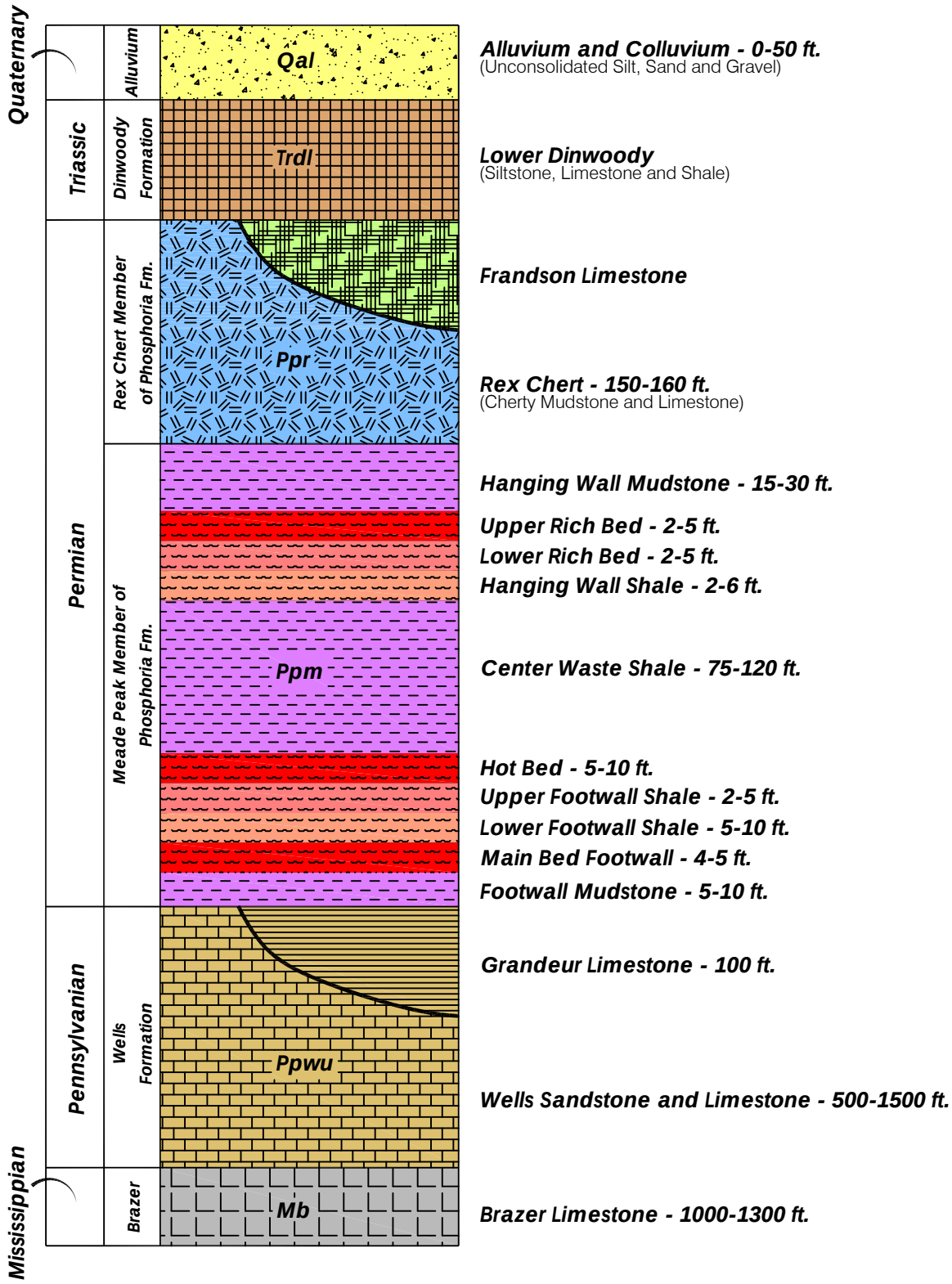
Geology

- Meade Peak Member
- Rex Chert Member and Dinwoody Formation
- Wells Formation and Brazer Limestone
- Anticline/Syncline
- Fault Interpreted by Simplot
- Normal Fault (U = upthrown; D = downthrown)
- Thrust Fault

N

3,000 0 3,000 Feet

Figure 3.2-2
Surface Geology and Faults: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS



Notes: Not to Scale. Red Units are Ore Bearing (Phosphatic)
From 2007 FEIS

Figure 3.2-3
Stratigraphic Section
Panel F & G Lease/Mine Plan Modifications EIS

As shown, the Brazer Limestone, Wells Formation, Rex Chert Member of the Phosphoria Formation, and Dinwoody Formation all occur within the Project Area. Along with brief descriptions provided in the 2007 FEIS, detailed stratigraphic descriptions are also provided for these geologic resources by Cressman (1964), Montgomery and Cheney (1967), McKelvey et al. (1959), Lowell (1952), and Deiss (1949).

The structural setting (Section 3.1.3), the seismicity and geotechnical stability (Section 3.1.4), and a detail description of the overburden characterization (Section 3.1.5) for the Project Area is provided in the 2007 FEIS and is not repeated in this EIS. Along with the brief summary of more recent CERCLA and remediation activities provided in **Section 2.3.2**, Section 3.1.6 of the 2007 FEIS also provides a description of regional and local past studies on COPCs for the Project Area.

3.2.1.2 Mineral Resources

As described in the 2007 FEIS, phosphate rock minerals are the only significant global source of phosphorus. The main economic use of phosphate rock is production of phosphate fertilizers, primarily diammonium phosphate (DAP). Fertilizers continue to be important to feed the growing world population because, although demand for food will increase, the area of cultivated land is not expected to increase significantly. For this reason, commercial fertilizers will become increasingly important to meet the nutritional requirements of the world's population (USGS 1999). World consumption of phosphate in fertilizer is projected to increase from 41.9 million tons in 2012 to 45.3 million tons in 2016. Phosphate production increased 3.9 percent in the U.S. between 2011 and 2012 (USGS 2013).

3.2.1.3 Potential for Acid Rock Drainage (ARD)

ARD is produced when sulfide minerals contained in rock chemically react with oxygen and water to produce sulfuric acid and other reaction products. This acidic condition can lead to the dissolution of metals that are more soluble in water at low pHs. Other minerals in rock (primarily carbonates) can neutralize acid and cause the precipitation or co-precipitation of dissolved constituents. The potential for generation of ARD is a function of the amount of sulfide minerals present in mine waste and the amount of available minerals to neutralize any generated acid (Lapakko 1993).

Representative samples of cuttings from rotary drill holes completed in 2001 and 2003 by Simplot were collected to test the ARD potential of the major stratigraphic potential overburden units proposed to be mined. Data for Panel G indicate that overburden would not present a significant risk of ARD. This is in line with conditions at the existing Smoky Canyon Mine and other phosphate operations in southeastern Idaho.

3.2.1.4 Topographic Resources

The Project Area is situated within landscapes that include mountainsides, canyons, ridges, and valleys eroded from sedimentary rocks that are folded in generally north-south trending patterns.

Elevations in the Project Area range from about 6,500 feet in the lower end of the South Fork Sage Creek where the Panel F ore conveyor system would cross over along the existing haul road to approximately 7,700 feet at the highest elevations within the Panel G lease modification area.

3.2.1.5 Paleontological Resources

As described in the 2007 FEIS (Section 3.1.9), sedimentary rocks of southeastern Idaho have paleontological resources consisting of vertebrate, invertebrate, and paleobotanical fossils including fish and shark remains. Fossils found in the Smoky Canyon Mine area are not unique to the Project Area. They are found throughout the region wherever similar formations exist (JBR 2001).

3.3 AIR RESOURCES AND NOISE

3.3.1 2007 FEIS Affected Environment

This section is tiered to Section 3.2 of the 2007 FEIS, titled Air Resources and Noise (pages 3-28 through 3-36), and applicable information is hereby incorporated by reference. The following sections summarize information relevant to the Project, although some information has been updated from the 2007 FEIS.

3.3.1.1 Climate Change

Long-term climatological data was obtained from the National Oceanic and Atmospheric Administration (NOAA) for the division of the eastern highlands of Idaho. While regionally representative, the climatology data can be assumed to differ slightly from that at the mine site. This is due to the NOAA data being an average of several weather stations that encompass six counties, one of which is Caribou County. **Table 3.3-1** depicts the average climatological variables for the regional calculated over a period of 13 years from 2000 to 2012.

Table 3.3-1 Average Eastern Highlands Idaho Climate Data from 2000 to 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Avg.
Average Temperature (F)	21.2	23.4	33.1	42.0	50.3	58.6	68.3	65.6	56.1	44.3	31.8	22.6	43.1
Average Total Precipitation (in.)	1.48	1.04	1.11	1.57	1.74	1.43	0.63	0.88	1.05	1.60	1.21	1.70	1.29

Source: NOAA 2013a

Ongoing scientific research has identified the potential impacts of the "greenhouse effect" resulting from several types of GHGs in air including CO_2, methane, nitrous oxide, water vapor, and several trace gasses on global climate. GHGs make up approximately 0.1 percent of the atmosphere. Through complex interactions on regional and global scales, these GHG emissions are believed to cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources is believed by some scientists to have caused CO_2 concentrations to increase, and are likely to contribute to overall climatic changes, typically

referred to as global warming. Increasing CO_2 concentrations also lead to preferential fertilization and growth of specific plant species.

Pollutants such as ozone and particulates may contribute to climate change. Climate impacts are greatest when ozone is in the upper portion of the troposphere (EPA 2011). This is considered "global background ozone" and concentrations are on the rise. Both direct and indirect particulates can have significant impacts on climate. Direct effects are associated with the particles ability to absorb and scatter light. For example, black carbon absorbs sunlight, thus heating the atmosphere. Deposition of black carbon increases the melting of snow and ice, particularly in the arctic and alpine regions. Additionally, particulates can change the reflectivity of clouds and indirectly influence their lifetime and subsequently precipitation (EPA 2011).

3.3.1.2 Air Quality

The State of Idaho regulates and controls air pollution through Title 39 of the Idaho Code. The USFS, which administers much of the Project Area land, protects air quality through compliance with these rules, regulations, and procedures under the IDEQ. The Smoky Canyon Mine has an air quality permit issued by the IDEQ. This air permit was originally issued in the early 1980s and was recently revised in 2012. The existing air permit applies to the mine and milling operations and the associated sources of regulated emissions. As part of the permit, Simplot maintains and implements a Fugitive Dust Control Plan that presents good operating practices to control emissions from the mine and mill operations.

The State of Idaho has adopted EPA's National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The criteria pollutants are ozone, carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter (PM) with aerodynamic diameter less than or equal to 10 microns and 2.5 microns (PM_{10} and $PM_{2.5}$), and lead (Pb). The NAAQS are shown in **Table 3.3-2**.

Table 3.3-2 State of Idaho and National Ambient Air Quality Standards

POLLUTANT	AVERAGING TIME	CONCENTRATION
Ozone	8 hours	157 $\mu g/m^3$ (0.08 ppm)
Carbon Monoxide (CO)	1 hour 8 hours	40,000 $\mu g/m^3$ (35 ppm) 10,000 $\mu g/m^3$ (9.0 ppm)
Nitrogen Oxides (NO_x)	1 hour Annual Arithmetic Mean	188 $\mu g/m^3$ (0.1 ppm) 100 $\mu g/m^3$ (0.05 ppm)
Sulfur Dioxide (SO_2)	1 hour 3 hours	196 $\mu g/m^3$ (0.075 ppm) 1,300 $\mu g/m^3$ (0.5 ppm)
Particulate Matter as PM_{10} (Aerodynamic diameter $\leq$ 10 microns)	24 hours	150 $\mu g/m^3$
Particulate Matter as $PM_{2.5}$ (Aerodynamic diameter $\leq$ 2.5 microns)	24 hours Annual Arithmetic Mean	35 $\mu g/m^3$ 12 $\mu g/m^3$
Lead (Pb)	Quarterly Arithmetic Mean	1.5 $\mu g/m^3$

Note: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million

Source: 40 CFR 50, National Primary and Secondary Air Quality Standards

Ambient air quality standards for NO_x are the mean value and must not be exceeded at any time during the year in areas with general public access. Short-term standards for CO, NO_x, and SO_2 can be exceeded only once annually. Compliance with the 24-hour PM_{10} and $PM_{2.5}$ standards is based on the 98th percentile of 24-hour concentrations averaged over three years. Similarly, 1-hour nitrogen dioxide (NO_2) is based on the 98th percentile, averaged over three years. One-hour SO_2 is based on the 99th percentile of 1-hour daily maximum concentrations, averaged over three years.

Fugitive dust and particulate control is regulated under Idaho Administrative Code (IDAPA) 58.01.01 for nonmetallic processing operations, haul roads, crushers, screens, material transfers, and stockpiles and must be controlled in accordance to IDAPA 808.01. The ozone standard pertains to an area that meets the standard when the 3-year average of the annual 4th-highest daily maximum, 8-hour concentration is less than or equal to 0.08 ppm.

According to EPA (1998, as cited in USFS 2003b), air quality on NFS lands is typically excellent. However, on occasion, pollutants from communities, industries, and agricultural activities outside of the forest can adversely affect air quality within the forest. Management activities within the forest, such as prescribed burning and use of unpaved forest roads, can produce particulate matter and CO emissions.

The air quality in the vicinity of the Smoky Canyon Mine is good to excellent because of the site's remote location and relatively limited industrial activity in the area. Air quality in the Project Area is designated as in attainment or unclassifiable for all NAAQS and Idaho Ambient Air Quality Standards. There is no record of Simplot's Smoky Canyon Mine ever receiving a Notice of Violation or having caused an NAAQS exceedance episode in regard to air quality (BLM and USFS 2007).

The main emissions that are caused by mining operations include particulate matter generated from in-pit operations and haul truck traffic. These sources are both considered fugitive sources and are regulated by visible emissions (opacity) standards and controlled by fugitive dust mitigation measures.

Air Quality Source Classification

The area surrounding and containing the Project Area is designated as Class II, as defined in the federal Prevention of Significant Deterioration (PSD) program (IDEQ 2002). Moderate degradation of air quality is allowed to occur within certain prescribed limits above baseline levels within a Class II designated area. Industrial sources desiring to locate or expand within a Class II area must demonstrate that the increased emissions will not cause significant degradation of air quality in all classified areas and will not cause visibility degradation in Class I areas.

Within designated Class I PSD areas, the level of deterioration allowed, and therefore the standards prescribed, are much more stringent. Class I areas typically include wilderness areas and National Parks. Within 125 miles of the Smoky Canyon Mine, the federal Mandatory Class I areas include: Yellowstone National Park, Grand Teton National Park, the Bridger Wilderness Area in Wyoming, and Craters of the Moon National Monument in Idaho. A general distance guideline in evaluating Class I area impacts is 60 miles. The Smoky Canyon Mine is located more than 70 miles away from the nearest Class I areas, thus an evaluation for impacts to these areas were deemed unnecessary for **Chapter 4**.

Existing Sources

Information on existing sources is thoroughly described in the 2007 FEIS (Section 3.2.1) and has not changed.

Unpermitted and mobile sources of air pollutants are common in rural settings. Agricultural operations, agricultural burns, forest prescribed burns, open burning/wildfires, road traffic, off-road vehicle use, and construction in the immediate area are all sources of fugitive particulate matter in the Project Area. The EPA estimates that these types of air pollution sources contribute up to 52 percent of the particulate matter emissions in adjacent Lincoln County (EPA 2003).

3.3.1.3 Noise Resources

The 2007 FEIS provides a detailed explanation of noise effects and how to properly assess the noise resources for any area. To briefly summarize, the affected environment for noise impacts is usually limited to a distance of 880 yards (2,640 feet) from the source based on current wildlife studies (Fletcher 1980 in BLM and USFS 2007). However, if residential housing has the potential to be impacted, the affected environment includes the distance from the source of the noise to the residence.

The unit of sound level measurement (i.e., volume) is the decibel (dB), expressed as dBA . The A-weighted decibel measure is used to evaluate ambient noise levels and common noise sources. Sound measurements in dBA give greater emphasis to sound at the mid- and high- frequency levels, which are more discernible to humans. The decibel is a logarithmic measurement; thus, the sound energy increases by a factor of 10 for every 10 dBA increase.

Generally, natural noise levels will be around 35 dBA in rural areas away from communities and roads. Within a rural community, the man-made noise level ranges from 45 dBA to 52 dBA (EPA 1981). The day-night sound level of residential areas should not exceed 55 dBA to protect against activity interference and annoyance (EPA 1981). **Table 3.3-3** presents typical sound levels in dBA and subjective descriptions associated with various noise sources.

Table 3.3-3 Sound Levels Associated with Ordinary Noise Sources

NOISE SOURCE	NOISE LEVEL	SUBJECTIVE DESCRIPTION
Commercial Jet Take-Off	120 dBA	Deafening
Road Construction Jackhammer	100 dBA	Deafening
Busy Urban Street	90 dBA	Very loud
Standard For Hearing Protection 8-Hour Exposure Permissible Exposure Limit (PEL) (Mine Safety and Health Administration [MSHA]) Action Level within Active Mining Facilities	90 dBA 85 dBA	Very loud Loud to very loud
Construction Equipment at 50 feet	80-75 dBA	Loud
Freeway Traffic at 50 feet	70 dBA	Loud
Normal Conversation at 6 feet	60 dBA	Moderate
Typical Office (interior)	50 dBA	Moderate
Typical Residential (interior)	30 dBA	Faint

Noise Regulations

The Federal Noise Control Act of 1972 established a requirement that all federal agencies administer their programs to promote an environment free of noise that jeopardizes public health or welfare. Although the Occupational Safety and Health Administration (OSHA) has the most extensive regulations in regard to noise pollution, these standards are only for noise levels within the workplace.

EPA identifies outdoor noise limits to protect against effects on public health and welfare by an equivalent sound level (Leq), which is an A-weighted average measure over a given time. Outdoor limits of 55 dBA Leq have been identified as desirable to protect against speech interference and sleep disturbance for residential areas and areas with educational and healthcare facilities. Sites are generally acceptable to most people if they are exposed to outdoor noise levels of 65 dBA Leq or less, potentially unacceptable if they are exposed to levels of 65–75 dBA Leq, and unacceptable if exposed to levels of 75 dBA Leq or greater (EPA 1981).

Existing Noise Levels

As part of the 2007 FEIS, existing noise levels were measured under typical operating conditions at the Smoky Canyon Mine and at various surrounding locations unaffected by the mine. Noise measurements at the mine included existing access road traffic, haul road traffic, in-pit activities, and blasting. Haul road noise levels were further segregated into flat terrain, steep grade terrain, haul and dump traffic, and haul and access road traffic. Measurements were taken at locations with various distances and included considerations of terrain and vegetation characteristics. Background noise measurements taken nearest to the Panels F and G area were all generally within the man-made noise level ranges for a rural community. Since those measurements were made, mining of Panel F has been initiated and is progressing southward. Construction of the Panel G West Haul Road has also been initiated and is nearing the existing Panel G lease area.

3.4 WATER RESOURCES

3.4.1 2007 FEIS Affected Environment

This section is tiered to Section 3.3 of the 2007 FEIS, titled Water Resources (pages 3-36 through 3-76), and applicable information hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project. The following summary of the referenced information is specific to the Project. In addition, some data from the RI/FS Report (Formation Environmental 2014) are presented for context. The RI/FS Report is part of the CERCLA investigation, which was briefly described in **Chapter 2**; it evaluates selenium as both the primary COPC and as an indicator of other COPCs at the existing Smoky Canyon Mine operations.

3.4.1.1 Surface Water Resources

Simplot's existing and approved mining activities are located within small tributary catchments that are either part of the Tygee Creek watershed or the Crow Creek watershed. Both of these watersheds drain to the Salt River. The proposed Panels F and G modifications would be located within the same small catchments, although the Panel F ore conveyor system would only be constructed along an existing haul road within the Tygee Creek watershed. The ore conveyance system on Panel F would cross Sage Creek and two of its tributaries (South Fork Sage and Pole

Canyon creeks), terminating at the existing mill near Smoky Creek. The Panel G modifications would occur within Deer Creek, Nate Canyon, and Wells Canyon catchments. Smoky Creek is tributary to Tygee Creek, while the other potentially affected catchments are tributary to Crow Creek.

The 2007 FEIS and the earlier Final Supplemental EIS, Smoky Canyon Mine Panels B and C (2002 FSEIS; BLM and USFS 2002) described surface water resources for these watersheds. As noted therein, area streams normally exhibit peak flows in April, May, or June, with declining flows in late summer, fall, and winter. Further noted was a characteristic shared among most of the Project Area streams, wherein all or most of the streamflow is lost where stream segments cross the permeable sandstone/limestone bedrock of the Wells Formation. These two characteristics contribute to temporal and spatial variations in flow within the Project Area. The previous 2007 FEIS and 2002 Final Supplemental Environmental Impact Statement (FSEIS) provide detailed information on watershed characteristics, flow patterns, stream flows, water quality, channel morphology/streambed sediment, and surface water uses. The following summaries of this information are given only for potentially affected catchments in order to provide a context for impact assessment. For those catchments within the proposed Panel F modification, only very limited water resources information is provided herein, due to the limited potential for impacts from the Panel F ore conveyor system.

The RFP for the CNF (USFS 2003a) contains goals, standards, and guidelines specific to managing surface water resources under various types of activities that may occur on the CNF. Forest-wide guidance that applies directly to surface water resources will be reviewed and evaluated as it relates to impacts analysis in **Chapter 4**. Further, the analysis will consider RFP guidelines for analyzing proposed projects in regard to non-point pollutant sources, beneficial use impairments, and percent of watershed that would be in a hydrologically disturbed condition at any one time.

As noted, a RI/FS Report (Formation Environmental 2014) has been prepared for the Smoky Canyon Mine to document selenium impacts that are being investigated under CERCLA. That report includes older and more recent surface water monitoring results for numerous sites in the Tygee and Sage Creek watersheds, as well as in Crow Creek up- and downstream of Sage Creek. The most recent data reported in the RI/FS Report were collected in 2010 through 2013, and were used to support the predictive modeling efforts for surface water and groundwater. Although primarily focused outside of the area of interest for the current analysis, the RI/FS Report describes that overburden storage at the Smoky Canyon Mine has resulted in elevated selenium concentrations in Sage Creek and in Crow Creek downstream of Sage Creek, primarily through a groundwater-to-surface water pathway, and will continue to do so in the future (Formation Environmental 2014). Because the proposed Panel G modification would occur within a drainage that is also tributary to Crow Creek, selected information from the RI/FS Report's surface water data and predictions is discussed below under the Panel G Lease Modification subsection of this surface water resources section.

In Idaho, surface water quality is protected by implementing Idaho State Water Quality Standards at IDAPA 58.01.02. Within that code, the State classifies streams according to their designated beneficial uses, and applies numeric and narrative criteria based upon those uses. For undesignated surface waters (including Crow Creek within Idaho, Sage Creek, Deer Creek, Tygee Creek, and their perennial or intermittent tributaries), Idaho Code presumes by default

cold-water aquatic life and contact recreation beneficial are applicable uses and applies relevant water criteria for those uses. Simplot routinely monitors surface water sources at numerous locations near the mine in order to track if mining operations may affect beneficial uses.

Further, states regularly assess streams to determine whether or not they support their designated beneficial uses and report those results online and in reports known as the Integrated 303(d)/305(b) Reports. Streams not meeting beneficial uses may be recommended by states to EPA for listing as impaired under CWA section 303(d). These recommendations are revised and updated every two years. The most current list approved by EPA for Idaho is the 2010 list (IDEQ 2010); at the time the 2007 FEIS was approved, the 2002 Integrated Report for Idaho was in effect (IDEQ 2005). The more current information is provided in the following text where relevant to the proposed Panel G modifications.

Panel F Ore Conveyor System Area

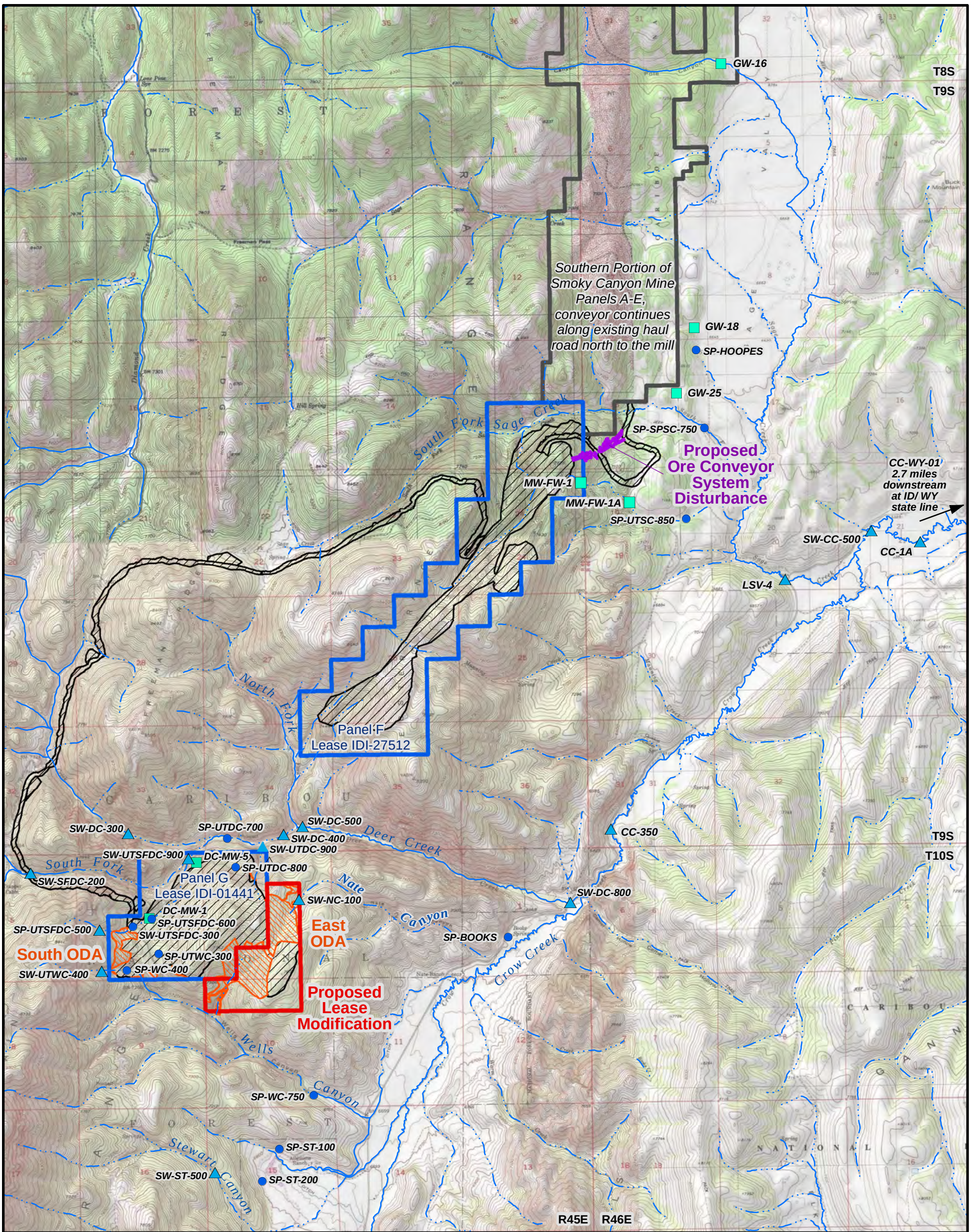
The proposed ore conveyance system would be constructed almost entirely on approved disturbances associated with the existing haul road. Trending south-north, the Panel F ore conveyor system would cross South Fork Sage, Sage, and Pole Canyon creeks on the same earthen fills that support the haul road. It would terminate at the existing ore stockpile at the mill.

Sage Creek is a perennially flowing stream with a watershed area of approximately 25 square miles. Pole Canyon and South Fork Sage are two of the larger subwatersheds within the Sage Creek basin. Pole Canyon creek surface flow apparently reaches Sage Creek only rarely. South Fork Sage Creek upstream of South Fork Sage Creek Spring is characterized as intermittent, and has some channel reaches where the flows go subsurface for distances between perennial pools. Downstream of South Fork Sage Creek Spring, South Fork Sage Creek is perennial to its confluence with the main stem of Sage Creek. Its flow, and flow from Hoopes Spring, helps to maintain a base flow of about 10-15 cubic feet per second (cfs) at Sage Creek's mouth where it enters Crow Creek.

Mine-related disturbances have already occurred within all of these watersheds and impacts to surface water resources from Simplot's mining activities have been previously assessed in the 2007 FEIS and the 2002 FSEIS. The newly proposed Panel F modification of adding an ore conveyor system largely on top of existing disturbance would only have the potential to further alter hydrology by a small increment over current conditions. Therefore, additional details on stream flows or water quality (including impairments) are not provided here.

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

The proposed Panel G modifications would occur on land located between Deer Creek and Wells Canyon, including the upper reaches of Nate Canyon. Most, but not all, of this land has already been approved for disturbance under the 2007 FEIS and 2008 RODs. Streams and springs in these three catchments were among the surface waters that Maxim (2004a, 2004b, 2005) monitored as part of the baseline studies for the 2007 FEIS. Those data, along with updated information where available, provide the basis for the following flow and water quality information. Monitoring site locations are shown on **Figures 3.4-1** and **3.4-2**. Flow and water quality data for years 2006 to the present (Formation Environmental 2013) reflect monitoring of a subset of the baseline monitoring sites; these more recent data (2006 to present) are included in **Appendix 3A**. These catchments were not part of the RI/FS (Formation Environmental 2014).



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Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F and G Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine

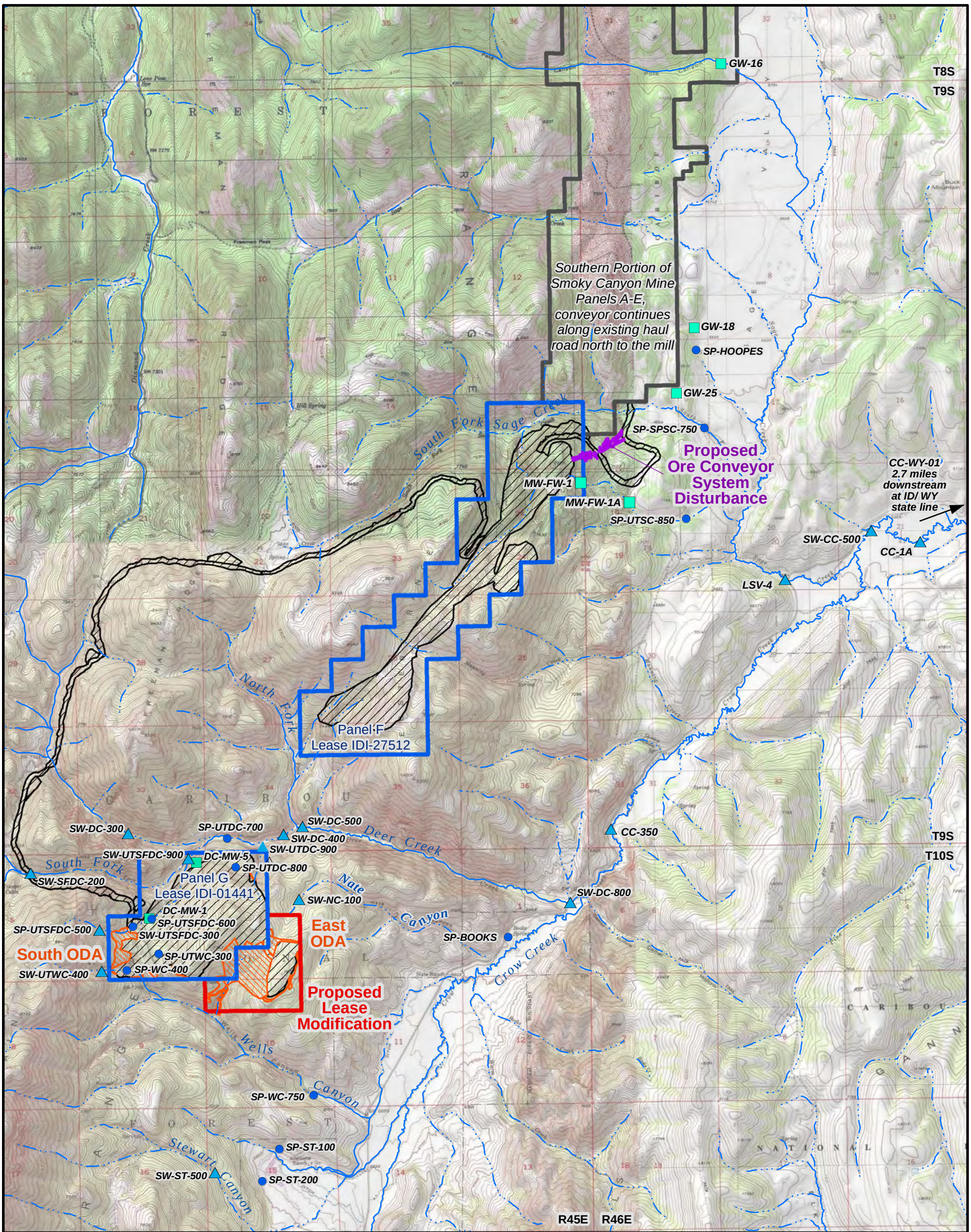
Water Resources

- Intermittent Stream
- Perennial Stream
- Spring/Seep Monitoring Location
- Stream Monitoring Station
- Groundwater Well Location

N

4,000 0 4,000 Feet

Figure 3.4-1
Water Monitoring Locations:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS



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Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F and G Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine

Water Resources

- Intermittent Stream
- Perennial Stream
- Spring/Seep Monitoring Location
- Stream Monitoring Station
- Groundwater Well Location

N

4,000 0 4,000 Feet

Figure 3.4-2
Water Monitoring Locations: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Deer Creek drains an area of about 11.5 square miles. Its flows are partially supported by several springs. Perennial in some locations and intermittent in others, Deer Creek's baseflow is about 1.2 to 1.9 cfs in its lower reaches. Further upstream (at SW-DC-400, which is immediately upstream of the confluence with North Fork Deer Creek), flows were monitored eight times between 2002 and 2005. Flow was measured between 2.68 and 7.22 cfs during spring season visits, and no surface flow was observed during summer and fall visits to this site (Maxim 2004a, 2004b, 2005). Subsequent measurements between 2006 and 2010 were generally made in spring and in late fall. While the late fall visits reported no flow, the spring visits measured generally much higher flows (up to 54 cfs) than were found during the baseline period.

A short distance upstream, South Fork of Deer Creek joins Deer Creek. Monitoring at its mouth (SW-UTDC-900) reported no surface flow during either the 2002 or 2003 visits, and the site was not monitored again. A tributary to the South Fork of Deer Creek that is already approved to be disturbed by Panel G activities was monitored at two locations. The upstream site (SW-UTSFDC-300) was monitored twice in 2002; both the spring and fall events reported no surface flow. The downstream site (SW-UTSFDC-900) was monitored three times in 2003; flow was measured at 0.35 cfs in the spring but no flow was present during the summer or fall visits.

Two springs located within the South Fork Deer Creek watershed that would be affected by the previously-approved Panel G South ODA were also monitored. SP-UTSFDC-500 was flowing at 0.002, 0.01, and 0.031 cfs in the spring of 2002, 2003, and 2005, respectively, but was not flowing during any of the summer or fall monitoring events. SP-UTSFDC-600 was visited twice: in spring 2003 a report of "snowmelt" was made and in the fall of that year the report noted "wet." Impacts to these two springs were disclosed in the 2007 FEIS, wherein it was predicted that the former would be covered by overburden and the latter would remain exposed but with impacted water quality (e.g. elevated selenium).

Selenium contamination of surface waters has been associated with past phosphate mining in southeastern Idaho, including at Smoky Canyon Mine within the Sage Creek watershed north of Deer Creek. The 2007 FEIS and 2002 FSEIS discussed this subject in detail. For example, high selenium values were reported in stormwater runoff crossing waste rock dumps and seepage through overburden fills. Further, certain surface water samples contained elevated selenium concentrations, including some that were equal to or greater than the 0.005 milligrams per liter (mg/L) surface water criterion. Data for selected sites (shown in **Figure 3.4-1**) that were part of the RI/FS efforts (Formation Environmental 2014) are graphed in **Figure 3.4-3**, which shows the seasonal and spatial variation in selenium concentrations. At site (LSV-4), located in lower Sage Valley near the mouth of Sage Creek, more than 40 water samples were analyzed for selenium from 2002 through 2012. All showed elevated selenium, which ranged between 0.0031 to 0.045 mg/L (Formation Environmental 2014). The Crow Creek data show the effects of the Sage Creek selenium loading. Site CC-350 is located upstream of Sage Creek and was sampled 24 times from 2006 through 2012; site CC-1A is located downstream of Sage Creek and was sampled 23 times during that period. The range in selenium concentrations at CC-350 was 0.0002 to 0.0014 mg/L, while the range at CC-1A was from non-detect to 0.017 mg/L. Additional sites in Crow Creek were also sampled, including downstream of CC-1A at a site (CC-WY01) near the Wyoming border, where selenium concentrations ranged from 0.003 to 0.013 mg/L (Formation Environmental 2014).

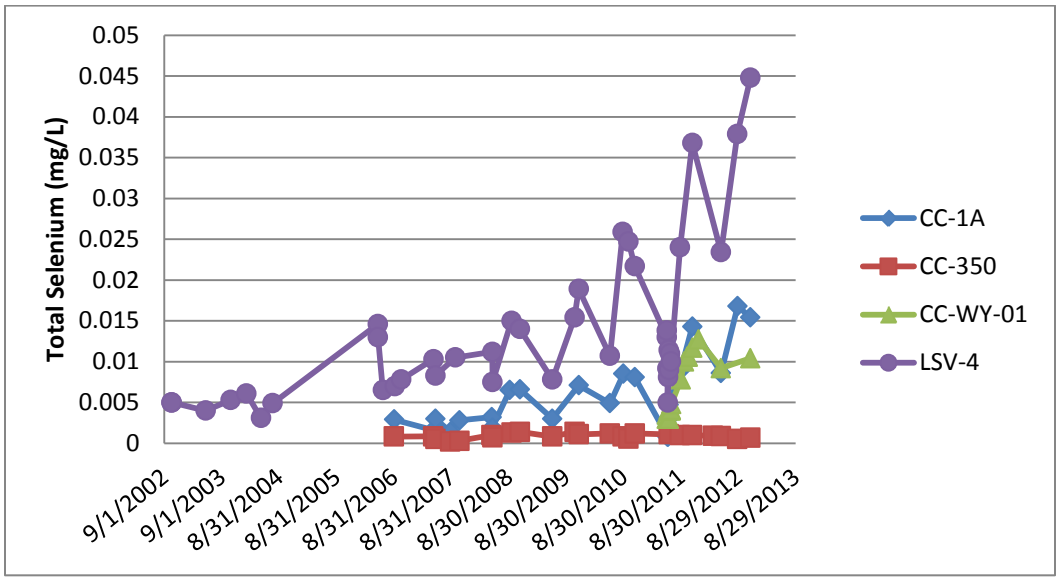


Figure 3.4-3 Selenium Concentrations in Selected Streams

As described in **Section 2.3.2**, CERCLA studies and remediation have been ongoing and are continuing to be implemented in order to address these issues. These include lessening the amount of stream flow and infiltrating precipitation that enters the overburden fills at the Smoky Canyon Mine through revised water management practices at reclaimed areas. These actions lessen the amount of selenium that is leached from the overburden fills and added to the groundwater. In addition, pilot testing of a water treatment plant to reduce selenium concentrations in water discharged at Hoopes Spring is planned to commence in 2014. Utilization of a GCLL on Panel G has been proposed by Simplot under the mine plan to provide even more protection of water quality.

Water quality within the Deer Creek watershed is generally good. Maxim (2004b, 2005) noted that samples from South Fork Deer Creek had better quality in regard to general ionic chemistry than the other area streams that they sampled. However, they also noted exceedances of aquatic life criteria at two sites in the area of the Deer Creek drainage, located upstream of the existing mine and near or within the proposed Panel G modifications. At SW-DC-400, one out of the three samples collected during the baseline study reported a dissolved zinc concentration of 0.64 mg/L, which is well above the 0.105 mg/L hardness-based criteria (the other two samples from that site had much lower zinc concentrations). Subsequent monitoring at this site included a subset of trace metals (cadmium, chromium, nickel, vanadium, and zinc), as well as selenium; no exceedances of aquatic criteria were reported. At SP-UTSFDC-500, one out of the two samples collected during the baseline monitoring reported total mercury (0.0004 mg/L) and dissolved zinc (0.21 mg/L) concentrations that exceeded the relevant aquatic life criteria (0.000012 mg/L and 0.105 mg/L, respectively).

Wells Canyon is a 3.3 square-mile watershed that feeds into an irrigation ditch near its mouth. Upstream reaches are generally ephemeral, while further downstream flows become perennial. During the baseline surface water monitoring, several sites in Wells Canyon were monitored (Maxim 2004a, 2004b, 2005). Relevant to the proposed Panel G modifications are two springs and one stream site in the upper part of the watershed. Spring SP-UTWC-300 was previously

approved to be covered by the South ODA. This spring appears to flow only seasonally. Spring SP-UTWC-400 (previously named SP-WC-400) was to remain uncovered under the previous 2007 FEIS, but its water quality was expected to be impacted. This spring appears to sustain flow year-round, based upon the baseline monitoring for the 2007 FEIS, with measured flows between 0.002 and 1.82 cfs reported during the 2002–2005 time period. Between spring 2006 and spring 2009, measured flows ranged from 0.0005 cfs to 0.229 cfs. Since that time, all site visits have reported no flow. This spring continues to be monitored twice a year (spring and fall). A tributary to Wells Canyon (ST-UTWC-400), also approved to be covered by the South ODA, was dry during all three site visits, two of which were made during spring.

Maxim (2004b, 2005) also collected water samples from both of the aforementioned springs during the baseline period. Total mercury exceeded the aquatic life standard in one of the three samples collected from SP-UTWC-300. SP-UTWC-400 was sampled a total of nine different days within the baseline period. Exceedances were reported for selenium in August 2002 and cadmium, mercury, and zinc in August 2004. Subsequent monitoring at this spring included a subset of trace metals (cadmium, chromium, nickel, vanadium, and zinc), as well as selenium; no exceedances of aquatic criteria were reported.

Nate Canyon is a small ephemeral drainage that captures runoff from the area south of the Deer Creek catchment and north of the Wells Canyon catchment. In 2003 and 2004, Maxim (2004a) monitored a site in the upstream reaches of the channel, which would be covered under the proposed expansion of the East ODA. This site (SW-NC-100) had no surface flow during any of the five monitoring events.

Maxim (2004a) attributed the Deer and Wells catchment surface water criteria exceedances to natural geologic sources. Further, the State's approved 2010 305(b) Integrated Report (IDEQ 2010) for these streams does not indicate impairment due to trace elements.

Other types of impairment are noted in the approved 2010 305(b) Integrated Report (IDEQ 2010). First, 11.69 miles of the "South Fork Deer Creek" assessment unit ([AU] ID17040105SK010_02a) are listed as impaired under both Sections 5 and 4c of the report. The AU includes the South Fork mainstem (including its southern tributary) and Upper Deer Creek (including two tributaries) above its confluence with the South Fork. Section 4c lists waters impaired by physical substrate habitat alteration, which is not considered a pollutant. Section 5 lists waters impaired by one or more pollutants, and equates to the 303(d) list. The South Fork Deer Creek AU is considered as not fully supporting aquatic life beneficial uses due to sedimentation/siltation. Wells Canyon and Nate Canyon are both listed along with 65 miles of Crow Creek and tributaries under AU ID17040105SK008_02 as not supporting recreational beneficial use designations due to *Escherichia coli*. The lower reaches of both Deer Creek and Wells Canyon are considered to fully support beneficial uses.

The 2007 FEIS described sediment in surface waters in the vicinity of the Smoky Canyon Mine in multiple ways. The 2007 FEIS noted that area streams had measured suspended solids concentrations that were commonly less than detection levels (5 mg/L); and analogous turbidity measurements ranged from less than 1.0 to 52 Nephelometric Turbidity Units (NTUs) and apparently encompassed more runoff-related data. Both of these parameters reflect instantaneous water quality conditions. The 2007 FEIS also described surface water sediment conditions in area streams based upon several channel bed metrics; these reflect a more cumulative measure of transported sediments. In general, these data reflected widely varying conditions: Pebble counts

indicated stream bed surfaces that were predominately gravel-sized, but core samples reflected higher percentages of fine particles than is conducive to aquatic habitat. Embeddedness measurements ranged widely. Further, Simplot tracks sediment accumulation in and released from their sediment retention ponds as required by their SWPPP (Simplot AgriBusiness 2004) and uses that data to reassess and modify stormwater management BMPs and EPMs as needed.

In addition to their physical characteristics, the chemical makeup of streambed sediments can also be important to aquatic and riparian resources. The 2007 FEIS also discussed this subject, noting that area streambed sediment samples had relatively high (greater than benchmark levels) of cadmium, chromium, nickel, and zinc concentrations even where mining had not yet occurred; copper and selenium concentrations were below benchmarks.

3.4.1.2 Groundwater Resources

The 2007 FEIS provided a detailed discussion of groundwater resources in the vicinity of the Smoky Canyon Mine, including descriptions of hydrostratigraphy, recharge/discharge, hydraulic characteristics, and water quality, as well as assessing the local groundwater-surface water connections. In short, that information reports that sedimentary rock units, including those bearing the ore, generally control the area's groundwater flow systems. The primary regional aquifer is the Wells Formation (along with the associated Brazer Limestone); the overlying Rex Chert member of the Phosphoria Formation and the Dinwoody Formation are also water bearing and are considered locally important (**Figures 3.2-1** and **3.2-3**). Separating the Wells Formation from these other two shallower geologic units is the Meade Peak member of the Phosphoria Formation. The Meade Peak member is generally considered to be a barrier to downward groundwater movement between the aforementioned aquifers; the effectiveness of which is influenced by the degree of fracturing of the unit. As a result, groundwater in the Rex Chert member and Dinwoody Formation does not recharge the aquifer in the Wells Formation to a significant degree. The exception to this is where perennial streams flowing across the Dinwoody are supported by Dinwoody groundwater, and these stream flows are lost downstream to the Wells Formation outcrop where the channels cross the outcrop. Groundwater from the Wells Formation and Brazer Limestone does not flow up through the Meade Peak member, so it does not connect to seeps, springs, and streams within the outcrop areas of the Rex Chert member or Dinwoody Formation.

In general, recharge of the primary aquifer occurs along the high-elevation Freeman Ridge and Snowdrift Mountain, and groundwater flows generally eastward toward discharges located in Sage and Crow Creek valleys (**Figures 3.2-1** and **3.4-1**). Additional recharge occurs along this flow path where outcrop of the Wells Formation and Brazer Limestone occur between the eastward edge of the Phosphoria Formation and the discharge locations. Discharge from the primary aquifer occurs as major springs that are at, or near, the trace of the thrust faults in Sage Valley and in the bottom of Crow Creek Valley. Discharge from the more localized groundwater flow systems (Dinwoody Formation and Rex Chert member of the Phosphoria Formation) produces smaller springs and seeps in and near the Panels F and G lease areas. Area streams gain flow from groundwater discharges in the Dinwoody Formation and then lose flow over the Wells Formation, notably in upper Wells Canyon and the Deer Creek drainage. However, at the Meade Thrust Fault zone, groundwater in the primary regional aquifer discharges upward to surface streams and springs located along the fault zone or locations immediately west of it.

The aforementioned RI/FS Report (Formation Environmental 2014) also provided an extensive analysis of geology, hydrogeology, and groundwater, primarily focused on the area to the north of South Fork Sage Creek and the Panels F and G lease areas. That more recent report supports the general characterizations from the 2007 FEIS, such as the general direction of groundwater flow in the area. **Figure 3.4-4** is taken from the RI/FS Report (Formation Environmental 2014) and shows the Wells Formation regional groundwater flow. **Figures 3.4-5** and **3.4-6** are taken from the 2007 FEIS and show more detail in the vicinity of Panel G. These figures illustrate that the South Fork of Sage Creek drainage, which essentially separates Panels F and G (to the south) and Panels A through E (to the north), is the low point for both areas and groundwater flows converge to this low point from both directions.

The RI/FS Report (Formation Environmental 2014) also provides new groundwater data as well as new predictive modeling. Some of this new information is particularly relevant to selenium loading from the active and historic mine to groundwater. Groundwater data for the RI/FS were collected in 2010, 2011, 2012, and early 2013 from the Wells Formation aquifer and from alluvial groundwater, as well as from certain springs. Data collection sites (i.e., GW-20, LSV-SP1, etc.) were primarily east of the existing mine operations outside of the proposed Panels F and G modification area.

However, it is noteworthy that selenium concentrations have continued to increase at several of those locations since they were reported in the 2007 FEIS. In particular, monitoring well GW-16, located down gradient of the Pole Canyon overburden disposal area (**Figures 3.4-1** and **3.4-2**) and completed in the Wells Formation, was reported in the 2007 FEIS to have selenium concentrations ranging from 0.45 to 0.64 mg/L. That well saw concentrations rise to a peak of 1.27 mg/L in 2008, and between early 2009 and late 2012 they fluctuated between about 0.7 and 0.9 mg/L (Formation Environmental 2014).

Total selenium concentrations in groundwater near Hoopes Spring and South Fork Sage Creek springs have also changed since data were reported in the 2007 FEIS. GW-18 describes Wells Formation water quality just north of Hoopes Spring. Samples collected from that monitoring well had total selenium concentrations ranging from 0.004 to 0.006 mg/L, according to the 2007 EIS. Since then, selenium concentrations have gradually risen to about 0.01 mg/L as of the end of 2012, according to the RI/FS Report (Formation Environmental 2014). GW-25 describes Wells Formation groundwater north of South Fork Sage Creek Spring. It was not installed until 2007, but since the initial sample, total selenium concentrations have climbed from less than 0.001 to more than 0.1 mg/L (Formation Environmental 2014). As surface expressions of Wells Formation groundwater in this area, Hoopes Spring and South Fork Sage Creek Spring continue to show elevated, and increasing, selenium concentrations, as measured at several component discharge sites. At four monitored locations within the Hoopes Spring complex, total selenium concentration data collected from 2000 to early 2013 had mean concentrations ranging from 0.0394 to 0.0558 mg/L, trending upward, according to the RI/FS Report (Formation Environmental 2014). The RI/FS Report also reported mean total selenium concentrations at several sites in the South Fork Sage Creek springs complex ranging from 0.0024 to 0.0826 mg/L., also trending upward.

Panel F Ore Conveyance System Area

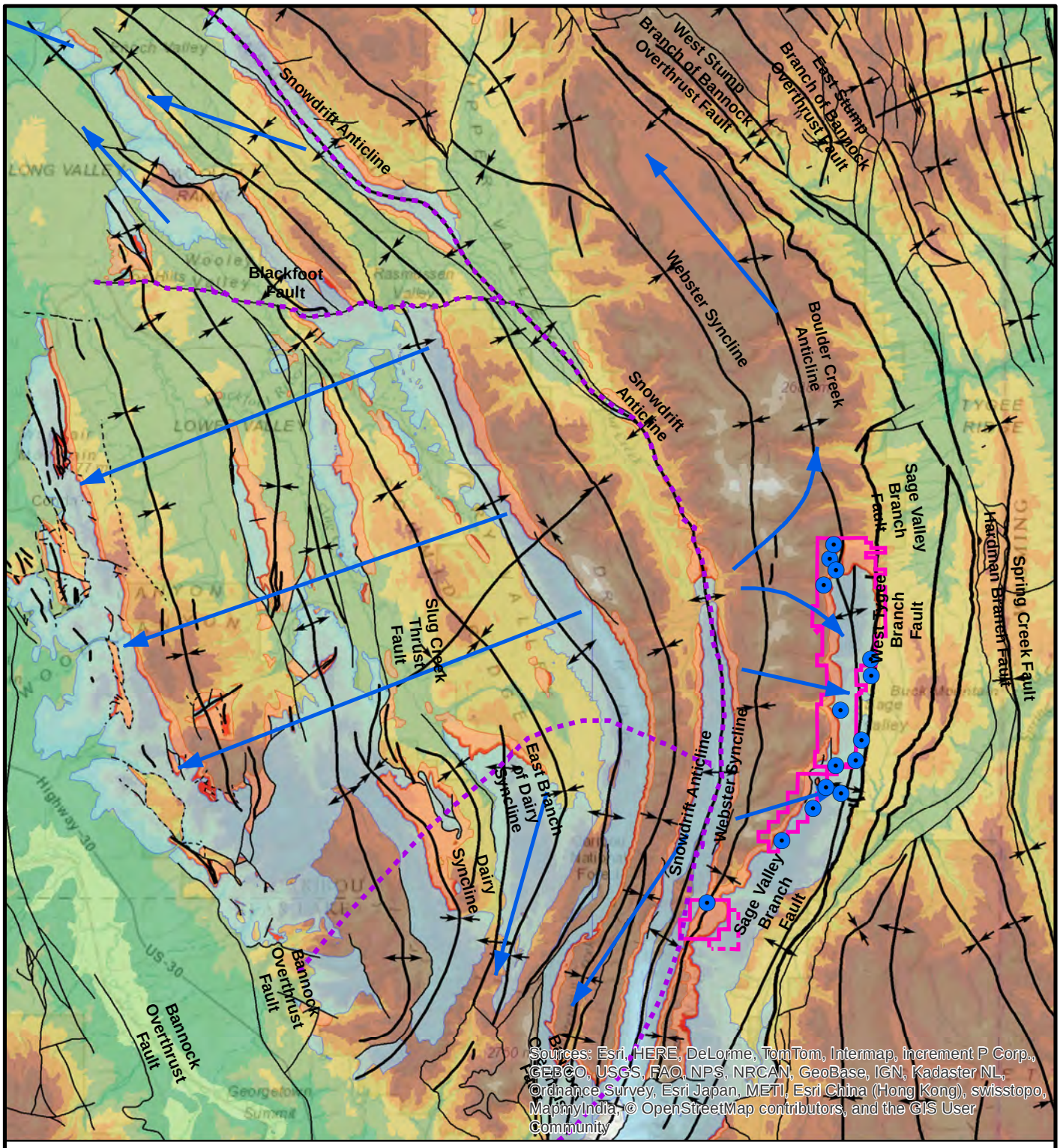
The 2007 FEIS notes that limited groundwater occurs at relatively shallow depths in the Rex Chert and in fractured Meade Peak, as indicated by exploration drilling observances and baseline groundwater monitoring, and that the regional water table in the Wells Formation is estimated to be from 200 to 800 feet below the bottom of the Panel F pit. The 2007 FEIS concluded that some groundwater quality impacts would likely result from mining operations, primarily from leaching of infiltration of precipitation through overburden in the pit backfills. Due to the nature of the proposed modifications for the Panel F ore conveyance system (adding an ore conveyor system on top of largely disturbed areas), incremental impacts to groundwater are not foreseeable, thus more detailed background conditions are not described here. In addition, the RI/FS predictive modeling (Formation Environmental 2014) did not include the Panel F area or the area south of South Fork Sage Creek, so updated groundwater predictions are not relevant to this subsection.

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

Groundwater was also found in Rex Chert at relatively shallow depths in the Panel G location. However, the regional Wells Formation water table is estimated to be approximately 100 to 200 feet below the deepest portion of the approved pit bottom. A small spring, Wells Canyon Spring, is located about a third of the way up Wells Canyon and may be influenced by the Wells Canyon Fault located in this canyon. Books Spring is located along the Deer Creek Fault and likely discharges from the Wells Formation and/or Brazer Limestone.

Along with surface water, groundwater was also sampled as part of baseline data collected to support the 2007 FEIS. These data, obtained from a number of monitoring wells, were compared to groundwater quality standards and the 2007 FEIS found that in general, area groundwater meets the relevant standards, with some exceptions. Notably, well DC-MW-5, completed in the upper Wells Formation at Panel G, had selenium, aluminum, cadmium, chromium, iron, and manganese concentrations that were anomalously high in the total metal analyses; however, in this case, these anomalies were attributed to inadequate well development. The other baseline Wells Formation monitoring well, MC-MW-1, had selenium concentrations well below the surface water selenium standard (0.005 mg/L), confirming that baseline selenium concentrations in the Wells Formation aquifer are low. Note that MC-MW-1 was also sampled as part of the RI/FS, and continues to be considered unaffected (Formation Environmental 2014). Manganese in three Rex Chert, two alluvial, and three Meade Peak monitoring wells exceeded the secondary standard.

Section 3.4.1.1 described exceedances of trace element surface water criteria from spring samples collected in the Panel G area. Here, the focus is on characterizing general spring chemistry as it relates to groundwater chemistry. Throughout the Panel G area, springs were of generally good quality with total dissolved solids (TDS) values ranging from 22 to 308 mg/L. The lowest TDS values were from SP-UTWC-300 (22 mg/L) and SP-UTSFDC-500 (54 mg/L), which discharge from colluvium west of Panel G. The higher TDS springs included two springs located on the south end of Panel F (SP-UTNFDC-600 = 308 mg/L) and the north end of Panel G (SP-UTDC-800 = 285 mg/L), which likely discharge groundwater from the Rex Chert or alluvium/colluvium. These sites were not part of the RI/FS.



From RI/FS (Formation Environmental 2014)

Legend

- Wells Fm Monitoring Wells (Smoky Canyon Mine only)
- Smoky Canyon Lease Area/Active Mineral Extraction Area
- Lease Modification Area

Wells Fm Regional Flow

- GW Flow Divide
- Groundwater Flow Line

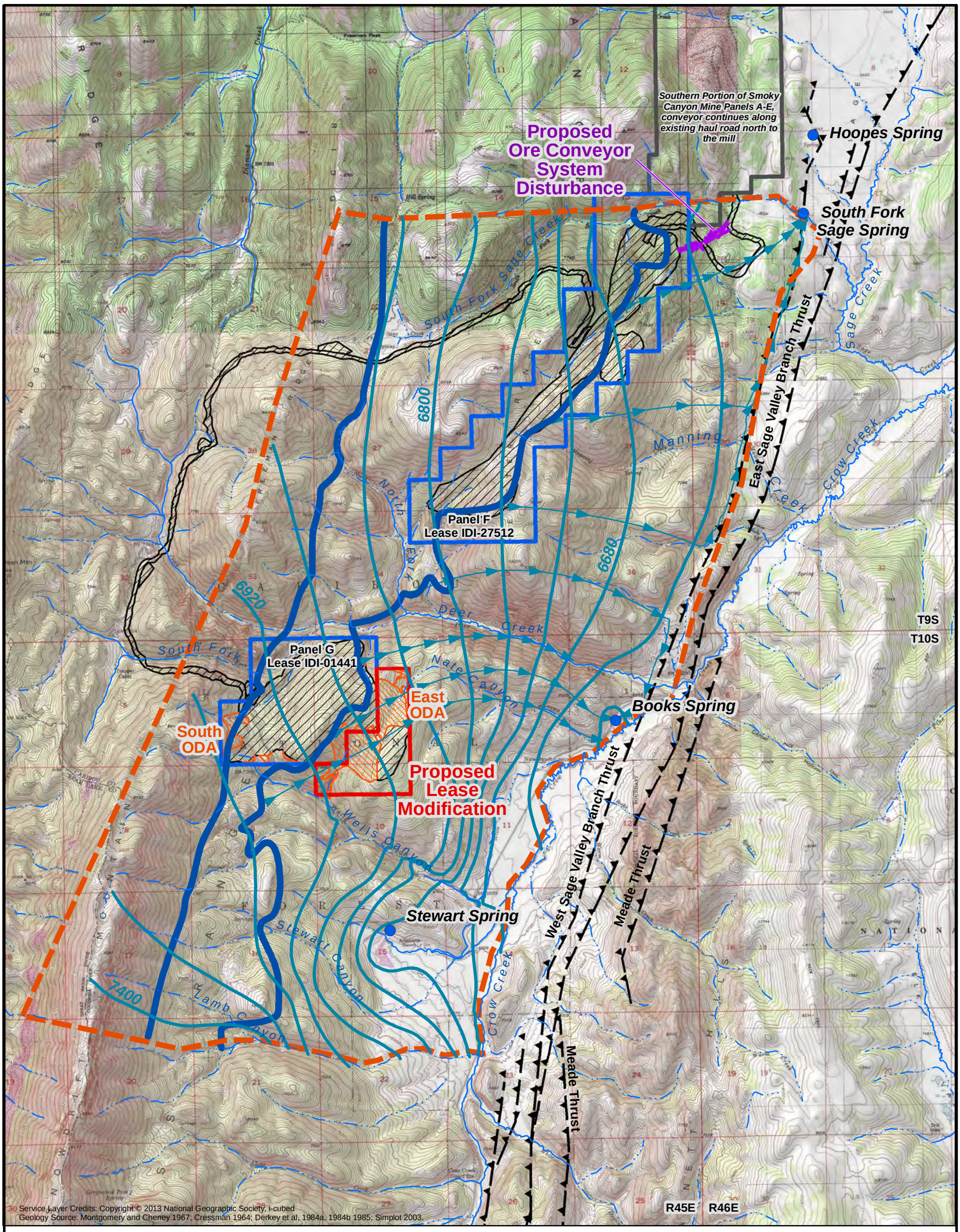
Selected Geologic Units

- Meade Peak Member
- Rex Chert Member
- Wells Formation

N

5 0 5 Miles

Figure 3.4-4
Wells Formation Regional Groundwater Flow
Panel F & G Lease/Mine Plan Modifications EIS



From 2007 EIS

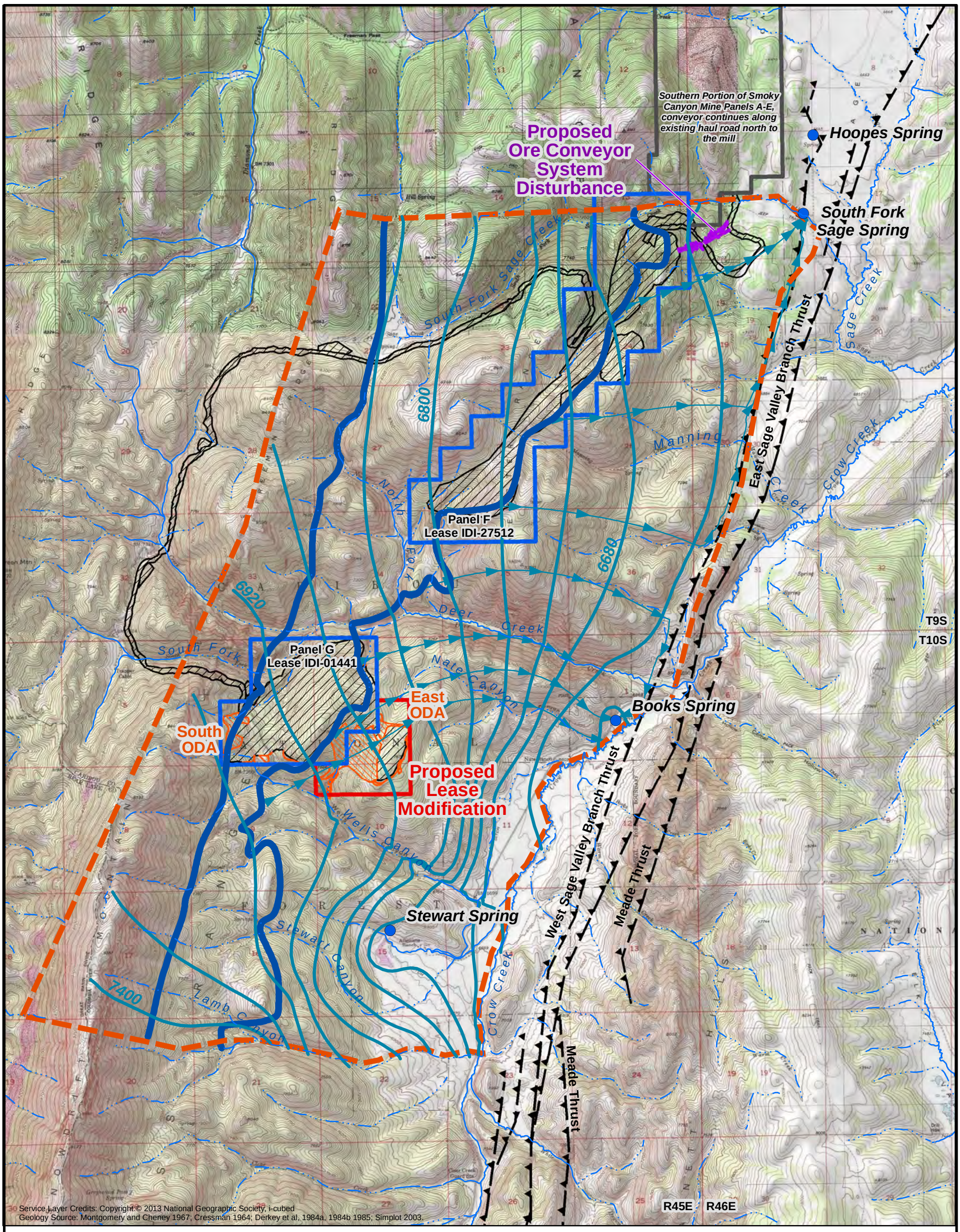
Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panel F and Haul Road Disturbance
- Approved Panels F & G Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine
- Spring from Wells Formation
- Thrust Fault
- Boundary of Model
- Boundary of Meade Peak Aquitard
- Modeled Piezometric Surface in Wells Formation and Brazer Limestone
- Particle track indicating direction of groundwater flow

N

3,000 0 3,000 Feet

Figure 3.4-5
Modeled Potentiometric Surface and Groundwater Flow Direction
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS



From 2007 EIS

Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panel F and Haul Road Disturbance
- Approved Panels F & G Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine
- Spring from Wells Formation
- Thrust Fault
- Boundary of Model
- Boundary of Meade Peak Aquitard
- Modeled Piezometric Surface in Wells Formation and Brazer Limestone
- Particle track indicating direction of groundwater flow

N

3,000 0 3,000 Feet

Figure 3.4-6
Modeled Potentiometric Surface and Groundwater Flow Direction Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Major ion concentrations comprising the TDS in the area groundwater samples generally reflect groundwater of calcium-magnesium bicarbonate type. The major ion types and concentrations of the water in the Wells Formation monitoring wells were similar to those reported for the Wells Formation springs, demonstrating a common aquifer. Rex Chert monitoring wells and spring waters that discharge on the exposed Rex Chert (including SP-UTWC-400) had generally lower ion concentrations than the Wells Formation water samples. The chemistries for waters sampled from monitoring wells and springs contained in Meade Peak shales all had higher concentrations of calcium and bicarbonate than the samples from the Rex Chert.

Based upon information gathered for the numerical groundwater model that was developed for the 2007 FEIS, as well as water chemistry and stable isotope data, it is apparent that there are two separate groundwater systems in the vicinity of the Smoky Canyon Mine: the Rex Chert and Dinwoody groundwater system located stratigraphically above the Meade Peak member; and the Wells Formation and Brazer Limestone groundwater system below the Meade Peak. Further, the relationship between surface waters and each of these groundwater systems can be described as follows.

In the Panel G vicinity, groundwater in the Dinwoody supports perennial and seasonal seeps, springs, and streams in Upper Deer Creek (above SW-DC-300), Upper South Fork Deer Creek (above SW-SFDC-200), and North Fork Deer Creek (above SW-DC-500). Groundwater in the Rex Chert apparently supports flow to isolated seeps and springs in some areas near Panel G, namely SP-UTWC-400, SP-UTWC-300, SP-UTDC-800, SP-UTDC-700, SP-UTSFDC-500 and SP-UTSFDC-600. As with the groundwater interpretations, these surface-groundwater relationships were determined by analyzing and comparing water chemistry and stable isotope characteristics of various waters.

Groundwater supporting the seeps, springs, and streams in the Dinwoody and Rex Chert areas is stratigraphically above the Meade Peak member and is not connected to the groundwater in the Wells Formation and Brazer Limestone underlying the Meade Peak.

Groundwater contained in the Wells Formation and Brazer Limestone does not support any of the springs or streams in the immediate Panel G area, but does support waters further downstream, such as Lower Deer Creek (above SW-DC-800), Wells Canyon (SP-WC-750), Books Spring (SP-Books), and Crow Creek both directly (stream underflow) and indirectly (from discharges tributary to Crow Creek). Because Crow Creek further downstream is also supported by groundwater (directly and indirectly) that originates from the Smoky Canyon Mine panels further north, which were the subject of the RI/FS, the predictions made therein are relevant to the surface water impact assessment (**Sections 4.4** and **5.4**) and will be discussed in those sections.

3.5 SOILS

3.5.1 2007 FEIS Affected Environment

This section is tiered to Section 3.4 of the 2007 FEIS, titled Soils (pages 3-76 through 3-101), and applicable information is incorporated by reference. In addition to incorporating much of the previously collected and presented information from the 2007 FEIS as it relates to the Project Area, an additional 2nd Order soil survey was conducted for areas not originally covered in the 2007 FEIS, and that additional information is presented in the following sections.

3.5.1.1 Soil Survey

Using the baseline information from Maxim (2004c), additional 2nd Order soil survey information was expanded and updated as appropriate to cover the additional areas proposed for disturbance for this Project (JBR 2013b). Existing 3rd Order soil survey data was mapped and is displayed on Figure 3.5.3 in the 2007 FEIS, but because the more detailed 2nd Order soil survey information was collected for the proposed disturbance areas for the Project, the 3rd Order data is not summarized here.

Maxim (2004c) was reviewed for applicability to this Project. Soil families in the 2004 soil survey were classified using the Ninth Edition of Keys to Soil Taxonomy. Several changes were made to the soil classification system between the Ninth and Eleventh (current) editions of Keys to Soil Taxonomy.

Soil series that were used as family names in the 2004 soil survey have been correlated to new taxonomic classifications by the Natural Resources Conservation Service (NRCS). These classification changes are detailed in JBR 2013b. Comparisons of these changes are important in maintaining continuity between the soils identified in Maxim 2004c and those soils identified in JBR 2013b. Characteristics of the individual soil types remained the same in the field, only the taxonomic classification of the soil series changed. The current taxonomic classification of the soils was obtained from the Official Series Descriptions (USDA 2013a).

3.5.1.2 Mapped Soil Unit Characteristics

Soil map units determined to be within the Project Area as described in the baseline technical report (JBR 2013b) are shown for the Panel F area in **Figure 3.5-1** and the Panel G Proposed Action/Alternative 1 area in **Figure 3.5-2**. They are shown for the Panel G Alternative 2 area in **Figure 3.5-3**. Profile descriptions and complete soil map unit data for each sample site are presented in the baseline report (JBR 2013b). **Table 3.5-1** provides a summary of the soil map units not previously described in Maxim 2004c, the taxonomic family, percent of the map unit, and the taxonomic classification of each soil type.

Table 3.5-1 Soil Map Unit Descriptions within the 2013 Soil Survey Area

MAP UNIT NUMBER[1]/ NAME	TAXONOMIC FAMILY	PERCENTAGE OF MAP UNIT	TAXONOMIC CLASSIFICATION
6/ Woodrock-Tahquats Complex, 15 to 50 percent slopes	Woodrock	55	Typic Glossocryalfs fine-loamy, mixed, superactive
	Tahquats	30	Typic Argicryolls loamy-skeletal, mixed, superactive
	Presa	10	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Starley	5	Lithic Haplocryolls loamy-skeletal, mixed, superactive
9/ Swede-Tahquats Complex, 10 to 15 percent slopes	Swede	45	Typic Argicryolls fine-loamy, mixed, superactive
	Tahquats	40	Typic Argicryolls loamy-skeletal, mixed, superactive
	Sambrito	10	Typic Haplocryepts coarse-loamy, mixed, superactive
	Rock Outcrop	5	Not-applicable
10/ Woodrock Loams, 10 to 20 percent	Woodrock	90	Typic Glossocryalfs fine-loamy, mixed, superactive
	Presa	5	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Tahquats	5	Typic Argicryolls loamy-skeletal, mixed, superactive
13/ Tahquats-Dranyon Complex, 20 to 30 percent slopes	Tahquats	60	Typic Argicryolls loamy-skeletal, mixed, superactive
	Dranyon	25	Pachic Argicryolls fine-loamy, mixed, superactive
	Povey	10	Pachic Haplocryolls loamy-skeletal, mixed, superactive
	Presa	5	Typic Haplocryalfs loamy-skeletal, mixed, superactive
14/ Tahquats-Sambrito Complex, 35 to 45 percent	Tahquats	60	Typic Argicryolls loamy-skeletal, mixed, superactive
	Sambrito	30	Typic Haplocryepts coarse-loamy, mixed, superactive
	Rock Outcrop	10	Not-applicable
16/ Presa Loams, 10 to 15 percent slopes	Presa	80	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Woodrock	10	Typic Glossocryalfs fine-loamy, mixed, superactive
	Tahquats	10	Typic Argicryolls loamy-skeletal, mixed, superactive
16A/ Presa Loams, 3 to 10 percent slopes	Presa	80	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Woodrock	10	Typic Glossocryalfs fine-loamy, mixed, superactive
	Tahquats	10	Typic Argicryolls loamy-skeletal, mixed, superactive

MAP UNIT NUMBER[1]/ NAME	TAXONOMIC FAMILY	PERCENTAGE OF MAP UNIT	TAXONOMIC CLASSIFICATION
19/ Judkins-Tahquats Complex, 25 to 50 percent slopes	Judkins	45	Xeric Palecryalfs loamy-skeletal, mixed, superactive
	Tahquats	40	Typic Argicryolls loamy-skeletal, mixed, superactive
	Starley	5	Lithic Haplocryolls loamy-skeletal, mixed, superactive
	Presa	5	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Woodrock	5	Typic Glossocryalfs fine-loamy, mixed, superactive
24/ Cloud Peak Silt Loams	Presa	75	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Woodrock	10	Typic Glossocryalfs fine-loamy, mixed, superactive
	Tahquats	10	Typic Argicryolls loamy-skeletal, mixed, superactive
	Starley	5	Lithic Haplocryolls loamy-skeletal, mixed, superactive
26/ Starley Silt Loams	Starley	85	Lithic Haplocryolls loamy-skeletal, mixed, superactive
	Presa	5	Typic Haplocryalfs loamy-skeletal, mixed, superactive
	Woodrock	5	Typic Glossocryalfs fine-loamy, mixed, superactive
	Tahquats	5	Typic Argicryolls loamy-skeletal, mixed, superactive

Source: JBR 2013b

[1] Map units are identified on **Figures 3.5-1**, **3.5-2**, and **3.5-3** (units previously described in Maxim 2004c are not included in table).

3.5.1.3 Topsoil/Growth Medium Suitability

As described in the 2007 FEIS, mountainous terrain does not favor optimal soil development. Soils on mountain slopes are susceptible to increased erosion rates that constantly remove the fine particles from the surface and deposit them on the surfaces of soils occupying the alluvial or valley slopes. Mountain soils also tend to have high concentrations of coarse fragments that are transported to the alluvial slopes during landslide events over time. Shallow, stony soils provide a minimal amount of quality topsoil/growth medium material for reclamation.

The suitable topsoil/growth medium depths determined for each soil type were based on the amount of salvageable unconsolidated material available in the surface soil or within the subsoil. The CTNF has recommended the criteria listed in Construction Materials; Reclamation (USDA 2013b) as the basis for determining topsoil suitability and estimating salvage depths for the Project. **Table 3.5-2** lists these criteria.

Table 3.5-2 Criteria for Determining Topsoil Suitability and Estimating Salvage Depths

SOIL FEATURE	NOT LIMITING[1]	SOMEWHAT LIMITING[1]	LIMITING[1]
Too Clayey (percent clay)	≤30%	>30% to <40%	≥40%
Cobble Content (3 to 10 inches)[2]	≤25%	>25% to ≤ 50%	>50%
Water Erosion (K factor)	≤0.35	>0.35 to <0.70	≥0.70
Carbonate Content (calcium carbonate equivalent - CCE)	≤15%	>15% to <40%	≥ 40%
Sodium Content (sodium adsorption ration – SAR)	≤4	>4 to ≤13	>13
Droughty (Available Water Capacity – cumulative depth)	≥15 cm	>7.5 cm to <15 cm	≤7.5 cm
Depth to Bedrock	>100 cm	≥50 cm to ≤100 cm	<50 cm
Depth to Cemented Pan	≥100 cm	≥50 cm to <100 cm	<50 cm
Stone Content (greater than 10 inches)[2]	≤5%	>5% to ≤15%	>15%
Low Content of Organic Matter	≥1%	>0% to <1%	= 0%
Too Alkaline (soil pH)	≤8.5		>8.5
Too Acid (soil pH)	≥6.5	≥4.0 to <6.5	<4.0
Salinity (electrical conductivity –ECe – mmhos/cm)	<8	≤8 to ≥16	>16
Too Sandy (percent sand - #4 to #200 sieves)	≤70%	>70% to <85%	≥ 85%
Wind Erosion (Wind Erodibility Group)	All others		1 and 2

[1]Refer to limitation details in *Construction Materials; Reclamation* (USDA 2013b).
[2]Soil features are percent weighted average by weight course fragments (USDA 2013b).

Depth to bedrock, volume of rock fragments, and size of rock fragments are the primary limiting soil characteristics when estimating the depth and volume of topsoil and/or suitable subsoil horizons that may be salvaged from the Project Area. Topsoil salvage depths should be expected to vary for the same soil over short distances. Topsoil salvage depths were calculated for seven profiles described in the soil survey for the 2007 FEIS (Maxim 2004c). Three of these profiles (G-TP-19, G-TP-20, and G-TP-30) were described within the boundary of the Panel G portion of the Project Area soil survey area. The other four profiles were used to calculate salvage depths for the Judkins family (G-TP-19) and Swede family (F-TP-55, F-TP-72, and F-TP-75) which occur in map units that are of very limited extent in the Project Area. **Table 3.5-3** presents the estimated topsoil salvage depths and volumes for soil map units to be impacted by the Project.

Map units 1, 5, 7, and 22 (shown on **Figures 3.5-1**, **3.5-2**, and **3.5-3**) were previously described in Maxim (2004c), but are included in **Table 3.5-3** because there is proposed disturbance within these units.

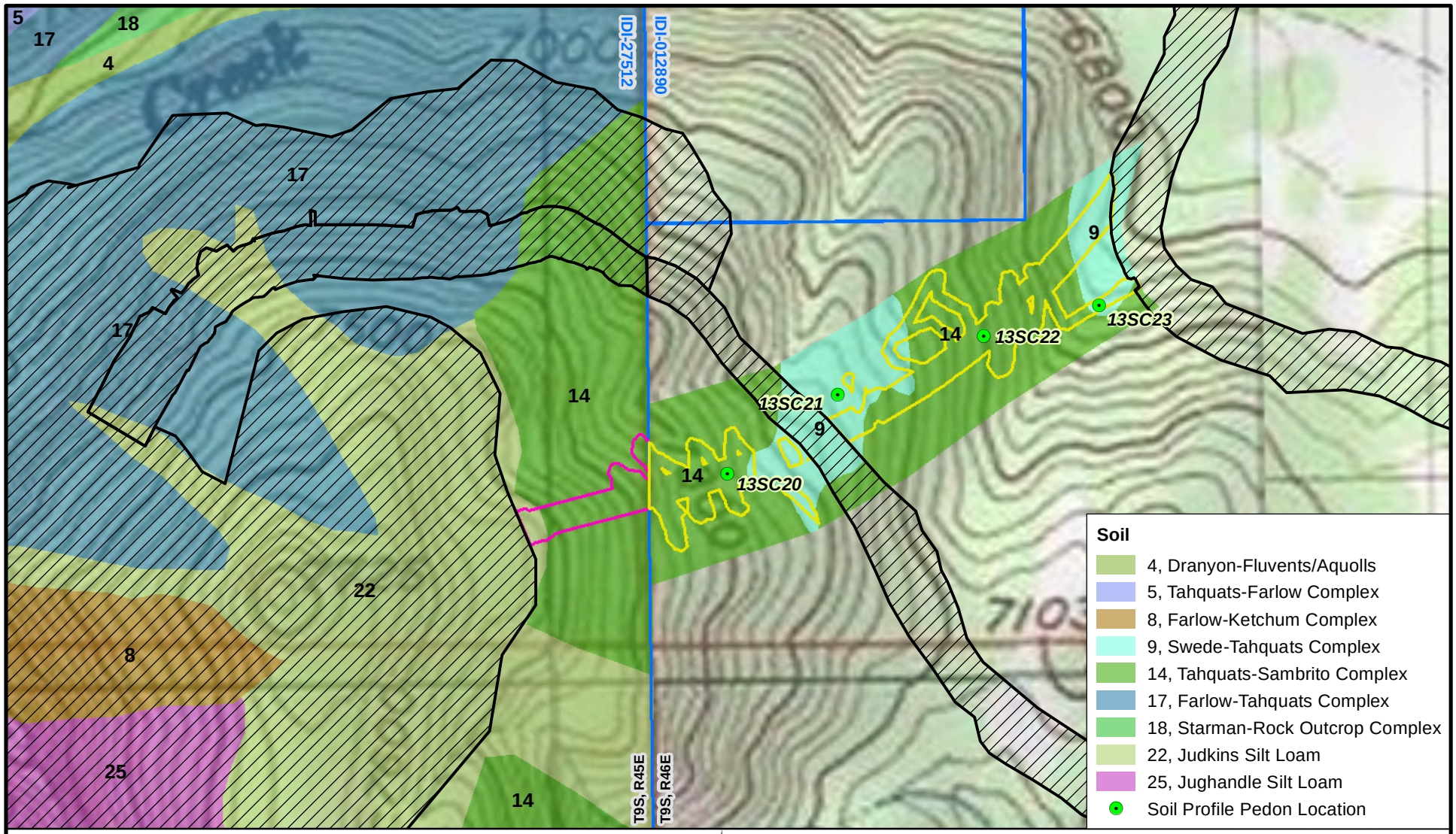
Table 3.5-3 Estimated Salvage Depths and Volumes for Soil Map Units within the Panels F and G Lease and Mine Modification Areas

MAP UNIT	MAJOR SOIL FAMILIES	ACRES TO BE DISTURBED WITHIN THE PROPOSED ACTION AREA[1]	ESTIMATED AVERAGE SALVAGE DEPTH[2] (FEET)	ESTIMATED SALVAGE VOLUME (CUBIC YARDS)	LIMITING SOIL FEATURES
Proposed Panel F Ore Conveyor System Area					
9	Swede – Tahquats, 10-15% slopes	1.6	1.9	4,751	Depth to Stones and Cobbles
14	Tahquats – Sambrito, 35-45% slopes	6.3	1.8	15,246	Depth to Stones
22	Judkins Silt Loam	0.2	1.8[3]	610	Excessive Coarse Fragments
	Total	**8.1**		**20,607**	
Proposed Action[1] Panel G East ODA Area, South ODA, and Stormwater Features					
1	Ericson – Rock River Complex	0.2	1.3[3]	461	None
5	Tahquats – Farlow Complex	1.0	0[3]	0	Excessive coarse fragment content and slope
6	Woodrock – Tahquats, 15-50% slopes	68.1	3.0	328,442	Depth to Cobbles and Stones
7	Drayon-Parkey Complex, 5-30%	1.9	1.3[3]	3,922	None
10	Woodrock loams, 10-20% slopes	13.7	3.2	70,574	Depth to Cobbles
13	Tahquats – Dranyon, 20-30% slopes	30.1	2.5	121,202	Depth to Cobbles and Stones
16A	Presa loams, 3-10% slopes	4.9	2.6	20,638	Depth to Cobbles, Low AWC, and Depth to Bedrock
19	Judkins – Tahquats, 25-50% slopes	0.2	1.8	465	Depth to Cobbles and Stones
24	Presa silt loams, 20-30% slopes	19.9	2.9	93,152	Depth to Cobbles and Depth to Bedrock
26	Starley silt loams	21.3	1.3	44,694	Depth to Bedrock
	Total	**161.3**		**686,842**	

[1] The Proposed Action footprint is the largest area potentially disturbed. See Chapter 2.

[2] Sources: JBR 2013b and BLM and USFS 2007.

[3] Source: BLM and USFS 2007.



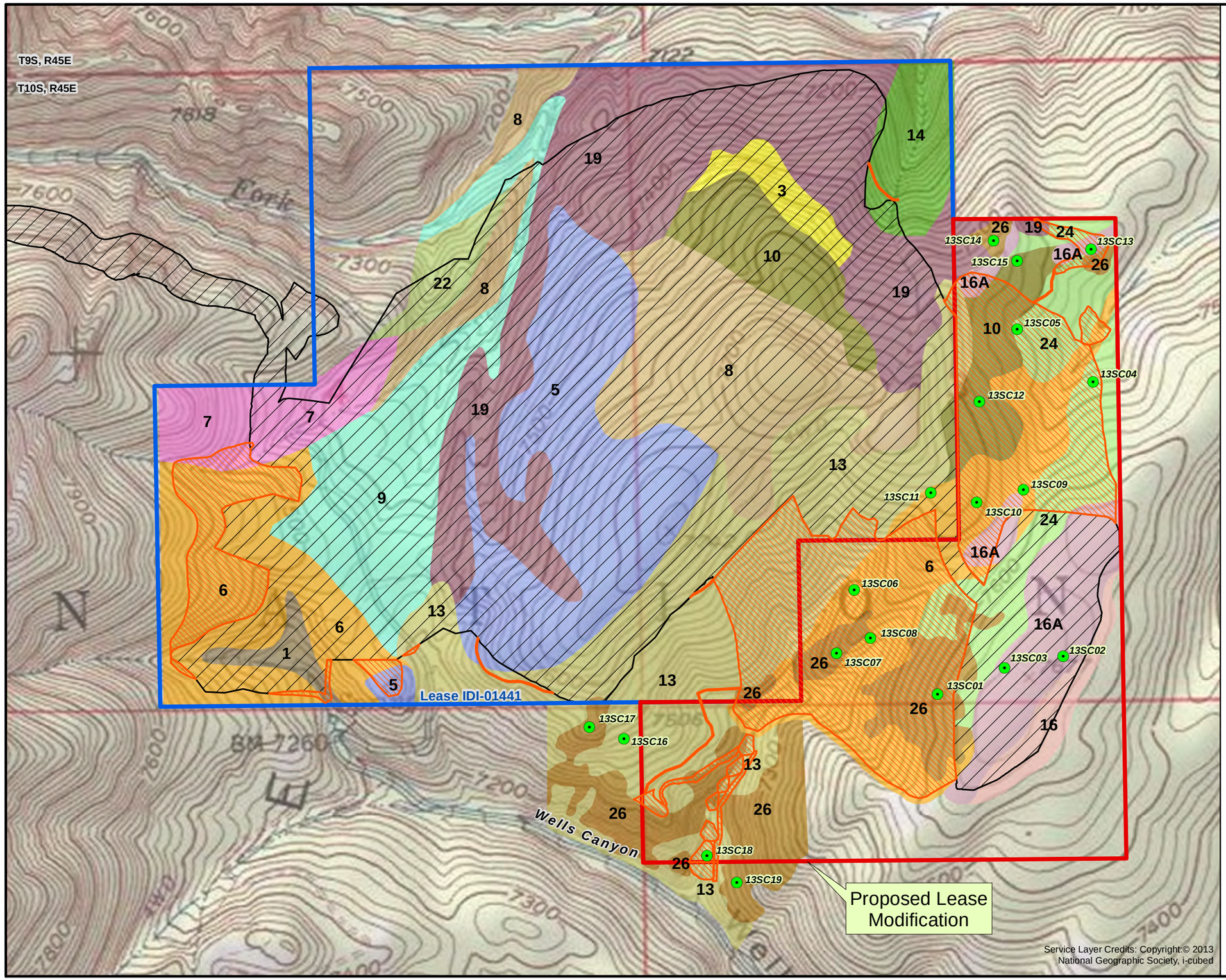
Explanation

- Approved Panel F and Haul Road Disturbance
- Existing Leases
- Proposed Disturbance Off Lease
- Proposed Disturbance on Lease IDI-27512

N

500 0 500 Feet

Figure 3.5-1
2nd Order Soils Survey
Panel F Conveyor System Area
Panel F & G Lease/Mine Plan Modifications EIS



Explanation

- Proposed Lease Modification
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Soil

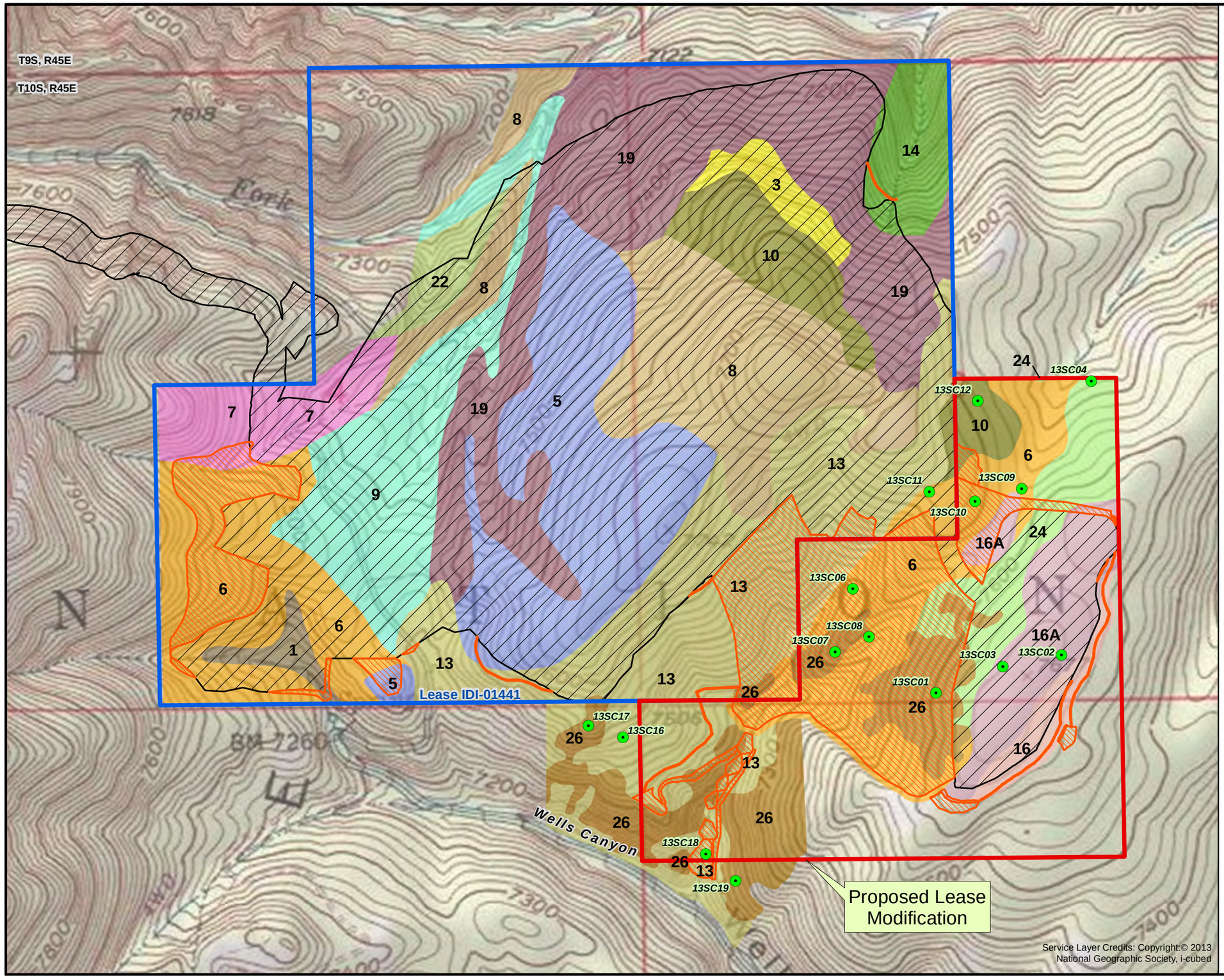
- 1, Ericson-Rock River Complex
- 3, Presa-Ketchum Complex
- 5, Tahquats-Farlow Complex
- 6, Ericson-Tahquats Complex
- 7, Dranyon-Parkey Complex
- 8, Farlow-Ketchum Complex
- 9, Swede-Tahquats Complex
- 10, Ericson Loams
- 13, Tahquats-Dranyon Complex
- 14, Tahquats-Sambrito Complex
- 16, Presa Loams, 10-15% Slopes
- 16A, Presa Loams, 3-10% Slopes
- 19, Judkins-Tahquats Complex
- 22, Judkins Silt Loam
- 24, Presa Silt Loam
- 26, Starley Silt Loam
- Soil Profile Pedon Location

N

800 0 800 Feet

Figure 3.5-2
2nd Order Soils Survey
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\IDClients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 3\Figure 3.5-2 2nd Order Soils Survey - Panel G Lease Modification Area Proposed Action Alternative 1.mxd



Explanation

- Proposed Lease Modification Area
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Soil

- 1, Ericson-Rock River Complex
- 3, Presa-Ketchum Complex
- 5, Tahquats-Farlow Complex
- 6, Ericson-Tahquats Complex
- 7, Dranyon-Parkey Complex
- 8, Farlow-Ketchum Complex
- 9, Swede-Tahquats Complex
- 10, Ericson Loams
- 13, Tahquats-Dranyon Complex
- 14, Tahquats-Sambrito Complex
- 16, Presa Loams, 10-15% Slopes
- 16A, Presa Loams, 3-10% Slopes
- 19, Judkins-Tahquats Complex
- 22, Judkins Silt Loam
- 24, Presa Silt Loam
- 26, Starley Silt Loam
- Soil Profile Pedon Location

N

800 0 800 Feet

Figure 3.5-3
2nd Order Soils Survey
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\IDClients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 3\Figure 3.5-3 2nd Order Soils Survey - Panel G Lease Modification Area Alternative 2.mxd

3.5.1.4 Potential Salvage Limitations Based on Heavy Metal Content

In an effort to develop soil suitability standards for use in reclamation efforts, Simplot has used guidelines developed by the CTNF specific to selenium (USDA 2003). This guideline states that soils with less than 13 milligrams per kilogram (mg/kg) total selenium or 0.10 mg/kg extractable selenium have been demonstrated to yield vegetation that meets applicable reclamation standards for selenium. While these limits are not mandated, such guidelines may help assist with decisions regarding soil suitability. Although additional metals, such as nickel, zinc, and cadmium, may be present in unsuitable levels, selenium has been identified as a parameter affecting soil management.

For the soil map units identified within the Project Area, **Table 3.5-4** presents the maximum selenium concentrations for sampled soils based upon the data provided in Maxim (2004c). In addition, concentrations for cadmium, nickel, and zinc are also included, even though there are currently no specific guidelines that would limit use in reclamation.

Naturally occurring selenium concentrations in soil vary greatly depending on the profile location. When soils are salvaged for proposed mining operations, soil from different areas can become mixed, reducing selenium concentrations in the soil mixture. The total concentration of selenium in soils does not directly determine the concentration of available selenium in the plants growing on those soils (Lakin 1972; Fisher 1991).

Concentrations of selenium in topsoil/growth medium samples collected were below detection limits in most soil samples reported in Maxim (2004c). Extractable selenium concentrations were generally less than 0.1 mg/kg, indicating that the hazard for excessive selenium uptake in vegetation in undisturbed soil is low, with the following exceptions specific to the soil types identified within the Project Area:

- The Judkins soil type at sample site F-TP-9 contained 0.14 mg/kg of extractable selenium in the top seven inches of the profile. The remainder of the profile (7-29 inches) showed extractable selenium of less than 0.10 mg/kg.
- At sample site F-TP-22, the Tahquats (Blaine) soil had extractable selenium levels of 0.12 to 0.15 mg/kg in the soil profile layers below six inches (6-19 inches).
- The Woodrock (Ericson) soil had extractable selenium of 0.12 mg/kg in the soil layer between 15-21 inches and 0.26 mg/kg in soil below 21 inches (21-26 inches) at sample site F-TP-27.
- The Presa (Cloud Peak) soil at sample site F-TP-45 showed extractable selenium of 0.12 mg/kg in the 16-23 inch layer. The remainder of the profile (23-55 inches) showed extractable selenium of less than 0.10 mg/kg. At sample site F-TP-67, the Presa (Cloud Peak) soil had extractable selenium of 0.13 mg/kg in soils greater than 20 inches deep.
- At sample site F-TP-46, the Swede soil had one layer (20-33 inches) that showed extractable Se of 0.13 mg/kg. The remaining portions of the profile (0-20 and 33-45 inches) showed extractable selenium of less than 0.10 mg/kg. At sample site F-TP-55, the Swede soil showed extractable selenium levels ranging from 0.11 to 0.14 mg/kg throughout the soil profile (0-28 inches).

- The Parkay soil at site F-TP-59 showed extractable selenium at 0.1 mg/kg below 16 inches deep.
- The Sambrito (Jughandle) soil variant at sample site F-TP-63 showed extractable selenium levels ranging from 0.11 to 0.12 mg/kg throughout the soil profile (0-28 inches).

It should be noted that data collected from individual soil sample sites, especially within soil inclusions within various soil complexes, may not be representative of the surrounding soil in the major map unit based upon soil sample laboratory analysis reported in Maxim (2004c).

Table 3.5-4 Maximum Selenium and Trace Element Concentrations for Sampled Soils within the Panels F and G Lease and Mine Plan Modifications Soil Survey Areas

ANALYTICAL RESULTS – EXTRACTABLE (MG/KG)[1]					ANALYTICAL RESULTS – TOTAL (MG/KG)[1]			
SOIL TYPE	CADMIUM	NICKEL	SELENIUM	ZINC	CADMIUM	NICKEL	SELENIUM	ZINC
Tahquats (Blaine)	1.1	1	0.15	7.7	2	36	ND	156
Presa (Cloud Peak)	2.9	0.8	0.13	9.4	8	33	ND	280
Woodrock (Ericson)	1.1	36	0.26	5	2	49	ND	207
Judkins	30	217	0.14	67.2	12	244	6	944
Sambrito (Jughandle variant)	0.1	0.9	0.12	1.2	ND	13	ND	52
Parkay	0.6	1.8	0.10	--	ND	32	ND	245
Swede	0.2	0.6	0.14	2.4	ND	15	ND	61

Source: Maxim 2004c

[1] Maximum value reported at any sample site, in any single soil horizon.

ND = Not Detected (Indicates nonspecific value below detection limit); -- = Not noted or analysis not requested

3.6 VEGETATION

3.6.1 2007 FEIS Affected Environment

This section is tiered to Section 3.5 of the 2007 FEIS, titled Vegetation (pages 3-101 through 3-112), and applicable information is hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project as a baseline assessment of vegetation resources that covered the Project Area was conducted for the 2007 FEIS. The following summary of the referenced information is specific to the Project.

3.6.1.1 Cover Type Descriptions

A total of seven vegetation cover types as assessed, described, and mapped in Maxim (2004d) occur within the Project Area and are displayed in **Figure 3.6-1** for the Panel F portion of the Project; **Figure 3.6-2** for the Panel G portion of the Project for the Proposed Action and Alternative 1; and **Figure 3.6-3** for Alternative 2. **Table 3.6-1** lists the seven vegetation cover types, the acres of each one by Project component, and the principal plant species found within each cover type. A detailed description of each vegetation cover type is provided in the 2007 FEIS.

3.6.1.2 Special Status Plant Species

The USFWS list (revised on October 22, 2013) of Threatened, Endangered, Proposed, and Candidate (TEPC) plant species for Idaho by county was reviewed in November 2013. No TEPC plant species were listed or are known or expected to occur on the CNF or within Caribou County, Idaho. In addition to TEPC species, the Regional Forester identifies USFS-Sensitive species as those for which population viability is a concern, as evidenced by significant current and predicted downward trends in population numbers, density, and/or habitat capability that would reduce a species' existing distribution. USFS-Sensitive species receive special management emphasis from the USFS to ensure their viability and to preclude trends toward endangerment that could result in the need for federal listing (Forest Service Manual 2672.1). As described in Section 3.5.3 of the 2007 FEIS, there are three USFS-Sensitive plant species known to occur on the CNF; however, none of these species were identified within the large Study Area for the 2007 FEIS. In addition, based on known habitat requirements or where each of these plant species has been known to occur, potentially suitable habitat within the Project Area is very limited or non-existent. Background information on each species is contained in the 2007 FEIS and additional information can be found in the RFP EIS (USFS 2003b).

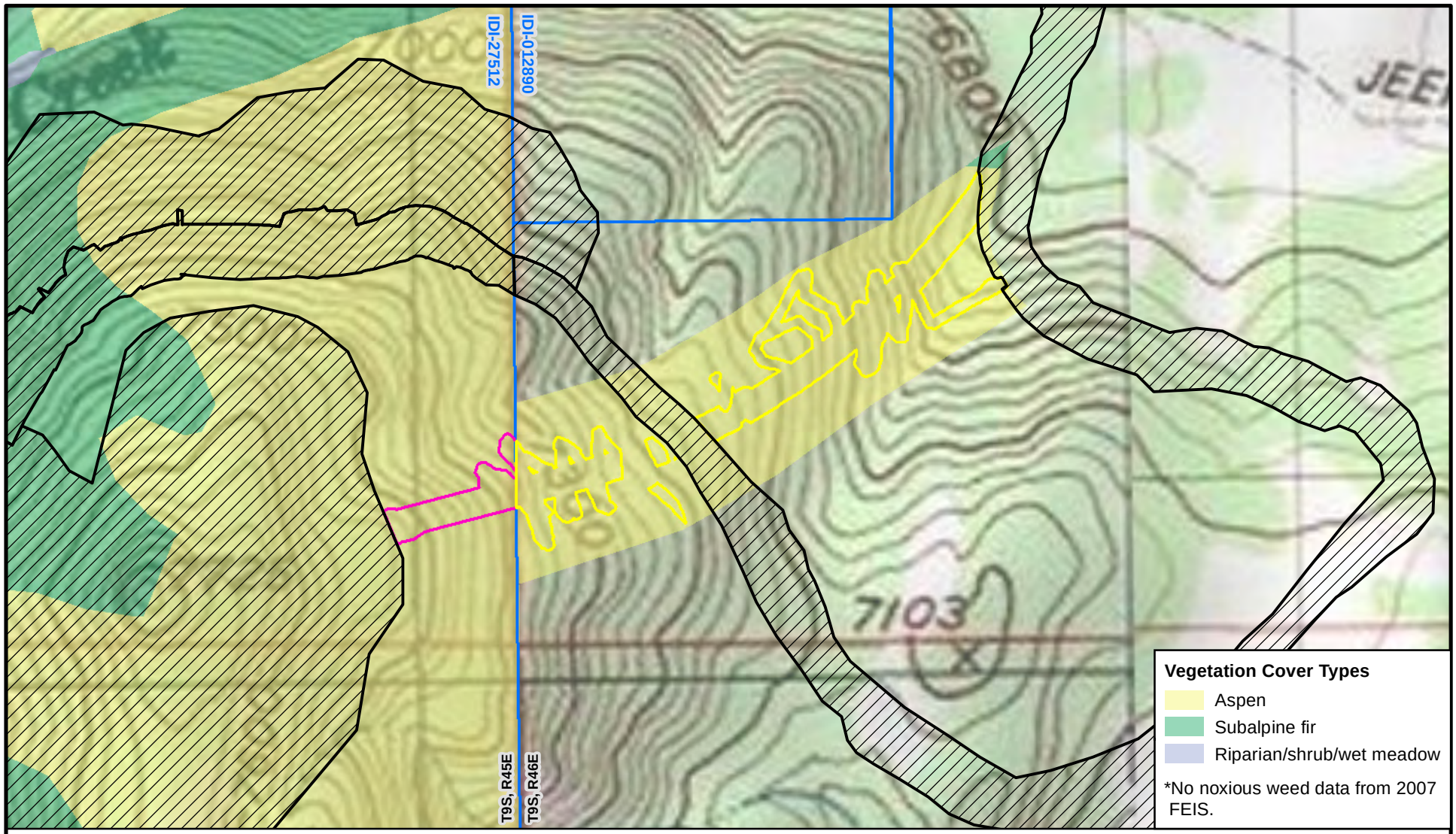
3.6.1.3 Noxious Weeds

Noxious weed species, as defined in Executive Order 13112 (64 CFR 6183, Invasive Species, February 1999), are those plants of foreign origin, not widely prevalent in the U.S., that can injure crops, ecosystems, interests of agriculture, or fish and wildlife resources. They generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, or a carrier or host to insect pests or disease. The State of Idaho is responsible for listing noxious weeds in the State. According to the Idaho Department of Agriculture there are 65 species the state considers to be noxious weeds (IDA 2014).

In 1996, the CNF adopted Integrated Pest Management (IPM) guidelines to treat uncontrolled noxious weeds. IPM emphasizes the best management strategies for weed control and uses the

best control techniques available for the targeted species. In February 2001, the CTNF completed a forest strategy for noxious weeds developed from direction found in the following documents: National Administration's Pulling Together – National Strategy of Invasive Plant Management, Forest Service's Stemming the Invasive Tide – A Forest Service Strategy for Noxious and Nonnative Invasive Plant Management, and Idaho's Strategic Plan for Managing Noxious Weeds. The RFP (USFS 2003a) outlines the goal of minimizing the establishment and spread of noxious weeds through the application of forest direction, IPM, and BMPs. The RFP also establishes standards and guidelines to be used for controlling and eliminating noxious weeds and other invasive plant species (USFS 2003a). Under the approved M&RPs and SUAs for Smoky Canyon Mine, Simplot is required to monitor and control noxious weeds using guidelines established by the USFS.

Figures 3.6-2 and **3.6-3** show the only previously identified locations of noxious weed species within the Panel G portion of the Project Area from Maxim (2004d). As displayed, musk thistle (*Carduus nutans*) and Canada thistle (*Cirsium arvense*) are the only two noxious weeds that occur within or near the Project Area. Updated noxious weed inventories were not conducted specifically for this Project; however, it is highly likely that noxious weeds occur in the Project Area.



Explanation

- Approved Panel F and Haul Road Disturbance
- Existing Leases
- Proposed Disturbance Off Lease
- Proposed Disturbance on Lease IDI-27512

N

500 0 500 Feet

Figure 3.6-1
Vegetation Cover Types
Panel F Conveyor System Area
Panel F & G Lease/Mine Plan Modifications EIS

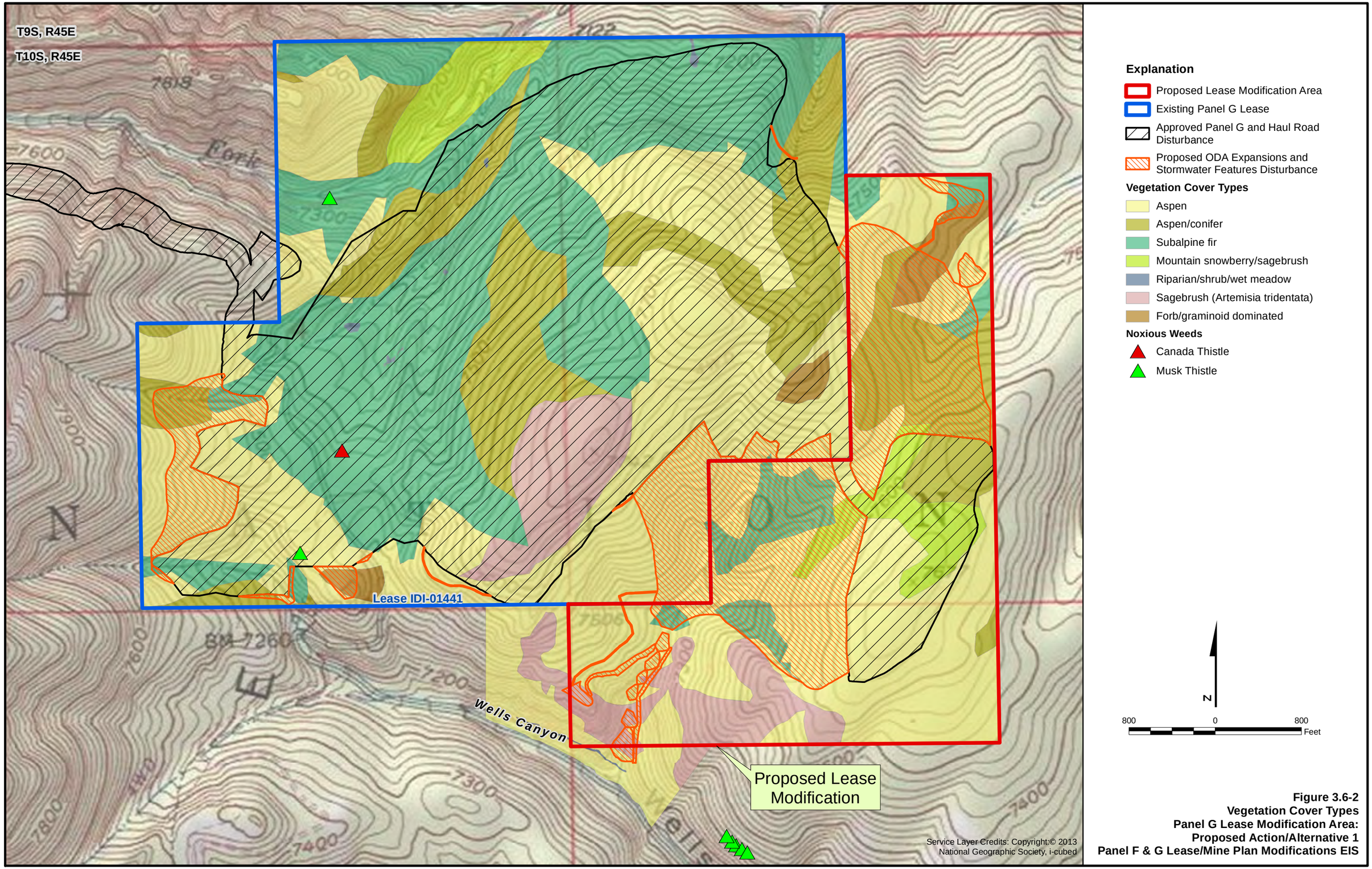
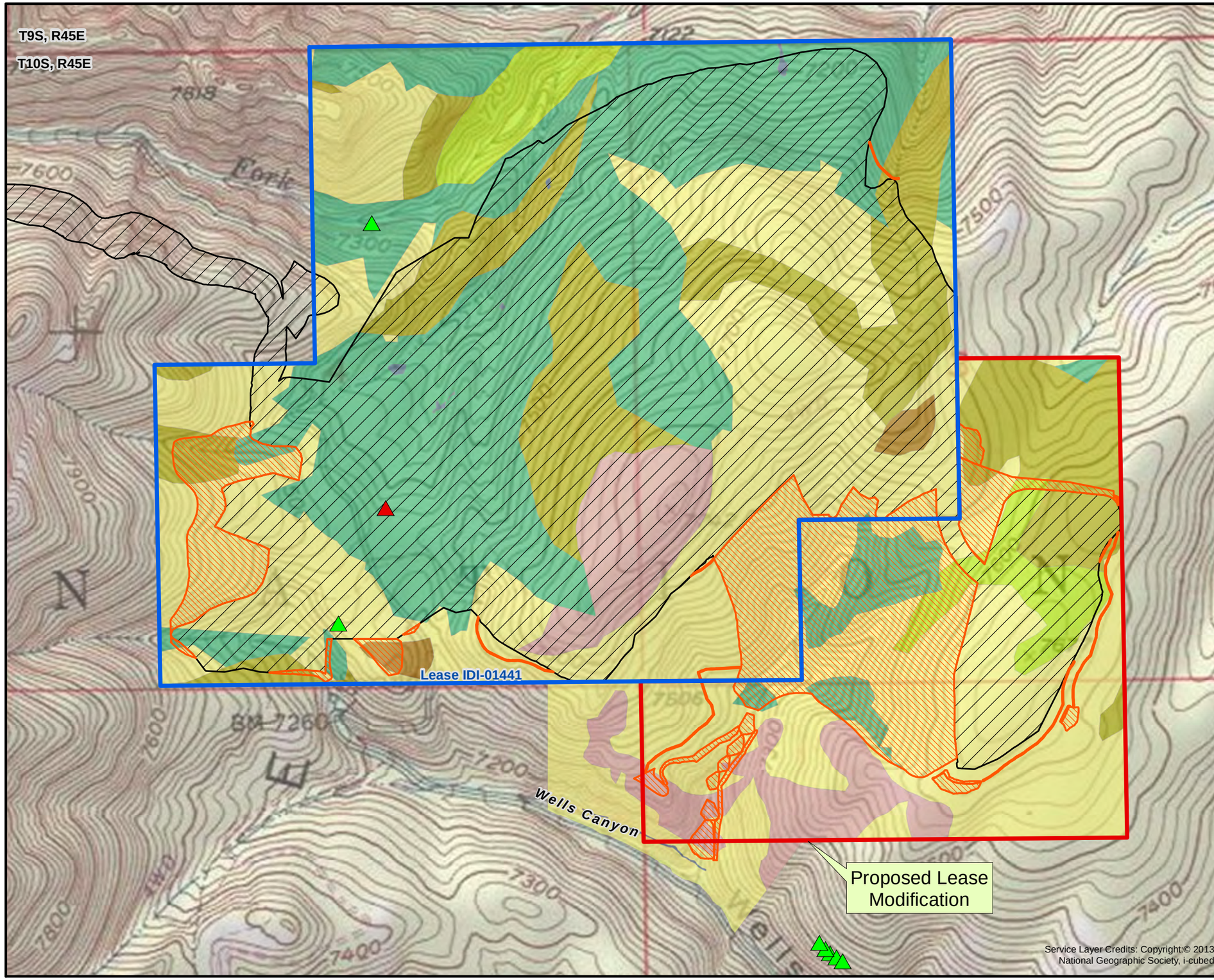


Figure 3.6-2
Vegetation Cover Types
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.6-2 Vegetation Cover Types - Panel G Lease Modification Area Proposed Action Alternative 1.mxd



Explanation

- Proposed Lease Modification Area
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Vegetation Cover Types

- Aspen
- Aspen/conifer
- Subalpine fir
- Mountain snowberry/sagebrush
- Riparian/shrub/wet meadow
- Sagebrush (Artemisia tridentata)
- Forb/graminoid dominated

Noxious Weeds

- Canada Thistle
- Musk Thistle

N

800 0 800 Feet

Figure 3.6-3
Vegetation Cover Types
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.6-3 Vegetation Cover Types - Panel G Lease Modification Area Alternative 2.mxd

Table 3.6-1 Vegetation Cover Types, Acres, and Principal Plant Species in the Project Area

COVER TYPE	ACRES BY PROJECT COMPONENT				PRINCIPAL PLANT SPECIES	
	PANEL F - ORE CONVEYOR SYSTEM	PANEL G – PROPOSED ACTION[1] EAST ODA EXPANSION AREA	PANEL G – SOUTH ODA EXPANSION	PROPOSED ACTION[1] STORMWATER FEATURES	SCIENTIFIC NAME	COMMON NAME
Aspen	8.1	73.9	13.8	4.8	*Populus tremuloides*	Quaking aspen
Mountain Big Sagebrush	-	-	-	2.3	*Artemisia tridentata ssp. Vaseyana*	Mountain big sagebrush
					Purshia tridentata	Antelope bitterbrush
					Symphoricarpos oreophilus	Mountain snowberry
Subalpine Fir	-	19.7			*Abies lasiocarpa*	Subalpine fir
			1.8	1.0	*Pinus contorta*	Lodgepole pine
					Populus tremuloides	Quaking aspen
Aspen/Conifer	-	29.2	4.4	-	*Populus tremuloides*	Quaking aspen
					Pseudotsuga menziesii	Douglas-fir
					Pinus contorta	Lodgepole pine
Riparian Shrub/Wet Meadow	-	-	-	<0.1	*Carex nebrascensis*	Nebraska sedge
					Deschampsia caespitosa	Tufted hairgrass
					Salix boothii	Booth's willow
					Salix drummondii	Drummond's willow
					Lonicera utahensis	Utah honeysuckle
Mountain Snowberry/ Sagebrush	-	4.5	-	-	*Symphoricarpos oreophilus*	Mountain snowberry
					Artemisia tridentata ssp. Vaseyana	Mountain big sage
					Prunus virginiana	Chokecherry
					Amelanchier alnifolia	Serviceberry
					Rosa spp.	Rose
					Ceanothus velutinus	Snowbrush
Forb/Graminoid	-	3.7	-	2.2	*Delphinium bicolor*	Little larkspur
					Geranium viscosissimum	Sticky geranium
					Veratrum californicum	California false hellebore

[1] The Proposed Action footprint is the largest area potentially disturbed. See Chapter 2.

3.7 WETLANDS

3.7.1 2007 FEIS Affected Environment

This section is tiered to Section 3.6 of the 2007 FEIS, titled Wetlands (pages 3-112 through 3-119), and applicable information is hereby incorporated by reference. Although no new baseline information was collected or deemed necessary for this Project; previously identified wetlands identified in Maxim (2003; 2004e; 2004f) near the Project Area were revisited and their previously mapped boundaries rechecked in case they had changed. The following summary of information from the 2007 FEIS is specific to the Project.

3.7.1.1 Findings on Extent and Jurisdictional Status of Wetlands

The Corps exerts regulatory jurisdiction over WOUS, including wetlands, pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344). Section 404 of the Clean Water Act requires a Corps permit be obtained prior to discharging dredged or fill material into WOUS, which includes most perennial and intermittent rivers and streams, natural and man-made lakes and ponds, irrigation and drainage canals and ditches that are tributaries to other waters, and wetlands. Simplot currently maintains Corps permits for activities previously approved by the 2008 RODs.

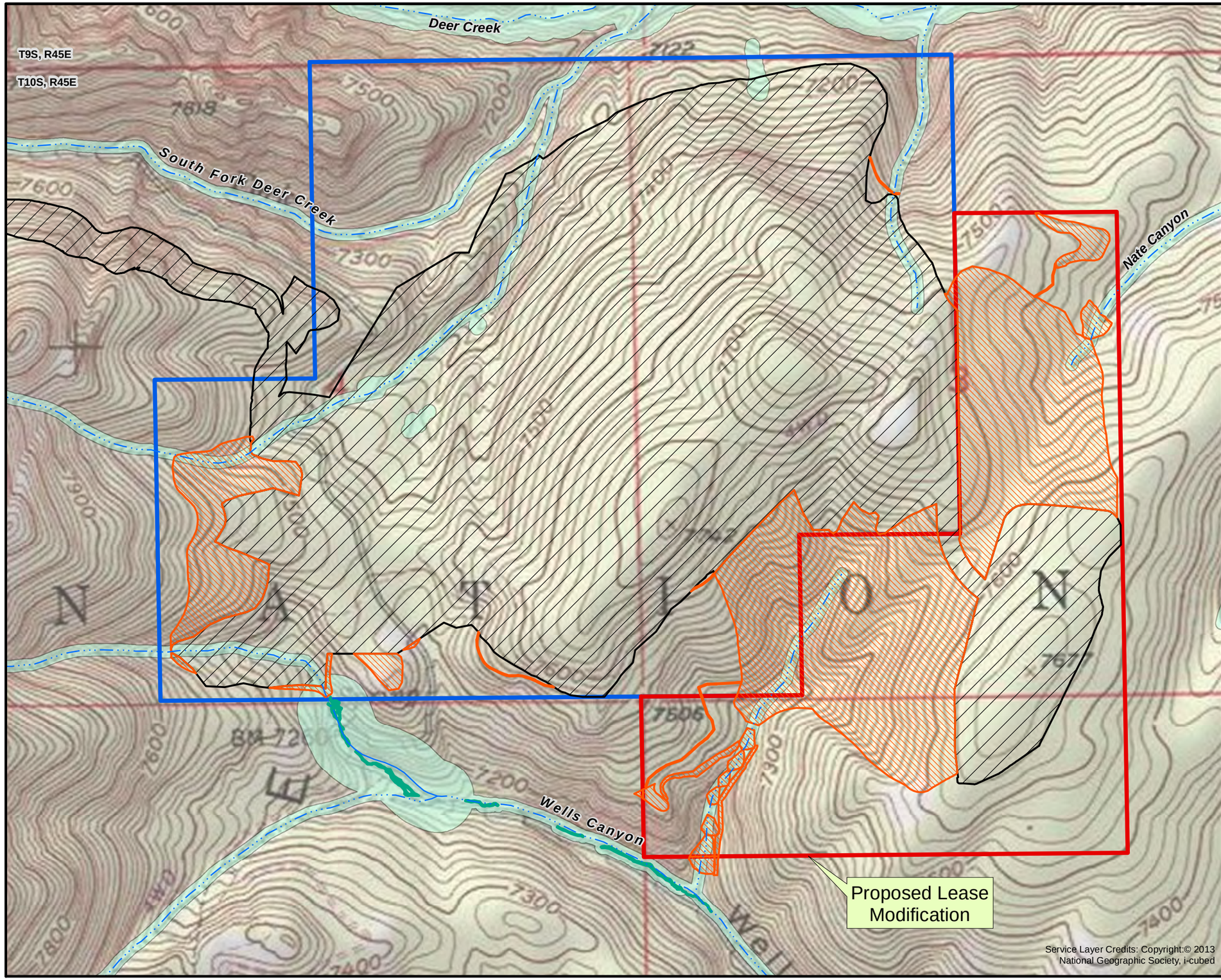
In addition to the wetland baseline surveys conducted for the 2007 FEIS, the Project Area was intensively inventoried during wildlife and soil surveys and wetland areas would have been noted and delineated if they had been observed. The findings discussed below represent the evaluation of the extent and jurisdictional status of wetlands and WOUS found in the Project Area. As displayed in **Figure 3.7-1** and **Figure 3.7-2**, only limited wetland areas occur near the Panel G area. No wetlands were identified within the Panel F portion of the Project Area.

Panel F Ore Conveyor System Area

As previously stated, no wetlands occur within the Panel F ore conveyor system area. However, the South Fork of Sage Creek, Sage Creek, and Pole Canyon Creek are three perennial creeks that the conveyor would cross over with the conveyor being situated within the footprint of the existing haul road, which currently crosses over these creeks via culverts.

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

Surveys conducted in 2013 identified one wetland area just south of and adjacent to the Panel G Project Area (**Figure 3.7-1**). There are three unnamed intermittent drainages in the Project Area at Panel G, but none of them have characteristics that make them potentially jurisdictional WOUS.



Explanation

- Proposed Lease Modification Area
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Wetlands

- Wetland Area Boundaries associated with the Project

Aquatic Resources

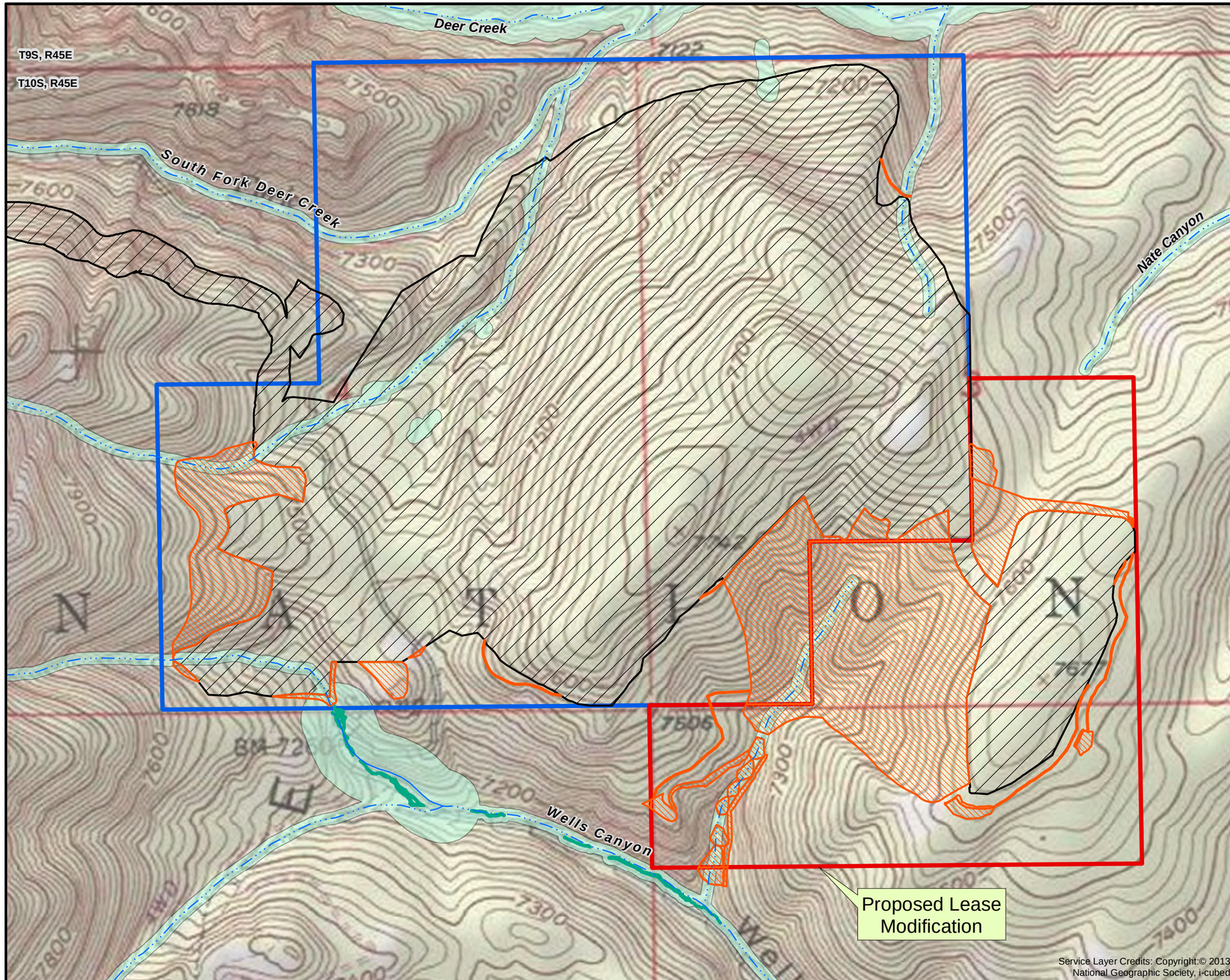
- Intermittent Stream
- Perennial Stream
- Aquatic Influence Zone

N

800 0 800 Feet

Figure 3.7-1
Wetlands and Aquatic Influence Zones
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.7-1 Wetlands and Aquatic Influence Zones - Panel G Lease Modification Area Proposed Action Alternative 1.mxd



Explanation

- Proposed Lease Modification Area
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Wetlands

- Wetland Area Boundaries associated with the Project

Aquatic Resources

- Intermittent Stream
- Perennial Stream
- Aquatic Influence Zone

N

800 0 800 Feet

Figure 3.7-2
Wetlands and Aquatic Influence Zones
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.7-2 Wetlands and Aquatic Influence Zones - Panel G Lease Modification Area Reduced East ODA Alternative 2.mxd

Maxim (2004f) identified one wetland area that is situated less than 20 feet outside the existing Panel G lease area southeast of the South ODA and downstream from a proposed stormwater feature disturbance (**Figure 3.7-1**). Because this previously identified wetland area was originally located so close to proposed disturbance for this Project, the wetland boundaries were resurveyed. Based upon the 2013 resurvey of the wetland boundaries, this wetland is still situated outside any proposed disturbance areas.

3.8 WILDLIFE RESOURCES

3.8.1 2007 FEIS Affected Environment

This section is tiered to Section 3.7 of the 2007 FEIS, titled Wildlife Resources (pages 3-119 through 3-138), and applicable information is hereby incorporated by reference. In addition to incorporating much of the previously collected and presented information from the 2007 FEIS as it relates to the Project Area, updated surveys for wildlife resources were conducted for the Project. These surveys included special status species such as those designated by the state, the USFS, or federally-listed. Surveys specifically for the Panel G Lease Modification Area were conducted and included a 0.5-mile buffer around the area (this survey area, including the buffer is referred to as the Study Area; see JBR 2013c). Updated surveys for the Panel F portion of the Project Area were deemed unnecessary based upon the extent of existing disturbance and ongoing mining activities in that area. A baseline technical report was prepared and provides details on the methodologies, results, and conclusions of the Study Area surveys (JBR 2013c). The information presented in this section is largely summarized from that report. Pertinent information from the 2007 FEIS is also included and cited appropriately.

3.8.2 Special Status Species

The list of federally-listed and USFS-Sensitive species that may occur in the Project Area and their state, federal (USFWS), and USFS status is found in **Table 3.8-1**.

Table 3.8-1 Federally-listed species and USFS-Sensitive species listed for the Caribou National Forest that may occur in the Project Area

COMMON NAME	SCIENTIFIC NAME	IDAHO	USFWS	USFS
Avian Species				
Bald eagle	*Haliaeetus leucocephalus*	S3B S4N		S
Boreal owl	*Aegolius funereus*	S2		S
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbianus*	S3		S/MIS
Flammulated owl	*Otus flammeolus*	S3B		S
Great gray owl	*Strix nebulosa*	S3		S
Greater sage-grouse	*Centrocercus urophasianus*	S4	C	S/MIS
Harlequin duck	*Histrionicus histrionicus*	S1B		S
Northern goshawk	*Accipiter gentiles*	S4		S/MIS
Northern three-toed woodpecker	*Picoides tridactylus*	S2		S
Peregrine falcon	*Falco peregrinus anatum*	S3		S
Trumpeter swan	*Cygnus buccinator*	S1B S2N		S

COMMON NAME	SCIENTIFIC NAME	IDAHO	USFWS	USFS
Mammal Species				
Gray wolf	*Canis lupus*	S1		S
Canada lynx	*Lynx Canadensis*	S1	T	
Pygmy rabbit	*Brachylagus idahoensis*	S2		S
Spotted bat	*Euderma maculatum*	S3		S
Townsend's big-eared bat	*Corynorhinus townsendii*	S3		S
North American Wolverine	*Gulo gulo*	S2		S
Amphibians and Reptiles				
Columbia spotted frog	*Rana luteiventris*	S4		S
Boreal (Western) toad	*Bufo boreas boreas*	S3		S

Sources: IDFG (2005) and USFS (2013).

Idaho: S1= Critically imperiled: at high risk because of extreme rarity (often 5 or fewer occurrences), rapidly declining numbers, or other factors that make it particularly vulnerable to rangewide extinction or extirpation. S2 = Imperiled: at risk because of restricted range, few populations (often 20 or fewer), rapidly declining numbers, or other factors that make it vulnerable to rangewide extinction or extirpation. S3 = Vulnerable: at moderate risk because of restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors that make it vulnerable to rangewide extinction or extirpation. S4 Apparently secure: uncommon but not rare; some cause for long–term concern due to declines or other factors. B = Breeding: conservation status refers to the breeding population of the species. N = Nonbreeding: conservation status refers to the non–breeding population of the species.

USFWS: T = Threatened: species likely to become endangered within the foreseeable future throughout all or a significant portion of its range, C = Candidate Species.

USFS: S = Sensitive: animal species identified by the Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. MIS = Management Indicator Species.

3.8.2.1 Canada Lynx (Threatened)

The Canada lynx is currently listed as a Threatened species under the Endangered Species Act (FR 65(58):16052-16086; March 24, 2000).

Canada lynx occur in most boreal forest habitats in North America, including the classic boreal forests or taiga of northern Canada and Alaska, upper elevation coniferous forests of the Rocky Mountains and Cascade Range, and mixed coniferous-deciduous forests of southeastern Canada, New England, and the Great Lakes states (Aubry et al. 2000). The Northern Rocky Mountain/Cascades Region (38 million acres), which includes parts of the CTNF, contains the majority of lynx occurrences in the U.S. Most lynx occurrences are within moist Douglas-fir (*Pseudotsuga menziesii*) and western spruce/fir forests between 5,000 and 6,500 feet (FR 65(58):16052-16086).

Throughout North America, lynx diets in both winter and summer are dominated by snowshoe hares. In southern boreal forests, alternative prey, especially red squirrels, are important constituents of the diet. As in the taiga, lynx in southern regions are associated with boreal and sub-boreal forest conditions, including upper elevation, coniferous forests in the western mountains. In both northern and southern regions, lynx occur predominantly in habitats where snowshoe hares are abundant, especially early successional stands with high stem densities. However, in southern boreal forests, such habitats appear to be used primarily for hunting; all known den sites in southern regions were located in mature forest stands with large woody

debris. Relatively large home ranges appear to be characteristic of lynx in southern boreal forests (USFS 2007).

The Montpelier Ranger District, which includes the Study Area, has been identified as potential linkage habitat between the "core" lynx habitat in Bridger-Teton National Forest and "peripheral" habitat in the Ashley National Forest in Utah (USFS 2003b; map in USFS 2007). This potential linkage habitat does not contain boreal forest and would likely be used for movement only. The Idaho Department of Fish and Game (IDFG) Idaho Fish and Wildlife Information System (IFWIS) records (IFWIS 2013) from the last 30 years contain one observation of a female lynx with two cubs in August 2005, two miles southeast of the Blackfoot River Narrows, about 15 miles northwest of the Study Area. There are no IFWIS records of lynx within 10 miles of the Study Area in the past 30 years. However, lynx from the Colorado Division of Wildlife's lynx reintroduction program have been mapped as far north as southeastern Idaho, likely within the CNTF and near the Study Area, area based upon satellite locations between 1997 and 2007 (CPW 2010). No observations or sign of lynx were documented in the Study Area during tracking surveys in 2013.

The RFP (USFS 2003a) standards and guidelines relevant for lynx include desired future conditions, goals, and standards for vegetation (Goals 1-4 and 7, Standard 2); goals for wildlife (Goals 2, 3, and 5); and objectives and standards for lands (Objective 1, Standard 1). These standards and guidelines relate to the maintenance of suitable linkage habitat connectivity for lynx. Vegetation Standard 2 (USFS 2003a), the most specific prescription, states that in each 5th forested hydrologic unit code (HUC), the combination of mature and old age classes shall be at least 20 percent of the forested acres and that at least 15 percent of all forested acres in the HUC are to meet or be actively managed to attain old growth characteristics.

3.8.2.2 Bald Eagle (Sensitive)

The bald eagle is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, breeding bald eagles are classified as "Vulnerable" (S3) and non-breeding bald eagles are classified as "Apparently Secure" (S4; IDFG 2005). The bald eagle was removed from the Endangered Species List (as Threatened) on July 9, 2007 (Federal Register 72 (130):37345-37372; effective August 8, 2007) in the lower 48 States.

Bald eagle nests and communal night roosts are usually located in tall trees near water bodies that support an adequate food supply. Fish, waterfowl, rabbits, and carrion (including big game carrion in Idaho) comprise the majority of the diet.

According to the IFWIS, bald eagles were observed at the confluence of Deer Creek and North Fork Deer Creek in 2003. Suitable roosting habitat for bald eagles exists along Crow Creek, which is surveyed annually during winter. One adult bald eagle was counted on the Crow Creek midwinter bald eagle survey route by the USFS in January 2012 and two adults were counted in January 2013 (JBR 2013c). One bald eagle was observed during tracking surveys in 2013.

RFP Standards and Guidelines for occupied nesting zones, primary use areas, and home ranges (USFS 2003a) do not apply because there is no nest within 2.5 miles of the Project Area. Guidelines related to minimizing conflicts with bald eagle winter foraging habitat, roosting habitat, and power lines would apply.

3.8.2.3 Boreal Owl (Sensitive)

The boreal owl is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, boreal owls are classified as "Imperiled" (S2; IDFG 2005).

In the Rocky Mountains, boreal owls are typically found in subalpine forest habitats characterized by subalpine fir (*Abies lasiocarpa*) or Engelmann spruce (*Picea engelmannii;* Hayward 1994). Studies in Idaho found that boreal owl nesting sites were concentrated in mixed-conifer and aspen (*Populus tremuloides*) forests with no nesting in lodgepole pine (*Pinus contorta*) forests and infrequent nesting in spruce-fir. In general, no single vegetation type provided all resources used by boreal owls, implying a complex pattern of habitat use (Hayward 1994).

The IFWIS data show no known recorded observations for boreal owls within 10 miles of the Study Area. The Study Area contains suitable habitat and boreal owls may occur year-round. No boreal owl callbacks were heard during surveys in 2013.

The single boreal owl-specific RFP Guideline (USFS 2003a) is to maintain 40 percent of the forested acres in mature and old age classes within a 3,600-acre area around nest sites.

3.8.2.4 Columbian Sharp-tailed Grouse (Sensitive and MIS)

The Columbian sharp-tailed grouse is a USFS-Sensitive species and Management Indicator Species (MIS) for grassland and open canopy sagebrush habitat (USFS 2003a). In the State of Idaho, Columbian sharp-tailed grouse are classified as "Vulnerable" (S3) IDFG 2005). USFWS found listing was not warranted for the sharp-tailed grouse in 2006 (Federal Register 71 (224) 21 November 2006: 67318–67325).

Columbian sharp-tailed grouse occur in habitats generally characterized by dense herbaceous cover and a mixture of shrubs. Habitat requirements in winter are narrower; sharp-tailed grouse often rely on riparian areas or deciduous hardwood shrub stands (IDFG 2005). In southeast Idaho, Columbian sharp-tailed grouse are reasonably widespread in shrub and grass habitats adjacent to or in mountainous foothills (IDFG 2005). No leks have been documented on CNF system lands, although several occur adjacent to the CNF land (USFS 2003b). Elevations on the CNF are relatively high for suitable spring, summer, and fall habitat for sharp-tailed grouse. However, suitable winter habitat consisting of aspen, chokecherry (*Prunus virginiana*), and serviceberry (*Amelanchier* sp.) is present. Sharp-tailed grouse may be present in suitable or marginally suitable habitat year-round.

The BLM observed two sharp-tailed grouse in May 2010 and a single sharp-tailed grouse in May 2011, near the "Slug Creek 2" lek that is approximately nine miles northwest of the Study Area (JBR 2013c). The IFWIS database did not contain any records of Columbian sharp-tailed grouse within 10 miles of the Study Area. The Study Area provides suitable habitat, although sign was not observed during surveys in 2013.

Regarding standards and guidelines for sharp-tailed grouse, the RFP defers to "current guidelines for sage and sharp-tailed grouse management" (e.g., Connelly et al. 2000) to be used as a basis for sagebrush treatments. As a MIS, sharp-tailed grouse populations are used to measure the health of their habitat on the CNF and vice versa. However, as stated in the 2007 FEIS, impacts to grassland and open canopy sagebrush habitat (USFS 2003a) will not be used as a measurement of impacts to sharp-tailed grouse because nesting in the Project Area is not

expected. Other RFP Guidelines related to sharp-tailed grouse direct that projects within two miles of a known sharp-tailed grouse lek should be evaluated for potential habitat impacts to sharp-tailed grouse, and that disturbances should be limited during the breeding (March–May) and nesting (May–June) seasons if sharp-tailed grouse are present. The Idaho Sharp-tailed Grouse Conservation Plan (Ulliman et al. 1998) recommends that in winter habitat, treatments should be limited to 20 percent of the area, leaving 80 percent available for winter forage.

3.8.2.5 Flammulated Owl (Sensitive)

The flammulated owl is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, breeding flammulated owls are classified as "Vulnerable" (S3; IDFG 2005).

Flammulated owls are small, secretive owls that nest in cavities and feed exclusively on insects. Flammulated owls occur year-round in cold temperate and semi-arid climates, in areas with open forest structure and some dense foliage, and with a high abundance or diversity of insect prey. Owls migrate following the availability of insect prey. Flammulated owls appear to occupy warm microclimates within mid-elevation conifer woodland habitats, either in response to prey availability or thermoregulation (McCallum 1994).

The Panel G portion of the Project Area contains suitable habitat, and flammulated owls may occur in spring, summer, or fall. The IFWIS data contain three flammulated owl observations near the Panel G portion of the Project Area from May 2003. Four flammulated owl callbacks were heard during three separate survey days in 2013, all outside of the Project Area but within the Study Area. No nests were ever identified. RFP Guidelines for flammulated owl habitat (USFS 2003a) state that no timber activities are allowed within a 30-acre area around nest sites.

3.8.2.6 Great Gray Owl (Sensitive)

The great gray owl is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, great gray owls are classified as "Vulnerable" (S3; IDFG 2005).

Great gray owls occur in mid- to high-elevation conifer forests, nesting in mature forest stands that contain snags. In southeast Idaho, nests have been found in mid- to late-succession Douglas-fir forests near clear-cuts or natural meadows. The vast majority of sightings of great gray owls in Idaho are in the lodgepole pine / Douglas-fir / aspen zone. Open forested stands of Douglas-fir and aspen interspersed with open meadows and clearcuts within portions of the Project Area may provide suitable habitat for great gray owls.

The IFWIS data contain eighteen observations of great gray owl within 10 miles of the Project Area, including one within the 2013 Study Area (but not within the actual Project Area), several five miles west of the Study Area, and a large cluster five miles north. The Project Area contains suitable habitat and great gray owls may occur year-round. However, no callbacks were heard during surveys in 2013.

3.8.2.7 Greater Sage-Grouse (Candidate, Sensitive, and MIS)

The greater sage-grouse is a Candidate species for federal listing as well as a USFS-Sensitive species and a MIS for high-quality sagebrush habitat (USFS 2003a). In the State of Idaho, greater sage-grouse are classified as "Apparently Secure" (S4; IDFG 2005). On January 12, 2005, the USFWS announced a 12-month finding for three petitions to list greater sage-grouse as threatened or endangered was not warranted. On December 4, 2007 the U.S. District Court of

Idaho ruled that the 12-month petition finding was in error. The USFWS also determined that a new status review was appropriate in order to address new information that had become available since the 2005 finding (specifically, information published since Connelly et al. 2004). The USFWS found on March 5, 2010 that listing the greater sage-grouse (range-wide) was warranted, but that listing was precluded by higher-priority listing actions. The greater sage-grouse was assigned a Candidate Listing Priority Number of 8, where 1 is the highest priority (Federal Register 75 (55) March 23, 2010:13910-14014).

On December 27, 2011, the BLM issued Instruction Memorandum (IM) No. 2012-043 and No. 2012-044 to provide interim management policies and procedures for greater sage-grouse to be applied to ongoing and proposed authorizations and activities that affect the species and its habitat. These IMs supplement IM No. 2010-071 and are consistent with IM No. 2011-138, which also are related to management of greater sage-grouse. The IM applies for BLM actions within Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH). PPH areas have been identified as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas would include breeding, late brood-rearing, and winter concentration areas. PGH areas are areas of occupied seasonal or year-round habitat outside of priority habitat. The data and maps for these two habitat areas were developed through a collaborative effort between the BLM and the respective state wildlife agencies. The IM (No. 2012-44) provides interim conservation policies and procedures specifically for PPH and PGH areas. Based upon a review of the most current Geographic Information System (GIS) data from the Idaho BLM (obtained from Idaho's Geospatial Data Clearinghouse website on January 2, 2014), the closest PGH area occurs approximately eight miles northeast of the Study Area at Panel G within the Tygee Creek area. The closest PPH occurs approximately 11 miles to the southeast.

Greater sage-grouse depend on sagebrush, particularly big sagebrush (*Artemisia tridentata*) and silver sagebrush (*A. cana*), for food and cover year-round. Sage-grouse utilize riparian and upland meadows and sagebrush grasslands during summer, sagebrush-dominated rangelands with herbaceous cover during breeding (lekking, nesting, and early brood-rearing), and upland meadows, riparian areas, greasewood bottoms, and agricultural fields in addition to sagebrush during autumn (Connelly et al. 2004).

Breeding occurs on “leks” or openings surrounded by sagebrush in broad valleys, ridges, benches, and plateaus or mesas. Lek sites generally have good visibility (for predator detection), acoustical qualities (so mating sounds will carry), and an abundance of sagebrush within about 300 to 660 feet (for escape cover). Hens build nests at the base of a live sagebrush plant and remain in sagebrush vegetation with chicks until conditions are too dry, at which point hens with broods move towards wet meadow or riparian areas. Preferred nest habitats are those with live sagebrush along the periphery for escape cover. Early brood-rearing habitat is generally identified as sagebrush habitat surrounding each lek (for at least 3 kilometers (km)).

Sage-grouse in southeastern Idaho moved as far as 82 km from breeding and nesting sites to summer ranges (Connelly et al. 1988). In addition, female sage-grouse showed fidelity to nesting areas over consecutive years in southeastern Idaho (Fisher et al. 1993).

Several sage-grouse leks occur approximately 10 miles northwest of the Study Area near Slug Creek. No leks are known in the vicinity of the Study Area, although sagebrush-covered hillsides provide suitable habitat. Sage-grouse have been observed along Crow Creek in the past. Sage-

grouse pellets were observed in the Study Area and just east of the Panel G Lease Modification area while walking through the sagebrush habitat in 2013, although no birds were flushed or observed.

RFP standards and guidelines for sage-grouse are extensive and are described in USFS 2003a. As a MIS, sage-grouse populations are used to measure the health of sagebrush habitat on the CNF and vice versa, thus impacts to sagebrush habitat are used as a measurement of impacts to sage-grouse (USFS 2003a). Other RFP Guidelines related to sage-grouse direct that projects within 10 miles of a known sage-grouse lek should be evaluated for potential habitat impacts to sage-grouse, and that disturbances should be limited during the breeding (March–May) and nesting (May–June) seasons if sage-grouse are present.

3.8.2.8 Harlequin Duck (Sensitive)

The harlequin duck is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, breeding harlequin ducks are classified as "Critically Imperiled" (S1; IDFG 2005).

Harlequin ducks are sea ducks that migrate inland to breed. Breeding occurs along clear, swiftly-flowing streams. In Idaho, harlequin ducks feed primarily on benthic macroinvertebrates and use second-order or larger streams containing reaches with an average 1-7 percent gradient, riffle habitat, clear water, gravel- to boulder-sized substrate, and forested bank vegetation (IDFG 2005). Harlequin ducks are not expected to occur on the CNF (USFS 2003b), and there is no suitable or potential harlequin duck habitat in the Study Area (USFS et al. 2013; BLM and USFS 2007) or Project Area. This species will not be discussed further in this EIS.

3.8.2.9 Northern Goshawk (Sensitive and MIS)

The northern goshawk is a USFS-Sensitive species and a MIS for mature and old growth forest structure (USFS 2003a). In the State of Idaho, northern goshawks are classified as "Apparently secure" (S4) (IDFG 2005).

Northern goshawks inhabit montane coniferous and deciduous forests, forest edges, and open woodland stands. In Idaho, goshawks nest in coniferous and aspen forests, and spend winter in riparian or agricultural areas (Groves et al. 1997). Published descriptions of goshawk nests suggest that nest-site selection is predictable. In a western Montana and northern Idaho study, goshawks nested in mature conifer forest with a closed canopy (75-85 percent cover); on a moderate (15-35 percent), north facing slope; at or near the bottom of a hillside, with a relatively open understory to allow flight below the canopy; and with water and a large forest opening generally within 0.5 km of the nest (Hayward and Escano 1989).

Between 1991 and 2003, nine observations of northern goshawks within 10 miles of the Study Area are recorded in the IFWIS database (IFWIS 2013). More recent nest monitoring near the Study Area occurred at a historic goshawk territory on Sage Creek, which was found to be unoccupied (i.e., no active nests or goshawk activity) in 2009, 2010, and 2012 (Dobrich 2010, 2013). A territory within Smoky Canyon Mine Panel D (where habitat has been disturbed within a one-mile radius surrounding the historic nest point) was monitored in 2011 and 2012, but no active nests were found (Dobrich 2012, 2013). The Study Area contains suitable habitat and goshawks may use the area year-round. No observations or callbacks were heard during surveys in 2013 and no nests or historical nesting territories for northern goshawks are known to occur within the Study Area.

RFP Standards and Guidelines for the goshawk are extensive and are described in USFS (2003a). As an MIS, goshawk populations are used to measure the health of their habitat on the CNF and vice versa, thus impacts to mature and old growth forest habitat are used as a measurement of impacts to goshawk (USFS 2003a). One RFP guideline for goshawks states that forest openings larger than 40 acres should not be created in order to preserve foraging and post-fledgling family areas in active or historical nesting territories. In addition, mechanical treatments cannot occur within a 400-acre area around active northern goshawk nests between March and September (USFS 2003a).

3.8.2.10 Peregrine Falcon (Sensitive)

The peregrine falcon is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, peregrine falcons are classified as "Vulnerable" (S3; IDFG 2005).

Peregrine falcons occupy a wide range of habitats, but are typically found in open country near rivers, marshes, lakes, and coasts. Foraging habitat includes wetlands and riparian habitats, meadows and parklands, croplands and orchards, gorges, mountain valleys, and lakes that support good populations of small- to medium-sized terrestrial birds, shorebirds, and waterfowl. Cliffs are preferred nesting sites, although reintroduced birds now regularly nest on man-made structures such as towers and high-rise buildings (USFS 2003b).

There are historical, but currently unoccupied, nesting cliffs, as well as other potentially suitable nesting cliffs on the CNF. As numbers of peregrines increase in Idaho, some of these cliffs may become occupied. There is no suitable habitat for peregrine falcons in the Study Area (USFS et al. 2013; BLM and USFS 2007). The closest known eyries are located at Grays Lake, Grays Ridge, and at Soda Springs, all of which are located over 20 miles north or northwest of the Project Area (USFS 2003b).

RFP Standards and Guidelines (USFS 2003a) require that activities or habitat alterations be minimized within two miles of peregrine falcon nest sites, as that use of herbicides or pesticides (which could cause eggshell thinning) be prohibited within 15 miles of nest sites.

3.8.2.11 Northern Three-toed Woodpecker (Sensitive)

The northern three-toed woodpecker is a USFS-Sensitive species (USFS 2003a) and in the State of Idaho, three-toed woodpeckers are classified as "Imperiled" (S2; IDFG 2005).

Northern three-toed woodpeckers are year-round residents of high-elevation, spruce-fir forests, with populations increasing in response to spruce bark beetle outbreaks (Hill 2002, Koplin 1969). The highest densities of woodpeckers tend to occur in freshly burned areas (zero to three years post-burn), and generally in areas with a high density of lightly burned trees (IDFG 2005). Three-toed woodpeckers typically nest in snags, where they excavate cavities, and may return to the same territory in succeeding years (Hill 2002).

The IFWIS data (2013) contain four observations, made between 2000 and 2003, of northern three-toed woodpeckers within 10 miles of the Project Area. Suitable nesting and foraging habitat for three-toed woodpeckers is present in the Project Area. Three-toed woodpeckers were heard in the 2013 Study Area on two different survey days in 2013.

RFP Standards and Guidelines for three-toed woodpeckers are related to maintaining snag habitat (see USFS 2003a). However, Prescription 8.2.2(g) – Phosphate Mine Areas, which

allows for phosphate mining to occur on existing leases, states that snag habitat for woodpeckers shall not be a management consideration.

3.8.2.12 Trumpeter Swan (Sensitive)

The trumpeter swan is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, breeding trumpeter swans are classified as "Critically Imperiled" (S1) and non-breeding trumpeter swans are classified as "Imperiled" (S2; IDFG 2005).

In Idaho, trumpeter swans breed on marshes, lakes, and beaver ponds, and wintering occurs along shallow, slow-moving waters. Trumpeter swans forage on submerged and emergent vegetation and aquatic insects (Groves et al. 1997). There are typically 100 adult birds in southeast and south central Idaho during the breeding season. They may nest at or near Grays Lake (over 20 miles north), Soda Springs (over 20 miles northwest), or Bear Lake National Wildlife Refuge (25 miles south; IDFG 2005).

Eight trumpeter swans were observed in 2012 approximately 1.5 miles east of the Study Area (on a small pond south of Crow Creek Road near Camel Hollow) during midwinter bald eagle surveys conducted by USFS along Crow Creek in 2012. Three adults and one cygnet were observed during the same survey in 2013 at Books Springs, approximately one mile east of the Study Area. Trumpeter swans were not observed in the Study Area during baseline surveys in 2013. There is no suitable breeding habitat containing marshes, lakes, or streams of sufficient size for trumpeter swan on USFS land within the Study Area; therefore, the species will not be discussed further in this EIS.

3.8.2.13 Gray wolf (Sensitive)

As of September 30, 2012, the gray wolf is no longer protected under the Endangered Species Act in any state. Thus, wolves within the previously-named Northern Rocky Mountain distinct population segment (DPS) area, which included wolves in Idaho, are no longer considered or protected as part of the Greater Yellowstone nonessential experimental population (Federal Register 77 (175) September 10, 2012:55530-55604).

Wolves are sociable animals, frequently traveling and hunting in packs of 2-12 wolves. Packs typically occupy and defend territories of 20–214 square miles from other wolf packs. Wolves prey on a wide variety of mammals, including white-tailed deer (*Odocoileus virginianus*) and mule deer (*O. hemionus*), elk (*Cervus canadensis*), caribou (*Rangifer* sp), bighorn sheep (*Ovis canadensis*), mountain goats (*Oreamnos americanus*), and beaver (*Castor canadensis*). Idaho wolf numbers in the formerly-named Northern Rocky Mountain DPS area have grown steadily since the mid-90s and have stabilized to around 1,700 wolves as of 2010 (USFWS et al. 2011).

There are no established packs or breeding pairs on the CNF (USFWS et al. 2011). However, any habitat in the Project Area could provide year-round movement routes for wolves. The Project Area provides both suitable habitat and prey base for wolves (USFS et al. 2013; BLM and USFS 2007). No observations or sign of wolves were documented in the Study Area during tracking surveys in 2013.

3.8.2.14 Pygmy Rabbit (Sensitive)

The pygmy rabbit is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, pygmy rabbits are classified as "Imperiled" (S2; IDFG 2005). Pygmy rabbits in Idaho are not part of the Columbia

Basin distinct population segment that is on the Endangered Species List. USFWS conducted a status review of pygmy rabbit in 2010 and found that listing was not warranted (Federal Register 75(189) September 30, 2010:60516-60561).

Pygmy rabbits are limited to habitat characterized by deep, friable soils and tall (often greater than six feet), dense sagebrush, which provides both food (95 percent of the diet) and cover. Burrows are usually located on slopes at the base of sagebrush plants. No occupied habitat has been found on the CNF. There is no suitable habitat for pygmy rabbits in the Project Area (USFS et al. 2013; BLM and USFS 2007) and the Project Area is just outside the known range of the species (mainly south and central Idaho; Federal Register 75(189) September 30, 2010:60516-60561). This species will not be discussed further in this EIS.

3.8.2.15 North American Wolverine (Sensitive)

The North American wolverine is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, North American wolverines are classified as "Imperiled" (S2; IDFG 2005). On December 14, 2010, the USFWS found the petition to list the wolverine as Threatened or Endangered "not warranted." (Federal Register 75 (239) December 14, 2010:78030-70861). The USFWS had more recently proposed to list this species as Threatened but subsequently withdrew the proposal on August 12, 2014.

In North America, wolverines occur within a wide variety of arctic and alpine habitats, but primarily boreal forests, tundra, and mountains. The southern portion of their range extends into Idaho (Federal Register 73 (48); March 11, 2008:12929-12941). A general trait of areas occupied by wolverines is their remoteness from humans and human developments (Banci 1994). Wolverines have very large home ranges relative to their body size and require large areas to forage (Banci 1994; Federal Register 75 (239) December 14, 2010:78030-70861). In addition, in Idaho, natal den sites occur above 8,200 feet on rocky sites, such as north-facing boulder talus or subalpine cirques (steep-walled semicircular basin carved by a glacier), in forest openings (Magoun and Copeland 1994 as cited in Federal Register 78 (23) February 4, 2013: 7863-7890). Based upon the fact that these types of habitat do not occur within the Study Area, the potential for denning by wolverines within the Study Area is non-existent.

Wolverines have been confirmed within the CTNF at the following locations: 1) approximately 25 to 30 miles north-northwest of the Study Area in the vicinity of Caribou Mountain on the north end of the Caribou portion of the forest, 2) along the divide between Mink Creek and Liberty Creek in the Bear River Range (Maxim 2004g), and 3) approximately 5 miles north of the Study Area in Smoky Canyon (IFWIS 2014). Denning and foraging habitat is present in the Project Area (USFS et al. 2013; BLM and USFS 2007) and wolverines may travel through the Project Area year-round. No observations or sign of wolverines were documented during winter tracking surveys of the Study Area in 2013.

3.8.2.16 Spotted Bat (Sensitive)

Spotted bats are a USFS-Sensitive species (USFS 2003a). In the State of Idaho, spotted bats are classified as "Vulnerable" (S3; IDFG 2005).

Spotted bats are rare and their distribution is highly fragmented. The limiting factor to their occurrence is most likely suitable roost sites (rock and cliff crevices) and human disturbance. Spotted bats usually occur in deep, narrow canyons, and roost in cracks or crevices within the

rocky outcrops and cliffs (IDFG 2005). In Idaho, spotted bats occur mainly in the southwest corner of the state (Perkins and Peterson 1997). Dominant vegetation types in Idaho include sagebrush, juniper, mountain mahogany, and cottonwood (IDFG 2005). In 2003, one spotted bat was recorded in south-central Idaho, just west of Almo (City of Rocks; Rodhouse et al. 2009).

The IFWIS database does not contain any records of spotted bats within 10 miles of the Study Area. Suitable cliffs (roost sites) are not present within or near the Study Area (USFS et al. 2013; BLM and USFS 2007) and spotted bats were not detected during the Anabat survey in 2013 (JBR 2013c).

3.8.2.17 Townsend's Big-eared Bat (Sensitive)

The Townsend's big-eared bat is a USFS-Sensitive species (USFS 2003a). In the State of Idaho, Townsend's big-eared bats are classified as "Vulnerable" (S3; IDFG 2005).

Townsend's big-eared bats occur in much of western North America, in a variety of habitats from desert shrub to deciduous and coniferous forest, and over a wide range of elevations. However, the species' distribution is strongly correlated with the availability of caves or cave-like roosting habitat such as abandoned mines (Pierson et al. 1999).

Past surveys within the CNF have found Townsend's big-eared bats in the Bear River Range, Pruess Range, Portneuf Range, and Elkhorn Mountains (USFS 2003b). Surveys conducted in the Montpelier Ranger District found five mines and caves with low numbers of Townsend's big-eared bats during the summer and 11 mines and caves with low numbers during the winter (USFS 2003b). No suitable maternity or hibernacula habitat is present in the Study Area as the Study Area does not contain caves (USFS et al. 2013; BLM and USFS 2007). Townsend's big-eared bats were detected about ten miles northwest of the Study Area in 2009 (JBR 2012). Snags in the Study Area and Project Area are suitable for roosting and big-eared bats may forage or roost in the Study Area and Project Area during spring, summer, or fall. Townsend's big-eared bats were not detected during the Anabat survey in 2013.

3.8.2.18 Columbia Spotted Frog (Sensitive)

The Columbia spotted frog is a USFS-Sensitive species (USFS 2003a). In Idaho, Columbia spotted frogs are classified as "Apparently Secure" (S4; IDFG 2005).

Spotted frogs require habitat components for hibernation (water-flooded burrows), breeding (pooled water), foraging (shallow pond margins), and migrating between breeding and hibernation sites (corridors containing water and vegetative cover such as wet meadows; USFWS 2006).

Columbia spotted frogs do not occur in southeast Idaho (USFS et al. 2013; BLM and USFS 2007) and this species will not be discussed further in this EIS.

3.8.2.19 Boreal (Western) Toad (Sensitive)

The western toad is a USFS-Sensitive species as of March 2010. The western toad is classified as "Vulnerable" (S3; IDFG 2005).

Western toads are found in a variety of habitats such as desert springs and streams, meadows and woodlands, and in and around ponds, lakes, reservoirs, and slow-moving waterways. Breeding areas are typically shallow water areas at the edges of ponds, or lakes, stream or river edges with

slow-moving water, or other flooded or ponded areas (Keinath and McGee 2005). After breeding, western toads move to more terrestrial habitats and eventually to hibernacula that may be a substantial distance from the breeding site (up to 2.5 km, but usually much less; Keinath and McGee 2005). Western toads dig a burrow in loose soil or use burrows of small mammals (Groves et al. 1997) and remain in hibernation until the following spring.

Boreal toads are a subspecies of Western toads and share most, if not all, of their traits. Five boreal toad subspecies have been documented through mitochondrial deoxyribonucleic acid (DNA) analyses, with one of the five groups identified as specific to Caribou County, Idaho (Hogrefe et al. 2005). The boreal toad occupies relatively high-elevation habitats compared to other western amphibians, ranging from 5,000 to 10,000 feet above sea level. Occupied wetlands are surrounded by a variety of upland vegetation communities, including sagebrush and grasslands, pinyon-juniper, mountain shrubs, and coniferous forest (Hogrefe et al. 2005).

The closest known location of boreal toads is in Sage Meadows (USFS et al. 2013; BLM and USFS 2007), about three miles north of the Panel G portion of the Project Area and less than two miles west of the Panel F portion of the Project Area. The IFWIS database (2013) contains three observations of western toad in Sage Meadows.

3.8.3 Migratory Birds

A wide variety of migratory birds are found on the CNF, and many species are expected in the Project Area. Migratory birds are protected by the Migratory Bird Treaty Act (MBTA) of 1918, which prohibits the "take" of any migratory bird (16 U.S.C. 703-712). In January 2001, outgoing President Clinton signed Executive Order 13186 that required some federal agencies, including USFS, to develop an MOU with the USFWS to promote the recommendations of various migratory bird programs and conservation considerations. The USFS developed an MOU with USFWS in 2008 (USFS 2008).

Coordinated implementation plans at the regional and state levels can be used to assist federal agencies with implementation of the MOU. The Intermountain West Joint Venture (IWJV) was established in 1994 as the eleventh habitat joint venture intended to coordinate implementation of the North American Waterfowl Management Plan. The IWJV first adopted an Implementation Plan in 1995 to provide a framework for implementing the North American Waterfowl Management Plan in Idaho and other states of the Intermountain West; the plan has since been updated (IWJV 2005). Director's Order 146, which indicated that joint ventures should "deliver the full spectrum of bird conservation," was issued on September 12, 2002 by the USFWS Director under President Bush.

The Partners in Flight (PIF) organization began in 1988 as a coordinated, nationwide effort to document and reverse apparent declines in neotropical migratory birds and was later expanded to include all nongame land birds. The PIF chapter in Idaho was formed in 1992, and in 2000 released Version 1.0 of the Bird Conservation Plan (BCP), based on an assessment of 243 species of breeding birds in Idaho, including 119 species of neotropical migrants (Ritter 2000).

The Idaho BCP (Ritter 2000) identifies riparian, wetlands not associated with rivers, and sagebrush as high priority habitats for migratory birds. The Coordinated Implementation Plan for Bird Conservation in Idaho (IWJV 2005) was revised and updated to include aspen woodlands as priority habitats.

Riparian vegetation make up less than one percent of the Project Area. Riparian vegetation can be found along perennial, intermittent, and ephemeral streams, including those associated with Wells Canyon. Wet/mesic meadow areas can also be found as isolated seeps and springs in the 2013 Study Area, but outside the Project Area. These areas provide important habitat components for migratory birds.

The Panel G portion of the Project Area does include sagebrush vegetation. Sagebrush is present mainly on dry, south-facing slopes in the Panel G portion of the Project Area that are north of Deer Creek, the South Fork of Deer Creek, and Wells Canyon Creek. Sagebrush provides nesting sites and cover for many species of migratory birds.

A large portion of the Panel G portion of the Project Area is comprised of aspen vegetation; either aspen or mixed conifer/aspen cover most of the Study Area and Project Area slopes. Large aspen trees provide potential nesting for cavity-nesting birds.

Snag habitat is important for some migratory birds that nest in forests, such as cavity nesters (e.g., woodpeckers) and raptors. Snag habitat is present in the Project Area and provides potential nesting and foraging habitat for migratory birds.

3.8.4 Mammals

Several mammal species are known or expected to occur within the Project Area. These species include various bats, rabbits, chipmunks, squirrels, and gophers, as well as large game animals such as Rocky Mountain elk (*Cervus canadensis*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), black bear (*Ursus americana),* and mountain lion (*Felis concolor*; Groves et al. 1997; IDFG 2009; USFS 2003b). Mammals are present year-round in the Project Area.

3.8.4.1 Big Game

Mule deer and Rocky Mountain elk are the most visible big game species in the Project Area, and can be found year-round. However, there is no big game winter range or critical winter range within the Project Area, as the mapped winter range occurs north of the Panel G portion of the Project Area and south of the Panel F apportion of the Project Area (see Figure 3.7-1 in the 2007 FEIS), and east within the Crow Creek Valley. Mule deer and elk are no longer MIS under the RFP; however, elk and deer are important species for the local economy and public interest. Moose are included in this discussion due to sympatric relationships with elk and deer within the general area and in surrounding habitats of southeast Idaho. These species are discussed in more detail in the following sections.

Elk

Elk are classified as habitat generalists and are distributed throughout Idaho. Elk diets vary geographically and seasonally. They are primarily grazers, although they consume forbs in summer, and browse on willow and aspen in the absence of available grasses.

The Diamond Creek Zone, which contains Management Units 66A and 76, is some of the most productive elk habitat in southeastern Idaho (IDFG 2011a). Unit 76 encompasses the Project Area, extending east from Soda Springs to the Wyoming border.

Many elk populations do not make long-range movements between seasonal ranges. Kuck (1984) found that in the Deer Creek, summer and winter use areas are typically adjacent, and movements often overlap seasonally. Most often, elk used southerly and western aspects with

slopes less than 20 degrees as winter range (Kuck 1984). IDFG reports (2011a) that as populations have increased, elk have been using wintering areas outside of Unit 76. Bulls in particular can winter almost anywhere during a mild winter, including lands within both the Panel F and Panel G portions of the Project Area (Corey Class, IDFG Wildlife Biologist, Pocatello, Idaho, personal communication). Elk have been observed using winter range situated north and east of the Panel G portion of the Project Area, and south and east of the Panel F apportion of the Project Area (Corey Class, IDFG Wildlife Biologist, Pocatello, Idaho, personal communication).

Surveys of elk populations in Management Unit 76 conducted by IDFG provided population estimates of 3,116 elk in 2002; 3,613 elk in 2005; and 2,220 elk in 2008 (IDFG 2011a). The most recent aerial survey of Unit 76 (2008) indicates that the elk population is below objectives for cows, bulls, and adult bulls (IDFG 2011a).

The 2011 summary report states that although Unit 76 could support a higher wintering population of elk, it would be at the expense of significant depredation concerns as well as elk increasingly occupying mule deer winter ranges (IDFG 2011a).

Mule Deer

Mule deer are the most abundant and widely distributed big game animal in Idaho (Groves et al. 1997). Typical mule deer habitat consists of coniferous forests, shrub steppe, grasslands with shrubs, and chaparral. They are primarily browsers, and much of their diet is twigs and leaves of shrubs and trees, especially in the winter (USFS 2003b).

Winter range is a critical component of mule deer habitat. Mule deer are highly susceptible to high mortality during periods of prolonged deep snow and low temperatures. The condition of a deer at the start of winter depends on the quality of the habitat it occupies during the rest of the year. The winter strategy is to minimize energy loss (becoming sedentary and using thermal cover) and to eat enough to prolong fat reserves (USFS 2003b). An apparent change in the winter distribution of mule deer has occurred primarily in Unit 76. During the 1950s and 1960s, deer use of the Soda Front (Wood Canyon south to Montpelier) was extensive, while use of the Bear Lake Plateau (Unit 72) was minimal. Currently, the Bear Lake Plateau and the Soda Hills Area represent the two most significant winter ranges for mule deer in Unit 76 (IDFG 2011b).

Generally, summer and winter areas for mule deer are usually 10 to 20 miles distant, in higher-elevation aspen and conifer communities. Roads fragment habitats and migration corridors and can alter seasonal migrations, which reduces the overall suitability of mule deer habitat (IDFG 2008). The most common destination for mule deer moving through the Study Area and Project Area is the Bear Lake Plateau, the largest winter range in the area (Corey Class and Zach Lockyer, IDFG Wildlife Biologists, Pocatello, Idaho, personal communications). In addition, a small group of mule deer winter in the Crow Creek area northeast to Buck Mountain, northeast of the Project Area (Corey Class, IDFG Wildlife Biologist, Pocatello, Idaho, personal communication). However, the IDFG does not collect or have any specific information on big game migration corridors within or adjacent to the Smoky Canyon Mine area (Jim Mende, IDFG Wildlife Biologist, Pocatello, Idaho, personal communication).

The most recent survey for mule deer populations in the area was conducted in 2006 by IDFG for Management Unit 76, and resulted in a population estimate of 3,363 mule deer (IDFG

2011b). The general buck:doe ratio objective is 15 bucks per 100 does. The current ratio is 12 bucks per 100 does (IDFG 2011b).

Moose

In Idaho, moose prefer shrubby, mixed coniferous and deciduous forests with nearby riparian areas for foraging. In winter, moose rely on hardwood conifer forests for cover (Groves 1997). Moose in southeast Idaho do not concentrate in specific wintering areas, but are widely dispersed in aspen and conifer communities year-round (Kuck 1984). Kuck (1984) found that in the Crow Creek drainage, moose used forest habitat types heavily, with most observations occurring in aspen at elevations between 7,000 and 7,500 feet. Most moose were found using northern and east aspects with slopes of 20 degrees or less (Kuck 1984). The last complete estimate of Unit 76 was 583 plus or minus 146 moose in 1999 (IDFG 2011c). Moose are known to occur in the Project Area.

3.8.4.2 Other Mammals

Bats, fisher, and marten were determined to be additional mammal species of interest based upon previous projects within the CTNF. Marten and fisher are designated as "key" species on CNF winter track routes, and the Project Area provides roosting habitat for bats. The following sections discuss these species.

Bats

Fourteen species of bats are known to occur in Idaho (Perkins and Peterson 1997). The Project Area lack caves and mine adits that could provide permanent roosting habitat; however, both areas provide foraging habitat and roosting habitat for bat species that utilize openings in trees or cliff cracks. Potential roosting and foraging habitat for bats in the Project Area, including rock outcrops, streams, and seeps, are limited.

Surveys conducted for the 2007 FEIS (Maxim 2004g;) documented six species of bats in the area one to three miles north of the Panel G portion of the Project Area, including big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), long-eared myotis (*Myotis evotis*), long-legged myotis (*Myotis volans*), silver-haired bat (*Lasionycteris noctivagans*), and hoary bat (*Lasiurus cinereus*). The most frequently detected of these species (long-eared myotis, long-legged myotis, and silver-haired bat) have habitat requirements associated with forested areas. Roost sites may include tree cavities, snags, or hollow areas under exfoliating bark or in living trees (IMNH 2011).

Fisher

Fishers prefer mature or old-growth coniferous forests (forested riparian habitats in spring, summer, and fall, and younger-aged forests in winter; Groves et al. 1997). Fishers generally avoid areas with little forest cover or significant human disturbance. Fishers are generalized predators that feed on small and medium-sized mammals and birds, and carrion (Reid and Heglen 2008). According to the latest furbearer annual report, no fishers have been accidentally caught (and turned in for a reward) in the southeast region (IDFG Region 7) within the past 20 years (IDFG 2011d).

Marten

American martens are usually found in dense deciduous, mixed, or (especially) coniferous upland and lowland forests. In Idaho, martens were found using a variety of forest types, with the greatest activity in mature spruce-fir. Fifty individuals were transplanted into Franklin Basin (east of Preston, Idaho; 40 miles south of the Project Area) in 1995. According to the latest annual furbearer report for Caribou County, no martens were harvested (IDFG 2011d); therefore, there is no indication of the presence of marten in the Study Area and this species will not be discussed in **Chapter 4**.

3.8.5 Amphibians and Reptiles

Amphibians may occur in any aquatic or riparian habitat. The greatest number of amphibians would most likely be found in slow water near streams, lakes, or stream and lake margins, including within and around riparian areas, floodplains, and wet meadows.

Reptiles are cold-blooded vertebrates, and generally are most abundant in warm, dry habitats. Reptiles are characterized by having dry skin with keratinized epidermal scales, true claws (if limbs are present), and if they lay eggs, the eggs are amniotic and have a shell that allows them to develop with little water (Cossel 1997).

Reptiles and amphibians are present year-round in the Study Area, although they are not visible in the winter, but suitable habitat for amphibians specifically within the Project Area is extremely limited. The 2003 SFEIS (four to ten miles north of the Study Area) included an in-depth analysis of amphibian and reptile occurrence, distribution, and relative abundance (Shive et al. 2000). In the Smoky Canyon Mine area, two species of amphibians and two species of reptiles were found: tiger salamander (*Ambystoma tigrinum*), boreal chorus frog (*Pseudacris maculata*), rubber boa (*Charina bottae*), and western terrestrial garter snake (*Thamnophis elegans*) (Shive et al 2000). Maxim (2004h) found tiger salamander (*Ambystoma tigrinum*), boreal chorus frog (*Pseudacris maculata*), and western toad (*Bufo boreas*) in their surveys for Panels F and G (but all observations were located outside of the Project Area).

3.9 FISHERIES AND AQUATICS

3.9.1 2007 FEIS Affected Environment

Fisheries and aquatic resources were thoroughly addressed in Section 3.8 of the 2007 FEIS, titled Fisheries and Aquatics (pages 3-138 through 3-161). There are no fish-bearing streams within the Project Area. However, as described in the 2007 FEIS, Yellowstone cutthroat trout (YCT; *Oncorhynchus clarki bouvieri*), is a USFS-Sensitive species known to occur within Deer Creek and Crow Creek, which are located less than one mile and less than two miles, respectively, from the Panel G Lease Modification area. Some small tributary streams that YCT utilize for spawning are not perennial. In intermittent or ephemeral drainages, spawning can take place during spring runoff or other times when waters are high. Newly hatched fry frequently move to perennial waters just before the natal stream goes dry (Trotter 1987). In northeastern Nevada, Nelson et al. (1987) observed Lahontan cutthroat trout (*O. c. henshawi*) utilizing ephemeral streams to spawn during four years of abnormally high flows, which the authors suggested was a reproductive behavioral plasticity in response to environmental uncertainty and unfavorable conditions such as flooding (Nelson et al. 1987). The use of intermittent streams for spawning by YCT is poorly documented, but has been noted in some intermittent tributaries to Yellowstone

Lake (Trotter 1987). The use of intermittent streams by fish in the area of Panels F and G has not been documented, although intermittent drainage channels in the Project Area could potentially deliver important nutrients, organic matter, or invertebrates to perennial streams (Wipfli and Gregovich 2002, Price et al. 2003, Cummins and Wilzbach 2005). **Section 3.4.1.1** describes surface water resources within the Project Area in order to assess the potential for sedimentation impacts from this Project to the nearby fish-bearing streams as presented in **Section 4.4**.

Prescription 2.8.3 in the RFP applies within defined AIZs, the delineation of which depends upon water source type (perennial, intermittent, wetland, etc.). The AIZ for non-fish bearing, permanently flowing streams is defined in the RFP as the stream itself and whichever of the following parameters is greatest:

- Either side of the stream extending from the edges of the active stream channel to the top of the inner gorge;
- Outer edges of the 100-year floodplain;
- Outer edges of riparian vegetation;
- A distance equal to the height of one site-potential tree; or
- 150 feet slope distance (300 feet, including both sides of the stream channel)

Default AIZ widths for wetlands include: 1) for wetlands greater than 1 acre, the AIZ would consist of an area 150 feet slope distance from the maximum pool elevation of the wetland, and 2) for wetlands less than 1 acre, the AIZ would consist of an area 50 feet slope distance from the edges of the wetland.

AIZs are areas encompassing the aquatic and riparian ecosystems and adjacent lands that directly affect the natural processes controlling health and function of the aquatic and riparian ecosystems. Generally, standards and guidelines associated with AIZs focus on avoidance. AIZs in and near the Project Area are shown on **Figures 3.7-1**, **3.7-2**, and **3.9-1**.

3.10 GRAZING MANAGEMENT

3.10.1 2007 FEIS Affected Environment

This section is tiered to Section 3.9 of the 2007 FEIS, titled Grazing Management (pages 3-161 through 3-165), and applicable information is hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project. The following summary of the referenced information is specific to the Project.

An animal unit month (AUM) represents the amount of dry forage required to maintain one animal unit (usually a 1000-pound cow or calf, in terms of cattle) for one month, based on a forage allowance of 26 pounds per day (USFS 2003b). Each permittee is allowed a certain number of AUMs within their allotment; actual use is typically less than permitted (USFS 2003b).

Figures 3.10-1, **3.10-2**, and **3.10-3** show the allotment boundaries and range improvements in the Project Area. The two range allotments (or portions of allotments) on CNF lands in the Panel F portion of the Project Area are the Manning Creek and Sage Creek allotments. The two range allotments (or portions of allotments) on CNF lands in the Panel G portion of the Project Area are the Deer Creek and Wells Canyon allotments. There are no range improvements in the

Project Area. **Table 3.10-1** provides allotment information on suitable acreage and stocking rates.

Table 3.10-1 Range Allotment Information for the Project Area

ALLOTMENT	SUITABLE ACRES		STOCKING RATE (AUMS)	
	FOR CATTLE	FOR SHEEP	CATTLE (COW/CALF MONTHS)	SHEEP (SHEEP MONTHS)
Sage Valley C&H	1,228	1,521	507	3,964
Manning Creek S&G (currently being temporarily managed as one unit with Wells Canyon)	2,658	4,091	706	7,650
Deer Creek S&G	1,448	2,496	329	5,106
Wells Canyon S&G	1,631	2,281	661	3,160

C&H - Cattle and Horses
S&G - Sheep and Goats

3.11 RECREATION AND LAND USE

3.11.1 2007 FEIS Affected Environment

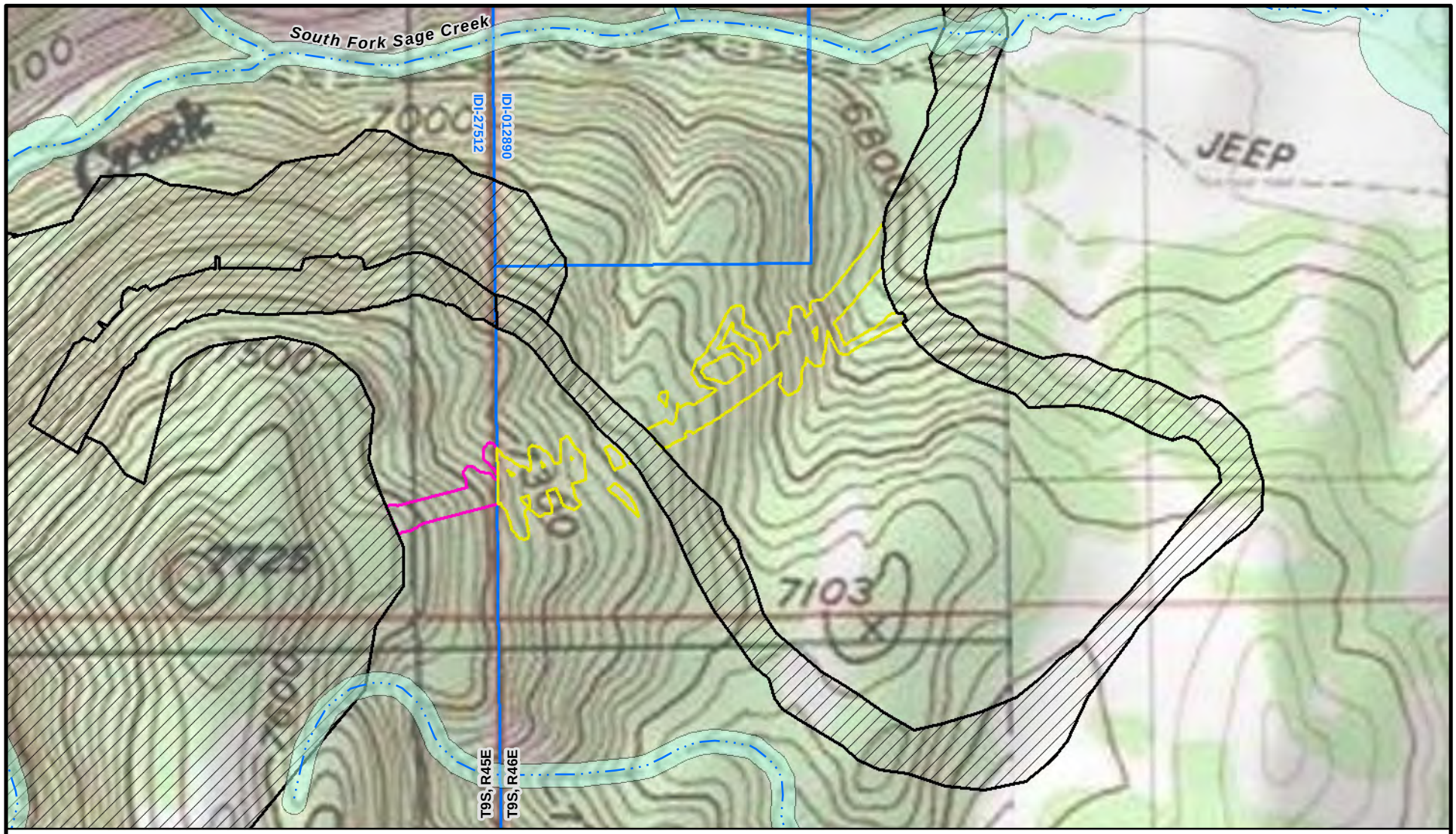
This section is tiered to Section 3.10 of the 2007 FEIS, titled Recreation and Land Use (pages 3-165 through 3-179), and applicable information is hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project. The following summary of the referenced information is specific to the Project.

3.11.1.1 Recreation

Recreation Opportunity Spectrum

In order to inventory and manage recreation areas and activities, the CNF uses a planning tool called the Recreation Opportunity Spectrum (ROS), which categorizes recreation settings by the amount of development and other attributes. ROS categories include: Primitive, Semi-Primitive Non-motorized, Semi-Primitive Motorized, Roaded Modified, Roaded Natural, and Urban. Recreation use is allocated using the ROS classes, which help visitors find the setting that best provides for their desired experience.

The two ROS categories in the Project Area are Semi-primitive Motorized (SPM) and Roaded Modified (RM). The Panel F portion of the Project Area is designated ROS Class SPM. The ROS categories within the Panel G portion of the Project Area are shown on **Figure 3.11-1**. The setting for SPM lands includes a moderate probability of: solitude, closeness to nature, a high degree of challenge and risk using motorized equipment, predominantly natural-appearing environment, few users but evidence shows on trails, and few vegetation alterations that are widely dispersed and visually subordinate. Semi-primitive Motorized areas range from 2,500 to 5,000 acres that are screened by vegetation or topography, creating a “buffer” from surrounding development. The majority of lands in the Project Area are designated as SPM. The RFP Guidelines suggest project planning that meets the ROS per the CNF ROS map.



Explanation

- Approved Panel F and Haul Road Disturbance
- Existing Leases
- Proposed Disturbance Off Lease
- Proposed Disturbance on Lease IDI-27512

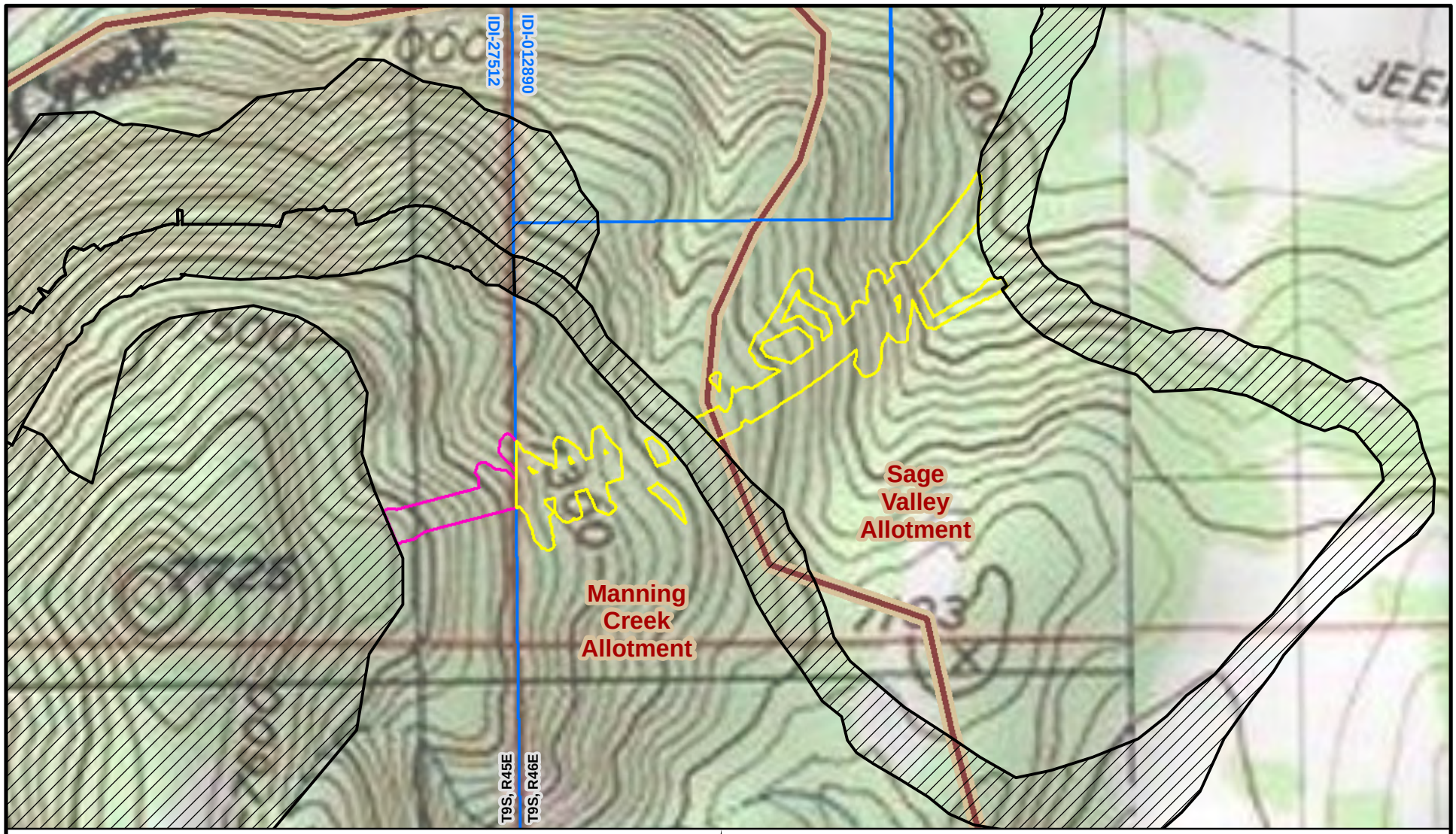
Aquatic Resources

- Intermittent Stream
- Aquatic Influence Zone

N

600 0 600 Feet

Figure 3.9-1
Aquatic Influence Zones
Panel F Conveyor System Area
Panel F & G Lease/Mine Plan Modifications EIS



Explanation

- Approved Panel F and Haul Road Disturbance
- Existing Leases
- Proposed Disturbance Off Lease
- Proposed Disturbance on Lease IDI-27512

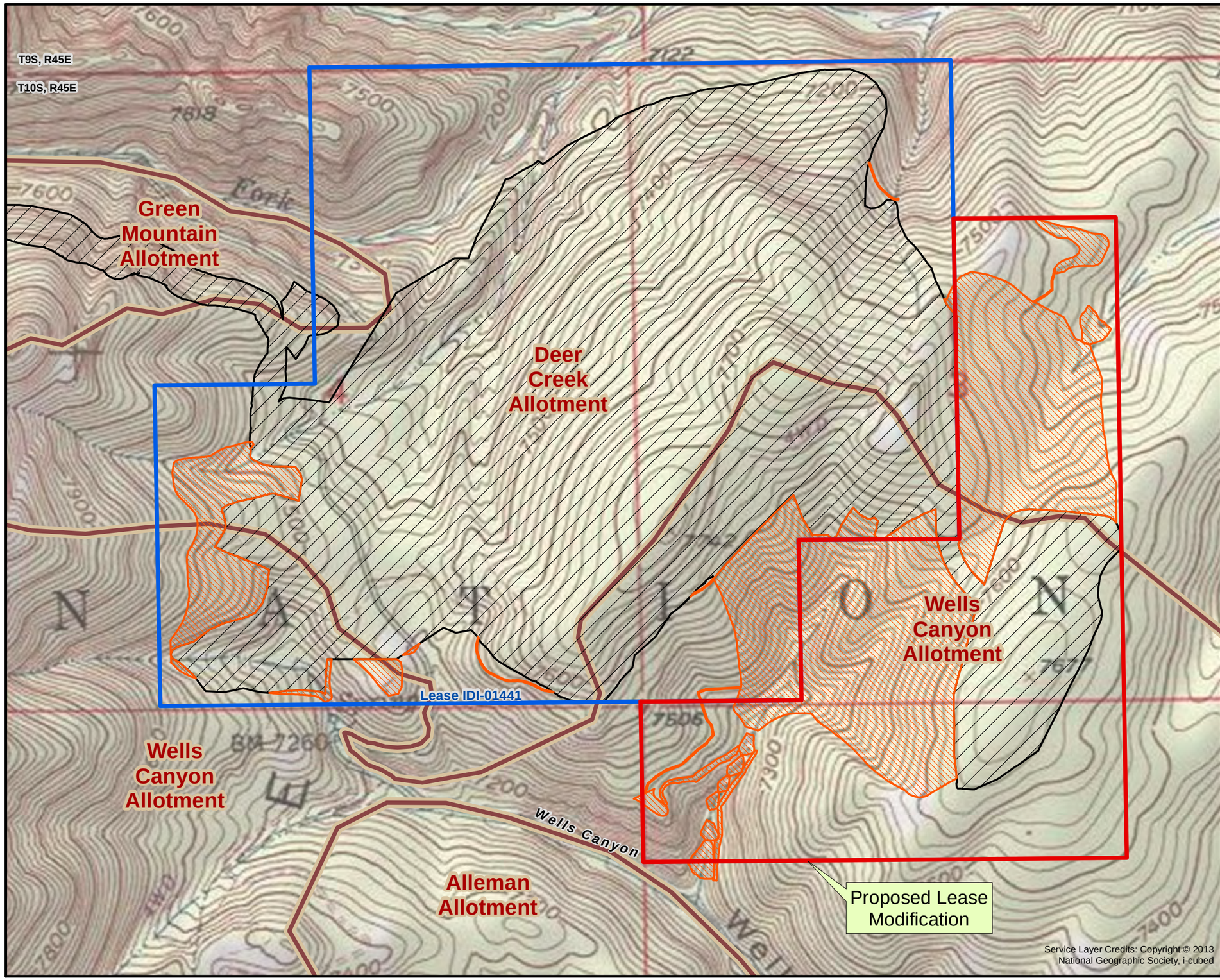
Grazing

- Range Allotment Boundary

N

500 0 500 Feet

Figure 3.10-1
Grazing Allotments
Panel F Conveyor System Area
Panel F & G Lease/Mine Plan Modifications EIS



Explanation

- Proposed Lease Modification Area
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Grazing

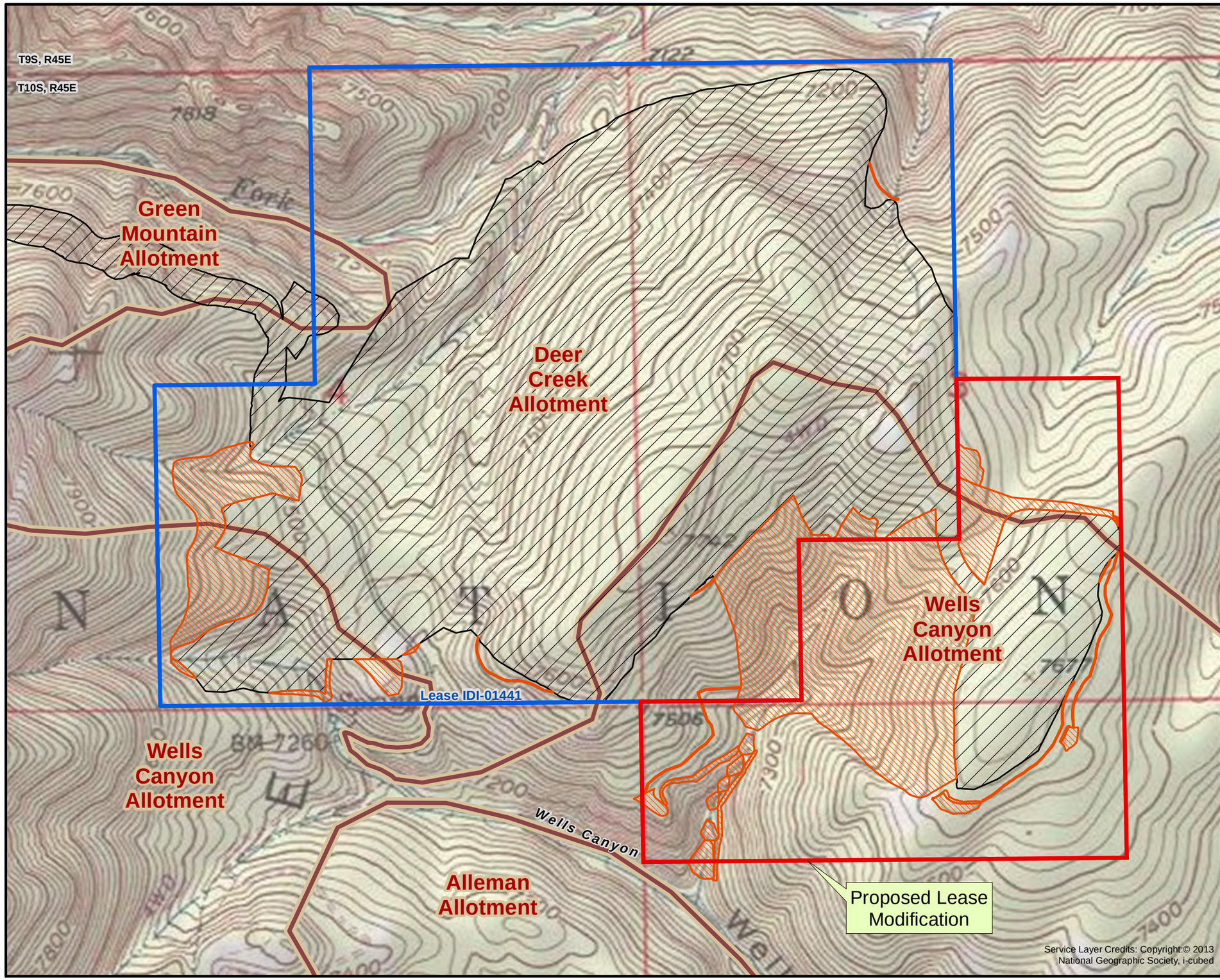
- Range Allotment Boundary

N

800 0 800 Feet

Figure 3.10-2
Grazing Allotments
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.10-2 Grazing Allotments - Panel G Lease Modification Area Proposed Action Alternative 1.mxd



Explanation

- Proposed Lease Modification
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Grazing

- Range Allotment Boundary

N

800 0 800 Feet

Figure 3.10-3
Grazing Allotments
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.10-3 Grazing Allotments - Panel G Lease Modification Area Alternative 2.mxd

The setting for RM lands includes the opportunity to be with others in developed sites, little challenge or risk, relatively natural appearing environment as viewed from roads and trails, moderate evidence of human activity; access and travel by standardized motor vehicles, and resource modification and utilization is evident but generally harmonizes with the natural environment. The RM corridor occurs in the Panel G portion of the Project Area, in the western half of Lease IDI-01441.

Developed and Dispersed Recreation

There are no developed recreation amenities such as campgrounds or guard stations within the Project Area.

The dominant type of dispersed recreation in the general vicinity of the Smoky Canyon Mine is big game hunting for elk, moose, and deer. Other dispersed recreation activities occurring in the area include snowmobiling, cross-country skiing, horseback riding, upland bird hunting, camping, picnicking, driving for pleasure/sight-seeing, and off-road vehicle use.

There are no developed recreation amenities or trails in the Panel G portion of the Project Area (**Figure 3.11-1** and **Figure 3.11-2**). The closest trail is the Deer Creek Trail (593), located less than 0.25-mile north of the Panel G portion of the Project Area. That trail is approximately five miles long, extending from Diamond Creek Road (FR 1102) to Crow Creek Road (FR 111) (USFS 2002). This trail is not open to vehicles 50 inches or less in width (USFS 2013a).

The portion of the Project Area that would contain the Panel F ore conveyor system is mostly within existing phosphate leases and SUAs where there are no developed recreation amenities and no trails. The portion of the route outside the lease area and SUAs falls between an existing haul road and a lease area, and does not contain recreation amenities.

3.11.1.2 Land Use

Land Status/Ownership

All lands in the Project Area are federal lands managed by the CTNF.

Management Prescriptions

The RFP contains management prescriptions that are designed to meet the desired future conditions of the CNF.

Management prescriptions are a set of practices applied to a specific area to attain multiple-use and provide a basis for consistently displaying management direction on land administered by the CNF. Prescriptions identify the emphasis or focus of management activities for an area, but do not necessarily construe exclusive use. Management prescriptions do not stand alone, but are part of the management direction package for the CNF that also includes forest-wide goals, objectives, standards, and guidelines. Where a management prescription allows an activity, such as recreation or livestock grazing, the standards and guidelines provide specific parameters within which the activity must be managed. In areas where prescriptions are applied, such direction would overrule CNF-wide direction only if the prescription conflicts with the CNF-wide standards and guidelines (USFS 2003a).

Management prescriptions in the Project Area are shown on **Figures 3.11-3** and **3.11-4**, and include:

Prescription 5.2 – CNF Vegetation Management. Emphasis of this prescription is on scheduled wood-fiber production, timber growth, and yield, while maintaining or restoring forested ecosystem processes and functions to more closely resemble historical ranges of variability with consideration for long-term CNF resilience. Motorized use is prevalent for timber management activities and recreation. This prescription applies to an area including the Panel F portion of the Project Area (**Figure 3.11-3**).

Prescription 6.2 – Rangeland Vegetation Management. This prescription focuses on maintaining and restoring rangeland ecosystem processes and functions to achieve sustainable resource conditions. Activities in these areas are designed to achieve restoration of non-forested vegetation to the historic range of variability and include watershed restoration, thinning, prescribed fire, wildfire for resource benefit, and noxious weed treatments. Dispersed recreation activities occur throughout these areas. Motorized transportation is common, but some seasonal restrictions may occur. This prescription applies to the Panel G portion of the Project Area (**Figures 3.11-4** and **3.11-5**).

Prescription 8.2.2 – Phosphate Mine Areas. These areas are federal phosphate lease areas where mining, post-mining reclamation, or exploration is taking place. This prescription realizes the dynamic process involving research and technology that affects the BMPs that are implemented for mining operations. This prescription applies to both the Panels F and G portions of the Project Area (**Figures 3.11-3**, **3.11-4**, and **3.11-5**).

Special Use Authorizations

There are two existing SUAs in the Project Area that would be affected by the Project (**Figure 2.4-1**): One general SUA for mining-related disturbances associated with Smoky Canyon Mine; and the other encompasses the Panel F haul road. Both SUAs are issued Simplot for disturbances associated with mining on existing leases at the Smoky Canyon Mine.

Timber Management

Tentatively Suitable Forest land is land which is producing or is capable of producing crops of industrial wood and: 1) has not been withdrawn by Congress, the Secretary, or Chief; 2) existing technology and knowledge is available to ensure timber production without irreversible damage to soil, productivity, or watershed conditions; and 3) existing technology and knowledge provides reasonable assurance that adequate restocking can be attained within five years after final harvesting (USFS 2003a). These lands represent the maximum acres that could be managed for regular predictable timber outputs and are used in determining the Allowable Sale Quantity (ASQ) (USFS 2003b). ASQ is the amount of timber that may be sold from the area of suitable land covered by the CNF RFP for a time period specified by the RFP. This quantity is normally expressed as the "average annual allowable sale quantity" (USFS 2003b). Other forested areas can be cut under the RFP for different management reasons, regardless of whether or not the ASQ is met for a specific year.

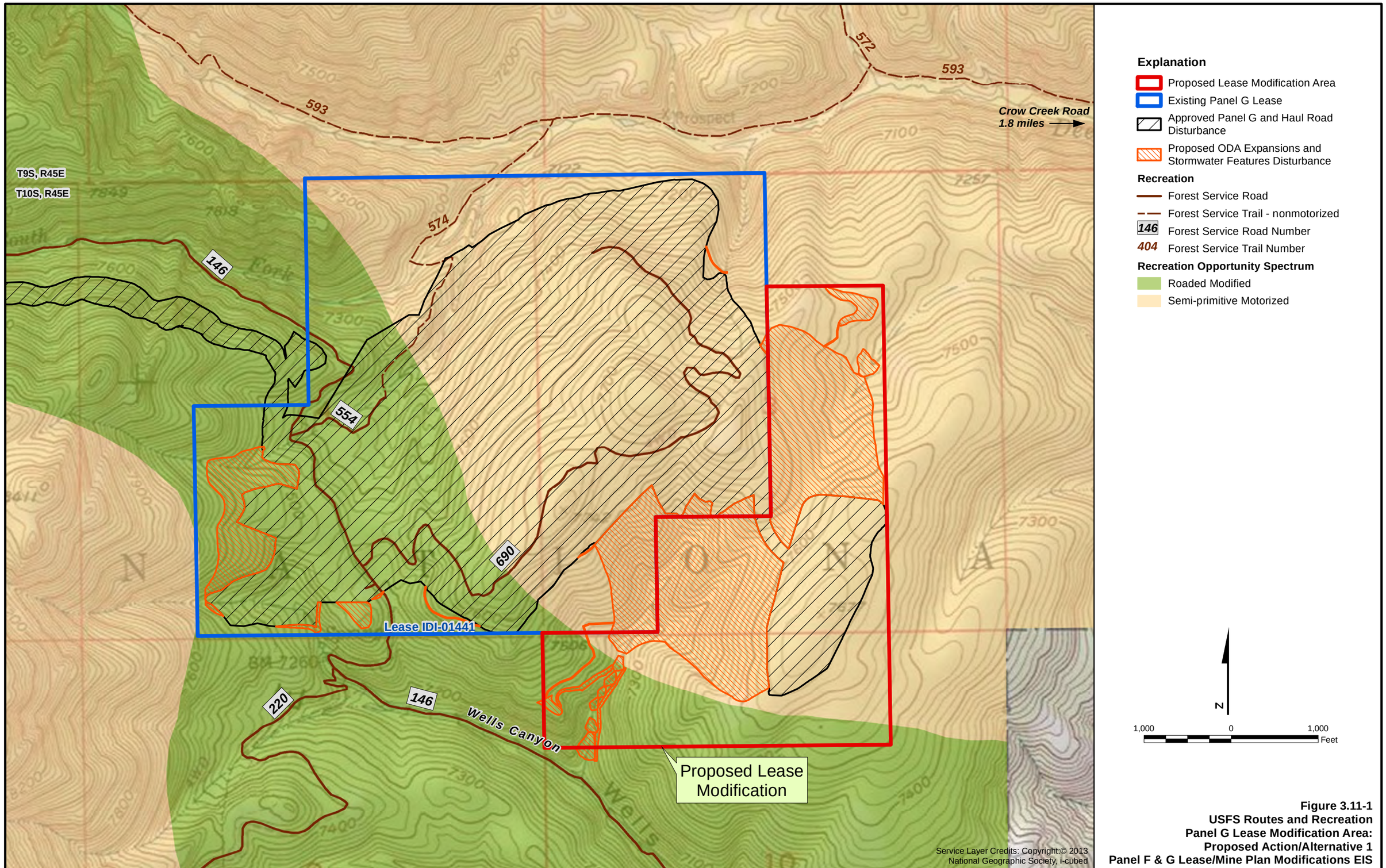


Figure 3.11-1
USFS Routes and Recreation
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\IDClients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 3\Figure 3.11-1 USFS Routes and Recreation - Panel G Lease Modification Area Proposed Action Alternative 1.mxd

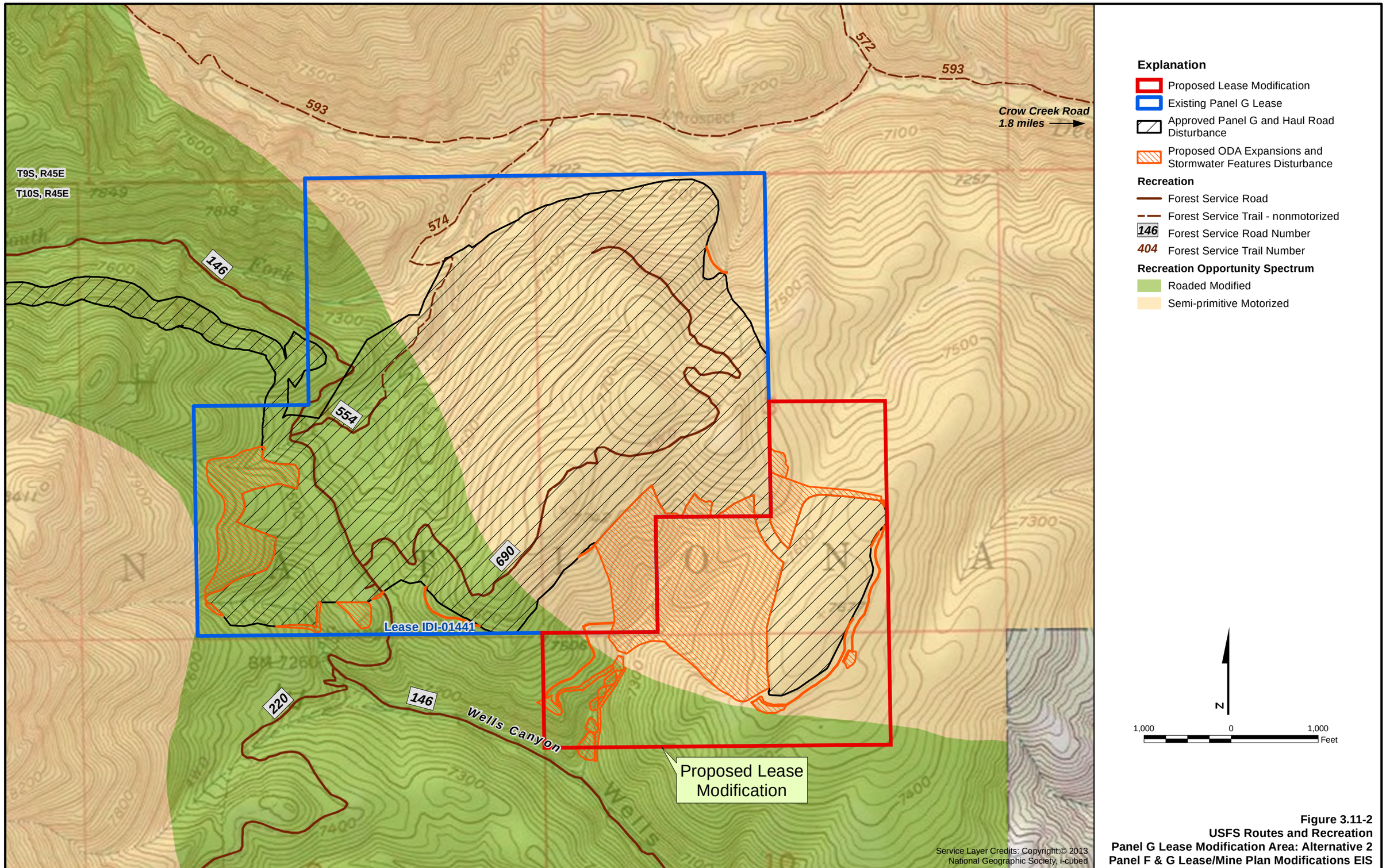
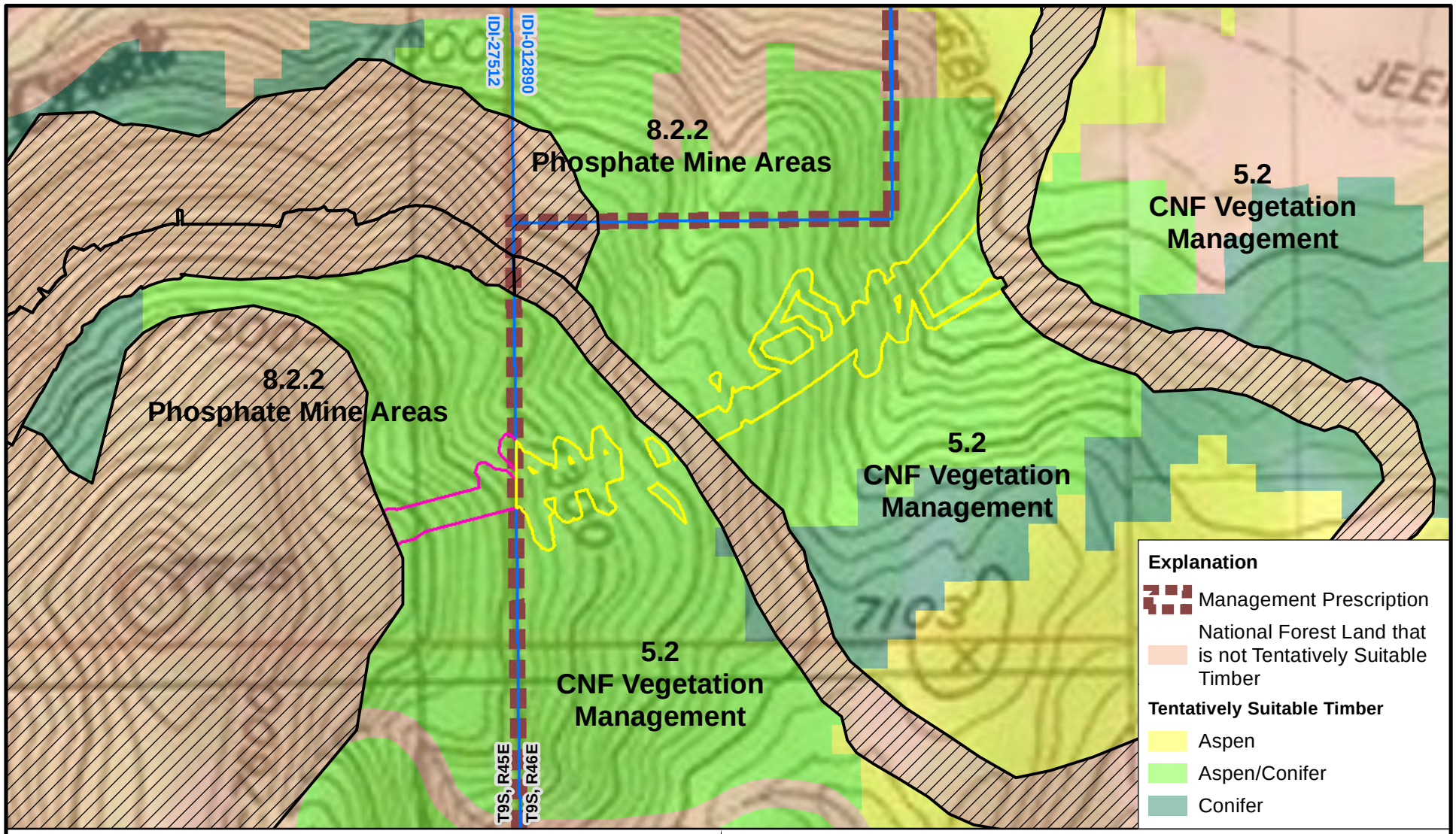


Figure 3.11-2
USFS Routes and Recreation
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\IDI\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 3\Figure 3.11-2 USFS Routes and Recreation - Panel G Lease Modification Area Alternative 2.mxd



Explanation

- Approved Panel F and Haul Road Disturbance
- Existing Leases
- Proposed Disturbance Off Lease
- Proposed Disturbance on Lease IDI-27512

N

500 0 500 Feet

Figure 3.11-3
Management Prescriptions - Suitable Timber
Panel F Conveyor System Area
Panel F & G Lease/Mine Plan Modifications EIS

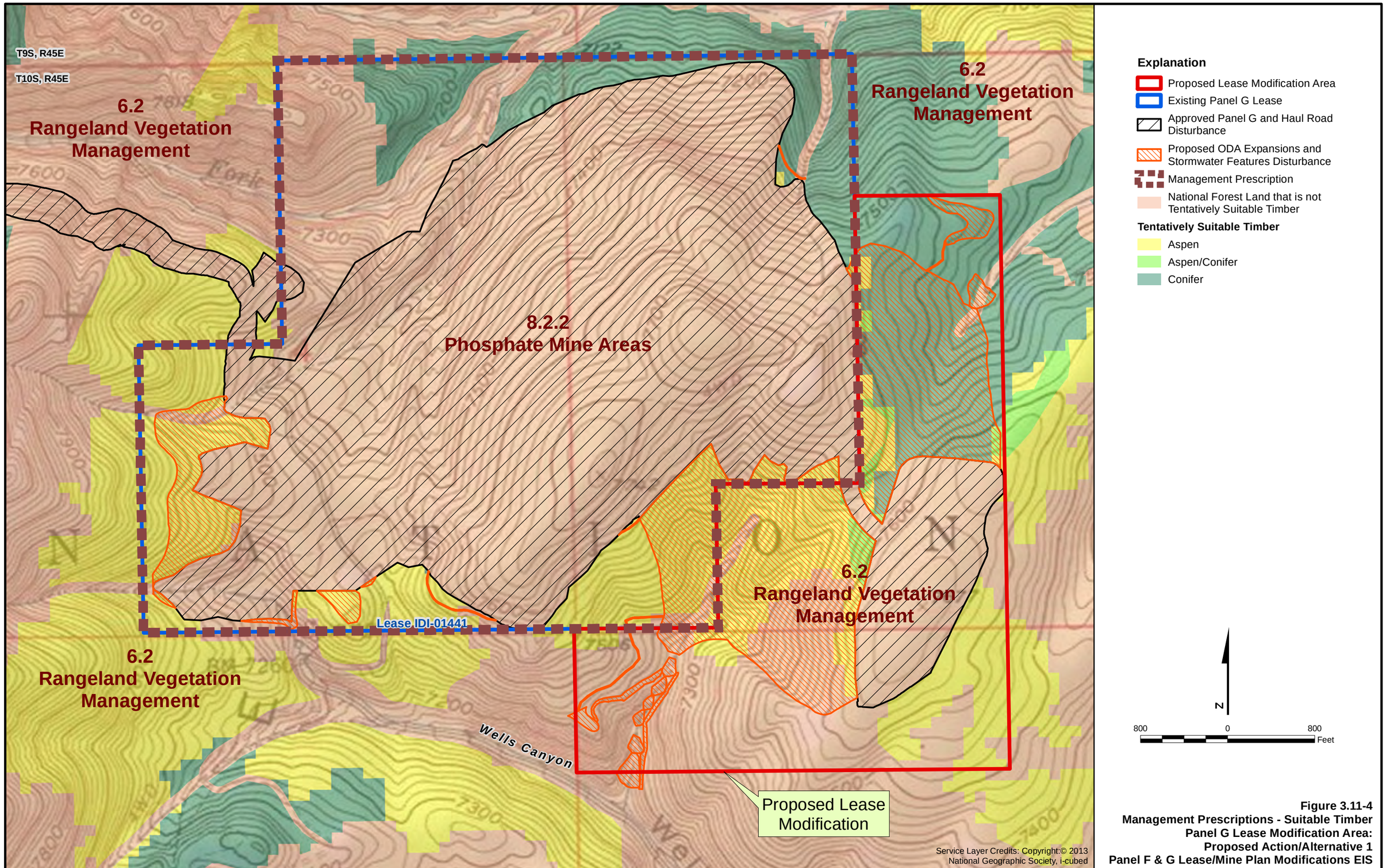
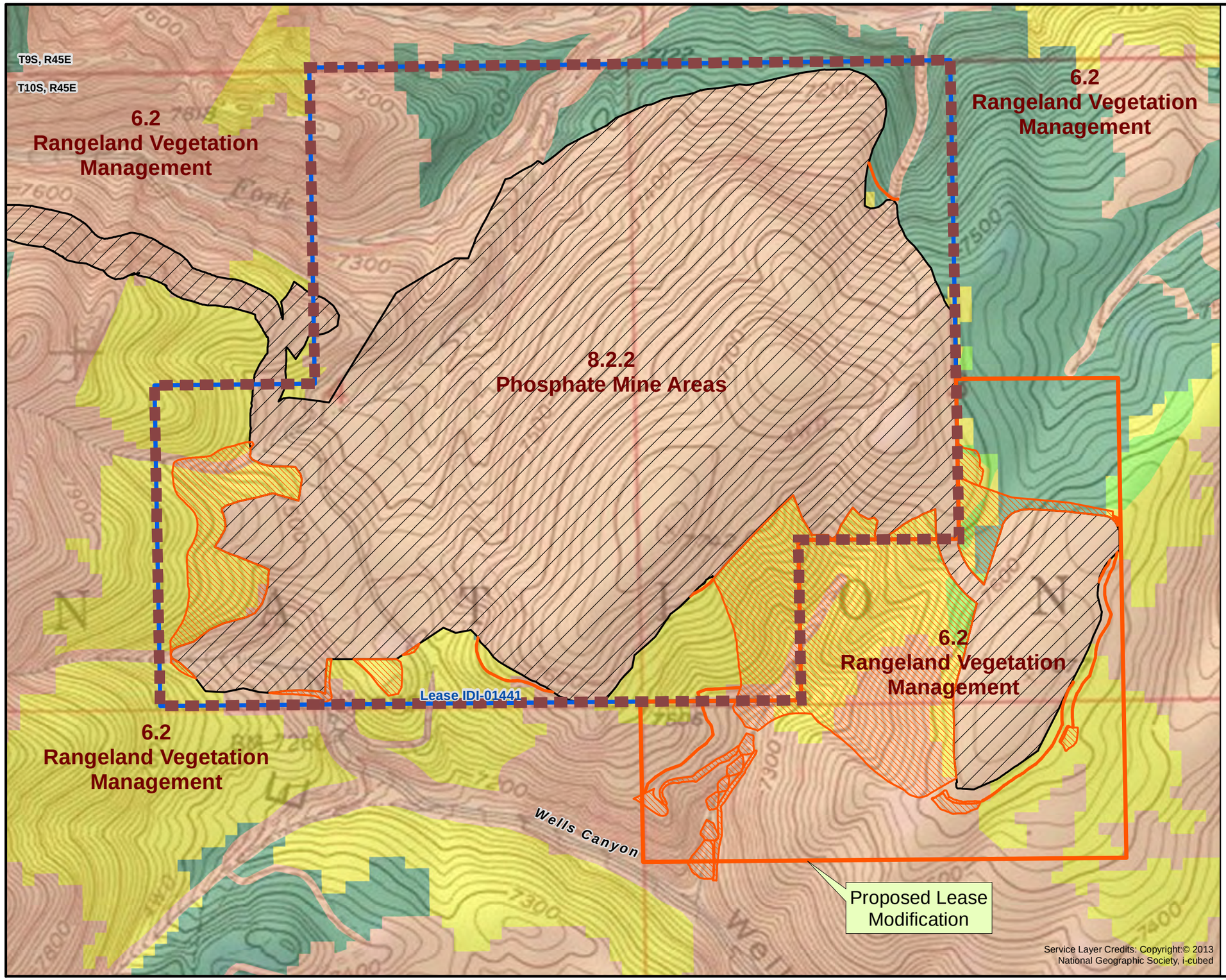


Figure 3.11-4
Management Prescriptions - Suitable Timber
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\IDIClients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\Figures\Chapter 3\Figure 3.11-4 Management Prescriptions SuitableTimber - Panel G Lease Modification Area Proposed Action Alternative 1.mxd



Explanation

- Proposed Lease Modification Area
- Existing Panel G Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance
- Management Prescription
- National Forest Land that is not Tentatively Suitable Timber

Tentatively Suitable Timber

- Aspen
- Aspen/Conifer
- Conifer

N

800 0 800 Feet

Figure 3.11-5
Management Prescriptions - Suitable Timber
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.11-5 Management Prescriptions SuitableTimber - Panel G Lease Modification Area Alternative 2.mxd

Management Prescription 5.2 (USFS 2003a, Forest Vegetation Management) pertains to scheduled wood-fiber production, timber growth, and yield while maintaining or restoring forested ecosystem processes and functions to more closely resemble historical ranges of variability with consideration for long-term forest resilience. All forms of timber harvest are permitted, including salvage, to achieve stated goals and objectives. Livestock grazing may be allowed on transitory forage produced following timber harvest where and when that use would not conflict with regeneration and restoration efforts. Motorized use is prevalent for timber management activities and recreation. Land in this prescription is included in the suitable timber base and contributes to the ASQ.

Under the RFP (USFS 2003a), Management Prescription 5.2 – CNF Vegetation Management is the only prescription where suitable timber is included in the ASQ. While the portion of the Project Area located at Panel G contains suitable timber, it is designated Management Prescription 6.2; these lands are removed from the suitable timber base and do not contribute to the ASQ. Timbered land in all other prescriptions within the Project Area has been removed from the suitable timber base and does not contribute to the ASQ on the CNF. Management Prescription 5.2 is replaced by Prescription 8.2.2 (Phosphate Mine Areas) following approval of a M&RP. Prescription 8.2.2 allows for the exploration and development of existing mine leases.

The Project Area contains 273.8 acres of tentatively suitable timber (142.8 acres of aspen, 18.7 acres of aspen/conifer, and 112.3 acres of conifer; **Figures 3.11-3**, **3.11-4**, and **3.11-5**). However, only the portion of the Project Area adjacent to Panel F that lies within Prescription 5.2 is included in the ASQ. This portion of the Project Area contains 6.8 acres of tentatively suitable aspen/conifer timber, which is included in the ASQ.

3.12 INVENTORIED ROADLESS AREAS

3.12.1 2007 FEIS Affected Environment

This section is tiered to Section 3.11 of the 2007 FEIS, titled Inventoried Roadless Areas/Recommended Wilderness and Research Natural Areas (pages 3-179 through 3-186), and applicable information is hereby incorporated by reference. The following information summarizes changes in the rules governing roadless areas that occurred subsequent to the 2007 FEIS, and provides relevant information about potentially affected roadless areas specific to the Project.

3.12.2 2001 Roadless Area Conservation Rule

The USFS identified IRAs nationwide as part of its 1972–1985 Roadless Area Review and Evaluation process. All the IRAs in the nation were reviewed again by the USFS in 1999 under the Roadless Area Conservation Initiative. In November 2000, the USFS issued the Final EIS for the proposed Roadless Area Conservation Rule. The final Roadless Area Conservation Rule was published in the Federal Register on January 21, 2001 (66 FR 3244).

The USFS Roadless Area Conservation Rule was issued to govern USFS actions in all IRAs. The Roadless Area Conservation Rule 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 (36 CFR 294).

Several groups and states filed lawsuits challenging the 2001 Roadless Area Conservation Rule. The Idaho Federal District Court issued a preliminary injunction on May 10, 2001, prohibiting the USFS from implementing the rule. On December 12, 2002, the Ninth Circuit Court of Appeals reversed and remanded the Idaho District Court's injunction. The Ninth Circuit Court issued its mandate to the Idaho District Court to remove its preliminary injunction on April 4, 2003, thereby putting the Roadless Area Conservation Rule back into effect. However, on July 14, 2003, the U.S. District Court for the District of Wyoming found the Roadless Area Conservation Rule to be unlawful and ordered the rule be permanently enjoined.

On July 12, 2004, Ann M. Veneman, former Secretary of Agriculture, announced a proposal to establish a state petitioning process for IRA management. The proposed rule was published on July 16, 2004. On May 13, 2005, the USFS issued a Final State Petition Rule, which replaced the enjoined 2001 Roadless Area Conservation Rule. This 2005 rule established a process for governors with National Forest System IRAs in their state to petition the Secretary of Agriculture to establish or adjust management requirements for these areas. Unless governors chose to initiate a change through the petition process, existing IRA management requirements contained in individual land and resource management plans would remain unchanged.

On September 20, 2006, the U.S. District Court for the Northern District of California set aside the 2005 State Petitions Rule and reinstated the 2001 Roadless Area Conservation Rule nationwide, except in the Tongass National Forest. In addition, on November 29, 2006, the Court issued an injunction halting all activities inconsistent with the 2001 Roadless Area Conservation Rule. In the injunction, the Court stated that the 2001 rule had been repealed illegally and therefore all projects in roadless areas inconsistent with that rule were also illegal and must be halted.

As of August 12, 2008, the Federal District Court for the District of Wyoming, permanently enjoined the 2001 Roadless Area Conservation Rule (USFS 2011).

3.12.3 Inventoried Roadless Areas in Idaho

Idaho Governor James Risch presented a petition for rulemaking under section 553(e) of the Administrative Procedures Act on behalf of the State of Idaho on November 29 and 30, 2006. The Proposed Idaho Roadless Rule designated a system of lands titled Idaho Roadless Areas. In August 2008, the Roadless Area Conservation, National Forest Lands in Idaho Final Environmental Impact Statement (Roadless Area Conservation Rule [RACR]; USFS 2008) was issued, and the Final Rule and Record of Decision on Idaho Roadless Area Conservation were published in the Federal Register on October 16, 2008. However, a complaint was filed in federal district court in Idaho in January 2009 requesting the Court enjoin this 2008 rule and reinstate the 2001 Roadless Rule. Both the Federal District Court for Idaho and the Ninth Circuit Court of Appeals (2013) have upheld the Idaho Roadless Rule.

The State of Idaho has entered into a Memorandum of Understanding (MOU) with the USFS National Forests in Idaho to provide an agreement to cooperate on activities subject to the Idaho Roadless Rule (USFS 2009).

The USFS issued Interim Directive No. 1920-2009-1 on July 14, 2009, clarifying the direction regarding Delegation of Authority pursuant to 36 CFR 294 – Special Areas, Subpart C – The Idaho Roadless Rule. The Interim Directive states that the Regional Forester will review project

proposals in Idaho Roadless Areas to ensure consistency in applying the specific exceptions or conditioned permissions and decision-making within the context of the Idaho Roadless Rule.

The Idaho Roadless Rule recommends Idaho Roadless Areas be managed within a spectrum of five management themes: Wild Land Recreation; Primitive; Special Areas of Historic and Tribal Significance; Backcountry/Restoration; and General Forest, Rangeland and Grassland (USFS 2008).

3.12.4 Existing Conditions in the Project Area

As displayed on **Figures 2.4-1**, **3.12-1**, and **3.12-2**, portions of the Project lie within both the SCRA, which encompasses approximately 12,710 acres; and the Meade Peak Roadless Area (MPRA), which encompasses approximately 44,585 acres (USFS 2003b). Approximately 48 acres of the Project Area comprised of the East ODA expansion area would be within the SCRA. Approximately 19.4 acres of the proposed South ODA expansion within the existing lease would be within the MPRA. These IRAs do not contain recommended wilderness under the RFP. The portions of the IRAs in the Project Area are designated General Forest.

The areas under this theme provide a variety of goods and services as well as a broad range of recreational opportunities, and conservation of natural resources (USFS 2008). Within the theme, for mineral leases, contracts, permits, and other associated activities authorized after October 16, 2008, road construction or reconstruction is authorized in association with phosphate deposits (USFS 2008).

3.13 VISUAL AND AESTHETIC RESOURCES

3.13.1 2007 FEIS Affected Environment

This section is tiered to Section 3.12 of the 2007 FEIS, titled Visual and Aesthetic Resources (pages 3-186 through 3-199), and applicable information is hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project. The following summary of the referenced information is specific to the Project.

3.13.1.1 Visual Resource Management (Scenery Management)

The majority of lands within the Project Area where new disturbance would occur are classified as Partial Retention and Modification (see **Figures 3.13-1** and **3.13-2**). According to the RFP (USFS 2003a), the scenic environment of the CNF will be maintained through adherence to existing VQOs, with the exception of phosphate mining. Phosphate mining activities and reclamation may or may not meet the given VQO (USFS 2003b). In the case where the VQO is not met, the M&RP would mitigate visual changes to the degree that reclamation methods and economics allow.

Scenic integrity indicates the current status of a landscape. It is determined on the basis of visual changes that detract from the scenic quality of the area (USDA 1996). The Scenic Integrity Objective (SIO) refers to the degree of acceptable change or alteration of the valued landscape theme. Under the Scenery Management System (SMS), higher SIOs represent highly valued natural landscapes where management activities would result in little or no deviation from those values. Greater modification to the landscape is acceptable in low SIO landscapes.

High Scenic Integrity applies to an area that appears unaltered and where the valued landscape character appears intact. Moderate Scenic Integrity may appear slightly altered, but alterations are visually subordinate to the overall landscape. In Low Scenic Integrity areas, deviations may begin to dominate the landscape view. The Project Area landscape in Partial Retention areas has moderate scenic integrity; in Modification areas, low scenic integrity would apply.

3.13.1.2 Viewers and Views in the Project Area

The 2007 FEIS (Section 3.12.4) identified seven potential viewpoints of the Smoky Canyon Mine, and provided photos of the affected area from those viewpoints, as well as viewshed maps. Analysis contained in the project record for this EIS determined that the Project would only be visible from two viewpoints, identified on **Figures 3.13-1** and **3.13-2**. The viewshed analysis from these points is contained in **Section 4.13** of this EIS.

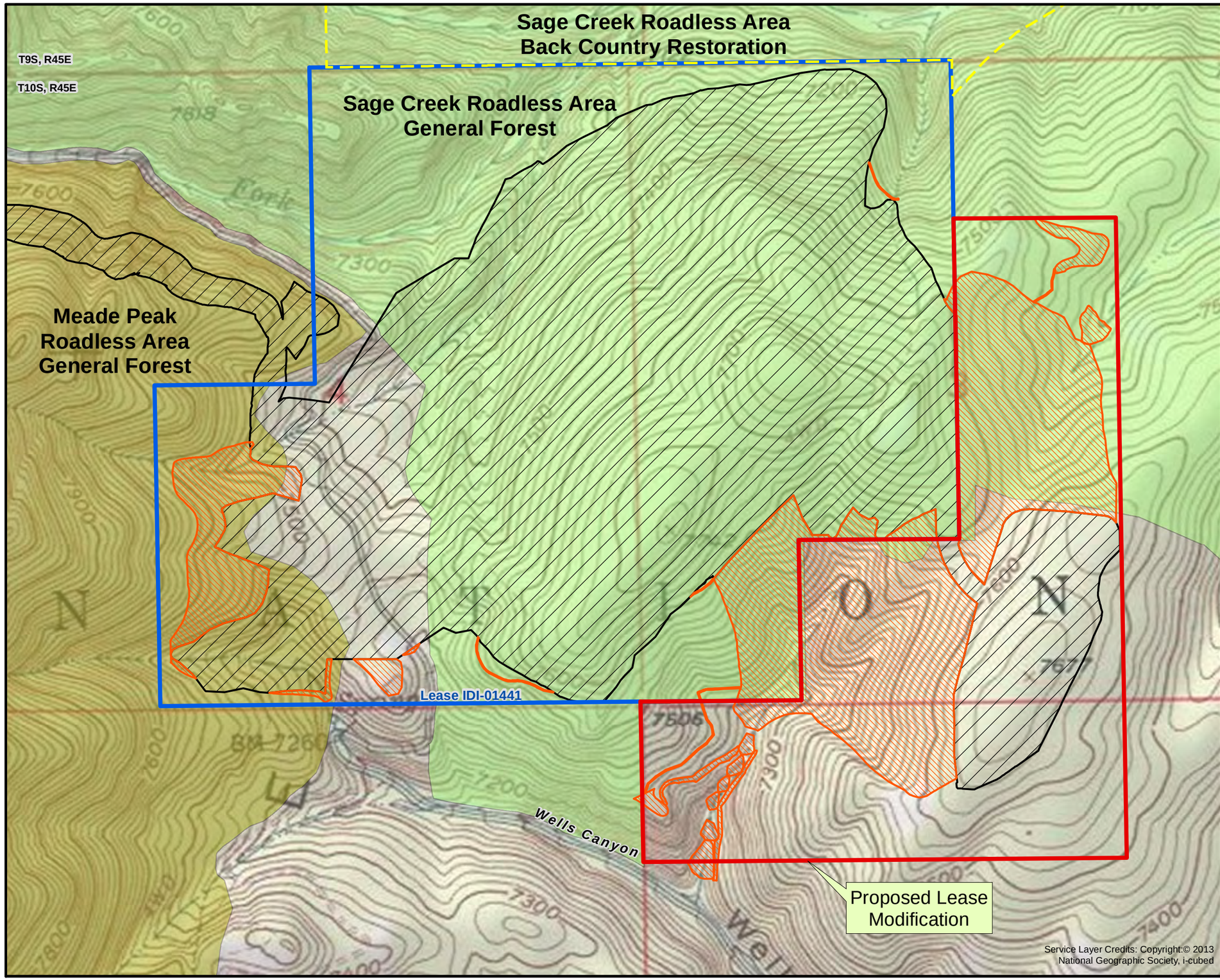
3.14 CULTURAL RESOURCES

3.14.1 2007 FEIS Affected Environment

This section is tiered to Section 3.13 of the 2007 FEIS, titled Cultural Resources (pages 3-200 through 3-208), and relevant information is hereby incorporated by reference. The following is a summary of the referenced information, as well as new information specific to the Project.

3.14.1.1 Previous Research

Table 3.14-1 presents the 36 previous cultural resource inventories in and around the current Project Area. Five of these projects were specific to the 2007 FEIS (Penner and Crosland 2001; Statham 2003; Gray et al. 2003; Gray and Statham 2004; and Gray and Statham 2005). An additional three projects were specific to this Project (Rasmussen and Polk 2012a; Rasmussen and Polk 2012b; and Rasmussen and Polk 2013). One project (Polk and Pagano 2013) was an evaluation of previously recorded arborglyph sites along the Panel G Haul Road; this evaluation was necessary prior to construction of that road as a condition of approval. The recent Class III cultural resource inventories for the Project were conducted to encompass each component of the proposed mine modification (i.e., Panel G ODAs, Panel F ore conveyor system, and stormwater control features) in order to identify any sites. Cultural resource inventory reports are on file at the associated agency office (i.e., USFS, BLM) and the SHPO. Site location information is considered sensitive; therefore, these reports are for limited circulation and not available to the general public.



Explanation

- Proposed Lease Modification Area
- Existing Panel G Simplot Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Inventoried Roadless Areas

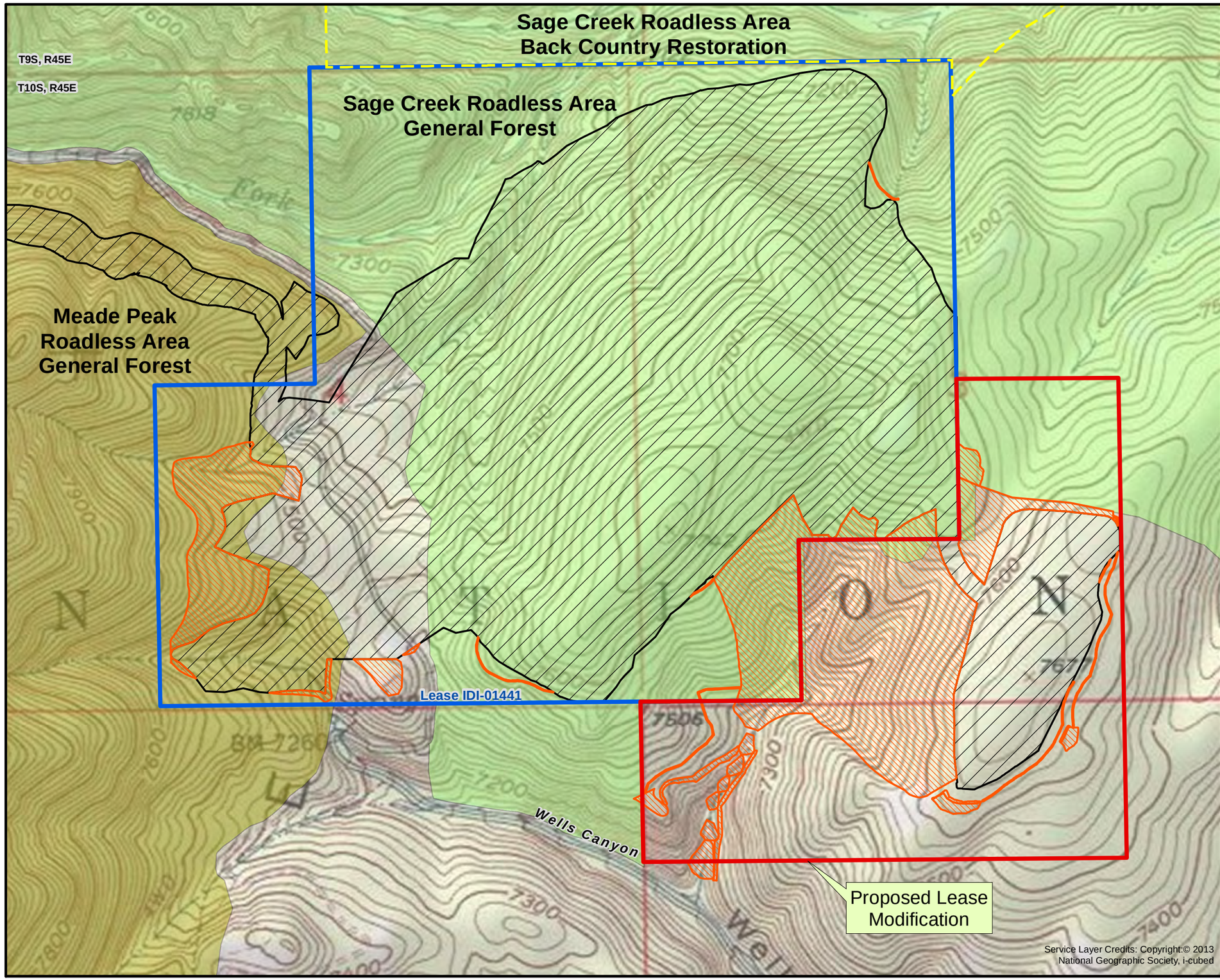
- Sage Creek Roadless Area
- Meade Peak Roadless Area

N

800 0 800
Feet

Figure 3.12-1
Sage Creek and Meade Peak
Inventoried Roadless Areas
Panel G Lease Modification Area:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.12-1 Inventoried Roadless Areas of Sage Creek and Meade Peak - Panel G Lease Modification Area Proposed Action Alternative 1.mxd



Explanation

- Proposed Lease Modification Area
- Existing Panel G Simplot Lease
- Approved Panel G and Haul Road Disturbance
- Proposed ODA Expansions and Stormwater Features Disturbance

Inventoried Roadless Areas

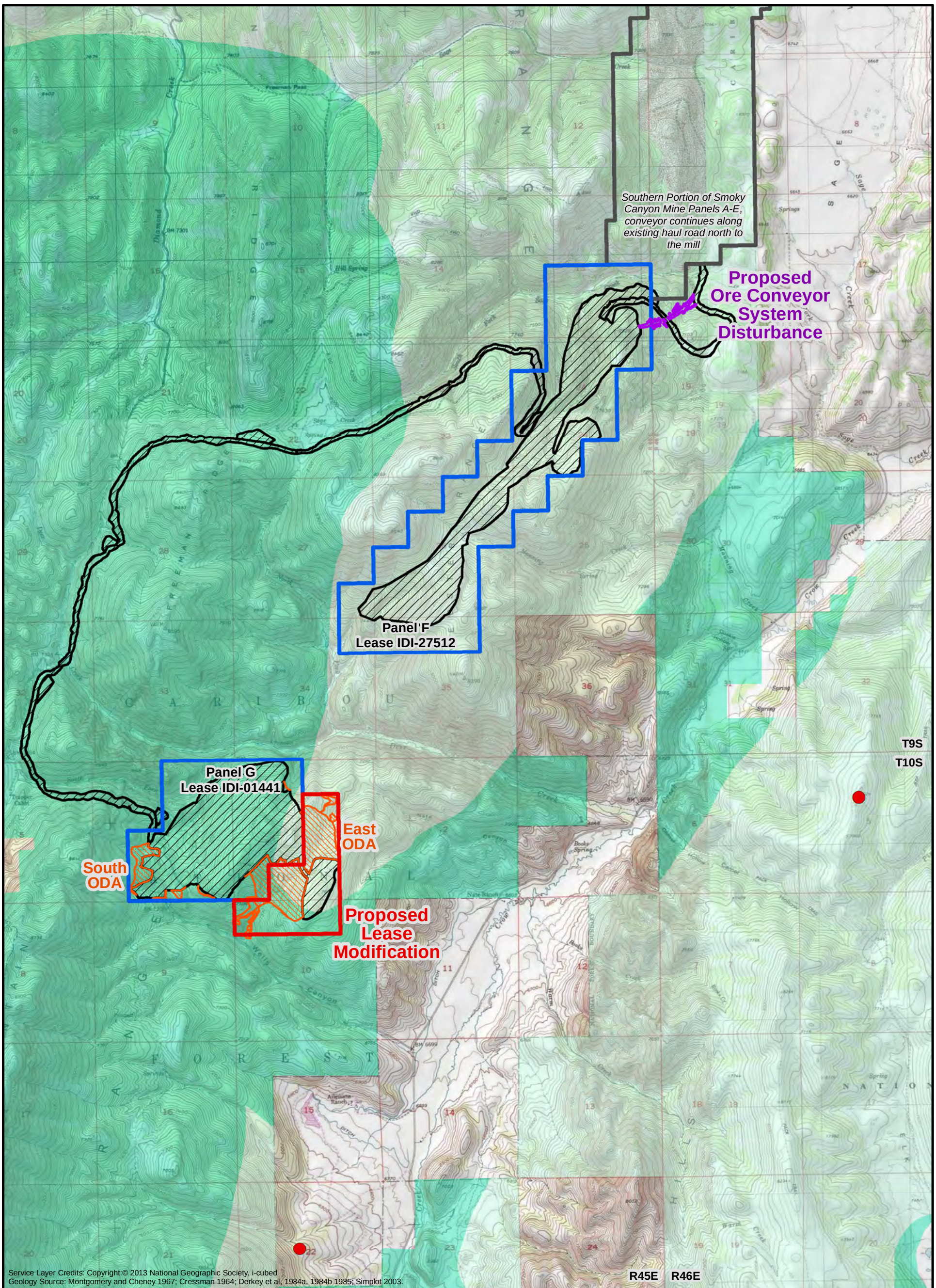
- Sage Creek Roadless Area
- Meade Peak Roadless Area

N

800 0 800
Feet

Figure 3.12-2
Sage Creek and Meade Peak
Inventoried Roadless Areas
Panel G Lease Modification Area: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyor\Project\MXDs\Figures\Chapter 3\Figure 3.12-2 Inventoried Roadless Areas of Sage Creek and Meade Peak - Panel G Lease Modification Area Alternative 2.mxd



Explanation

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

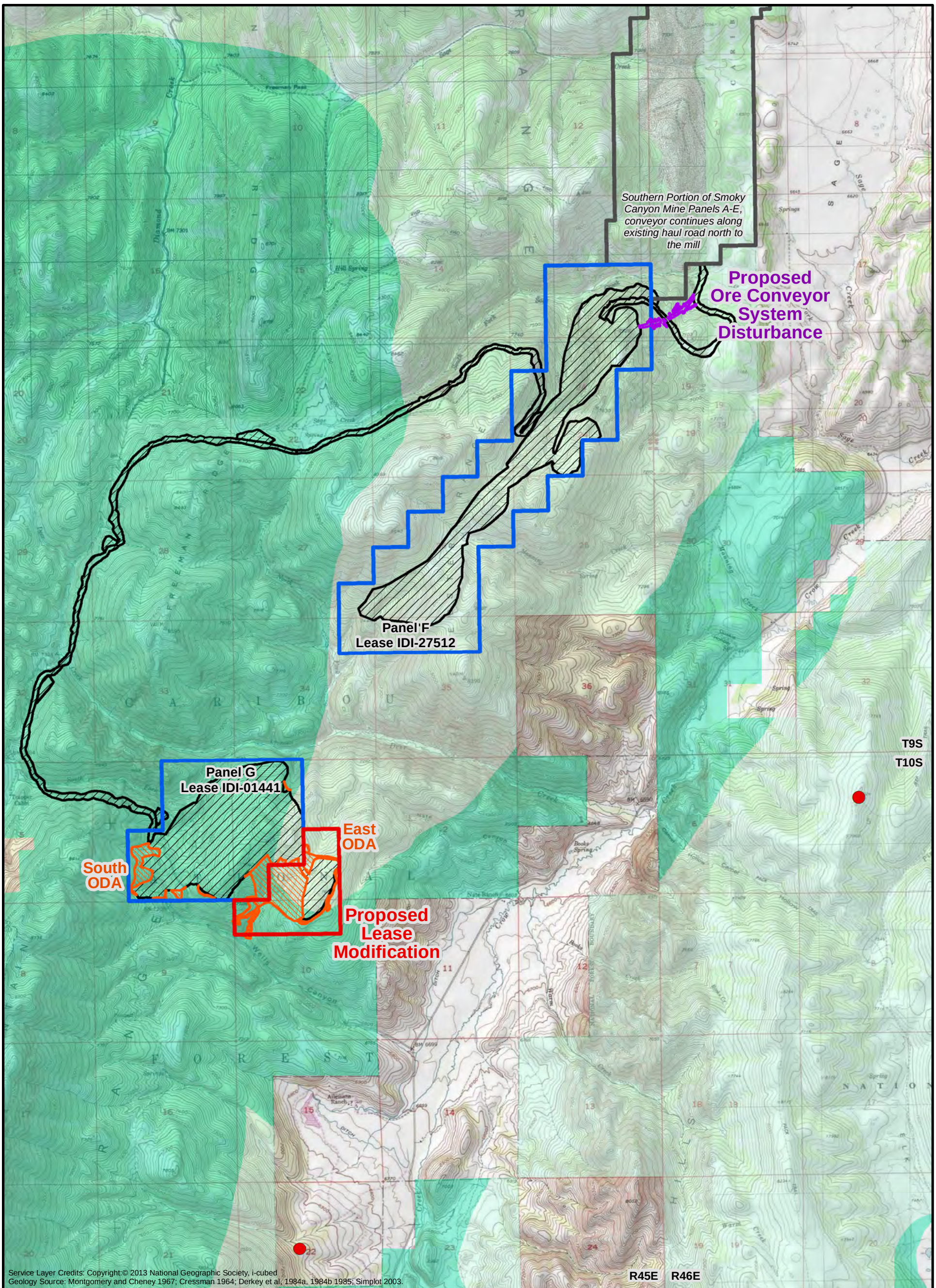
Visual Quality Objectives

- Modification
- Partial Retention

N

3,500 0 3,500 Feet

Figure 3.13-1
Visual Quality Objectives and View Points:
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS



Explanation

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

Visual Quality Objectives

- Modification
- Partial Retention

N

3,500 0 3,500 Feet

Figure 3.13-2
Visual Quality Objectives and View Points: Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Table 3.14-1 Previous Cultural Resource Inventories in the Project Area

PROJECT DESCRIPTION	AUTHOR	YEAR
Archeological Investigations in the Smoky Canyon Area	Druss, Mark, Max Dahlstrom, Claudia Druss, and Steve Wright (Idaho State University (ISU))	1980
Stage I Investigation and Analysis of Archaeological Resources in Pit Area, Mill Sites, and Fill Site, Smoky Canyon Lease I-012890 (CRM-CB-61)	Druss, Mark, Max Dahlstrom, Claudia Hallock, and Steve Wright (ISU)	1980
Survey Report #3, Smoky Canyon Project. Caribou N. F. (CRM-CB-110)	Druss, Claudia and Steven Wright (Basin and Range Research)	1981
Archaeological Survey, 161 KV Transmission Line, Smoky Canyon Area (CRM-CB-124)	Druss, Mark	1982
Cultural Resource Inventory of the Smoky Canyon Mine Lease	McGuire, David	1982
Archaeological Investigations in Eastern Idaho: Lower Valley Power and Light Tincup Loop Transmission Line Cultural Resource Survey	Walker, Danny	1982
Diamond Creek GIS Area (CB-91-0218)	Christensen, B.	1991
Crow Creek Fish Habitat Improvement	Hendrikson, N. (ISU)	1991
Manning Creek Drilling Project (CB-92-262)	Hamilton, J. (USFS)	1992
Diamond Creek GIS Update (CB-93-306)	Robertson, M.	1993
North and Upper Manning Timber Sale (CB-93-307)	Robertson, Mary (USFS)	1993
South Fork Sage Creek Timber Sale (CB-94-337)	Robertson, Mary (USFS)	1994
Freeman Ridge Phosphate Exploration	Robertson, M. (USFS)	1994
Wells Canyon/Deer Creek Exploration Federal Lease I-01441	Robertson, M. (USFS)	1996
Manning Creek Exploration Plan Modification (CB-94-333)	Satter, Norris (BLM)	1994
Galland Special Use Permit Pipeline	Robertson, M. (USFS)	1996
JR Simplot Panel B Exploration, Extension of 1996 Req. (CB-97-432)	Robertson, Mary	1997
Sage Valley Phosphate Exploration, Lease I-31982 (CB-98-455)	Cresswell, L. (BLM)	1997a
Simplot Phosphate Prospecting Permit	Cresswell, L. (BLM)	1997b
JR Simplot Federal Phosphate Lease I-30369 Modification. Caribou N.F. (CB-97-433)	Robertson, Mary	1997
A Cultural Resource Inventory of 880 Acres of the Manning Creek Property, Caribou County, Idaho (CB-00-527)	Penner, William and Richard Crosland (JBR)	2001*
Smoky Canyon Panels B and C (CB-01-530)	Gray, D. (Frontier Historical Consultants)	2001
Wells Canyon Phosphate Exploration. (CB-02-5)	Parvey, M. and K. Jewel (Northwestern Archaeological Associates)	2002
Baseline Technical Report for Cultural Resources, South Manning Creek Exploration Area, Caribou County, Idaho	Statham, William (Frontier Historical Consultants)	2003*

PROJECT DESCRIPTION	AUTHOR	YEAR
Baseline Technical Report for Cultural Resources, Deer and Manning Creek Phosphate Lease Areas, Smoky Canyon Mine, Caribou County, Idaho (CB-04-495)	Gray, Dale, Dawn S. Statham, and William P. Statham (Frontier Historical Consultants)	2003*
South Manning Creek Exploration Area (CB-03-554)	Gray, Dale	2004
Addendum to Baseline Technical Report for Cultural Resources, Panels F and G Extension and Transportation Corridors, Smoky Canyon Mine, Caribou County, Idaho (CB-04-495)	Gray, Dale and William P. Statham (Frontier Historical Consultants)	2004*
Addendum B to Baseline Technical Report for Cultural Resources, Panels F and G Extension and Transportation Corridors, Smoky Canyon Mine, Caribou County, Idaho (CB-04-495)	Gray, Dale and William P. Statham (Frontier Historical Consultants)	2005*
Peterson Ranches Inc., Livestock Corral, Caribou County (NRCS-08-7192)	Vrem, Darin (NRCS)	2008
Montpelier 4 Allotments Management Plan, Caribou N. F. (CB-10-601)	Hall, D.	2010
Soda Springs Allotments Management Plan. Caribou N. F. (CB-10-603)	Hall, D.	2010
An Intensive Level Cultural Resource Survey for the Proposed J. R. Simplot Panel G East Overburden Disposal Expansion Area, Caribou County, Idaho	John R. Rasmussen and Michael R. Polk (Sagebrush Consultants, Inc.)	2012a**
An Intensive Level Cultural Resource Survey for the Proposed J. R. Simplot Smoky Canyon Conveyor System, Caribou County, Idaho	John R. Rasmussen and Michael R. Polk (Sagebrush Consultants, Inc.)	2012b**
Evaluation of Arborglyph Sites Near the Proposed Panel G West Haul/Access Road for J.R. Simplot Company's Smoky Canyon Mine, Caribou County, Idaho	Ann Swanson Polk and Sandy Chynoweth Pagano (Sagebrush Consultants, Inc.)	2013*
An Intensive Level Cultural Resource Survey for the Proposed J. R. Simplot Smoky Canyon Mine Stormwater Control Features, Caribou County, Idaho	John R. Rasmussen and Michael R. Polk (Sagebrush Consultants, Inc.)	2013**

*Specific to 2007 FEIS and 2008 RODs

**Specific to Project

3.14.1.2 Cultural Resource Sites

As a result of the Project-specific cultural resource inventories, three historic sites were identified within the Project Area. No prehistoric sites were encountered during the inventories. The three historic sites have been evaluated as not eligible for the National Register of Historic Places (NRHP) (**Table 3.14-2**), and the SHPO concurred with this determination. Site CB-342 was previously determined as unevaluated in the 2007 FEIS and so required additional field recordation and evaluation; the current evaluation (Polk and Pagano 2013) determined that the site is not eligible for the NRHP.

Table 3.14-2 Cultural Resource Sites in the Project Area

SITE NUMBER	SITE TYPE	AFFILIATION	NRHP EVALUATION
CB-342	Arborglyph Site	Euro-American	Not Eligible
CB-525	Road	Euro-American	Not Eligible
CB-593	Stock Drive	Euro-American	Not Eligible

Cultural resource sites that have been determined to be not eligible for the NRHP do not need further protection, and therefore, would not need to be avoided by the Project.

No traditional cultural properties or sacred sites have been designated or defined in or adjacent to the Project Area.

3.14.1.3 Heritage Resources

Southeastern Idaho has been traditionally utilized by the Shoshone-Bannock Tribes for subsistence and ceremonial uses. The Fort Bridger Treaty of 1868 reserved the Tribes' rights to hunt, gather, and fish on all unoccupied federal lands (see **Section 3.15**). Physical remains of prehistoric lifeways on the CTNF include campsites and associated artifacts (USFS 2003a). During consultation on the 2007 FEIS, the Shoshone-Bannock Tribes stated that the general areas within and adjacent to the original Panels F and G Project, which includes the Project Area, are currently used for traditional activities such as hunting, gathering, and ceremonial uses. According to the RFP (USFS 2003a), representations of historic lifeways on the forest include wagon trails, homesteads, mining sites, and Civilian Conservation Corps camps.

Heritage resources in or adjacent to Project Area also include the historic uses of livestock trailing and grazing. This is in part evidenced in the numerous arborglyphs (tree carvings) present in and around the Project Area, as well as the stock drive (CB-593). Grazing availability and allotments in the Project Area are described in **Section 3.10**. Roads and trails in the Project Area are described in **Section 3.16** (Transportation) and **3.11** (Recreation and Land Use), respectively.

3.15 NATIVE AMERICAN CONCERNS AND TREATY RIGHTS RESOURCES

3.15.1 2007 FEIS Affected Environment

This section is tiered to Section 3.14 of the 2007 FEIS, titled Native American Concerns and Treaty Rights Resources (pages 3-208 through 3-215), and applicable information is hereby incorporated by reference. The following sections contain a summary of the referenced information, as well as new information specific to the Project.

3.15.1.1 Indian Treaty Rights

The federal government has federal trust responsibilities to Native American Tribes (DOI 1995). As discussed in **Chapter 1**, the 1868 Fort Bridger Treaty between the U.S. and the Shoshone and Bannock Tribes reserves the Tribes' right to continue traditional activities on all unoccupied federal lands. The Tribes advocate the preservation of harvest opportunity on culturally

significant resources necessary to fulfill inherent, traditional, and contemporary Treaty Rights (Shoshone-Bannock 1994). The Project Area is within the portion of southeast Idaho that is of historical usage for hunting and gathering (Shoshone-Bannock 2003) and continues to retain cultural values.

Article 4 of the 1868 Treaty states, "The Indians herein named…shall have the right to hunt on the unoccupied land of the U.S. so long as game may be found thereon…" While the Treaty itself only specifies hunting, the lawsuit "State of Idaho v. Tinno" established that any rights not specifically given up in the Treaty were, in fact, reserved by the Tribes. Further, in the Shoshone language, the same verb is used for hunt, fish, and gather so it is assumed that the Tribes' expect to retain rights for all of those practices (from a presentation by the Shoshone-Bannock Tribes, 1868 Fort Bridger Treaty Rights Seminar: April 12-13, 2004).

The Tribes' Fish and Game Department regulates and enforces the 1975 Tribal Fish and Game Code for all off-reservation hunting and fishing activities. The federal agencies recognize that the Tribes regulate their own tribal members for hunting and do not require tribal members to secure state hunting permits to hunt on BLM or USFS lands.

Tribal grazing rights outside the Fort Hall Reservation only exist in areas ceded to the federal government. As stated in Article IV of the Agreement of February 5, 1898 (31Stat. 674, 15 Stat. 673), between the U.S. and the Shoshone-Bannock Tribes, ratified by the Act of June 6, 1900: "So long as any of the lands ceded, granted and relinquished under this treaty remain part of the public domain, Indians belonging to the above-mentioned Shoshone-Bannock tribes, and living on the reduced Fort Hall reservation, shall have the right, without any charge therefore, to cut timber for their own use, but not for sale and to pasture their livestock on said public lands, and to hunt thereon and to fish in the streams thereof." None of these ceded areas are within the Project Area; therefore tribal grazing rights are not affected by the Project. In 2002, an MOU was signed by BLM and the Fort Hall Business Council of the Shoshone-Bannock Tribes regarding the recognition of tribal grazing rights on public land within the ceded land boundary established by the Agreement of February 5, 1898 (31Stat. 674, 15 Stat. 673), between the U.S. and the Shoshone-Bannock Tribes, ratified by the Act of June 6, 1900.

In regard to federal trust responsibilities, known items of interest to the Tribes include:

Tribal Historical/Archaeological Sites

Project-specific cultural resource inventories have been conducted in the Project Area. This information is in **Section 3.14** (Cultural Resources). No prehistoric archaeological sites were located within Project boundaries during the inventories.

Rock Art

No resources of this nature have been identified in the Project Area.

Sacred Sites (EO 13007)/Traditional Cultural Properties (NHPA)

Executive Order (EO) 13007 directs federal land-managing agencies to accommodate Native Americans' use of sacred sites for religious purposes and to avoid adversely affecting the physical integrity of sacred sites. Federal agencies managing lands must implement procedures to ensure reasonable notice where an agency's action may restrict ceremonial use of a sacred site or adversely affect its physical integrity. No sacred sites have been identified in the Project Area.

A traditional cultural property, as defined in the National Historic Preservation Act (NHPA) of 1966, is defined as a property that is eligible for inclusion on the NRHP "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community" (Parker and King 1998). Stated another way, a significant traditional cultural property is defined as a property with "significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Parker and King 1998). No traditional cultural properties have been nominated or designated in the Project Area.

Traditional Use Sites

Traditional use sites are those historically used by tribes for traditional land uses including fishing, hunting, gathering, ceremonies, and religious practices. Few traditional use sites have been documented through consultation with the Tribes, as tribal information regarding these sites is closely guarded. The Tribes have not disclosed specific details of traditional use in the Project Area; however, they have asserted that the area is significant, traditionally used, and retains cultural values (BLM and USFS 2007).

Water Quality

The Project Area includes lands within the Tygee Creek and Crow Creek watersheds. A detailed discussion of water resources is located in **Section 3.4** of this EIS.

Wetlands

Wetlands were identified near but not in the Project Area. See **Section 3.7** for a detailed discussion of those wetland resources.

Fisheries

The Tribes have not designated any specific traditional fishing areas on the CTNF but the whole forest is used for exercising fishing rights. However, as discussed under Fisheries and Aquatics resources in **Section 3.9** of this EIS, there are no fish-bearing streams within the Project Area that would be impacted.

Vegetation

Specific information regarding vegetation in the Project Area can be found in **Section 3.6**. Access to traditional plant resources is protected under the Fort Bridger Treaty of 1868. The Tribes have indicated that certain plants are important for traditional uses including, but not limited to, chokecherry, elderberry, current, red-twig dogwood (red willow), tulles, onions, turnips, all water plants (such as mint and watercress), huckleberry, gooseberry, raspberry, strawberry, sweet sage, carrots, bitterroot, camas, aspen, juniper, and lodge pole pine. Many of these plant species are present in the Project Area.

The Tribes use specific sizes of lodgepole pine trees for tipi poles. Vegetation in the Project Area includes the subalpine fir community and the aspen/conifer community, both of which contain lodgepole pine.

Noxious Weeds and Invasive Species

There is tribal concern about non-native vegetation replacing native vegetation (BLM and USFS 2007). See the Vegetation **Section 3.6** for discussion on noxious weeds and invasive species.

Wildlife

Detailed information regarding the wildlife in the Project Area can be found in **Section 3.8**. Big game wildlife important for tribal hunting includes elk, deer, antelope, and moose. Small game important for tribal hunting includes sharp-tailed grouse, sage-grouse, rabbits, rockchucks (marmots), squirrels, and partridges. Eagle, wolves, and grizzlies are also of concern to the Tribes.

Grizzly bear, antelope, and partridge are likely absent from the Project Area.

Bald eagles have been observed in the vicinity of the Project Area. Sharp-tailed grouse may be present in suitable or marginally suitable habitat year-round, and sagebrush-covered hillsides provide suitable habitat for sage-grouse in the Project Area.

The Project Area provides both suitable habitat and prey base for wolves; any habitat in the Project Area could provide year-round movement routes for wolves. Mule deer, elk, and moose roam through most of the Project Area year-round.

Land Access/Transportation

Currently motorized access to the Project Area is via the Crow Creek Road (Forest Road (FR) 111), Wells Canyon Road (FR 146), Smoky Canyon/Timber Creek Road (FR 110), and Diamond Creek Road (FR 1102).

Although there is one designated 4-wheel drive/Off Highway Vehicle (OHV) road through Panel G, there are no roads or trails the Project Area. The area can also be accessed by horse and foot with few or no areas of restriction. Additional information regarding access into the Project Area can be found in **Section 3.11**, Land Use and Recreation, and **Section 3.16** Transportation.

Treaty Rights Access

The Tribes are concerned with retaining access on unoccupied federal lands in order to exercise Tribal Treaty Rights. As stated in the 2007 FEIS, the Tribes assert their responsibility to preserve their Treaty Rights for future use of lands to ensure future opportunity, and therefore it is tribal policy to "promote the conservation, protection, restoration, and enhancement of natural resources."

According to the Tribes, "access" to exercise Treaty Rights goes beyond the concept of simple entry into the Project Area by vehicle or foot. "Access" also includes continued availability of the traditional natural resources in an area. Therefore, the tribal interpretation of loss of access extends to the exclusion, limitation, or unavailability of the traditional resources due to mining disturbance and road construction. It would also presumably apply to the displacement of wildlife in those areas.

Recreation

Most recreation in the Project Area is dispersed (no improvements). There are no developed recreation amenities. ROS categories within the Project Area are SPM and RM (see **Section 3.11**). The dominant type of dispersed recreation is hunting for elk, moose, and deer.

As discussed previously, tribal hunting and gathering rights as reserved by the 1868 Treaty need no state regulations or permits to be exercised by tribal members. The Tribes' Fish and Game Department regulates and enforces the Tribal Fish and Game Code for all off-reservation hunting and fishing activities. Federal agencies recognize that the Tribes regulate their own tribal members for hunting, and do not require tribal members to secure state hunting or fishing permits on BLM or USFS lands.

Land Status

The Project Area is administered by the CTNF and portions are considered unoccupied federal lands; therefore, it is available for Treaty Rights use as stated in the Fort Bridger Treaty of 1868. These rights include hunting, fishing, gathering, and other practices such as trade. The tribal concern is that changes in land status can diminish the locations at which the Tribes can exercise Treaty Rights, thus forcing tribal members to relocate these activities to other areas or cease to exercise Treaty Rights on specific areas. It is the Shoshone Bannock Tribes' concern that the transfer or purchase of federal lands, and the extension of leases for mining on federal lands by private businesses enable them to control access and use, which jeopardizes access to certain Shoshone-Bannock traditional fishing, hunting, and gathering areas, as well as grazing and timber use (Shoshone-Bannock 2005).

Air Quality

Specific data regarding air resources is located in **Section 3.3** of this EIS. All lands within the Project Area have been designated Class II for NAAQS. The air quality in the vicinity of the Smoky Canyon Mine is good to excellent because of the site's remote location, and relatively limited industrial activity in the area. Air quality in the Project Area is designated as in attainment or unclassifiable for all NAAQS and Idaho Ambient Air Quality Standards.

Socioeconomics and Environmental Justice

See **Sections 3.17** and **3.18**, respectively, for data regarding socioeconomics and environmental justice (EO 12898).

EO12898 Section 4-4 directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish or wildlife. The affected environment for wildlife and fish can be found in **Sections 3.8** and **3.9**, respectively.

3.15.1.2 Consultation

Native American coordination and consultation began with a Project briefing from the BLM staff to Shoshone-Bannock tribal technical staff on February 20, 2013. A scoping letter was sent to the Chairman of the Fort Hall Business Council of the Shoshone-Bannock Tribes on June 24, 2013. A follow-up public meeting was held at the Shoshone-Bannock Hotel Event Center on the Fort Hall Reservation July 12, 2013. A second Project briefing to Shoshone-Bannock tribal technical staff occurred on December 2, 2013. Government to government consultation was conducted with the Fort Hall Business Council of the Shoshone-Bannock Tribes, BLM, and FS on January 23, 2014. Communications to date are summarized in **Table 3.15-1**.

Project briefings, meetings, and other verbal and written communications will be utilized to keep the Tribes apprised of the Project. Consultation with the Tribes will be on-going throughout the EIS process.

Table 3.15-1 Summary of Communications

COMMUNICATION TYPE	PARTIES INVOLVED	DATE
Staff to Staff Briefing	Shoshone-Bannock Tribal Technical Staff, BLM, and USFS	February 20, 2013
Scoping Letter	To Shoshone-Bannock Tribes from BLM and USFS	June 24, 2013
Public Meeting at Fort Hall Reservation	Shoshone-Bannock Tribes, BLM, and USFS	July 12, 2013
Staff to Staff Briefing	Shoshone-Bannock Tribal Technical Staff, BLM, and USFS	December 2, 2013
Government to Government Consultation	Fort Hall Business Council of the Shoshone-Bannock Tribes, BLM, and FS	January 23, 2014

3.16 TRANSPORTATION

3.16.1 2007 FEIS Affected Environment

This section is tiered to Section 3.15 of the 2007 FEIS, titled Transportation (pages 3-215 through 3-216), and applicable information is hereby incorporated by reference. No new baseline information was collected or deemed necessary for this Project. The following summary of the referenced information is specific to the Project.

There are no public roads or motorized trails within the Project Area. The mine haul road between Panels F and G was approved by the 2008 RODs and is currently being constructed. The existing haul road between Panel F and the mill, along which the ore conveyor system would follow, is not publicly accessible.

3.17 SOCIAL AND ECONOMIC RESOURCES

3.17.1 2007 FEIS Affected Environment

This section is tiered to Section 3.16 of the 2007 FEIS, titled Social and Economic Resources (pages 3-217 through 3-249), and applicable information is hereby incorporated by reference. The following summary of the referenced information and updated information is specific to the Project. Although information presented in the 2007 FEIS has likely changed to some degree, according to Simplot, the Project would not result in changes to the overall employment at the Smoky Canyon Mine and/or within the adjacent counties, thus social and economic data presented in the 2007 FEIS was not updated or revised for this EIS.

3.17.1.1 Land Ownership

The areas directly affected by the Smoky Canyon Mine are primarily Bannock, Caribou, and Power counties in southeastern Idaho; and Lincoln County in southwestern Wyoming. These four counties are contiguous, with Power County, Idaho being the farthest west and Lincoln County, Wyoming being the farthest east. Bannock and Power Counties, Idaho, comprise the Pocatello, Idaho Metropolitan Area as defined by the Office of Management and Budget. The other two subject counties are not part of any metropolitan statistical area. Power County has the

highest percentage of privately-owned land of the four counties. The U.S. government is a significant landowner in all four counties (**Table 3.17-1**). Lincoln County is the largest of the three counties and is over three times as large as Bannock County, the smallest of the four.

Table 3.17-1 Land Ownership

DESCRIPTION	BANNOCK COUNTY, ID	CARIBOU COUNTY, ID	POWER COUNTY, ID	LINCOLN COUNTY, WY
Acres	712,448	1,130,304	899,648	2,729,157
Federal	31.1%	39.6%	33.4%	71.6%
State	6.7%	10%	3.0%	7.6%
City and County	1.7%	0.2%	0.4%	0.0%
Private	60.6%	50.2%	63.2%	20.8%

Sources: Idaho Department of Commerce 2013; Wyoming State Almanac 2002

3.18 ENVIRONMENTAL JUSTICE

3.18.1 2007 FEIS Affected Environment

This section is tiered to Section 3.17 of the 2007 FEIS, titled Environmental Justice (pages 3-249 through 3-250), and applicable information is hereby incorporated by reference. The following summary of the referenced information is specific to the Project.

The communities in closest proximity to the Smoky Canyon Mine include Afton and Fairview, Wyoming, and a loose community of ranchers along Crow Creek Road. In general, the area is rural. USFS (2003b) of the 2007 FEIS notes: "few minorities reside within the Study Area, and no communities are considered low income. While there are individual households that are either minority or low income, the communities as a whole are not." Also, see Social and Economic Resources, Section 3.16 of the 2007 FEIS.

As described in **Section 3.15**, members of the Shoshone-Bannock Tribe, based in Fort Hall, Idaho, have reserved Treaty Rights to utilize federal lands in the Project Area for hunting, fishing, and gathering. The Shoshone-Bannock Tribes represent both a population (readily identifiable collection of persons) and a community (readily identifiable social group who reside in a specific locality, share government, and have a common cultural and historical heritage) that could be affected under Environmental Justice. Government to government consultation with the Shoshone-Bannock Tribes' Fort Hall Business Council is an ongoing aspect of this Project (see **Sections 3.15.1.2 and 4.15**). According to the Shoshone-Bannock, the Tribes currently utilize the Project Area on a regular basis to exercise their Treaty Rights including hunting, fishing, gathering, and ceremonial or traditional activities (BLM and USFS 2007).

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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 or implementation of reasonable controls. 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 NOx, SO_2, 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

Climate Change

Mining activities 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 (CCS 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.

In a recent Supreme Court decision, Utility Air Regulatory Group v. EPA, No. 12-1146 (June 23, 2014), the majority opinion held that the Clean Air Act (CAA) does not compel a GHG-inclusive interpretation of the term "any air pollutant" that automatically triggers PSD and Title V permitting requirements. The Court held that the PSD and Title V programs must be read so that their applicability is triggered only by emissions of conventional pollutants (i.e., SO_2, PM, NO_2, CO, O_3, and Pb) at levels above the 100- to 250-ton-per-year thresholds specified in the CAA. No conventional pollutant emissions associated with the Action Alternatives for the Project were found to exceed the statutory CAA thresholds (100 to 250 tons per year) for GHG emissions.

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 days 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 10.3 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 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 Spring discharge location for this discussion on localized groundwater quality impacts. 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. (The RI/FS model did not extend this far south.) The 2007 FEIS 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. Implications of the groundwater to surface water transport path are discussed in the following

surface water quality subsection, and are, in part, based upon the RI/FS Report (Formation Environmental 2014).

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). Further downstream in Crow Creek, after the confluence of Sage Creek, the 2007 FEIS predicted that peak selenium concentrations would be 0.0049 mg/L at 15 percent attenuation and 0.0048 mg/L

at 25 percent attenuation. Peak selenium concentration was expected to occur over 370 years out under the geologic store and release cover Alternative D that was approved.

The RI/FS Report (Formation Environmental 2014) did not include modeling at either the mouth of Deer Creek or in Books Spring. However, Crow Creek was modeled at a location just downstream of the confluence with Sage Creek (CC-1A). Selenium concentration predictions at that location (as with other modeled locations) were informed, in part, by post-FEIS monitoring data, including those described previously in **Section 3.4**. As noted in that section, some groundwater and spring discharge points have continued to show increased selenium concentrations in recent years, beyond what had previously been anticipated. Thus, more recent modeling suggests that future concentrations will also be higher than previously predicted. The RI/FS Report (Formation Environmental 2014) predicts a peak selenium concentration attributed primarily to Sage Creek contributions, of about 0.024 mg/L at CC-1A during average low flow conditions, or about 5 times higher than that predicted for nearly the same location in the 2007 FEIS. However, the predicted timing of the peak selenium in the RI/FS model (which only considers selenium sources north of South Fork Sage Creek) is about 2015, lasting through 2019 (**Figure 4.4-1**). By the end of the model time period (year 2050), selenium concentrations are predicted to be just above the standard of 0.005 mg/L. At that time, the curve of predicted concentrations is essentially asymptotic to the standard line, so it is not clear whether or when concentrations would further decline enough to meet the standard.

For the proposed GCLL, with reduced loading the selenium surface water criterion (0.005 mg/l) would continue to be met in Crow Creek downstream of Deer Creek, with selenium concentrations predicted to be even further beneath the criterion than under the approved 2007 FEIS alternative (0.002 mg/l). This effect would also retain a greater assimilative capacity for selenium in Deer Creek compared to the approved 2007 FEIS alternative. At Crow Creek downstream of Sage Creek, water quality impacts due to the proposed GCLL at Panel G would be less than predicted in the 2007 EIS. According to the groundwater fate and transport modeling in the 2007 EIS, the peak concentrations of selenium in Deer Creek, Books Spring, and Crow Creek from the Panel G source would occur 55, 326, and 374 years, respectively after mining commences in Panel G. All of these times are much later than the time of peak concentrations predicted in the RI/FS for Hoopes Spring and South Fork Sage Creek Spring (2015). By the time the Panel G selenium loads appear in Crow Creek, reduced selenium loads from Sage Creek are predicted due to the CERCLA-required remediation activities that are being implemented and will continue.

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

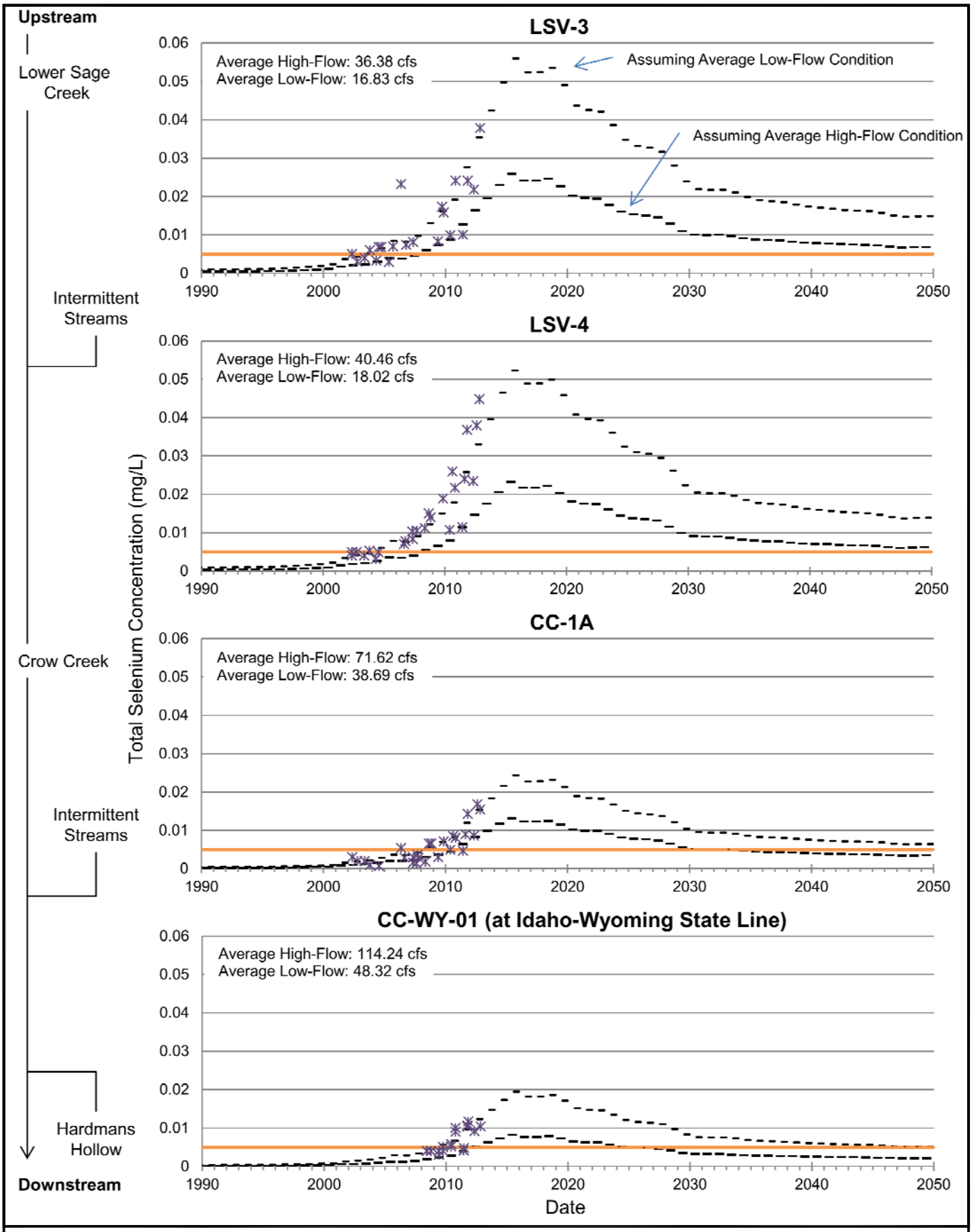
Groundwater Quantity. Alternative 1 would have the same areal extent of seleniferous overburden as the Proposed Action, but two types of covers would be used. Of the total 392 acres that would be covered, 250 acres would receive the approved geologic store and release cover that was approved under the 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.



From RIFS (Formation Environmental 2014)

Idaho aquatic life selenium standard (0.005 mg/L) for Surface Water.

Observed Concentration

Note: Not including potential loads from Panels F & G

Figure 4.4-1
Predicted Concentrations at Locations Downstream of Springs
Panel F & G Lease/Mine Plan Modifications EIS

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 geologic 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 (92.3 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 10.3 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 approximately 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 10.3 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 Project may impact wetlands and 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

No WOUS, including wetlands, would be impacted by the expansion of the South and East ODAs and development of the stormwater features associated with the GCLL, although there are several wetland areas immediately adjacent to proposed disturbance areas.

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 no impacts to WOUS, including wetlands would occur.

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

While the Project boundaries under Alternative 2 are different from the Proposed Action and Alternative 1, no impacts to WOUS, including wetlands would occur under Alternative 2.

4.7.2.4 No Action Alternative

Under the No Action Alternative, no impacts to WOUS, including wetlands 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; however, this would not change the impacts to wetland resources.

4.7.3 Mitigation Measures

There would be no impacts to wetlands under any of the Action Alternatives, so no mitigation measures would be required.

4.7.4 Unavoidable (Residual) Adverse Impacts

Unavoidable adverse impacts are those that would continue after implementation of mitigation measures and/or final reclamation. Because there would be no impacts to WOUS, including wetlands under any of the Action Alternatives, there would be no unavoidable (residual) adverse impacts.

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

There would be no impacts to WOUS, including wetlands under any of the Action Alternatives, so there would be no short-term uses that would affect long-term productivity of wetlands.

4.7.6 Irreversible and Irretrievable Commitment of Resources

There would be no impacts to WOUS, including wetlands under any of the Action Alternatives, so there would be no irreversible or irretrievable commitment of wetland resources.

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 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. Wildlife using one of the four proposed crossings associated with the ore conveyor along the existing haul road would be at risk from vehicle collisions and potentially predators due to the funneling of the wildlife along the haul road to one of the four crossing locations, and concentrating crossing wildlife in these 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 (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. The wolverine was proposed for listing at the time the draft of this EIS was released; however, subsequent to publication of the DEIS, the USFWS determined the wolverine does not warrant protection under the Endangered Species Act (USFWS 2014).

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 or wetlands 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 PIF Idaho BCP objective of no net loss of Priority A habitats in the short term due to the disturbance of 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 four 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, USFS-Sensitive, MIS species) and Columbian sharp-tailed grouse (USFS-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 not eliminate any wetland or riparian habitat. No perennial streams occur in the Project Area. 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 USFS-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 3.7-1**, AIZs would be impacted by components of the Proposed Action in and around the Panel G area. Approximately 8.5 acres of AIZs 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 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 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	100.1	40	Cattle – 6.2
			139	Sheep – 4.4
	Total	161.4	54	Cattle – 5.2
			264	Sheep – 3.4

C&H - Cattle and Horse
S&G - Sheep and Goats

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 10.3 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 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. 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	0.7	240.7
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**).

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
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				

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 geologic 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.

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 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. Minor variations in the height of the conveyor (see footnote on **Table 2.4-1**) would not significantly change the overall visibility of the conveyor.

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.

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.

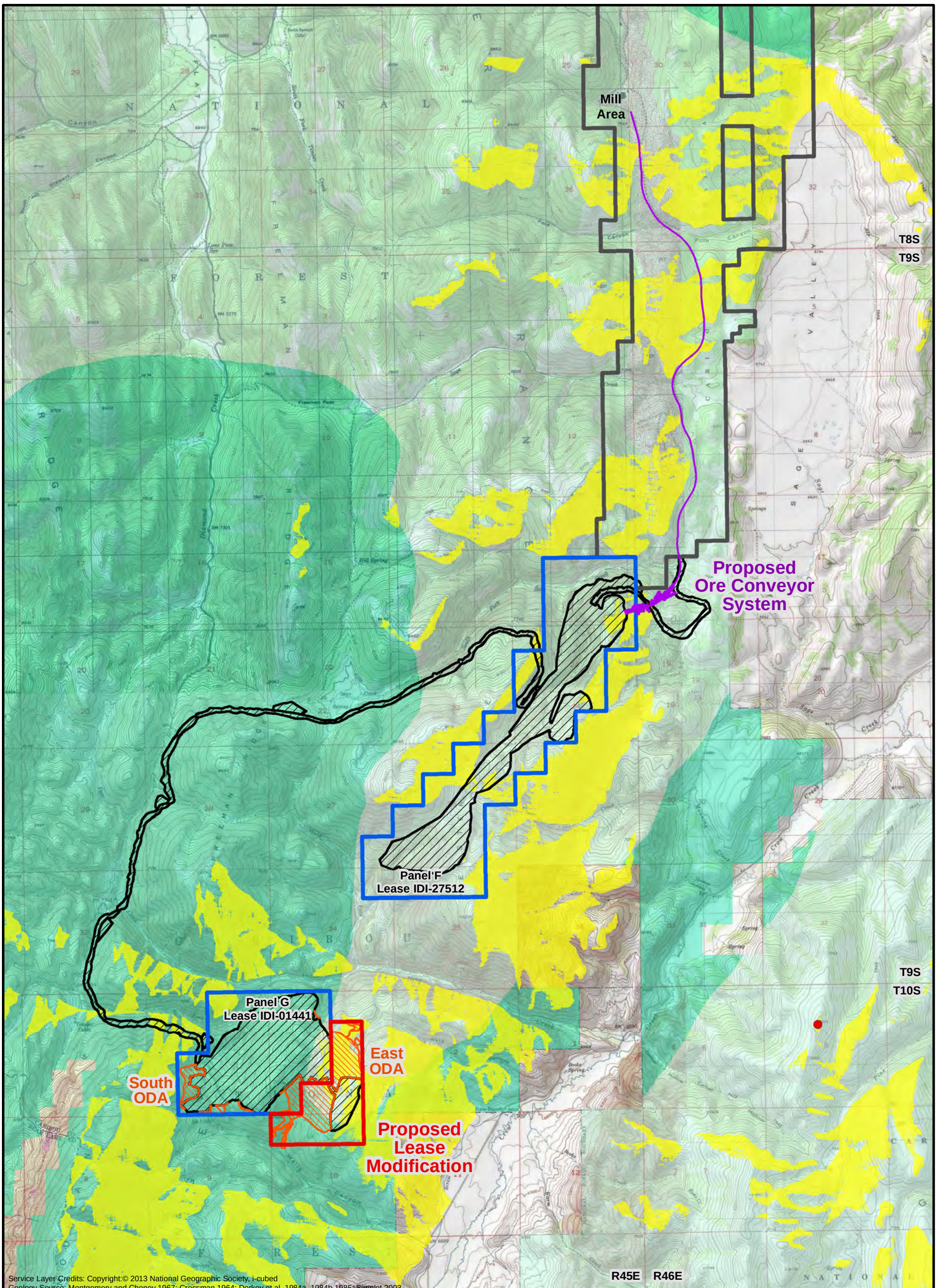
4.13.2.2 Alternative 1: Proposed Action with Mixed Cover

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.



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

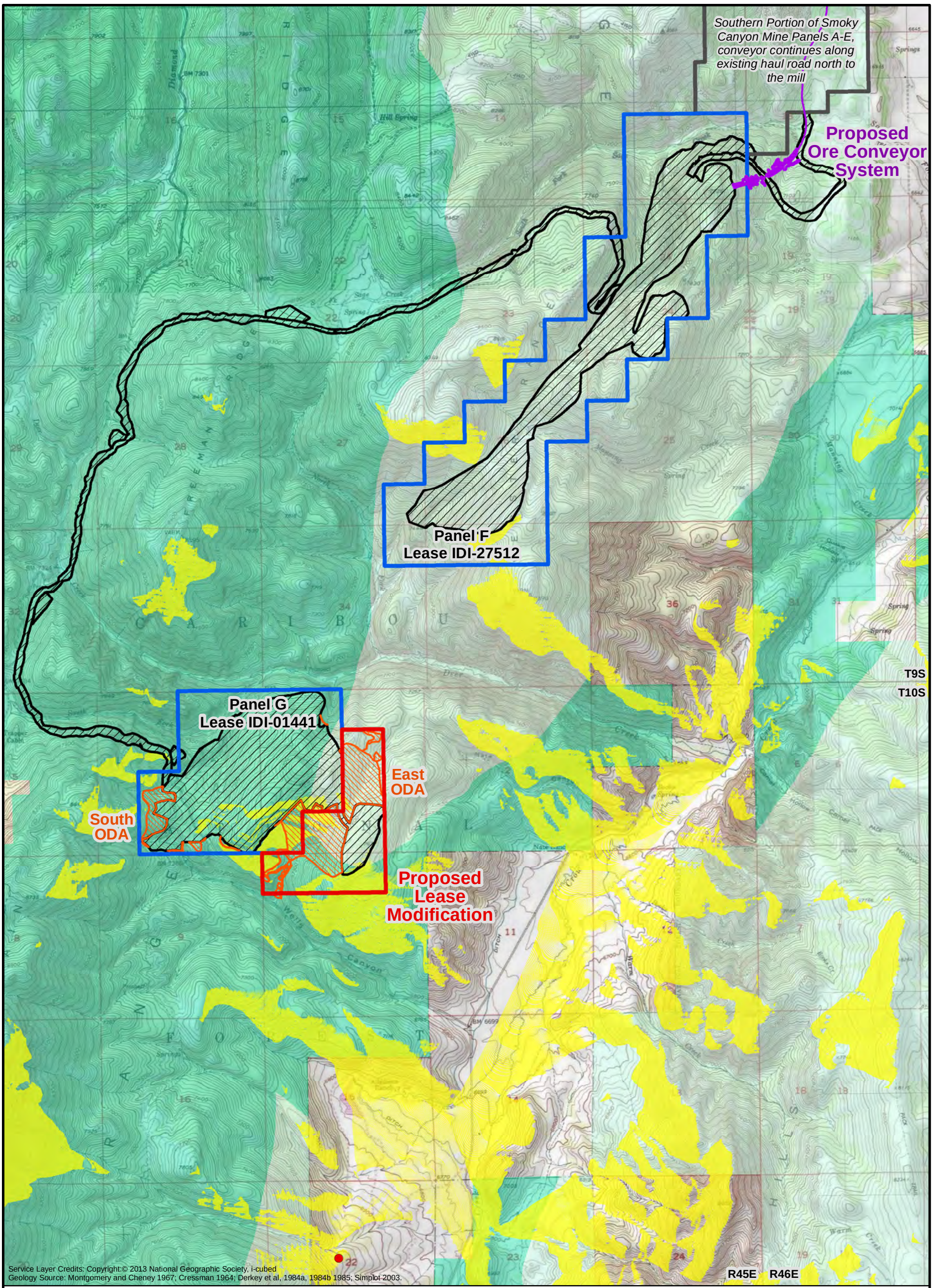
Visual Quality Objectives

- 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



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

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.

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

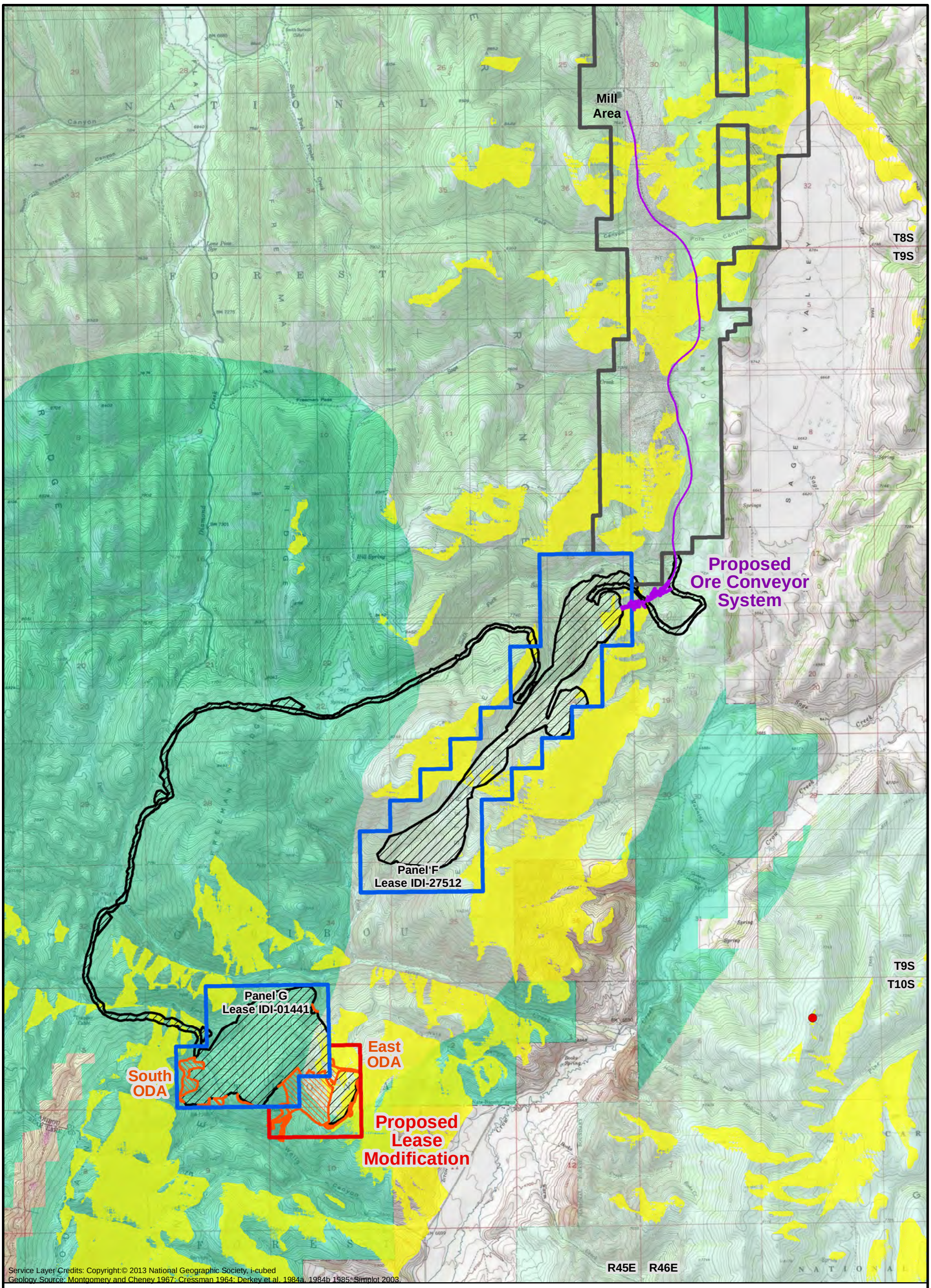
4.14.2.1 Proposed Action

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.



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

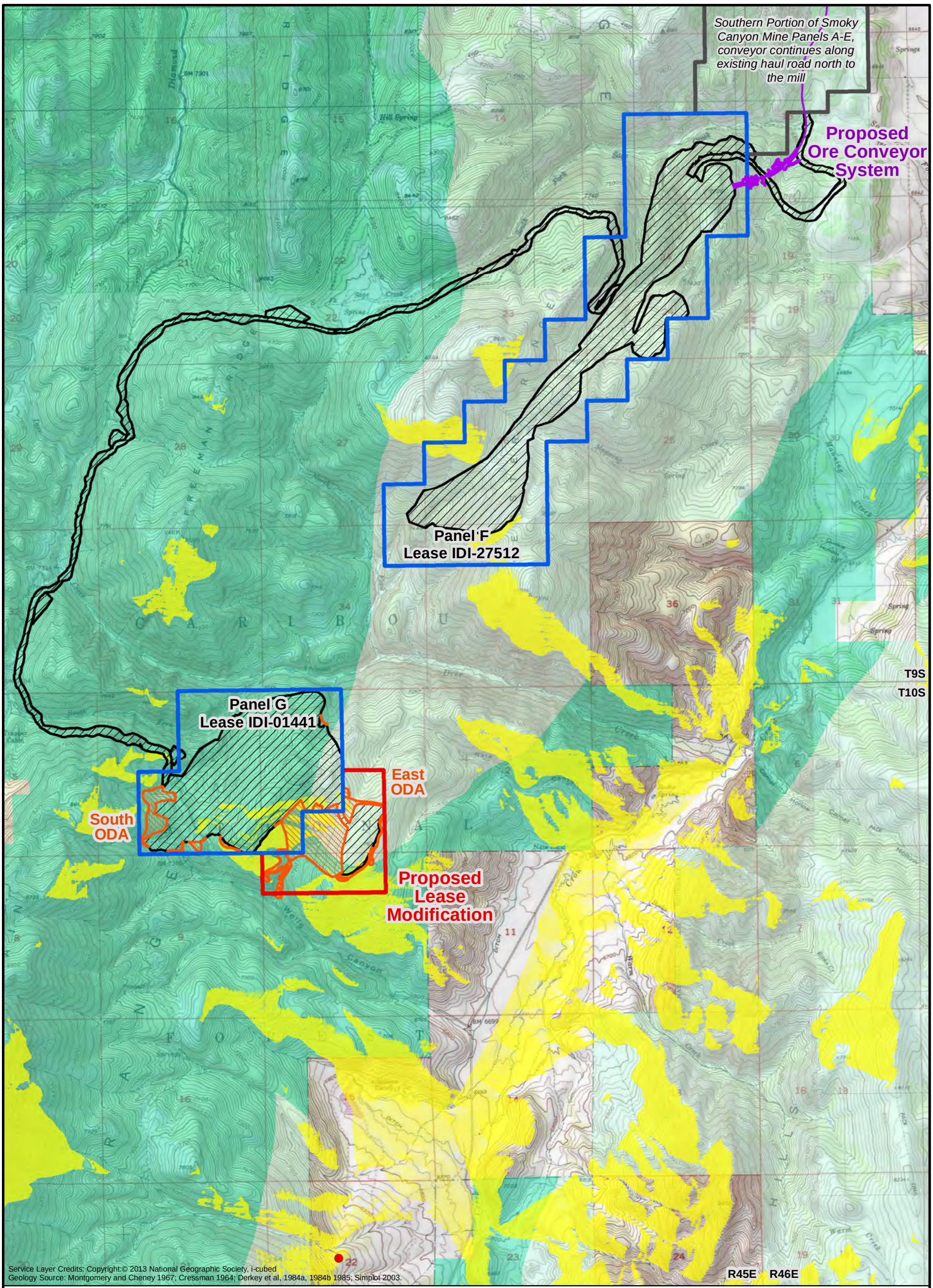
Visual Quality Objectives

- Modification
- Partial Retention

4,000 0 4,000 Feet

N

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



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

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 those 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 10.3 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. No wetlands would be 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 9.1 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 10.3 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).

CHAPTER 5

CUMULATIVE IMPACTS

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CHAPTER 5 CUMULATIVE EFFECTS

Cumulative effects are those impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions on the Cumulative Effects Areas (CEAs). They can result from individually minor, but collectively significant actions taken over a period of time. Major past and present land uses in the area, which are also projected to continue into the future include: mining, roads/trails, timber harvesting, wildfires, Tribal Treaty Rights, livestock grazing, and agriculture. Dispersed recreation (including hunting and fishing) and residential development also occur in parts of the CEAs.

The configuration of the Proposed Action and Action Alternatives in relation to the previous Panels F and G project analyzed in the 2007 FEIS provided the foundation for identifying CEAs. The CEA boundaries defined for the 2007 FEIS would apply in most cases to the Proposed Action and Action Alternatives because (1) the Proposed Action and Action Alternatives are fully contained within each of the 2007 FEIS CEAs, and (2) the Proposed Action and Action Alternatives are inextricably linked to the approved mining of Panels F and G. As such, those CEA boundaries will be used for this current Project for all resources except groundwater and surface water because smaller CEAs are specifically more applicable to this Project.

The cumulative effects analysis prepared for Chapter 5 of the 2007 FEIS was extensive and very detailed. The current Proposed Action or Alternative 1 would increase the Panels F and G disturbance by a maximum of approximately 170 acres (125 acres under Alternative 2), which is an increase of less than one percent in all of the CEAs. Furthermore, all proposed disturbance is either immediately adjacent to or within approved mining disturbance. Impacts from the Proposed Action or Action Alternatives, as analyzed in **Chapter 4**, would be negligible for most resources; therefore, adding the Proposed Action or one of the Action Alternatives to the past, present, and reasonably foreseeable actions within the CEAs would result in similar cumulative impacts to those thoroughly described in the 2007 FEIS.

As stated in **Chapter 1**, this EIS tiers to the 2007 FEIS and uses as much information as possible from that document as is applicable to this proposed Project. A CD version of the 2007 FEIS has been included as part of this EIS for ease of reference. Much of Chapter 5 of the 2007 FEIS provides general information about past and present projects, actions, and disturbances within the CEAs. That information is generally not repeated in the following sections. Rather, where specific sections of **Chapter 5** are tiered to the 2007 FEIS, the text is either incorporated by reference or briefly summarized, and followed by any specific Project-related information. Some reasonably foreseeable projects in the 2007 FEIS are now considered past or present.

Because the direct and indirect impacts specifically from the Project are expected to have negligible to minor overall impacts, the overall cumulative impacts to most resources are expected to be essentially identical to those already described in the 2007 FEIS. Thus the following resource sections typically present and describe only new information not reported in the 2007 FEIS.

5.1 GEOLOGY, MINERALS, TOPOGRAPHY, AND PALEONTOLOGY

5.1.1 CEA Boundary

The CEA boundary for geology, minerals, topography, and paleontology (**Figure 5.1-1**), and the rationale for it, is the same as for the 2007 FEIS which was delineated to include the southeastern Idaho phosphate mining district, including Known Phosphate Lease Areas (KPLAs) in Bear Lake and Caribou Counties, Idaho. This is an area of 789 square miles (504,960 acres) within which there are current leases for 38,874 acres or 7.7 percent of the total CEA area. **Figure 5.1-1** shows locations of KPLAs, phosphate mine leases, and past, present, and reasonably foreseeable future phosphate mines in Bear Lake and Caribou Counties, Idaho; and identifies the general location of these proposed future phosphate mines.

5.1.2 Introduction

Potential effects to the geology, mineral, and topographic resources consist of mineral resource depletion, paleontological resource disturbance, topographic changes, exposure of rock bearing COPCs, and geotechnical instability. Past and present phosphate mining activities, and proposed future phosphate mining are analyzed in terms of cumulative effects to these resources.

5.1.3 Past and Present Disturbances

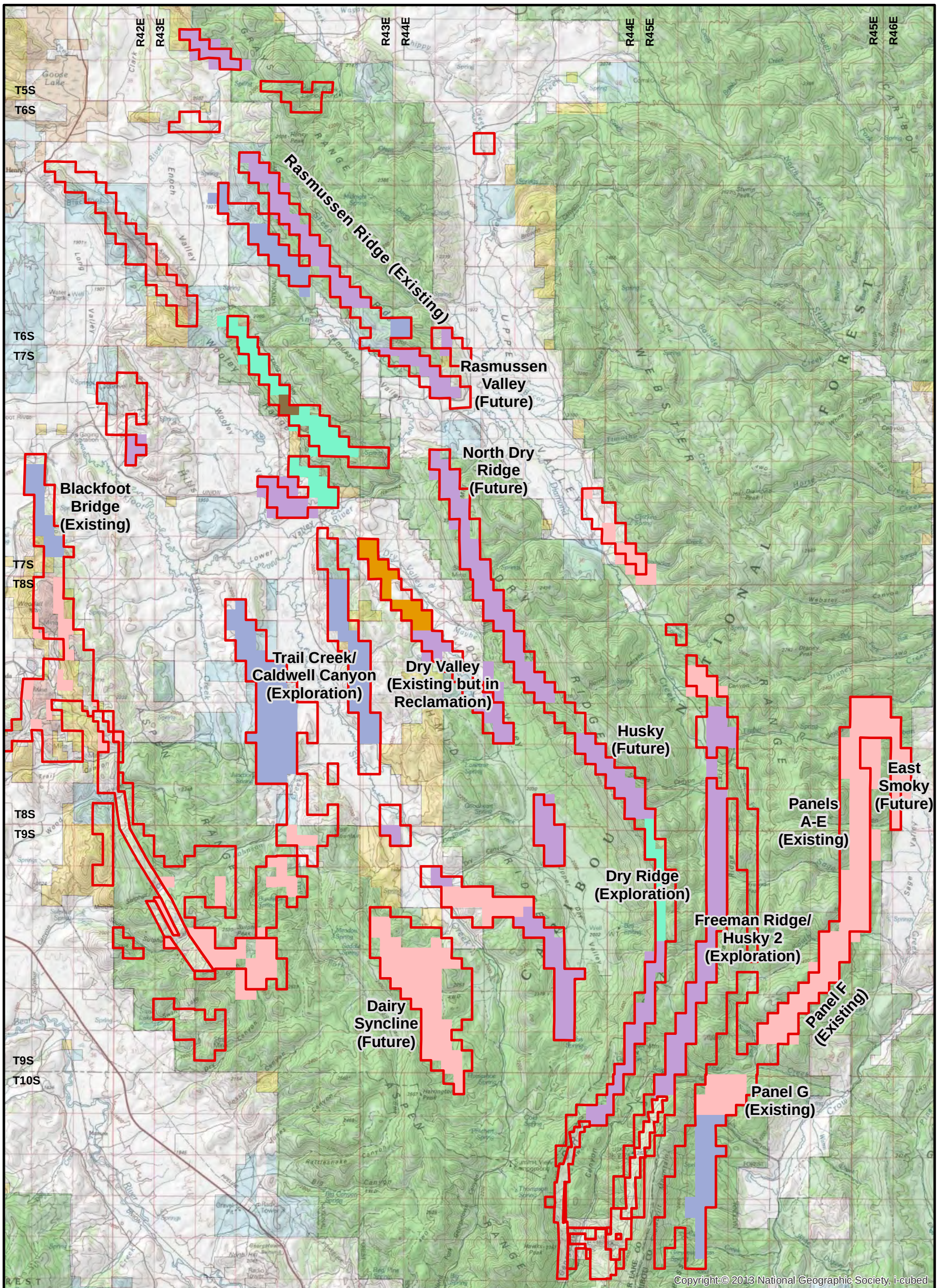
There are currently three active phosphate mines in the southeast Idaho phosphate mining district: Smoky Canyon, Rasmussen Ridge, and Blackfoot Bridge. All of these mines have varying degrees of areas disturbed and areas reclaimed, As of January 2010, there were approximately 12,000 disturbed acres from active and inactive mines (BLM 2011), which includes 2,437 acres of past disturbance at Smoky Canyon Mine.

Since the 2007 FEIS and 2008 RODs, mining of Panels F and G has been approved and initiated by mining activities started in 2008 for Panel F, and development of the haul road to Panel G. This approved continuation of mining at the Smoky Canyon Mine will result in approximately 1,449 acres of presently approved disturbance (for a total of 3,886 acres of past, present, and presently approved disturbance at Smoky Canyon Mine). Other mining activities that have been approved since the 2007 FEIS include the Blackfoot Bridge Project (approved in 2011), estimated to result in approximately 686 acres of total disturbance.

Phosphate exploration activity that has occurred within the CEA since 2007 includes drilling at Husky/North Dry Ridge, Dairy Syncline, and Rasmussen Valley.

Based solely upon the information presented previously, past and present disturbances strictly from phosphate mining activities within the CEA total approximately 14,140 acres.

Within the CEA, other major earth-moving activities include construction of roads, railways, dams, and aggregate pits. These features primarily impact topographic resources, with lesser influences on geologic, mineral, and paleontological resources. The impact of aggregate pits on geologic resources is negligible in comparison to phosphate mining.



Explanation

- Known Phosphate Lease Areas (KPLAs)

Phosphate Lease Owners

- FMC; Rhodia Inc.
- FMC
- Agrium
- Monsanto
- Rhodia Inc.
- JR Simplot Co.

Land Ownership

- BLM
- BIA
- Private
- State
- USFS

N

12,000 0 12,000 Feet

Figure 5.1-1
Southeast Idaho Phosphate District
Panel F & G Lease/Mine Plan Modifications EIS

There is no known past oil or gas production in the CEA. Although exploration wells have been drilled in the recent past, no commercial production has been established. Hard-rock mineral and metals mines operate in Idaho but not within the CEA, although some gold prospecting does occur (Gillerman and Bennett 2007).

5.1.4 Foreseeable Future Disturbances

Ongoing and future phosphate mining is expected to be the most prominent foreseeable cause of future disturbances within the CEA. World consumption of phosphate fertilizer is projected to increase from 41.9 million tons in 2012 to 45.3 million tons in 2016 (USGS 2013) and at least four new phosphate mines have been proposed within the CEA. These include the Dairy Syncline Mine (approximately 2,142 acres), the Rasmussen Valley Mine (approximately 420 acres), the Husky/North Dry Ridge Mine (approximately 1,051 acres), and the East Smoky Project (approximately 847 acres) at the Smoky Canyon Mine. These proposed new mines would result in approximately 4,460 acres of additional disturbance, the majority of which would be reclaimed.

Additional phosphate exploration drilling within the CEA has also been proposed outside of the new mine areas listed above and includes: Dry Ridge (approximately 69 acres), Trail Creek/Caldwell Canyon (approximately 60 acres), and Freeman Ridge/Husky 2 (approximately 168 acres).

The reasonably foreseeable disturbance expected from phosphate exploration and mining activities in the CEA is approximately 4,690 acres, plus an additional unknown amount of disturbance resulting from the Dry Ridge exploration project.

Future oil/gas exploration and possibly production could occur in the CEA, but would have minimal effect on geology and topographic resources. If there were any proposed future oil/gas disturbance it would be analyzed under a separate NEPA analysis process. Mineral resource development of oil/gas would not likely affect phosphate mining and future phosphate mining would have no effect on oil/gas resources in the area.

5.1.5 Cumulative Disturbances

The Proposed Action or Alternative 1 (170 acres, or 125 acres under Alternative 2), when combined with past and present disturbance (approximately 14,140 acres), and foreseeable future disturbance (4,690 acres), totals about 19,000 acres of disturbance in the CEA. The cumulative effect of phosphate mining disturbance from past, present, and foreseeable future activities (18,830 acres) would be approximately 3.7 percent of the CEA. The disturbance of the Proposed Action or Action Alternatives would increase this total to about 19,000 acres, or by 0.03 percent.

As summarized from Blackfoot Bridge FEIS (BLM 2011), if all KPLAs within the CEA are developed to the extent that 90 percent of each federal phosphate lease is disturbed through excavation, construction, or other ancillary activities, approximately 39,300 acres (8.8 percent of the CEA) would be disturbed at some point. The volumetric equivalent of geological, mineral, and paleontological resources that would be disturbed is uncertain because each mine would design mine plans according to geologic and market constraints unique to each phosphate lease.

5.1.6 Cumulative Effects

The cumulative result of this action when combined with other past, present, and foreseeable future disturbances in the CEA would be a total of approximately 19,000 acres for which there is a residual change in topography following mineral development. This would be approximately 3.7 percent of the CEA. All other cumulative effects to geology, minerals, topography, and paleontological resources described in the 2007 FEIS would be similar and are not repeated in this section.

Regarding selenium mobilization within the CEA, this is most affected by disturbance of selenium-containing bedrock or soil. Phosphate mining activities impact these resources and can result in release of selenium and trace metals to the environment. Most other ground-disturbing activities within the CEA such as road/highway construction and maintenance, building construction, ditch construction, and agricultural practices typically do not disturb bedrock. The effects of selenium mobilization on water resources are thoroughly discussed in Sections 3.3 and 4.3 of the 2007 FEIS.

The Proposed Action and Action Alternatives include the construction of a GCLL, as opposed to the currently approved geologic store and release cover, over either approximately 400 acres (Proposed Action) or approximately 140 acres (Action Alternatives) of seleniferous overburden at Panel G. Based upon lower percolation rates due to the GCLL, this is anticipated to reduce the overall predicted loading of selenium and potentially other COPCs to Deer Creek, Books Spring, and Crow Creek from the Panel G area. This, in turn, is expected to decrease the overall cumulative effects of COPC loading in this area of the CEA. Thus, the area of the Proposed Action or Action Alternatives is not expected to be additive to the existing mining disturbances in the CEA in a cumulative manner with regard to exposure of seleniferous overburden.

5.2 AIR, CLIMATE CHANGE, AND NOISE

5.2.1 CEA Boundary

The CEA boundary (Figure 5.2-1 in the 2007 FEIS) for air resources, climate change, and noise resources, and the rationale for it, is the same as in the 2007 FEIS. It generally includes all the past, present, and reasonably foreseeable Smoky Canyon Mine operations, and the Wells Canyon lease area. Although the Wells Canyon lease is adjacent to Panels F and G, the Agencies have no reason to assume it will be mined in the foreseeable future. Monsanto owns this lease and Simplot has conducted phosphate resource exploration on the lease under agreement with Monsanto. At the time this cumulative impacts analysis was conducted, Monsanto had not proposed mining of the lease; Simplot had not purchased the mining rights for the lease, nor proposed to mine it. The CEA also includes the area along the Crow Creek, Wells Canyon, and Diamond Creek roads that are near or adjacent to the Smoky Canyon Mine. Seasonal residents along the Crow Creek road are the closest known sensitive receptors within the CEA.

5.2.2 Air Resources

5.2.2.1 Introduction

Air quality in the CNF can occasionally be adversely affected by pollutants from sources outside the CNF. These effects typically occur during winter inversions or when stable air masses occur

under static, high-pressure weather systems. Typical pollution sources outside the CNF may include power plants, factories, agricultural burning, auto emissions, and smoke from wildfires (USFS 2003b).. Cumulative effects to air quality in the CEA from past, present, and foreseeable future activities are largely from dust released by agricultural practices, mining, travel on unpaved roads, and smoke from wildfires or prescribed burns. Grazing and timber harvesting can produce fugitive dust, but the quantities are minimal and are expected to remain approximately equal to present conditions. Travel on unpaved roads in the CEA can adversely affect air quality from auto emissions, but this type of use has not adversely affected air quality measurably in the past and thus is not considered a concern (USFS 2003b).

5.2.2.2 Past and Present Disturbances

Mining is the major fugitive dust producing activity within the CEA. Fugitive dust emissions would continue with ongoing and approved mining actions at the Smoky Canyon Mine.

Including existing phosphate mining, other sources that have and are likely to contribute to particulate and gaseous emissions within the CEA are timber harvesting, agriculture, travel on paved and unpaved roads, and grazing. Wildfires are also sources that have contributed to emissions within the CEA in the past. Wildfires are short-term sources of air pollutants that can generate fine particulate matter. Smoke and gases from wildfire are a complex mixture of carbon, tars, liquids, and different gases, but the major air pollutants are PM_{10} and $PM_{2.5}$. Equipment used for fire suppression can also generate air pollutants. Wildfires generate temporary and intermittent effects on air quality in the immediate vicinity of the ignitions and could also potentially impact visibility in Class I Areas. Because conditions from wildfires are not controlled, they have the potential for greater impacts than controlled burns. Controlled burns are implemented at specific times when atmospheric conditions would allow rapid dispersal of air pollutants. Vehicle travel on paved and unpaved roads can also contribute to an adverse impact to air quality. However, this source has not adversely affected air quality measurably in the past and is not considered a concern (BLM and USFS 2007). Agricultural activity contributes to uncontrolled emission of particulate and gaseous emission on a seasonal basis.

Grazing and timber harvesting can produce fugitive dust, but the quantities are minimal and are expected to remain approximately equal to present conditions. Other past and present sources of impacts include residential and small industrial heating sources such as natural gas, oil, and wood. These sources are primarily located along Crow Creek road and the impacts are minimal and are expected to remain approximately equal to present conditions.

5.2.2.3 Foreseeable Future Disturbances

As stated in **Section 5.1.4**, the East Smoky Project (approximately 847 acres) has been proposed to occur within the CEA. Timber harvesting, agriculture, travel on paved and unpaved roads, grazing, and wildfires are also likely foreseeable future disturbances within the CEA that would continue to generate dust and exhaust emissions, along with mining and CERCLA related activities at the Smoky Canyon Mine.

5.2.2.4 Cumulative Disturbances

Wildfire emissions, when added to existing concentrations of air pollutants, could produce cumulative effects that result in non-attainment of the particulate standards in specific areas. All

prescribed fires are conducted in compliance with state regulations for protection of air quality and only when ambient air quality standards will not be exceeded. The RFP FEIS states, "Burning will be permitted only when management-caused smoke emissions combined with other residual pollutants does not create cumulative effects that could adversely affect air quality, human health, and visibility" (USFS 2003b). However, depending on the proximity of prescribed fires to the location of the Proposed Action and Action Alternatives and the prevailing wind direction, emissions from the fires could be additive to those from the ongoing mining operations at the Proposed Action or Action Alternatives location. Smoke disperses rapidly in most cases and impacts from smoke on air quality are short-lived. It is not possible to quantify these effects in this CEA due to the uncertainty of these conditions, so cumulative effects of adding the particulate emissions from the Proposed Action or Action Alternatives to potential smoke emissions from fires cannot be determined.

All past, present, and reasonably foreseeable mining in the CEA are conducted by Simplot, and the amount of air pollutants resulting from this activity is largely based on the mining rate and the truck haul distances. The Proposed Action or Action Alternatives would actually result in reduced air emissions in the CEA based upon the construction of the Panel F ore conveyor system. The conveyor would eliminate the need to haul ore from Panels F and G to the mill via haul trucks, although the haul road would remain open for vehicle and equipment use as needed. The volume of air emissions related to truck hauling would decrease when ore transport is shifted from haul trucks to the conveyor system at Panel F. The Proposed Action or Action Alternatives would comply with NAAQSs and applicable state and federal regulations on protection of air quality.

Calculations of average settling rates for dust from mining conducted for the 2007 FEIS indicated that most dust would settle to the ground within less than a mile from the dust emitting mining activity. The nearest present mining operation to Smoky Canyon Mine is the Dry Valley operation approximately 11 miles away, so there should not be a cumulative effect from dust emissions due to mining at Smoky Canyon and reclamation at the Dry Valley Mine. In addition to the dust emissions from mining, the mining equipment produces gaseous emissions of NO_x, SO_2, CO, CO_2, and VOCs. These would combine with other emissions from present and reasonably foreseeable emitting sources.

Current and future operations at the Smoky Canyon Mine are not forecasted to impact any federally designated Class I Areas (i.e., Bridger Wilderness, Grand Teton National Park, and Yellowstone National Park).

5.2.2.5 Cumulative Effects

Considering past, present, and foreseeable future disturbances to air resources combined with disturbances from the Proposed Action or Action Alternatives to these resources, cumulative effects would be short term and negligible. The Proposed Action or Action Alternatives would be expected to maintain the status of compliance with state and federal standards. Emissions from the Smoky Canyon Mine would continue as approved at Panels F and G and could also increase from future mining at the East Smoky Project area. Wildfires could add additional pollutants but cannot be predicted.

5.2.3 Climate Change

5.2.3.1 Introduction

As described in **Section 4.3** of this EIS, the combustion of diesel and gasoline contribute CO_2 to the atmosphere which in turn creates GHGs. GHGs would be generated by the Proposed Action or Action Alternatives.

5.2.3.2 Past and Present Disturbances

In addition to ongoing phosphate mining, contributions to GHG emissions within the CEA include those from local rural and community traffic, traffic through the area to recreational locations, operation of agricultural equipment, residential and small industrial heating sources, and other commercial and industrial activities. Quantitative data on these varied sources is not readily available, but their contribution in the CEA is small compared to phosphate mining activities and they are expected to remain approximately equal to present conditions.

5.2.3.3 Foreseeable Future Disturbances

Foreseeable future contributions to GHG emissions include ongoing and new phosphate mining activities at the Smoky Canyon Mine as previously described. They also include continuation of local rural and community traffic, traffic through the area and to recreational locations in the CEA, operation of agricultural equipment, residential and small industrial heating sources, and other commercial and industrial activities. Quantitative data on these varied sources not directly associated with phosphate mining is not readily available, but their contribution is small compared to phosphate mining and they are expected to remain approximately equal to present conditions.

5.2.3.4 Cumulative Effects

Past, present, and reasonably foreseeable contributions to GHG emissions in the CEA have been and would continue to be predominantly associated with phosphate mining activities. GHG emissions from the mining operations are associated with direct fuel consumption for operating equipment and machinery including haul trucks and other mining equipment, and generation of electricity consumed at the facilities.

GHGs are considered to have caused a warming trend globally and could continue to do so if atmospheric levels are not reduced. The generation of GHGs would still occur under the Proposed Action or Action Alternatives, but to a lesser degree than previously approved due to use of the Panel F ore conveyor system. Because the scale of the global warming issue is so large and the release of CO_2 from fuel consumption for both the approved and proposed operations is relatively miniscule compared to the U.S. emission rate (5.9 billion metric tons in 2005 (EIA 2006)), an assessment of the effects of the Proposed Action or Action Alternatives on global climate change would be unreliable. Impacts from GHGs may be countered locally by CO_2 sequestration in the vegetation of the adjacent CNF and added to by any future fires in the CNF; however, the RFP FEIS (USFS 2003b) cautions that estimating these effects may not be reliable. It should be noted that the amount of GHG emissions from the Proposed Action or Action Alternatives would be less than those generated under the previously approved operations for Panels F and G, so there would not be an increase in effects to global climate change.

5.2.4 Noise Resources

5.2.4.1 Introduction

Mines in the southeast Idaho phosphate mining district do not overlap within the CEA and noise impacts from these mines are not known to overlap either due to the distance and topography between the existing mines. Noise impacts from the Proposed Action or Action Alternatives do not impact sensitive receptors in the CEA beyond what is currently occurring. The effects of adding the proposed Project to the past, present, and foreseeable future disturbances to noise resources would not result in adverse cumulative impacts.

5.2.4.2 Past and Present Disturbances

Within the CEA, mining and mining-related activities are ongoing at Smoky Canyon Mine. Mining in Panel F began in 2008 and construction of the haul road to Panel G commenced in 2012. The continuation of approved mining at the Smoky Canyon Mine will result in ongoing noise. Other existing operating phosphate mines are located outside the CEA and would not impact the CEA for noise resources.

5.2.4.3 Foreseeable Future Disturbances

Foreseeable future noise disturbances within the CEA include ongoing and new phosphate mining activities at the Smoky Canyon Mine as previously described, as well as local rural and community traffic, traffic through the area and to recreational locations in the CEA, operation of agricultural equipment, and other commercial and industrial activities. Potential noise impacts from the future East Smoky Project are not expected to contribute to cumulative impacts to sensitive noise receptors within the CEA because the sensitive noise receptors along Crow Creek Road should be situated a sufficient distance away from this potential future project.

5.2.4.4 Cumulative Disturbances

Past, present, and reasonably foreseeable disturbance impacts to the CEA have been and would continue to be predominately associated with noise localized to the mining areas associated with the Smoky Canyon Mine.

5.2.4.5 Cumulative Effects

Mining-related noise within the CEA would basically be equivalent to existing conditions. However, noise impacts from mining operations at Panels F and G would be ongoing and would likely be combined with potential mining related-noise from the future East Smoky Project (situated approximately seven miles to the north), should mining operations be concurrent. Under the Proposed Action or Action Alternatives, noise from the Panel F ore conveyor system would take the place of noise from haul truck traffic between Panel F and the mill at Smoky Canyon Mine. The public driving on the road to the main Smoky Canyon Mine entrance is currently exposed to the mining and haul traffic noise and residents along Crow Creek are exposed to some noise from mining currently occurring at Panel F.

Noise impacts from the Proposed Action or Action Alternatives when added to the ongoing Smoky Canyon Mine operations would not impact sensitive receptors within the CEA above what is currently occurring.

5.3 GROUNDWATER RESOURCES

5.3.1 CEA Boundary

The CEA boundary for groundwater (**Figure 5.3-1**) encompasses the area defined by previously established natural boundaries of the groundwater that could be impacted by the proposed changes to Panel G. As determined in the 2007 FEIS, the area of influence by Panel G is confined to the vicinity of Deer Creek, Books Spring, and Crow Creek. Thus, the CEA boundary is along Crow Creek from where it is crossed by the Wells Canyon Fault downstream to the confluence with Deer Creek, upstream along Deer Creek to where it crosses the Deer Creek fault, then along the fault to the top of Freeman Ridge, south along Freeman Ridge and Snowdrift Mountain to Wells Canyon, and east along the Wells Canyon Fault to Crow Creek.

As described in **Section 4.4.2**, the proposed Panel F ore conveyor system would not have any effect on groundwater but the Panel G portion of the Proposed Action or Action Alternatives would have direct and indirect effects on groundwater. Therefore, only the effects on groundwater from Panel G need to be evaluated in cumulative effects. The description of the groundwater conditions in the vicinity of the original Panels F and G project is well documented in the 2007 FEIS. It is clear from that description that the groundwater that could be impacted by the proposed changes to Panel G is confined to the vicinity of Deer Creek, Books Spring, and Crow Creek.

The 2007 FEIS included a larger CEA due to predicted groundwater impacts in the Sage Creek drainage from Panel F. However, particle tracking done as part of the groundwater modeling for the 2007 FEIS clearly shows that groundwater under and down gradient of Panel G does not flow to the north and does not discharge at the Sage Creek drainage. Thus, this section does not evaluate any of the effects of the Smoky Canyon Mine Panels A through E or Panel F on Sage Creek. It also does not consider cumulative effects related to the tailings pond which is in a different watershed from Panel G and is not connected via groundwater to Panel G.

5.3.2 Introduction

Cumulative effects to groundwater in the CEA would include such things as groundwater withdrawals from wells or chemical effects caused by surface land uses that contribute contaminants to the groundwater under or down gradient of these land uses. Effects from timber harvesting, grazing, rights-of-way, and recreational uses on groundwater resources in the CEA are negligible. Mining activities within the CEA have the greatest potential to impact the groundwater resources by withdrawal for consumptive use or from infiltration from open pits and seepage through overburden disposal fills, which have the potential to affect groundwater quality. The only mining operations in the CEA are those of the Smoky Canyon Mine, Panel G. Under the Proposed Action or Action Alternatives, there would be no change in the mine's water supply wells or water consumption, compared to that previously analyzed in the 2007 FEIS. Similarly, other groundwater quantity impacts would not be measurably different from what was previously predicted by that analysis. Thus, cumulative effects analyzed in this section are limited to those activities that have the potential to affect groundwater quality from changes to the Panel G mine plan.

Groundwater conditions in the CEA are described in the 2007 FEIS and supplemental groundwater reports. No new groundwater modeling was conducted for this EIS. As described in

the 2007 FEIS, groundwater beneath the Panel G area has previously been interpreted to move toward the east and north toward Deer Creek, Books Spring, and Crow Creek. As described in **Section 4.3**, the RI/FS Report (Formation Environmental 2014) provides new groundwater predictions of groundwater quality to the north of the area defined here as the groundwater CEA. Some of those predictions are relevant to the surface water CEA and are discussed in **Section 5.4**.

5.3.3 Past and Present Disturbances

Mining-related selenium increases have previously been noted and studied at several monitoring wells and natural groundwater discharge locations outside the CEA. One of the primary mechanisms for these increases is thought to be due to the infiltration of seleniferous leachate from overburden fill entering the upper part of the Wells Formation aquifer. In recent years, mitigation measures such as improved cover designs for ODAs have been developed and implemented to reduce these water quality impacts to acceptable levels over time within a relatively short distance down gradient of the mining operations.

Mining of Panel G has not commenced, so no ODAs have yet been constructed. According to the 2007 FEIS, the approved geologic store and release cover for Panels F and G is designed to reduce the quantity of seleniferous leachate to an extent that applicable groundwater and surface water standards would be met at all groundwater discharge points.

5.3.4 Foreseeable Future Disturbances

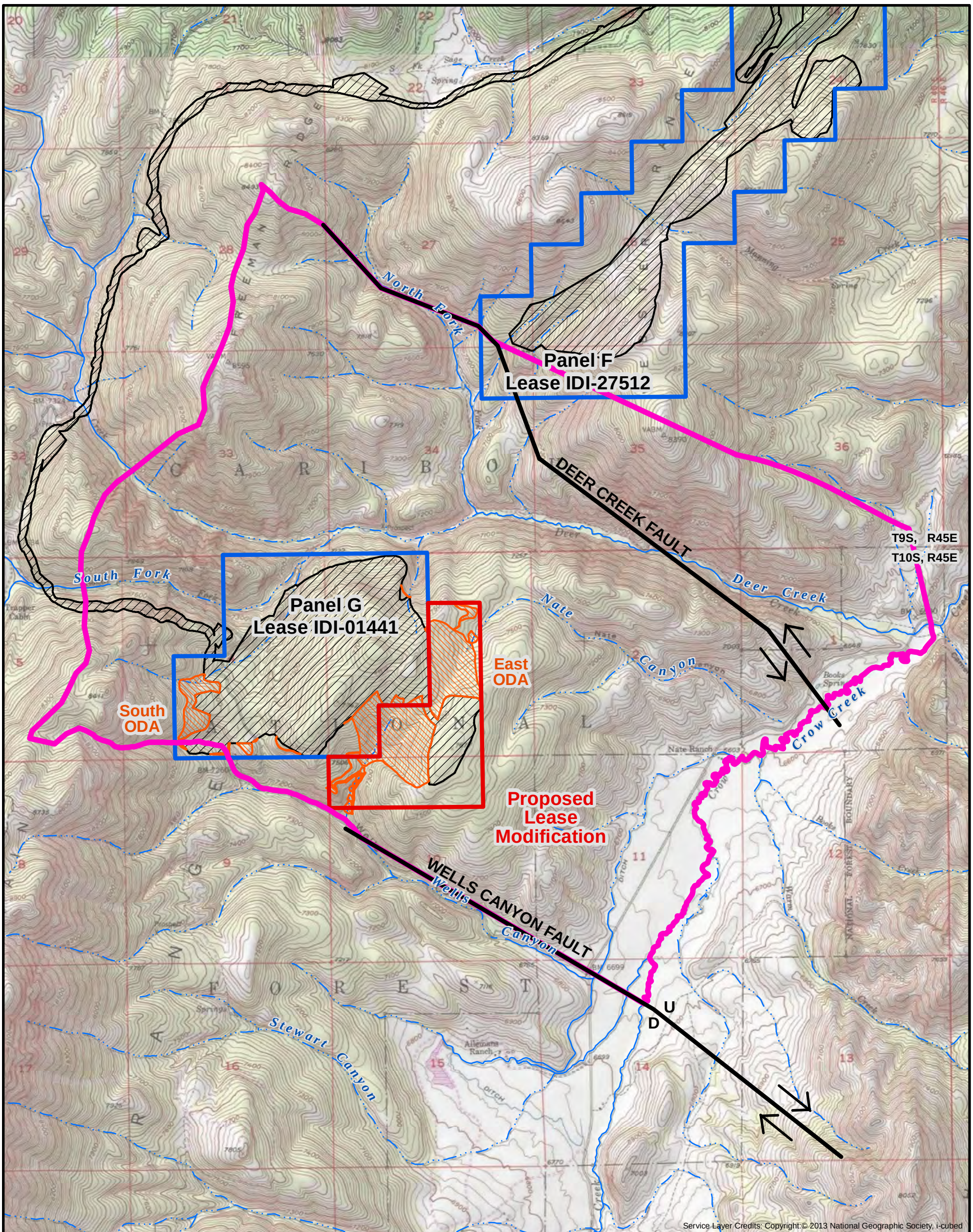
As described in **Section 4.4**, the Proposed Action or Action Alternatives, using a GCLL to cover either all or a portion of the seleniferous overburden at Panel G, would result in reduced selenium loading to groundwater compared to that modeled and approved in the 2007 FEIS. Thus, the predicted concentrations at groundwater discharge points associated with lower Deer Creek, Books Springs, and Crow Creek in that vicinity would be reduced by an equivalent proportion. The water quality at these locations would continue to meet applicable groundwater and surface water standards at all groundwater discharge points within the CEA.

5.3.5 Cumulative Disturbances

The Proposed Action or Action Alternatives would result in lessened water quality impacts to groundwater downgradient (east and north) of Panel G. As described in **Section 4.2.2**, selenium loading to the Wells Formation groundwater below and downgradient of Panel G is expected to be 56 percent, 16 percent, and 13 percent less than what was predicted for the geologic store and release cover under the Proposed Action, Alternative 1, and Alternative 2, respectively.

5.3.6 Cumulative Effects

Approved mining of Panel G was anticipated to have adverse impacts to groundwater quality in the CEA. With the Proposed Action or Action Alternatives, this impact would be replaced by a lesser amount of degradation to the same groundwater and groundwater discharge points; it would not be cumulative to it. In both cases, applicable groundwater and surface water standards would be met at all groundwater discharge points. This cumulative impact would be minor, local, and long term.



Explanation

- Cumulative Effects Boundary
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panel G and Haul Road Disturbance
- Panels F & G Lease Boundaries

Streams

- Intermittent Stream
- Perennial Stream

Faults

- Normal Fault (D=downthrown; U=upthrown)

N

2,500 0 2,500 Feet

Figure 5.3-1
Cumulative Effects Area for Groundwater Resources
Panel F & G Lease/Mine Plan Modifications EIS

5.4 SURFACE WATER RESOURCES

5.4.1 CEA Boundary

The CEA boundary for surface water (**Figure 5.4-1**) is the Crow Creek watershed (HUC 5) to its confluence with the Salt River. This is a natural boundary because the effects of the Proposed Action or Action Alternatives on surface waters would be well encompassed by this boundary and would not be expected to extend to other watersheds. As flows progress downstream, localized effects would become more and more diluted and eventually reach a point where effects become non-measurable.

5.4.2 Introduction

Potential cumulative effects to surface water resources within the CEA can occur from road construction and maintenance, livestock grazing, timber harvesting, agricultural activities, and mining. Forest management activities including timber harvests, livestock grazing, and public recreational uses occur within the CNF located on the east and west slopes of the Crow Creek watershed upstream (south) of its confluence with Sage Creek. In Wyoming, the Bridger-Teton National Forest holdings comprise most of the Spring Creek watershed which drains into Crow Creek about five miles upstream of the Salt River.

The existing Smoky Canyon access road, mill, offices, maintenance facilities, tailings pond, and mine Panels A, B, and C are located within the Tygee Creek basin watershed outside the CEA, and thus do not contribute to cumulative effects described here.

The previously mined Panels D and E are located adjacent to tributaries to Sage Creek, which joins Crow Creek north of Deer Creek. Crow Creek flows northeastward into Wyoming, combining with flow from Spring Creek, and enters the Salt River about eight miles upstream from the confluence of Stump Creek with the Salt River. Changes to flow and water quality in Sage Creek would be cumulative to those that occur in Crow Creek.

As described in **Section 4.4.2.1**, although portions of the proposed Panel F ore conveyance system would occur within the Sage Creek and Tygee Creek drainages, 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. First, the proposed Panel F ore conveyor system would generally follow the existing haul road, thus the majority of the route would be within or immediately adjacent to presently disturbed areas. There would be minimal new disturbance of the adjacent ground. Second, there would be no new creek crossings as a result of the ore conveyance system because the conveyor would cross creeks on the existing road crossings. 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 for the mine, which would retain the same effectiveness as was described in the 2007 FEIS. At the southern terminus of the ore conveyance system, an ore stockpile would be placed on previously disturbed ground associated with Panel F and would require a new runoff containment pond. Based upon the design of the lined stockpile 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 Panel F ore conveyor system.

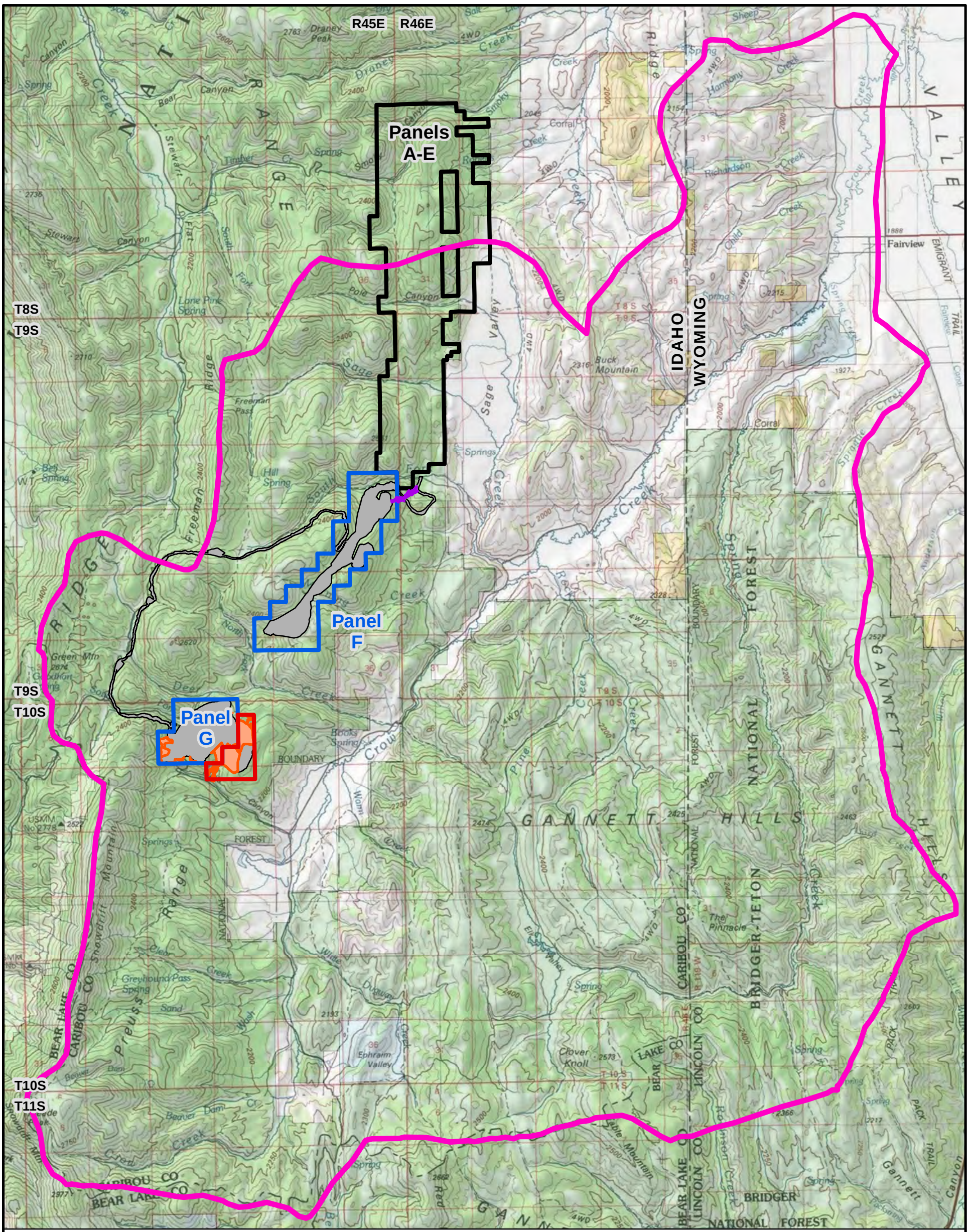
5.4.3 Past and Present Disturbances

In addition to past mining activities at Panels D and E, the commencement of mining in Panel F, and construction of the haul road to Panel G, cultivated agriculture and livestock pasture land uses occur on private land located in the bottom of the Crow Creek Valley upstream of Sage Creek. Many of the past and current human activities within the CEA including mining, livestock grazing, timber harvesting, and road construction can increase sediment loads to streams and result in channel instability. Long-term sediment sources and loads are expected to be similar to those reported in the 2007 FEIS.

Surface water sampling for streams in the vicinity of the Smoky Canyon Mine, including several tributaries to Crow Creek, has noted the presence of COPCs and at times in concentrations above surface water quality standards. The 2007 FEIS discussed this subject thoroughly, noting exceedances in Pole Canyon Creek below the Pole Canyon ODA for cadmium, nickel, selenium, and zinc; Hoopes Spring for selenium; South Fork Sage Creek for selenium; and Lower Sage Creek (between Hoopes Spring and Crow Creek) for selenium. The RI/FS Report (Formation Environmental 2014) also discusses selenium contamination in these areas, increases in selenium load at a number of locations, and new predictions of future concentrations.

Measures such as rerouting the perennial Pole Canyon Creek around the Pole Canyon ODA and improving cover designs over ODAs in order to reduce infiltration have been implemented and continue presently. As described in **Section 2.3.2**, the Agencies continue to work with Simplot to remediate selenium issues at the Smoky Canyon Mine. Subsequent to the 2007 FEIS, the remediation efforts specified for the Pole Canyon ODA were implemented. Treatability studies have been initiated at Hoopes Spring and South Fork Sage Creek Springs to reduce selenium concentrations downstream (Formation Environmental 2014).

The 2007 FEIS predicted additional selenium loads to South Fork Sage Creek and Deer Creek from the Panels F and G operations. Concentrations of selenium in South Fork Sage Creek were predicted to be below the surface water standard under the approved alternative once remedial and closure activities at the northern portions of the Smoky Canyon Mine were completed and found to be effective. The predicted selenium loading to South Fork Sage Creek Spring from Panel F is not expected to peak for over 100 years after mining in Panel F. This was anticipated to allow more than enough time for the remediation of water quality impacts from the Smoky Canyon Mine facilities north of South Fork Sage Creek to be fully effective in reducing COPC concentrations in the Sage Creek drainage to below applicable surface water standards before the loading from Panel F was added. The 2007 FEIS also predicted that the long-term water quality in Sage Creek at its confluence with Crow Creek, including the loading from Panel F, would comply with the surface water standards. Downstream of this point in Crow Creek, additional inflows were predicted to reduce the selenium concentrations in surface water due to dilution and interaction with stream aquatic chemistry factors such as vegetation and substrate.



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Explanation

- Cumulative Effects Boundary
- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panel G and Haul Road Disturbance
- Panels F & G Lease Boundaries
- Smoky Canyon Mine

Land Ownership

- BLM
- Private
- State
- USFS

N

1.5 0 1.5 Miles

Figure 5.4-1
Cumulative Effects Area for Surface Water Resources
Panel F & G Lease/Mine Plan Modifications EIS

The RI/FS Report (Formation Environmental 2014) predicts higher selenium loading from Sage Creek than that predicted by the 2007 FEIS. It predicts for a peak selenium concentration (without considering attenuation), attributed primarily to Sage Creek contributions, of about 0.024 mg/L at CC-1A during average low flow conditions, or about five times higher than that predicted for nearly the same location in the 2007 FEIS. However, the predicted timing of the peak selenium concentrations in the RI/FS model (which only considers selenium sources north of South Fork Sage Creek) is about 2015. By the end of the model time period (year 2050), selenium concentrations are predicted to drop to just above the standard of 0.005 mg/L. At that time, the curve appears essentially asymptotic to the standard line, so it is not clear whether or when concentrations would further decline enough to meet the standard.

The impacts from the mining of Panel G were also described in the 2007 FEIS (but not considered in the RI/FS). The peak concentrations and their timing were described for Deer Creek, Books Spring, and lower Crow Creek. The predicted peak selenium concentrations were all well below the surface water standards and were predicted to occur more than 50 years following the onset of mining in Panel G. Although the Crow Creek peak selenium concentration would be cumulative with that in Sage Creek, the water quality in Sage Creek was expected to comply with the applicable water quality standards at the time of the peak selenium concentration in Crow Creek.

It is clear that the predicted timing of the peak selenium concentrations from the Sage Creek watershed and the Deer Creek watershed are different enough that the maximum loads from each would not be additive in Crow Creek downstream of Sage Creek.

Any potential water quality impacts related to past mining activities at the Smoky Canyon Mine are currently under CERCLA investigation. Investigations since the 2007 FEIS was completed have provided additional information on the sources of contamination and predicted future concentrations of COPCs at Hoopes Spring and South Fork Sage Creek Springs (Simplot 2013). This recent work has determined that in addition to the Smoky Canyon Mine Pole Canyon and Panel E facilities discussed in the 2007 FEIS, waste rock fills associated with Panels A and D also contribute COPCs to groundwater that is discharged at Hoopes Spring and South Fork Sage Creek Springs. The peak selenium concentrations at these springs are now predicted in the near future to be greater than previously estimated. However, the Agencies and Simplot are continuing to work toward remediating these conditions, so that the discharge from the springs to Sage Creek will comply with all applicable surface water standards in the future.

5.4.4 Foreseeable Future Disturbances

The reasonably foreseeable developments within the CEA other than the Proposed Action or Action Alternatives that could affect surface water quality or quantity were described in the 2007 FEIS, and included the approved ongoing development of the Smoky Canyon Mine, and potential, but unknown, changes to private agricultural lands. A portion of the proposed East Smoky Project and CERCLA actions associated with the Pole Canyon ODA would occur within the extreme northeastern portion of the CEA, but no effects to surface water are anticipated from these actions due to associated project design features and EPMs.

The Proposed Action or Action Alternatives would not change the current conditions in surface streams east of Crow Creek or south of Wells Canyon. The Proposed Action or Action

Alternatives would not change the current conditions in surface streams in the Sage Creek drainage. Therefore, there would be no cumulative effect to the Sage Creek watershed.

As described in **Section 4.4**, the Proposed Action or Action Alternatives would result in additional disturbances that could generate sediments, but there would also be additional sediment ponds designed and positioned to capture runoff bearing the sediments. The net effect would be no additional surface water quality impacts due to sediment releases. The Proposed Action or Action Alternatives would also reduce runoff to Deer Creek and Wells Canyon by retaining storm flows, but because the net change to baseflows is predicted to be negligible, there would be negligible contributions to cumulative effects (**Section 4.4.2**).

As also described in **Section 4.4.2**, by using a GCLL to cover the seleniferous overburden in Panel G, there would be reduced selenium loading to groundwater compared to that modeled and approved in the 2007 FEIS. As the predicted concentrations at groundwater discharge points associated with lower Deer Creek, Books Springs, and Crow Creek would be reduced by an equivalent proportion, so would the potential concentration in the surface waters downstream of these inputs.

5.4.5 Cumulative Disturbances

The net effect on selenium concentrations in Sage Creek and its tributaries, including Hoopes Spring, would not increase due to the Proposed Action or Action Alternatives. This is because groundwater and surface water affected by the Proposed Action or Action Alternatives does not flow into the Sage Creek watershed. The predicted selenium load from the Proposed Action or Action Alternatives to the groundwater and surface water in the Project Area would be less than that predicted by the 2007 FEIS. In both cases, however, selenium concentrations in Deer Creek would comply with surface water standards. Selenium concentrations in Crow Creek downstream of Deer Creek but upstream of Sage Creek would also comply with surface water standards. Downstream of Sage Creek, Crow Creek's selenium concentrations may continue to be greater than the standard at CC-1A, regardless of Panel G activities, but the Proposed Action or Action Alternatives would contribute less selenium than under the No Action, which would continue the 2007 FEIS-approved development. The selenium concentration was predicted where Crow Creek reaches the Wyoming border, based upon the RI/FS Report (Formation Environmental 2014). That report predicts a peak selenium concentration (not including loading from Panel G) at CC-WY-01 of about 0.020 mg/L in about 2015, dropping to about 0.002 mg/L by 2050. This is well before the peak selenium load in Deer Creek is predicted to occur.

5.4.6 Cumulative Effects

Under the Proposed Action or Action Alternatives, effects to Deer Creek and Crow Creek water quality immediately downstream of the Proposed Action or Action Alternatives are expected to comply with all applicable water quality standards. Because the predicted effects to surface waters in lower Deer Creek and Crow Creek east of Panel G would be less than those predicted in the 2007 FEIS, the cumulative effects in these streams under the Proposed Action or Action Alternatives would be less than described in that document. Further downstream in Crow Creek, below Sage Creek, the selenium concentrations would be affected by contributions of selenium from Smoky Canyon Mine activities that are currently subject to CERCLA, regardless of whether an Action Alternative or the No Action Alternative is selected for Panel G. The intent of

the CERCLA remediation activities is to reduce selenium concentrations downstream of the Smoky Canyon Mine to comply with applicable surface water standards.

5.5 SOILS

5.5.1 CEA Boundary

The CEA boundary for soils (Figure 5.4-1 in the 2007 FEIS), and the rationale for it, is the same as described in the 2007 FEIS for ease of analysis, even though actual disturbance to soils from the Proposed Action or Alternative 1 would result in only approximately 170 acres (125 acres under Alternative 2) immediately adjacent to or within existing and approved disturbance associated with Panels F and G. The boundary of the CEA encompasses approximately 148,956 acres.

5.5.2 Introduction

The CEA for soil resources includes private lands, state land, BLM land, portions of the CNF in southeastern Idaho, and portions of the Bridger-Teton National Forest in southwest Wyoming (see Table 5.4-1 of the 2007 FEIS). The USFS administers the largest amount of land within the CEA (71 percent) followed by private land (25 percent), with the state and BLM administering a few percent each of the total area. Major land uses in the CEA are timber harvesting, livestock grazing, agriculture, and mining. The area is also used for hunting, fishing, and other outdoor recreation where OHV use can disturb soil resources, but the effects of these activities on soils are insignificant compared to the other four major land uses.

5.5.3 Past and Present Disturbances

In addition to approval of the original Panels F and G project and ongoing mining activities at the Smoky Canyon Mine, other past and present land uses (ground disturbances) in the CEA that affect soils include timber harvests, burned areas, agriculture (including private land development), livestock grazing, utility and pipeline corridors, and roads/trails. The 2007 FEIS thoroughly describes the impacts that these past and present disturbances within the CEA have on soils.

Of all the land uses in the CEA that can affect soils, the most significant one is mining because the soils within the disturbed areas are physically removed and then replaced during reclamation activities. The only mining in the CEA is at the Smoky Canyon Mine. Past, present, and/or permitted mining activity at the Smoky Canyon Mine has or eventually will disturb approximately 3,886 acres of soil resources in the CEA (2,437 acres of past disturbance and 1,449 acres of presently approved disturbance). Additional soil disturbance in the CEA occurred in 2004 due to phosphate exploration in the Wells Canyon lease. Current mining practice requires topsoil salvage and reapplication during reclamation. Reclamation, which stabilizes disturbed soils, is conducted concurrently with ongoing mining activities, such that when mining is completed in one area, reclamation begins while mining proceeds to another area.

In addition, as thoroughly discussed in the 2007 FEIS, the concentration of selenium and other metals in soils and vegetation has been identified in some reclaimed portions of the mine. Various studies and site investigations have occurred at the Smoky Canyon Mine to improve reclamation practices and reduce potential impacts to soils from these COPC concentrations.

5.5.4 Foreseeable Future Disturbances

The reasonably foreseeable developments in the CEA include future mining as previously described for the East Smoky Project (847 acres) and exploration drilling at Freeman Ridge/Husky 2 (168 acres), resulting in the potential disturbance of approximately 1,015 acres from these two actions, plus ongoing livestock grazing and limited recreational use. Additional mining-related disturbances could occur within the CEA depending upon the actual locations of disturbance from proposed mining activities at the future Husky/North Dry Ridge Mine and exploration activities at the Freeman Ridge/Husky 2 and Dry Ridge sites. Ongoing CERCLA actions, such as placing a geologic cover over the Pole Canyon ODA, are also anticipated.

5.5.5 Cumulative Disturbances

Past, present, and reasonably foreseeable quantifiable mining activities in the CEA result in an estimated 4,900 acres of disturbance to soils. Additional disturbances are also anticipated from portions of future mining and exploration activities (i.e., Husky/North Dry Ridge Mine, and Freeman Ridge/Husky 2 and Dry Ridge exploration) located within the CEA.

Any potential sediment from the Proposed Action or the Action Alternatives would be contained on site in designated stormwater control features and would not be cumulative with the existing baseline sediment releases unless an upset condition occurred.

The Proposed Action and the Action Alternatives would reduce the exposure of seleniferous overburden to the surface environment by using either all GCLL (Proposed Action) or a combination of GCLL and the previously approved geologic store and release cover as described in **Chapter 2** (Alternatives 1 and 2). Further, the planned construction of a geologic cover on the Pole Canyon ODA would also minimize the exposure of seleniferous overburden within the CEA.

With implementation of the Proposed Action or Action Alternatives, up to approximately 10 acres of stormwater control features would not be reclaimed and would be cumulative with the unreclaimed highwalls and other permanent disturbance within the CEA.

5.5.6 Cumulative Effects

Known acreages of disturbance to soils in the CEA from mining activities represent approximately 3.3 percent of the CEA. Considering past, present, and foreseeable future (i.e., mining, grazing, recreation, and fire) disturbances to soil resources combined with up to a maximum of 170 acres from the Proposed Action or Alternative 1 or 125 acres from Alternative 2, cumulative effects to soil resources are expected to be negligible to minor.

The majority of the soils disturbed within the CEA occur as a result of mining. Current mining practice requires topsoil to be removed and stockpiled for future reclamation, which reduces the overall long-term cumulative effects. Other activities such as timber harvesting, livestock grazing, and agriculture that contribute to soil erosion and soil disturbance within the CEA are expected to continue, but generally represent more minor cumulative effects to soil resources within the CEA than mining activities.

5.6 VEGETATION

5.6.1 CEA Boundary

The CEA boundary for vegetation, and the rationale for it, is the same as described in the 2007 FEIS. The boundary of the CEA encompasses approximately 148,956 acres. The actual disturbance to vegetation from the Proposed Action or Alternative 1 would up to a maximum of 170 acres (125 acres under Alternative 2) immediately adjacent to or within existing and approved disturbance associated with Panels F and G.

5.6.2 Introduction

Disturbance of vegetation in the CEA occurs primarily through activities related to mining, agriculture, private land development, timber harvests, grazing, wildfires, prescribed burns, and OHV use. Past, present, and reasonably foreseeable developments in the CEA are the same as those described in **Section 5.5**. The 2007 FEIS provides the acreage/disturbance of various types of vegetation from land use that has been affected in the CEA by past and present activities. As described in the 2007 FEIS (Section 5.6), the amount and distribution of vegetation cover types in the CEA were analyzed using USFS GIS mapping and Idaho and Wyoming Gap Analysis Program (GAP) maps. Sagebrush/shrub, conifer and aspen were found to comprise the majority of the CEA. The 2007 FEIS also reported the largest land use within the CEA is from agriculture (6,018 acres), which accounts for approximately 4 percent of the CEA area.

5.6.3 Past and Present Disturbances

Impacts to vegetation from past and present disturbances associated with timber harvest, forest product extraction, grazing, and mining activities were reported by the 2007 FEIS to total approximately 12,206 acres.

There is no quantifiable data on the number of acres currently affected by noxious weeds within the CEA; however, past and present surface disturbances (i.e., roads, mining and exploration activities, and private land development) have introduced noxious weeds and increased the susceptibility for their establishment. Projects on NFS lands require protection measures and/or treatment to minimize the spread and establishment of noxious weeds on disturbed areas.

As briefly described in **Section 5.5.3**, vegetation growing at some reclaimed portions of the Smoky Canyon Mine has been found to contain elevated levels of various COPCs. This is thought to be due to old and insufficient reclamation practices and, as a result of this discovery, reclamation practices have changed in terms of overburden segregation and topsoil salvage. These revised reclamation practices and the development of more robust ODA cover designs assist in reducing the potential for selenium uptake in reclamation vegetation growing on the ODAs.

5.6.4 Foreseeable Future Disturbances

The reasonably foreseeable disturbances within the CEA that could affect vegetation are similar to those described in **Section 5.5.4**, and the largest potential foreseeable future disturbance to vegetation within the CEA would be from mining at the East Smoky Project (847 acres) and exploration at Freeman Ridge/Husky 2 (168 acres), resulting in the potential disturbance of approximately 1,015 acres from these two actions. In addition, depending upon the actual

locations of eventual potential disturbance from the future Husky/North Dry Ridge Mine and the Dry Ridge exploration project, more mining-related disturbances could occur within the CEA. Future activities such as placing a geologic cover on the Pole Canyon ODA would help to further minimize overall COPC-related impacts to vegetation within the CEA.

5.6.5 Cumulative Disturbances

New surface disturbance from the Proposed Action and Alternative 1 (170 acres) or Alternative 2 (125 acres), when added to past and present known disturbances, would result in approximately 9 percent of the CEA vegetation being disturbed (13,391 acres out of 148,956).

The surface disturbance from implementing the Proposed Action or Action Alternatives would also increase the cumulative effect of disturbed acres within the CEA susceptible to noxious weed invasion. However, prevention control/treatment requirements would limit this overall cumulative effect within the CEA.

The Proposed Action or Action Alternatives are not anticipated to impact any TECPS plant species, so there would be no associated cumulative impacts.

In terms of potential bioaccumulation of selenium in vegetation growing on future reclamation on Panels F and G, as stated in the 2007 FEIS and in **Section 5.5.5**, both the previously approved geologic store and release cover and the proposed GCLL would reduce the exposure of seleniferous overburden to the surface environment. EPMs and BMPs would apply to any future mining activities, so that vegetation with high selenium levels would be confined to limited areas situated in the northern portion of the existing Smoky Canyon Mine where older reclamation practices were originally used. Thus, the selenium content of growth medium and consequent bioaccumulation by vegetation on new reclaimed areas in the CEA would not increase under the Proposed Action or Action Alternatives and no cumulative impacts are expected to vegetation in the CEA.

5.6.6 Cumulative Effects

Adding the Proposed Action or Action Alternatives disturbances to past, present, and foreseeable future vegetation disturbances, cumulative effects to vegetation in the CEA would be short term and negligible to minor due to the temporary nature of the disturbances. Mining disturbances would replace existing vegetation with grassland until succession could occur over time, although vegetation on the proposed GCLL portions would be permanently restricted to grasses, forbs, and other shallow rooted species. Disturbed lands would be more susceptible to weed infestations but control measures would be implemented.

5.7 WETLANDS

5.7.1 CEA Boundary

The CEA boundary for wetlands, and the rationale for it, is the same as described in the 2007 FEIS. As stated in the 2007 FEIS, according to CNF, GAP, and National Wetland Inventory data/coverages, approximately 4,400 acres of wetlands occur within the CEA.

5.7.2 Introduction

Impacts to most wetlands within the CEA have occurred mainly through mining and road building activities. Past and present ground disturbances in the CEA that could directly impact wetlands are presented in the 2007 FEIS (see Table 5.4-1 of the 2007 FEIS) and include mining, mineral exploration, agriculture, utility and road construction, and fire. The reasonably foreseeable developments in the CEA are the same as those described in **Section 5.4**.

5.7.3 Past and Present Disturbances

As described in the 2007 FEIS, the documented impacts to wetlands (primarily from mining activities) in the CEA amount to approximately 143 acres. Past and present non-mining related construction disturbances from Crow Creek Road and other USFS roads in Smoky Canyon, Wells Canyon, Deer Creek, and along Diamond Fork Creek have disturbed an unspecified amount of wetlands. The documented past and present impacts to wetlands (143 acres) amount to approximately 3 percent of the total wetlands in the CEA.

5.7.4 Foreseeable Future Disturbances

In addition to those disturbances described in **Section 5.5.4** that could potentially impact wetlands**,** other wetland impacts, although not specifically described, likely have or will occur from road maintenance, livestock grazing, and other activities, such as those conducted on private lands within the CEA. These impacts cannot be quantified due to lack of descriptive data.

5.7.5 Cumulative Disturbances

The Proposed Action and Action Alternatives would not result in disturbance to wetlands, and therefore would not contribute to cumulative disturbances to wetlands.

5.7.6 Cumulative Effects

The Proposed Action and Action Alternatives would not result in disturbance to wetlands, and therefore would not contribute to cumulative disturbances or effects to wetlands. Cumulative effects to wetland resources in the CEA would be the same as described in the 2007 FEIS.

5.8 WILDLIFE

5.8.1 CEA Boundary

The CEA boundary for wildlife species (Figure 5.8-1 in the 2007 FEIS) generally includes suitable habitat for a given species within a 15-mile radius surrounding the Project Area. The rationale for the wildlife CEA boundary is the same as described in the 2007 FEIS. The wildlife CEA encompasses approximately 452,000 acres, of which approximately 65 percent (294,000 acres) is administered by the USFS.

5.8.2 Introduction

As described in the 2007 FEIS, GAP and CNF data indicate coniferous forest, aspen, and sagebrush are the dominant vegetation types within the CEA. Riparian areas and other vegetation communities also occur throughout the CEA in lesser amounts. This diversity in habitat types allows for many wildlife species to utilize the area.

5.8.3 Past and Present Disturbances

As described in the 2007 FEIS (Section 5.8 and Table 5.8-1), past and present disturbances to wildlife habitat within the CEA have resulted from mining activities, timber harvests, recreation facilities, existing roads/trails, and livestock grazing. All of the reasonably foreseeable actions presented in Section 5.8 of the 2007 FEIS, along with the approved Panels F and G project, are now considered past and present disturbances and total approximately 16,300 acres. The 2007 FEIS describes the impacts that these past and present disturbances either have had and/or continue to have on wildlife resources within the CEA. In general, these impacts include habitat changes, competition for forage and direct impacts from grazing activities, displacement from human presence, and fragmentation of certain wildlife populations and their habitats.

5.8.4 Foreseeable Future Disturbances

As previously described in **Sections 5.1** through **5.7** within the applicable CEAs, the largest disturbance from reasonably foreseeable actions within the CEA would result from future mining activities. Thirty-five percent (158,000 acres) of the wildlife CEA occurs on private lands. Past and present actions on private land within the CEA have mainly included agriculture and grazing activities. Housing development has also occurred on the large ranches within the CEA. Impacts on private lands in the CEA are difficult to quantify due to lack of specific data. Although disturbance of wildlife habitat on private land cannot be quantified with existing data, it would be an amount less than the private land ownership area.

No future timber harvests are scheduled within the wildlife CEA (USFS 2013b).

5.8.5 Cumulative Disturbances

Cumulative disturbances as described in the 2007 FEIS would essentially be identical for wildlife resources when the potential disturbance of the Proposed Action or Alternative 1 (170 acres) or Alternative 2 (125 acres) is added to the past, present, and reasonable foreseeable actions within the CEA. For TEPC and USFS-Sensitive wildlife species, including MIS, the cumulative disturbances would also be similar as described in the 2007 FEIS and include habitat loss and displacement from human presence and disturbance.

As summarized in the 2007 FEIS, habitat impacts to the northern goshawk would be the most severe of any MIS species, as forest habitat would be lost due to the Project within the CEA for the long term and may increase competition in undisturbed suitable habitat within the CEA. Past, present, and reasonably foreseeable timber harvests within the wildlife CEA have and would continue to contribute to the loss of suitable habitat areas for the nesting and fledging of young goshawks. Because the CNF (and hence, the CEA) is a very small portion of the total range of northern goshawk (USFS 2003b), long-term cumulative impacts to goshawk would be minor. Regarding sage-grouse, cumulative impacts would be negligible, as low-elevation sagebrush most suitable for sage-grouse would not be disturbed by mining. Sharp-tailed grouse are expected to occur in the CEA; however, cumulative impacts to this species would be negligible because the Proposed Action or Action Alternatives would not displace individuals elsewhere in the CEA.

In terms of wildlife exposure to potentially toxic levels of selenium on future reclamation at Panels F and G, as stated in the 2007 FEIS and in **Section 5.5.5**, both the approved geologic store and release cover and the proposed GCLL are intended to reduce the exposure of seleniferous overburden to the surface environment. EPMs and previously approved BMPs would apply to any future mining activities, so that vegetation with high selenium levels would be confined to limited areas in the northern portion of the existing Smoky Canyon Mine on areas where older reclamation practices were originally used. Thus, potential wildlife exposure to selenium in soil and vegetation in the CEA would not increase under the Proposed Action or Action Alternatives, and no cumulative impacts would be expected.

Implementing the Proposed Action or Action Alternatives could result in the displacement of some forms of recreation (e.g., hiking, hunting, ATV use) from the Project Area into surrounding areas, which in turn could potentially displace wildlife from those areas. Thus, displacement of some forms of recreation from the Proposed Action or Action Alternatives has the potential to result in a minor cumulative impact to wildlife for the Project duration when added to similar past and present impacts in the CEA.

The Proposed Action or Action Alternatives are not expected to result in additional fragmentation of wildlife habitat because disturbance would occur immediately adjacent to or within existing disturbance.

Bald eagles usually modify their activities and movements to avoid human disturbance (USFS 2003b), and some displacement of bald eagles into adjacent habitats in the CEA would likely occur for the duration of the Proposed Action or Action Alternatives. However, wintering bald eagles occurring along the Crow Creek drainage may be less sensitive to human disturbance as the current wintering area is along a main access route. These individuals are more likely to habituate to the increase in noise from mining. After Project completion, any displaced bald eagles could return to the area as habitat impacts along the Crow Creek drainage would not occur.

Canada lynx, wolverine, and gray wolves may potentially utilize all areas within the CEA. Disturbance associated with activities previously identified and described in **Sections 5.1.3** and **5.8.3** may limit the attractiveness of the CEA to these species, which generally prefer extensive tracts of undeveloped land. Impacts to forested areas associated with the Proposed Action or Alternative 1 would decrease potential linkage habitat for Canada lynx by about 158 acres (less for the Alternative 2) and result in a minor cumulative effect when added to other past, present, and reasonable foreseeable actions in the CEA. However, since disturbance associated with the Proposed Action or Action Alternatives, including the existing Smoky Canyon Mine, are oriented in a north-south direction and forested areas are available for reasonable movement around these areas, the overall impact to travel/linkage corridors should be minimal.

As described in the 2007 FEIS and **Section 3.8**, baseline surveys and other known recorded observations (USFS 2003b) have documented that the CEA is used by at least the following USFS-sensitive species: boreal owl, flammulated owl, northern goshawk, sage-grouse, three-toed woodpecker, wolverine, and the great gray owl. **Section 4.8** identifies potential direct and indirect impacts to these species resulting mainly from habitat loss and displacement due to the Proposed Action or Action Alternatives. Disturbance associated with the Proposed Action and Alternative 1, which includes the removal of about 170 acres of various habitats (125 acres for Alternative 2), could impact these USFS-Sensitive species known to occur in the CEA. Any

future management activities must meet RFP standards and guidelines specifically developed to protect habitat for these species, thus future management activities should result in negligible to minor cumulative effects to these species via habitat losses and displacement.

Implementing the Proposed Action or Action Alternatives would not have any potential direct or indirect impacts to western toads, thus there would be no cumulative impact as a result of the Proposed Action or Action Alternatives.

5.8.6 Cumulative Effects

Cumulative effects to wildlife are expected to be long term and negligible to minor. Cumulative effects due to displacement of wildlife would negligible.

5.9 FISHERIES AND AQUATICS

5.9.1 CEA Boundary

The CEA boundary for fisheries and aquatics (Figure 5.4-1 in the 2007 FEIS), and the rationale for it, is the same as described in the 2007 FEIS.

5.9.2 Introduction

Potential effects to aquatic habitat from mining in the CEA include temporary reductions of runoff contribution to local streams, increased sedimentation due to road construction and logging, and the introduction of higher levels of selenium into streams by surface and subsurface flow of water. These potential water quantity and quality impacts to the surface waters in the CEA have been previously described in **Section 5.4**.

5.9.3 Past and Present Disturbances

Cumulative effects to fisheries and aquatic resources from past and present disturbances within the CEA were thoroughly addressed in Section 5.9 of the 2007 FEIS. These effects have included livestock grazing near aquatic habitats, potential for whirling disease and non-native fish issues, various effects from timber harvest activities, and increased levels of selenium and other COPCs in surface water and stream sediments that can result in bioaccumulation in the invertebrates and fish that inhabit these areas.

5.9.4 Foreseeable Future Disturbances

In addition to ongoing livestock grazing and limited recreational use as described in **Section 5.5.4**, Section 5.9 of the 2007 FEIS thoroughly describes activities expected to continue into the foreseeable future. These activities may collectively increase sediment delivery to streams, which can adversely impact native fishes by filling gravels and interstitial spaces used for reproduction and cover. Activities that may introduce sediment include mining activities, road construction, agriculture, private land development, wildfires, and prescribed burns. Potential selenium inputs to surface waters in the CEA would also occur as described in the 2007 FEIS. Improved mining practices and cover designs should aid in minimizing potential impacts to fisheries and aquatic resources within the CEA from future mining operations.

5.9.5 Cumulative Disturbances

As described in **Section 4.9**, there are no fish-bearing streams within the Project Area that would be impacted and only negligible effects to AIZs and intermittent channels within the CEA would occur as a result of the Proposed Action or Action Alternatives. Other losses of intermittent channels within the CEA are from past construction activities (e.g., road building, housing development) that are expected to continue into the future. These losses, result in a cumulative disturbance that would decrease the overall flow and flow regulation, sediment control, nutrient delivery, and number of refugia and spawning areas during high flows, all of which impact native fishes in the CEA. The Proposed Action or Action Alternatives would not impact any perennial streams, thus no cumulative impacts to these resources are anticipated.

The Proposed Action or Action Alternatives are expected to result in only negligible surface water discharges of sediment to any adjacent streams outside the Project Area due to the application of EPMs, previously approved BMPs, and stormwater features to contain all runoff and sediment on the mine site. As discussed in **Sections 4.4** and **5.4**, net change to baseflows from the retention of runoff from the mine disturbances from the Proposed Action or Action Alternatives to Deer Creek and Wells Canyon was predicted to be negligible, so cumulative disturbances would also expected to be negligible.

The primary impact of the Proposed Action or Action Alternatives on surface water and, consequently, the fisheries and aquatic resources in the CEA with regard to selenium would be the potential for increasing the loads in surface waters within the CEA. The Proposed Action or Action Alternatives would alter the type of covering placed upon seleniferous overburden, thereby reducing the selenium loading to groundwater compared to that modeled and approved in the 2007 FEIS. As the predicted concentrations at groundwater discharge points associated with lower Deer Creek, Books Springs, and Crow Creek would be reduced by an equivalent proportion, so would the potential concentration in the surface waters downstream of these inputs. This improvement would continue to maintain surface water quality and could be a beneficial cumulative impact.

5.9.6 Cumulative Effects

Overall cumulative effects to fisheries and aquatics and specifically to YCT populations within the CEA are anticipated to be minor, but because of the uncertainty surrounding the life histories of fish in the CEA and the impacts of selenium on YCT in general, cumulative impacts are evaluated considering the possibility of a significant impact scenario. This scenario is thoroughly described in Section 5.9 of the 2007 FEIS and summarized here.

Cumulative impacts from selenium on native fishes are generally expected to be minor or, under the significant impact scenario, moderate. This is because the surface water criteria were designed to be protective of fish, and the Proposed Action or Action Alternatives would comply with surface water criteria with regard to new inputs and would actually reduce loading potential in surface water within certain portions of the CEA as previously described. However, cumulative impacts have the *possibility* to be major over the short or long term in the *unlikely* event that unforeseen circumstances occur with regard to selenium control measures or predicting long-term bioaccumulation in native fishes in some habitats within the CEA.

The cumulative effects from ongoing grazing activities and intermittent channel loss to fisheries and aquatic resources in the CEA would be minor. Impacts from the Proposed Action or Action

Alternatives would contribute only negligible impacts to the cumulative effects upon YCT and their habitat when past, present, and foreseeable future project impacts are considered in sum. These populations are considered more susceptible to cumulative effects because of the degree of their isolation. Considering the combined effects of all past, present, and foreseeable future impacts to native fishes in the CEA under the significant impact scenario, cumulative impacts to native fishes in the CEA would be long term and moderate.

5.10 GRAZING MANAGEMENT

5.10.1 CEA Boundary

The CEA boundary for grazing management (Figure 5.10-1 in the 2007 FEIS) is the same as that described in Section 5.10 the 2007 FEIS. The boundary of the CEA encompasses 25,795 acres. Portions of four of the grazing allotments in the CEA described in Section 5.10 of the 2007 FEIS would be impacted by the Proposed Action or Action Alternatives.

5.10.2 Introduction

Cumulative effects to grazing in the CEA primarily occur from mining and timber harvesting. Recreation and road building can also affect grazing but to a negligible extent compared to the other two land uses. Restrictions have been placed on grazing permit holders in the CNF in the past as a result of mining and timber sales on the affected allotments. Currently, grazing is not allowed on active mine areas, livestock trailing is limited across mine areas, and no watering is allowed in runoff detention ponds or water flowing from mine overburden seeps. Grazing is severely restricted in new timber plantations. The grazing permit holder is required to use only certified weed-free hay or straw on USFS lands.

5.10.3 Past and Present Disturbances

Table 5.10-1 in the 2007 FEIS shows the past and present disturbance areas within the CEA, totaling 1,562 acres. An additional 1,449 acres either have been or are approved to be disturbed in the CEA as a result of the 2007 FEIS and the 2008 RODs. The total estimated past and present disturbances in the grazing CEA is approximately 3,011 acres.

Grazing is currently not approved by the USFS on the Smoky Canyon Mine, although some grazing of reclaimed areas has been reported. Mining exploration areas in the CEA which have been reclaimed are open to grazing. The timber harvest areas within the CEA date back to the 1970s. Grazing is allowed in historic timber harvest areas.

5.10.3.1 Selenium in Vegetation – Smoky Canyon Mine

A detailed explanation of selenium in vegetation and associated ramifications for grazing at Smoky Canyon Mine is contained in Section 5.10 of the 2007 FEIS.

As described in the 2007 FEIS, two past studies at Smoky Canyon Mine indicate that reclamation vegetation rooted in salvaged topsoil over a chert cover has selenium concentrations at or below background and well below the IDEQ removal action level. Livestock are not permitted to graze on the reclaimed areas of the Smoky Canyon Mine until those areas are accepted by the BLM and USFS for bond release. The northern portion of the Smoky Canyon Mine where older reclamation practices were originally used and current reclamation vegetation

has elevated selenium concentrations would need to be remediated to bring these concentrations below acceptable levels before grazing would be allowed.

The 191-acre Twin Creek timber sale area is closed to grazing and livestock may be temporarily displaced to adjacent parts of the affected allotments until the young trees are tall enough to withstand livestock use.

5.10.4 Foreseeable Future Disturbances

The foreseeable future disturbances within the grazing CEA include a very small portion of the Dry Ridge exploration area, and portions of the Freeman Ridge/Husky 2 exploration areas (**Figure 5.1-1**). Vegetation would be removed to construct temporary roads to drilling locations. Overall vegetation disturbance would be relatively small, but it may provide an opportunity for establishment of invasive species or noxious weeds as discussed in **Section 5.6**. Projects on NFS lands require protection measures and/or treatment to minimize the spread and establishment of noxious weeds on disturbed areas.

Natural foreseeable future disturbances affecting grazing resources would include insect and disease activity in forested stands, vegetation succession and drought cycles (influencing plant communities), and noxious weed invasions. Noxious weed abatement efforts by the CNF would continue.

5.10.5 Cumulative Disturbances

Cumulative disturbances to grazing would include those described in Section 5.10 the 2007 FEIS, along with future disturbances from exploration as described in **Section 5.10.4**. The vast majority of the disturbance associated with the Dry Ridge exploration area would be outside the CEA; that within the CEA would be negligible. Approximately half of the Freeman Ridge/Husky 2 exploration area is within the CEA, which could potentially result in approximately 80 to 90 acres of disturbance within the CEA. Total past and present cumulative disturbances in the CEA are estimated to be 3,100 acres. These disturbances would be distributed among the various grazing allotments in the CEA and no one allotment would be expected to be disproportionately impacted.

The Proposed Action and Alternative 1 would disturb approximately 170 acres (125 acres under Alternative 2), which would be less than one percent of the grazing area within the CEA. Livestock grazing in this area would be temporarily displaced to adjacent parts of the affected allotments. The removal of the currently suitable grazing acres in the previously approved mine footprint may also result in the CNF decreasing the permitted stocking rates in the affected allotments.

The Proposed Action or Action Alternatives would not impact any transportation routes used for trailing, nor would they present a barrier to movement of animals in the rest of the allotment or adjacent allotments in the CEA. Therefore, the Proposed Action or Action Alternatives would not contribute to cumulative impacts.

5.10.5.1 Water Availability

The Proposed Action or Action Alternatives would not result in a reduction in water availability in the CEA, and therefore would not contribute to cumulative impacts to water availability.

5.10.6 Cumulative Effects

There would be no cumulative effect from the Proposed Action or Action Alternatives to water sources or to trailing routes for livestock. Impacts to grazing would generally be temporary, as described in **Section 4.9**; disturbed areas would again be suitable for grazing after they have been reclaimed and their rangeland capacity restored. Considering past and present disturbances in the grazing CEA that may impact grazing combined with the Proposed Action or Action Alternatives, cumulative effects to grazing resources would be negligible.

5.11 RECREATION AND LAND USE

5.11.1 CEA Boundary

The CEA boundary for recreation and land use (Figure 5.11-1 in the 2007 FEIS), and the rationale for it, is the same as that described in Section 5.11 of the 2007 FEIS. The boundary for this CEA encompasses approximately 102,500 acres.

5.11.2 Introduction

As noted in the 2007 FEIS, the majority of the CEA is under administration of the USFS (77.2 percent), with some private lands (20 percent), and state and BLM administered lands (1.5 and 1.3 percent respectively). Public recreation is generally available on the public lands in the CEA as described in Section 5.11 of the 2007 FEIS.

5.11.3 Past and Present Disturbances

Past and present disturbance in the CEA is the same as that described in the 2007 FEIS, with the addition of 1,449 acres of mining activities approved by the 2008 ROD, for a total of 3,333 acres. Visitors to the CNF adjacent to the active mining areas would be likely to notice the sight or sound of mining activities, which could detract from the recreational activity.

5.11.4 Foreseeable Future Disturbances

The foreseeable future disturbances within the recreation and land use CEA include the Freeman Ridge/Husky 2 exploration area (168 acres) and the East Smoky Project (847 acres). Exploration work would temporarily impact recreation by adding noise and activity to the area for the duration of the work. Exploration activities may create access routes into areas that were previously not accessible to motorized transportation. New mines would affect recreation similar to the impacts described in **Section 4.11**.

Implementation of the Proposed Action or Alternative 1 would temporarily impact recreation as previously described on 170 acres (or 125 acres under Alternative 2) of the CNF that are currently used for Roaded Modified and Semi-Primitive Motorized recreation. No USFS trails in the CEA would be affected by the Proposed Action or Action Alternatives. The Project Area does not offer unique recreational opportunities that are not also found elsewhere in the immediate vicinity.

5.11.5 Cumulative Disturbances

Cumulative disturbance in the CEA that affects recreation and land use is mainly the active and unreclaimed disturbance from exploration, mining, and related roads and structures. Currently

that figure is approximately 4,348 acres; the Proposed Action and Alternative 1 would add a maximum of 170 acres (125 acres would be added under Alternative 2) to this for an estimated total of 4,518 acres. Up to 4.4 percent of the CEA would be impacted.

5.11.6 Cumulative Effects

While the Proposed Action or Alternative 1 would affect recreation on an additional 170 acres (125 acres under Alternative 2), the cumulative impacts to recreation and land use would be similar to those described in Section 5.11 of the 2007 FEIS. Long-term cumulative impacts to hunters are anticipated to be minimal. Overall, negligible long-term cumulative effects are anticipated to recreation and land use as a result of implementation of the Proposed Action or Action Alternatives.

5.12 INVENTORIED ROADLESS AREAS

5.12.1 CEA Boundary

The CEA area boundary for IRAs (Figure 5.12-1 of the 2007 FEIS), and the rationale for it, is the same as that described in Section 5.12 of the 2007 FEIS. The CEA for IRAs encompasses approximately 161,500 acres. Because the Proposed Action or Action Alternatives would only result in impacts to the SCRA and MPRA, the cumulative disturbance and impacts analysis will only consider those two IRAs.

5.12.2 Introduction

The CEA for IRAs represents the acreage contained in the following eight IRAs (north to south): Stump Creek, Schmid Peak, Dry Ridge, Huckleberry Basin, Sage Creek, Gannet Spring, Meade Peak, and Red Mountain. Within the CEA (eight IRAs), there are approximately 14,000 acres of KPLAs and approximately 6,300 acres of phosphate mining leases, of which approximately 1,300 acres are active leases. As previously noted, only the SCRA and MPRA would be directly impacted by the Proposed Action or Action Alternatives.

5.12.3 Past and Present Disturbances

Past and present disturbances in the IRA CEA are described in Section 5.12 of the 2007 FEIS. Table 5.12-1 in the 2007 FEIS quantifies past and present disturbances within the SCRA (approximately 374 acres) and the MPRA (approximately 32 acres). Additional acreage in the CEA approved for disturbance at the Smoky Canyon Mine by the 2008 RODs totals 1,040 acres in the SCRA and 60 acres in the MPRA. Total past and present disturbances are estimated at 1,414 acres in the SCRA and 92 acres in the MPRA.

In addition to the list of disturbances in Table 5.12-1 in the 2007 FEIS, there are other disturbances within these IRAs that are not quantifiable such as impacts from livestock grazing and recreation. The greatest amounts of past and present impacts are a result of mining at the existing Smoky Canyon Mine and previous exploration activities in the Panels F and G lease areas. These impacts to the IRAs have largely been temporary in nature, since exploration activity disturbance and portions of mining disturbance have been or are being reclaimed.

Past and present disturbance of 1,414 acres within the SCRA represents 0.9 percent of the total CEA area. Past and present disturbance of 92 acres within the MPRA represents 0.06 percent of the area. In both cases, these are negligible amounts.

5.12.4 Foreseeable Future Disturbances

In addition to the Proposed Action or Action Alternatives, the only foreseeable future disturbance within the SCRA or the MPRA of the IRA CEA is a small portion of the Freeman Ridge/Husky 2 exploration project. As only a portion of that project would potentially be within these IRAs, actual disturbance in the IRAs cannot be estimated at this time. Ongoing recreation and grazing activities would continue at present trends and any future actions in these IRAs would be approved and conducted under the most current and applicable IRA regulations.

5.12.5 Cumulative Disturbances

As previously described in **Section 4.12**, the Proposed Action or Action Alternatives would result in direct and indirect impacts to many resources described throughout this EIS, many of which are also roadless and wilderness attributes. Less than one percent of the SCRA and less than 0.1 percent of the MPRA would be impacted by the Proposed Action or Action Alternatives (**Table 4.12-1**). Past and present disturbance within the SCRA and MPRA would be increased by an unknown number of acres resulting from foreseeable projects. The Proposed Action or Alternative 1 would impact approximately 76 acres (29 acres for Alternative 2) within the SCRA. Added to known past and present projects, this represents a cumulative impact of up to 12 percent of the total SCRA (12,710 acres), a large portion of which has or eventually would be reclaimed. The Proposed Action or Action Alternatives would impact 19.4 acres within the MPRA. When added to past and present disturbance (92 acres), this totals approximately 111 acres and still represents a cumulative impact of less than one percent of the total MPRA (44,585 acres).

Future impacts are likely to include the continuation of grazing practices and recreation activities, which are generally not quantifiable; however, management of activities on these lands would likely reduce impacts.

5.12.6 Cumulative Effects

As described in Section 5.12 of the 2007 FEIS, although cumulative impacts have been identified for the SCRA and the MPRA, these cumulative impacts are not anticipated to result in an increased level of direct or indirect impacts to any of the roadless and wilderness attributes than what has already been described in **Section 4.11**. This is because the majority of past and present disturbance represents a relatively small percentage of each affected IRA and, more importantly, the majority of these disturbances has been or would be reclaimed and natural succession will help return impacted areas back to their natural state over time.

5.13 VISUAL AND AESTHETIC RESOURCES

5.13.1 CEA Boundary

The CEA boundary for visual resources (Figure 5.4-1 of the 2007 FEIS) is the same as that described in Section 5.13 of the 2007 FEIS. The boundary for this CEA encompasses

approximately 148,956 acres. The rationale for the CEA boundary is contained in Section 5.13 of the 2007 FEIS.

5.13.2 Introduction

Visibility of the Proposed Action or Action Alternatives from previously identified observation points is limited. As described in **Section 4.13**, the Panel F and G portions of the Project would each only be visible from one previously identified observation point, respectively. However, observation points are representative of views of the Project that may be observed in various portions of the CEA. The visibility of the Project and its impact on visual resources would depend on the proximity of the observer to the Project. The Project would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. The Project components would be within areas designated Partial Retention and Modification VQO, containing existing mining-related disturbances and having low scenic integrity. Project disturbance would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the existing mining disturbance.

5.13.3 Past and Present Disturbances

Section 5.13 and Table 5.13-2 of the 2007 FEIS provide information on past and present disturbances to areas within the CEA totaling 11,117 acres. In addition to that amount, 1,449 acres were approved by the 2008 RODs for the expansion of the Smoky Canyon Mine into Panels F and G. Taken together, past and present disturbances have visually altered approximately 8.4 percent of the CEA.

5.13.4 Foreseeable Future Disturbances

New exploration and mining activities that have been proposed to date in the CEA include the Freeman Ridge/Husky 2 exploration project (168 acres), the Dry Ridge exploration project, and the East Smoky Project (847 acres). Visually, the future East Smoky Project would have similar impacts to those described in **Section 4.13**. Exploration projects would create roads and patches of vegetation removal where holes are drilled, which may or may not be visible or noticeable in the landscape, depending on the observation point.

The Proposed Action and Alternative 1 could potentially add up 170 acres (125 acres under Alternative 2) of initial disturbance to the CEA, all but up to a maximum of 10 acres of which all would be reclaimed. Installation of the GCLL under the Proposed Action or Action Alternatives would permanently alter the vegetation community and impact the visual resources of the area, as that portion of the mine would never be allowed to reforest.

5.13.5 Cumulative Disturbances

The total disturbed area for the Proposed Action or Action Alternatives combined with the currently permitted Smoky Canyon Mine disturbance would represent up to about 8.4 percent of the total CEA. The Panel G portion of the Project covered by the GCLL would be approximately 400 acres for the Proposed Action, and approximately 140 acres for Alternative 1 or 2. This represents up to 0.3 percent of the total CEA.

5.13.6 Cumulative Effects

Reclamation of mined areas in the CEA would reduce the visual contrast between bare earth in the disturbed areas and adjacent forest vegetation. The reclaimed areas would be revegetated primarily with grass and forbs and, in areas not covered by a GCLL, with clusters of planted trees and shrubs. Many reclaimed areas would still be visible but would not be as obvious a visual impact as the mining activities themselves. The portions of Panel G proposed to be covered by the GCLL may be visually noticeable because these areas would not be allowed to reforest. While this may be visually noticeable, it would not be expected to result in changes to the VQOs. As mining activity shifts from one area to another, disturbances are sequentially reclaimed and visual impacts decrease. The landform and color contrast, as well as the obvious presence of mining, would be lessened for those traveling the secondary roads or recreating in the area. Over time, the landscape views inclusive of reclaimed mining areas would become a more acceptable part of the landscape. The eventual establishment of clusters of planted trees and shrubs would restore a setting more similar to the original landscape in approximately 10 to 50 years.

5.14 CULTURAL RESOURCES

5.14.1 CEA Boundary

The CEA boundary for cultural resources (Figure 5.4-1 of the 2007 FEIS), and the rationale for it, is the same as that described in Section 5.14 of the 2007 FEIS.

5.14.2 Introduction

As described in Section 5.14 of the 2007 FEIS, over thirty cultural resource inventories have been conducted within the CEA. A summary of these projects is provided in the 2007 FEIS.

5.14.3 Past and Present Disturbances

Past and present ground disturbances in the CEA that have or may potentially affect cultural resources are identical to those already described in the 2007 FEIS. As discussed in the 2007 FEIS, mining of Panels F and G would impact two sites. Subsequent to publication of the 2007 FEIS, these two sites were determined to be ineligible for the NRHP (Sagebrush Consultants 2013). Past and present disturbances in the CEA such as mining, timber harvest, and road construction have impacted cultural resources through inadvertent damage/destruction and data recovery efforts at the sites.

5.14.4 Foreseeable Future Disturbances

The reasonably foreseeable disturbances in the CEA are the same as those described in **Section 5.4**. No USFS timber sales other than as a part of the Proposed Action or Action Alternatives are proposed for the cultural resources CEA in the current planning cycle. No changes to transportation and recreational uses of the CEA have been proposed.

Changes to private agricultural lands within the CEA are likely as some of these lands may be converted in the future from traditional agricultural utilization (ranching) to more residential and recreational utilization. The Agencies are not aware of any such specific plans and these cannot be evaluated for this cumulative effects analysis.

Continued recreational use of the area creates the potential for vandalism and/or unauthorized artifact collection at sites.

5.14.5 Cumulative Disturbances

Past, present, and reasonably foreseeable disturbance to cultural resources in the CEA have been and would be the result of mining activities, timber harvesting, road development, archaeological excavation, livestock grazing, private development, vandalism, and unauthorized artifact collection. Private development and vandalism/artifact collection are not quantifiable.

Past and present disturbance has impacted cultural resources. However, in the case of ineligible sites, the sites are not considered important resources and avoidance is not required. NRHP-eligible sites within disturbance areas were subject to data recovery (excavation); therefore, the loss of the resource was mitigated. The Proposed Action or Action Alternatives would impact two additional cultural resource sites, neither of which are eligible for the NRHP (**Section 4.14**).

5.14.6 Cumulative Effects

Section 106 of the NHPA requires avoidance and/or mitigation of impacts to NRHP-eligible cultural resources by federal undertakings. As there would be no such impacts from the Proposed Action or Action Alternatives, there would be no cumulative impact to cultural resources.

5.15 NATIVE AMERICAN CONCERNS AND TREATY RIGHTS RESOURCES

5.15.1 CEA Boundary

The CEA boundary (southeastern Idaho, no figure) for Native American concerns and Treaty Rights resources, and the rationale for it, is the same as that described in Section 5.15 of the 2007 FEIS.

5.15.2 Introduction

The ability of Native Americans to practice their traditional culture in the CEA has been reduced through the loss of unoccupied public lands and degradation of the resources over time. The Project Area is 0.13 percent of the CTNF within the CEA.

5.15.3 Past and Present Disturbances

Past and present impacts to resources include dams along the Snake River that have affected salmon runs and limited the availability of salmon for consumption. Development of open space, access restrictions, and land sales has reduced the amount and/or availability of unoccupied public lands for practicing Tribal Treaty Rights. Fire suppression, grazing, mining, and timber harvest have changed the vegetation and affected water quality. The Idaho National Laboratory restricts access to vast acreages of federal lands.

5.15.4 Foreseeable Future Disturbances

Reasonably foreseeable future disturbance on CNF lands within the CEA would likely include continuation of grazing, recreation, and timber sales. Mining and mining-related exploration proposed within the southeastern Idaho phosphate mining district would disturb approximately

4,690 acres, plus an additional unknown amount of disturbance resulting from the Dry Ridge exploration project (**Section 5.1.4**), of public lands. Mining at the Smoky Canyon Mine would continue until the permitted ore reserves are depleted. Under the Proposed Action or Alternative 1, approximately 170 additional acres (125 acres under Alternative 2) associated with the approved Panels F and G mining operations would be temporarily unavailable for Tribal Treaty Rights.

5.15.4.1 Tribal Exposure Scenario

At the request of the Shoshone-Bannock Tribes, a Tribal Exposure Scenario was prepared in the 2007 FEIS to analyze direct and indirect impacts on the traditional uses of the Project Area by tribal members. That scenario is detailed in Section 5.15 of the 2007 FEIS and not repeated here. The current Project Area was included in the 2007 scenario and the impacts would be similar for the current Proposed Action or Action Alternatives, but on a much smaller scale (170 or 125 acres of proposed disturbance) and with specific direct and indirect impacts to resources from the Project as described in **Chapter 4** of this EIS.

5.15.5 Cumulative Disturbances

As stated in the 2007 FEIS, the impacts to natural resources on unoccupied federal lands are slowly being reversed. Elk, moose, and deer numbers have increased. Federal and state agencies are enhancing native fish and wildlife habitat. In the shift towards ecosystem management, federal land managers have reintroduced more natural processes such as fire across the landscape. These efforts to improve the condition of natural resources collectively serve to protect and begin restoration of Tribal Treaty Rights.

Appropriate mitigation measures and EPMs such as reclamation, stormwater and sediment control, groundwater and surface water sampling/monitoring, etc. are required and implemented for ongoing and future mining projects which are protective of resources. These would continue.

5.15.6 Cumulative Effects

As described in **Section 4.15**, the EIS can generally assign 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 the impact of a temporary loss of a right. Consultation that has occurred to date with the Shoshone-Bannock Tribes is described in **Section 1.6**. During consultations for both the 2007 FEIS and this EIS, the Shoshone-Bannock Tribes stated that any loss of Tribal Treaty Rights is significant to them and could potentially affect all tribal members.

5.16 TRANSPORTATION

The Proposed Action or Action Alternatives would have no additional impacts to transportation; therefore, the Project would not contribute to cumulative effects to transportation in the CEA.

5.17 SOCIAL AND ECONOMIC CONDITIONS

5.17.1 CEA Boundary

The CEA boundary for socioeconomics, and the rationale for it, is the same as that described in Section 5.17 of the 2007 FEIS. It includes Lincoln County, Wyoming; and Bannock, Bear Lake, Bingham, Caribou, and Power counties in Idaho.

5.17.2 Introduction

The social and economic structures and relationships in the CEA in support of mining and other activities are described in Section 3.16 of the 2007 FEIS and **Section 3.17** of this EIS. Those sections also detail the local mine-related employment and activity.

The phosphate mines in the CEA produce feedstock for three phosphoric acid fertilizer plants: Simplot's Don Plant at Pocatello, Agrium's facility at Conda, and Monsanto's elemental phosphorus plant at Soda Springs. All the operations except the Don Plant are located in Caribou County.

5.17.3 Past and Present Disturbances

The past and present disturbance as related to phosphate mining and the socioeconomics of the area is discussed in detail in Section 3.16 of the 2007 FEIS. The financial crisis of 2008 was triggered by the bursting of the real estate bubble and led to world-wide recession. This recession was the third longest in the U.S. since World War II (Encyclopedia Britannica 2013). During this recession the dairy industry in Idaho experienced a severe collapse in milk prices in 2009, when dairy producers saw the price of milk reduce by 35 percent. Dairies in Idaho froze salaries and hourly rates, eliminated positions, reduced hours, asked employees to work more hours for the same amount of money, or asked employees to work the same amount of hours for less money. Dairy producers in Idaho estimated it would take from six months to five years to eliminate the debt they accumulated during the crisis (Western Dairy News 2010). In the midst of the recession in 2010, foreclosures in Idaho increased 124 percent over the number in 2008 (State of Idaho 2011). While unemployment rose in the CEA during the course of the recession, Caribou County generally has had lower unemployment than the rest of Idaho and the nationwide average, a trend that has continued through the recession until just recently (National Public Radio 2013). No information could be found about any impact of the financial crisis or the resulting recession on phosphate mining in Idaho.

5.17.4 Foreseeable Future Disturbances

No major changes to population, housing, employment, or private and public income would occur as a result of the Proposed Action or Action Alternatives. Continued phosphate mining would result in future private and public income at levels approximately the same as past and present conditions. Other incoming industry or developments proposed in the CEA or large scale economic issues (like the financial crisis of 2008) would be more likely to affect socioeconomics; the Proposed Action or Action Alternatives is a continuation of the current industry.

At least four new phosphate mines have been proposed within the CEA. These include the Dairy Syncline Mine (approximately 2,142 acres), the Rasmussen Valley Mine (approximately 420

acres), the Husky/North Dry Ridge Mine (approximately 1,051 acres), and the East Smoky Project (approximately 847 acres). Phosphate exploration drilling has also been proposed outside of those mines including Dry Ridge, Trail Creek Caldwell Canyon, and Freeman Ridge/Husky 2. These proposed exploration projects would result in additional future disturbance within the CEA and could lead to future additional mine development.

Although not likely based upon past evidence as described in **Section 5.1.3**, future oil/gas exploration and possibly production could occur in the CEA at some point in the future. Minor gold prospecting activities are expected to continue but the development of hard-rock mineral or metals mines in the CEA is unlikely.

5.17.5 Cumulative Disturbance and Cumulative Effects

The additional present and future phosphate mining and exploration projects described in the previous section would add to the continued relative economic stability within the CEA. Development of the new mines would be expected to at least maintain current economic drivers, should new mines replace completed mining projects. Because the Proposed Action or Action Alternatives would be a continuation of existing mining at the Smoky Canyon Mine, implementation of the Proposed Action or Action Alternatives would not contribute effects on socioeconomics beyond existing levels.

5.18 ENVIRONMENTAL JUSTICE

The Proposed Action or Action Alternatives would have no additional impacts to environmental justice; the Project would not cause disproportionately high and adverse effects on any minority or low-income populations (**Section 4.18**). (Potential cumulative effects to Treaty Rights are fully described in **Section 5.15**.) Therefore, the Proposed Action or Action Alternatives would not contribute to cumulative effects to environmental justice.

CHAPTER 6

CONSULTATION AND COORDINATION

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CHAPTER 6 CONSULTATION AND COORDINATION

6.1 PUBLIC PARTICIPATION SUMMARY

6.1.1 Public Scoping Period and Meetings

Prior to initiation of formal scoping, as a part of routine contacts, the BLM introduced the proposed Project to the Shoshone-Bannock Tribes and the Idaho Roadless Council on February 20 and March 4, 2013, respectively.

The public was provided a 30-day scoping period at the beginning of the EIS process to identify potential issues and concerns associated with the Proposed Action. The NOI for the EIS was published in the Federal Register on June 24, 2013. A copy of the NOI is included in the Public Scoping Summary Report, Smoky Canyon Mine, Panels F and G Mine Modification Project (JBR 2013a). A legal notice was published in local newspapers as follows:

Star Valley Independent	Afton, Wyoming	June 26, 2013
Idaho State Journal	Pocatello, Idaho	June 27, 2013

A news release was submitted to 28 television stations, radio stations, and newspapers on June 24, 2013. The public mailing list was compiled and letters were sent to 81 interested individuals, agencies, and groups. Native American Consultation was also initiated during the scoping period, with a scoping letter sent certified mail to the Shoshone-Bannock Tribes on June 24, 2013.

Three open house-style public meetings were held as scheduled:

Wednesday, July 10, 2013	Afton Civic Center, Afton, Wyoming
Thursday, July 11, 2013	BLM Pocatello Field Office, Pocatello, Idaho
Friday, July 12, 2013	Shoshone-Bannock Hotel Event Center, Fort Hall, Idaho

The open house meetings provided a Project description, maps of the Project, and a forum for exchange of information and ideas or concerns related to the Project. Comment forms were available at the meetings. Agency, Project proponent, and consultant representatives were present including: Diane Wheeler representing the USFS and BLM, Jeff Cundick of the BLM; and Brian Buck and Greg Brown of JBR Environmental Consultants. Diane Wheeler, Brian Buck, and Greg Brown attended all three meetings. Lori Hamann of Simplot attended the Afton and Pocatello meetings; Dennis Facer of Simplot attended the Pocatello meeting, and Ron Hager, Dustin Hansen, Scott Lusty, and Grant Williams of Simplot attended the Afton meeting.

Scoping information was also provided on the BLM Land Use Planning and NEPA Register at https://www.blm.gov/epl-font-office/eplanning/nepa/nepa_register.do. Information was included on the CTNF Current and Recent Projects website at http://www.fs.usda.gov/projects/ctnf/landmanagement/projects and included in the FS Schedule of Proposed Actions for the CTNF.

Comments were requested to be received on or before July 26, 2013. Six comment letters, one telephone call, and one comment sheet were received by that date for the Project. Copies of all letters and forms are included in the Scoping Summary Report (JBR 2013a).

Comments received in response to solicitations, including names and addresses of those who commented, are considered part of the public record on this Proposed Action and are available for public inspection. The mailing list for the Project was revised to add those persons who provided comments in response to scoping, requested to be on the mailing list, or signed a scoping meeting list.

6.1.2 EIS Mailing List

An EIS mailing list of interested persons was assembled from mailing lists maintained at the BLM Pocatello Field Office, USFS CTNF office, and the mailing list from the 2007 FEIS project. This list was supplemented by addresses of scoping participants, and other parties who contacted the Agencies. All parties and agencies on the mailing list were sent a postcard requesting that they complete and return the card indicating their preference for receiving a copy of the EIS and/or remaining on the mailing list. The mailing list for the EIS was adjusted accordingly.

6.1.3 Distribution of DEIS

A 45-day DEIS review period was initiated by publication of the BLM and USFS, and EPA Notices of Availability (NOA) for the DEIS in the Federal Register on May 30, 2014.

The DEIS was distributed as follows:

- An NOA was published in the Federal Register specifying dates for the comment period and the date, time, and location of the public comment meetings.
- A news release was provided by the Agencies at the beginning of the 45-day comment period on the DEIS. Legal notices and news releases were submitted to the same news organizations as for the initial public scoping announcement.
- The DEIS was distributed to interested parties identified in the updated EIS mailing list, as previously described, and made available via the BLM and CTNF websites.

Three open house public meetings were held to obtain comments on the DEIS and to answer questions that the public had regarding the Project or the EIS process:

Monday, June 16, 2014	Afton Civic Center, Afton, Wyoming
Tuesday, June 17, 2014	Shoshone-Bannock Tribal Business Center, Fort Hall, Idaho
Wednesday, June 18, 2014	BLM Pocatello Field Office, Pocatello, Idaho

Letters and oral comments received by the Agencies on the DEIS (contained in **Chapter 7**) were reviewed and evaluated by the Agencies to determine if information provided in the comments required a formal response or contained new data that identified deficiencies in the EIS. Any identified deficiencies were addressed and the Final EIS revised accordingly.

6.1.4 Final EIS Distribution

The Final EIS distribution was completed with consideration given to comments received on the DEIS. A 30-day Final EIS BLM review period was initiated by publication of the NOA for the Final EIS in the Federal Register. The Final EIS was released as follows:

- The NOA was published in the Federal Register.
- Copies of the Final EIS were sent to requestors on the updated mailing list and made available via the BLM and CTNF websites.

Legal notices and news releases were issued to the same media sources used for previous Project announcements.

6.1.5 Record of Decision

The USFS released a draft ROD for the SUAs and has a 45-day objection period for the draft ROD. The USFS will make recommendations to the BLM for the overall Project during that review period. The BLM ROD and final USFS ROD are distributed to people and organizations identified in the updated EIS mailing list at the same time, and a NOA for the BLM ROD will be published in the Federal Register.

6.2 CONSULTATION WITH OTHERS

The following state and federal agencies were consulted during preparation of the EIS:

- Idaho Department of Environmental Quality
- Idaho Department of Fish and Game
- Idaho Department of Lands
- Idaho Department of Water Resources
- Wyoming Department of Environmental Quality
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

The following Tribes were consulted:

- The Fort Hall Business Council of the Shoshone-Bannock Tribes

6.2.1 Consultation with Idaho Department of Environmental Quality

The BLM and USFS requested that the IDEQ be a cooperating agency for this Project. IDEQ accepted this status and the BLM and USFS coordinated with the IDEQ during the preparation of the EIS and in reviewing the information in the document.

6.3 LIST OF PREPARERS AND REVIEWERS

The BLM is the lead agency for this EIS, the USFS is a joint lead agency, and the IDEQ is a cooperating agency. A list of Agency interdisciplinary team members is provided in **Table 6.3-1**. Stantec, formerly JBR, is the third party contractor selected to prepare the EIS on behalf of the Agencies. A list of Stantec, formerly JBR staff and their role in the EIS is provided in **Table 6.3-2**.

Table 6.3-1 Agency Interdisciplinary Team Members/Specialists

RESOURCE	AGENCY	TEAM MEMBER/SPECIALIST
Project Lead, Geology	USFS	Diane Wheeler
Minerals Branch Chief	BLM	Jeff Cundick
Archaeology	USFS	Ali Abusaidi
Botany	USFS	Rose Lehman
District Ranger, Montpelier	USFS	Dennis Duehren
District Ranger, Soda Springs	USFS	Jack Isaacs
Engineering	USFS	Tom Brown
Forest Planning	USFS	Doug Herzog
Geohydrology/Geochemistry	USFS	Mary Kauffman
Hydrology	USFS	Louis Wasniewski
Range	USFS	Jane Rushane/Garth Nelson
Recreation	USFS	Glen Lackey
Inventoried Roadless Areas	USFS	Robert Mickelsen
Soils	USFS	Kara Green
Timber	USFS	Wayne Beck
Wildlife/Fisheries	USFS	Devon Green
Senior Regional Engineer	IDEQ	Wayne Crowther

Table 6.3-2 Third Party Contractor – Stantec Consultants, formerly JBR

ROLE/RESOURCE	STAFF	EXPERIENCE
EIS Preparation		
Project Manager Soils, Vegetation, Wetlands, Fisheries and Aquatics	Greg Brown Salt Lake City, Utah	BS Natural Resource Management 20 Years Experience
Assistant Project Manager Groundwater Geology, Minerals, Topography and Paleontology	Brian Buck Salt Lake City, Utah	MS Geological Engineering BS Geology 36 Years Experience
Project Coordination Document Control Grazing Resources Recreation and Land Use IRAs Visual Resources Socioeconomics Environmental Justice	Schelle Davis Salt Lake City, Utah	BA Environmental Studies 9 Years Experience
Water Resources	Karla Knoop Salt Lake City, Utah	BS Watershed Sciences 26 Years Experience
Wildlife Resources, including BA/BE and baseline studies/report	Laura Arneson Salt Lake City, Utah Eric Holt St. George, Utah	MS Biology BS Biology 12 Years Experience MS Wildlife Management BS Wildlife Resources 24 Years Experience
Cultural Resources and Paleontology Cultural Resource Baseline Inventory Report	Jenni Prince-Mahoney Salt Lake City, Utah Sagebrush Consultants (Subcontractor) Ogden, Utah	BA Anthropology MC NEPA 19 Years Experience
Air Quality	Eric Clark Boise, Idaho	MS Civil Engineering BS Environmental Science 9 Years Experience
Soils	Robert Long (Subcontractor) Morgan, Utah	Certified Professional Soil Scientist MS Soils and Biometerology BS Soils and Biometerology 38 Years Experience
GIS/Drafter	Connie Pixton Salt Lake City, Utah	40 Years Experience

6.4 MAILING LIST

The Project mailing list is divided into federal agencies, state agencies, and others. This list was compiled through agency maintained lists, the previous Simplot Smoky Canyon Mine Project Panels F and G mailing list, and the scoping process.

FEDERAL	
David Alderman BLM Pocatello Field Office 4350 Cliffs Drive Pocatello, ID 83204-2105	James Joyner Army Corps of Engineers 900 North Skyline Drive, Suite A Idaho Falls, ID 83402
Reagen Bebout Senator Michael B. Enzi, Field Rep. P.O. Box 12470 Jackson, WY 83002	Larry Mickelsen USDA NRCS 390 East Hooper Avenue Soda Springs, ID 83276
Senator Mike Crapo United States Senator 275 South 5th Avenue, Suite 225 Pocatello, ID 83201	Steve Opp BLM Pocatello Field Office 4350 S. Cliffs Drive Pocatello, ID 83204
Jeff Cundick BLM Pocatello Field Office 4350 Cliffs Drive Pocatello, ID 83204-2105	Elaine Suriano US EPA – Washington Office 7500 Venice Court Falls Church, VA 22043
Jeremy Field Office of US Senator James E. Risch 275 South 5th Avenue, #290 Pocatello, ID 83201	US EPA Region 10 Attn: Environmental Review 1200 Sixth Avenue, Suite 900, ETPA-202-3 Seattle, WA 98101-3140
Sandi Fisher US Fish & Wildlife Service Eastern Idaho Field Office 4425 Burley Drive, Suite A Chubbuck, ID 83202	US EPA Region 8, EPR-N 1595 Wynkoop Street Denver, CO 80202-1129
Lynne Hood US EPA Region 10 EPA-R10-Idaho Operations Office 950 West Bannock Boise, ID 83702	

STATE	
Gary Billman Idaho State Department of Agriculture 3563 Ririe Highway Idaho Falls, ID 83401	Idaho Department of Lands Eastern Idaho Supervisory Area 3563 Ririe Hwy Idaho Falls, ID 83401
Jeff Cook Idaho Department of Parks & Recreation P.O. Box 83720 Boise, ID 83720-0065	Ron Kay Idaho State Department of Agriculture 2270 Old Penitentiary Rd. P.O. Box 7249 Boise, ID 83707
Wayne Crowther IDEQ Pocatello Regional Office 444 Hospital Way #300 Pocatello, ID 83201	Jim Mende - ESB S E Region, Idaho Fish & Game 1345 Barton Road Pocatello, ID 83204
Dennis Dunn C/O IDWR 900 North Skyline Drive, Suite A Idaho Falls, ID 83402	Mike Rowe IDEQ 400 Hospital Way, Suite 333 Pocatello, ID 83201
Tim Fuchs Wyoming Game & Fish P.O. Box 67 Jackson, WY 83001	
TRIBAL AGENCIES	
Casper Appenay Land Use Policy Commissioner Shoshone-Bannock Tribes P.O. Box 306 Fort Hall, ID 83203	Mitzi Sabori Shoshone-Bannock Tribes P.O. Box 306 Fort Hall, ID 83203
Susan Hanson Shoshone-Bannock Tribes P.O. Box 306 Fort Hall, ID 83203	Carolyn B. Smith Cultural Resources Coordinator Shoshone-Bannock Tribes P.O. Box 306 Fort Hall, ID 83203

Nathan Small Shoshone-Bannock Tribes P.O. Box 306 Fort Hall, ID 83203	Kelly C. Wright EWMP Manager Shoshone-Bannock Tribes P.O. Box 306 Fort Hall, ID 83203
Jason Walker Northwest Band of the Shoshone Nation Pocatello Tribal Office 505 Pershing Ave Suite 200 Pocatello, ID 83201	
LOCAL	
Caribou County Commissioners 159 South Main Street Soda Springs, ID 83276	Power County Commissioners 543 Bannock American Falls, ID 83211
Georgetown City Council Members P.O. Box 99 Georgetown, ID 83239	Rauhn Panting Oneida County Commissioner 30 North 100 West Malad, ID 83252
Loni Hillyard The Town of Afton P.O. Box 310 Afton, WY 83110-0310	James R. Smith Mayor of Soda Springs 9 West 2nd South Soda Springs, ID 83276
Lincoln County Commissioners 925 Sage Avenue, Suite 302 Kemmerer, WY 83101	Jonathan Teichert Lincoln County Wyoming Planning & Development 520 Topaz Street, Suite 109 Kemmerer, WY 83101
MEDIA	
Rosa Moosman The News-Examiner P.O. Box 278 Montpelier, ID 83254	Mark Steele Caribou County Sun P.O. Box 815 Soda Springs, ID 83276

ORGANIZATIONS	
Greg Brown JBR Environmental Consultants, Inc. 8160 S. Highland Dr Sandy, UT 84093	William Fielder FMC Technologies 400 Highpoint Drive Chalfont, PA 18914
Brian Buck JBR Environmental Consultants, Inc. 8160 S. Highland Dr Sandy, UT 84093	Helen Folger Osprey Ranch LLC 10512 Samaga Drive Oakton, VA 22124
Jim Cagle Agrium 3010 Conda Road Soda Springs, ID 83276	Ron Hager J.R. Simplot Company 1890 Smoky Canyon Road P. O. Box 1270 Afton, WY 83110
Lane Clezie Alternative Vice President Sci 13542 West Trail Creek Road Pocatello, ID 83204-7014	Lori Hamann J.R. Simplot Company 1150 W Hwy 30 P.O. Box 912 Pocatello, ID 83204-0912
Neal Curry C2C Holdings Inc. 933 South 3rd West Grace, ID 83241	Dustin Hansen J.R. Simplot Company 1890 Smoky Canyon Road P. O. Box 1270 Afton, WY 83110
Alicia Dredge Jouglard Sheep Company P.O. Box 245 Rupert, ID 83350	Dale Harris Co-Chair, RACNAC 1434 Jackson Street Missoula, MT 59802
Rob Erickson Dry Creek Lumber 3497 Dry Creek Road Afton, WY 83110	Tate Jarry Live Water Properties P.O. Box 9240 Jackson, WY 83002
Jennifer Fairbrother FSEEE P.O. Box 11615 Eugene, OR 97440	Scott Lusty J.R. Simplot Company 1890 Smoky Canyon Road P. O. Box 1270 Afton, WY 83110

Dani Mazzotta Idaho Conservation League P. O. Box 2671 Ketchum, ID 83340	Randy Vranes Monsanto P.O. 816 Soda Springs, ID 83276-0816
Lori McNamara North Wind, Inc. 1425 Higham Idaho Falls, ID 83402	Western Watersheds Project - Idaho Office Box 1770 Hailey, ID 83333
Edward J. Minhondo, Trust 2263 South 750 East Bountiful, UT 84010	Dickson L. Whitney Sr. Osprey Ranch LLC P.O. Box 1427 Afton, WY 83110
Peart Land & Development, LLC P.O. Box 128 Randolph, UT 84064	Grant Williams J.R. Simplot Company 1890 Smoky Canyon Road P. O. Box 1270 Afton, WY 83110
Kathy Rinaldi Greater Yellowstone Coalition P.O. Box 1072 Driggs, ID 83422	Gary Wilcox Wilcox Logging, Inc. 9169 400 West Rexburg, ID 83440
John Robison Public Land Director Idaho Conservation League P. O. Box 844 Boise, ID 83701	Matt Woodard Trout Unlimited 151 North Ridge Avenue, Suite 120 Idaho Falls, ID 83402
Brad Smith Idaho Conservation League P.O. Box 844 Boise, ID 83702	Bob Zimmer Greater Yellowstone Coalition 215 S. Wallace Avenue Bozeman, MT 59715
Kevin Toner Aristeria Capital LLC 136 Madison Avenue, 3rd Floor New York, NY 10016	

INDIVIDUALS	
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Keith Bitton 397 Fish Hatchery Road Grace, ID 83241	Jeff Jones 4350 Cliffs Drive Pocatello, ID 83204
John Cunningham P.O. Box 1684 Afton, WY 83110	Dave Janiak P.O. Box 944 Afton, WY 83110
Tucker Dahlke P.O. Box 433 Inkom, ID 83245	Tracy Jones P.O. Box 217 Thayne, WY 83127
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Kym Ferguson 15533 East Ririe Hwy Ririe, ID 83443	Ron Owens P.O. Box 114 Soda Springs, ID 83276
Alan Haslam 10955 Paintbrush Lane Pocatello, WY 83202	Tim Palmer 358 West 1135 Idaho Falls, ID 83404

Mike Panting 271 So. 2nd West Soda Springs, ID 83276	Jeff Sweeney 3055 Ross Ave Idaho Falls, ID 83406
Ken Paulson 6737 Lee Street Arvada, CO 80004	Shawn Sweeney 3642 East Ivory Circle Idaho Falls, ID 83401
Pete Riede P.O. Box 220 Afton, WY 83110-0220	Coby & Linda Tigert 2037 Sandy Lane Pocatello, ID 83204-4720
Craig Shuler 255 West 4th South Soda Springs, ID 83276	Tami Tralant RR6, Box 36 Pocatello, ID 83202
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John R. Stucki 325 Algonquin Drive Ballwin, MO 63011	Bill R. & Elizabeth A. Williams 2677 Comanche Circle Salt Lake City, UT 84108
John R. Stucki P.O. Box 278 Paris, ID 83261	Deb Wolfly P.O. Box 10 Fairview, WY 83119
Jack Sturm 541 East 1st North Soda Springs, ID 83276	

CHAPTER 7

PUBLIC COMMENTS AND RESPONSES

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CHAPTER 7 PUBLIC COMMENTS AND RESPONSES

7.1 INTRODUCTION

This chapter contains copies of public comments received in response to the Smoky Canyon Mine, Panels F and G Lease and Mine Plan Modification Project DEIS. The agencies' responses to substantive comments are provided adjacent to the reproduced comment letters. A total of seven public comments and/or letters were received on the DEIS.

Letter 1	The Town of Afton
Letter 2	Casper Appenay
Letter 3	EPA
Letter 4	Board of Lincoln County Commissioners
Letter 5	Adam G. Koch
Letter 6	J. R. Simplot Company
Letter 7	Greater Yellowstone Coalition

7.2 COMMENT LETTERS AND RESPONSES

LETTER NUMBER/ COMMENT NUMBER	LETTER CONTENTS	RESPONSE NUMBER AND RESPONSE
Letter #1	**THE TOWN OF AFTON** 416 Washington St. P.O. Box 310 Afton, WY 83110-0310 Phone (307) 885-9831	
	Bureau of Land Management/USFS June 16th, 2014 **Panels F and G Lease and Mine Plan Modification Project EIS** 8160 South Highland Drive Sandy, Utah 84093	
	Re: Town of Afton Support of the Smoky Canyon Mine	
	Dear BLM/USFS,	
Comment 1-1	The Town of Afton strongly supports the J.R. Simplot Company's Smoky Canyon Mine expansion plans, (Panels F and G Lease and Mine Plan Modification Plan). We are encouraged with Simplot's plans, and have briefly looked over the draft EIS plan as presented. At this time, we strongly encourage our partners at BLM/USFS to allow modifications to both panel's F and G (lease agreement) - so that the company can continue to prudently expand its business operations.	Response 1-1 Thank you for the comment.
	As one of our largest employers in Afton, the economical support this single company has on our community cannot be overstated. J.R. Simplot Company has a prudent track record of mine operations, and we are thrilled that the company continues to look to expand.	
	Thank you for your consideration regarding this matter.	
	Sincerely,	
	Loni Hillyard, Mayor of Afton	

Letter #2 **Comment Form**

Comment 2-1

My comments is on panel F&G lease is on the construction of conveyer belt system for transport of ore to the mill. My first consideration is for wildlife in the area. They need to put in areas where they cross, mostly in low lying areas on the property and also I would say they will be trying to jump over the conveyer system. I know in any animal is pushed by predators they will try and get away any way possible.

Response 2-1

A fourth crossing has been incorporated into the design at the Sage Creek drainage, which is a known wildlife crossing area. **Section 2.4.1.2** of the EIS has been revised to add a description of this elevated crossing to the three underground crossings previously described.

Comment 2-2

Secondly – is about road construction for development of the conveyer system over canyon area. I would try to keep the road on just one side rather than both sides.

Response 2-2

The only roads planned for construction in conjunction with the conveyor would be mainly within the off-lease portion near the northern end of Panel F, where disturbance would be minimized to only that necessary for future conveyor maintenance. The remainder of the conveyor system would follow existing haul roads and no new roads would be constructed or needed in these areas.

Comment 2-3

The other is just for maintenance of the roller system the belt runs on needs to be serviced regularly so how is this possible if it has no cat walk on side of the structure. Are they going to leave the road in place or they going to have another plan for that they are not telling you about. Seems like they are pushing ahead at any cost!

Casper Appenay
P.O. Box 306
Fort Hall, ID 83202

Response 2-3

The majority of the conveyor system would follow existing haul roads, and thus would be accessible for future maintenance from existing roads. The roads constructed for the conveyor would be left open for the life of the conveyor. Please refer to EIS **Section 2.4.1.2 - Access Roads**, which describes roads to be constructed in conjunction with the proposed conveyor: "These access roads would result in approximately 1.3 acres on lease and 6.8 acres off lease of long-term disturbance as they would remain open for future maintenance activities."

Letter #3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

July 11,2014

Diane Wheeler
U.S. Forest Service
Soda Springs Ranger District
41 0 East Hooper A venue
Soda Springs, Idaho 83276

Re: U.S. Environmental Protection Agency Comments on the Draft Environmental Impact Statement for the Smoky Canyon, Panels F & G Lease and Mine Plan Modification

(EPA Project Number: 03-063-BLM).

Dear Ms. Wheeler:

Our review of the DEIS was conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions.

The DEIS analyzes impacts of proposed modifications at Panels F & G at the Smoky Canyon Mine located in Southeast Idaho. Proposed activities vary by alternative and generally include construction of an ore conveyor system from Panel F to the mill, modification of the lease to accommodate expanded overburden disposal, use of a geo-synthetic clay laminate liner and/or mixed store and release cover, and implementation of stormwater control measures associated with the GCLL. The preferred alternative is identified as Alternative 1- constructed conveyor system, use of GCLL on 143 acres and geologic store and release cover on 250 acres, and additional stormwater control measures.

The expansion of Panels F &G were previously analyzed in the EIS 2007. However at that time, it was determined that the USFS and BLM did not have the authority to approve the full expansion. In 2009 BLM regulations were revised to allow lease modifications for disposal of overburden materials. The DEIS is tiered to the 2007 final EIS and, therefore, the majority of the analysis in the document is referenced to that NEPA analysis.

The preferred alternative contains improvements compared to the 2007 FEIS proposal. Although the overall seleniferous footprint will increase, the addition of a GCLL liner reduces infiltration and potential mobility of contaminants of potential concern. In addition, the conveyor system, which replaces haul vehicles from Panel F will reduce fugitive dust and emissions (DEIS Table 4.3-2).

The EPA supports the mine modification; however, we have concerns regarding groundwater and surface water impacts from the proposed expansion at Panel G. Specifically, we are concerned with impacts to Crow Creek, which is impaired from past mining practices at the confluence at South Fork Sage Creek and downstream. In addition the DEIS does not include pertinent, detailed information about financial assurance costs for reclamation and closure. We are rating the preferred alternative EC- 2 (Environmental Concerns- Insufficient Information). An explanation of the EPA rating system is enclosed. We are also enclosing additional detail regarding our concerns that we believe should be addressed in the final EIS.

We thank you for the opportunity to review the DEIS. If you need more information or would like to discuss these comments, please contact me at 206-553-1601 or via electronic mail at reichgott.christine@epa.gov, or Lynne Hood of my staff at, (208) 378-5757 or by electronic mail at hood.lynne@epa.gov.

Sincerely,

Christine B. Reichgott, Manager
Environmental Review and Sediment Management Unit

Enclosures:

1. EPA Detailed Comments

2. Figure 7.4-8. J.R. Simplot. 2014. DRAFT Remedial Investigation Report.

3. EPA Rating System for Draft Environmental Impact Statements

EPA Detailed Comments on the Smoky Canyon, Panels F & G Lease and Mine Plan Modification Draft Environmental Impact Statement

Groundwater and Surface Water Impacts

The EPA's main concern is the mobilization of selenium and other contaminants of potential concern from mine facilities to groundwater and surface water. We acknowledge that the conveyance system at Panel F would have little to no effect on this pathway; however, the Panel G expansion of the overburden disposal areas has the potential to impact water resources. Past mining practices at the mine site have resulted in elevated concentrations of selenium in groundwater and surface water and are currently being investigated through the Comprehensive Environmental Response, Compensation, and Liability Act. To address this ongoing concern, we believe that information from the May 2014 remedial investigation report regarding groundwater and surface water conditions/modeling should be considered in this analysis. Such information would help to more accurately develop predictions regarding the cumulative effects to Crow Creek. The final ElS should disclose the effects to water resources without assuming pre-decisional CERCLA clean-up actions.

The DEIS acknowledges activities under CERCLA and Remedial Investigation at Smoky Canyon Mine panels A-E in response to selenium contamination entering Hoopes Springs and South Fork Sage Creek a tributary directly influencing Crow Creek. Crow Creek also exhibits elevated levels of selenium at the confluence of SFSC and continuing downstream to the Wyoming State border. However, the DEIS does not include the most recent predictions on elevated concentrations of selenium in surface water in the project area[1] (i.e., Crow Creek) that were developed during the CERCLA investigation. Impacts to water resources from releases of selenium and other COPCs are the most significant issues at the mine site

and therefore, we encourage BLM to incorporate the most current data in the analysis.

Groundwater beneath Panel G reports to Crow Creek via springs and seeps. Downstream of this area, Crow Creek is joined by SFSC which has been impacted by contaminated groundwater from the mined area from the Pole Canyon cross valley fill south. Modeling from the remedial investigation indicates that the concentration of selenium in groundwater and surface water will continue to increase for several more years. The DEIS does not incorporate this recent modeling but references only the groundwater/surface water analysis from the 2007 FEIS. The modeling included in the 2014 CERCLA revised draft RI predicts that a peak concentration of selenium which is 2-5 times greater than the current aquatic water quality standard of 0.005 mg/1 and will not be reached at the Crow Creek/SFSC confluence for several years[2] (Figure 7.4-8 draft RI attached). Furthermore, following the peak concentration (low flow or high flow) the model indicates the possibility that the concentration of Se in surface water may remain above the selenium A WQS. Thus any addition contamination from Panel G could result in additional loading to portions of Crow Creek below the confluence with SFSC with the potential of a continuing exceedance of the aquatic criterion for selenium. This potential should be considered in the cumulative effects to Crow Creek. The final EIS should discuss the degree to which water impacted by mining Panel G could increase the Se concentration in Crow Creek below the confluence with SFSC.

The DEIS notes that the proposed GCLL cover would result in reduced infiltration and therefore, less groundwater impacts as compared to the 2007 final EIS approval. We are pleased with the proposed reclamation design to a more protective approach. In our letter (December 20, 2007) we raised significant issues with the groundwater analysis. Our concerns were associated with conclusions that Idaho water quality standards would be met based on clean-up activities under CERCLA. With the exception of the 2008 removal action at the Pole Canyon cross valley fill, clean-up remedies remain speculative. We appreciate USFS/BLM staffs time talking with us about this issue throughout the DEIS development. From our conversations, we understand that groundwater to surface water transport would not occur for decades[3]; although, the DEIS

does not clearly discuss this groundwater/surface water interaction. We recommend that the final EIS include current groundwater curves illustrating the time sequence and potential influence to surface water (i.e., Crow Creek).

As stated previously, the DEIS tiers to the previous 2007 FEIS and references a groundwater report. The referenced groundwater report forms the basis of conclusions in the DEIS regarding the existence of a hydrologic divide between Panel G and the contaminated groundwater/surface water in the northern portion of the site. Although tiering may be appropriate for this analysis, we believe that the issues related to groundwater warrant the inclusion of pertinent and more recent groundwater/surface information. Notably from Table 1.7-1 of the DEIS, it is evident with the number of scoping comments received on water resources and selenium that this is a key issue. We encourage the BLM to further disclose groundwater/surface water information in the NEPA document. This includes summary from the groundwater technical report (or included as an appendix) and figures.

Comment 3-1

Recommendations:

• *Include current information (i.e., hydrologic modeling from CERCLA effort)* in *the analysis.*

Response 3-1

Current information, obtained from the Revised Draft Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) Remedial Investigation Report (RI/FS Report), has been added to **Section 3.4**. The predicted impacts to water resources, discussed in **Sections 4.4**, **5.3**, and **5.4**, have also been modified to include conclusions/predictions described in the RI/FS Report in regard to selenium concentrations in Crow Creek. The added information focuses on current selenium characteristics in Hoopes Spring, South Fork Sage Creek Spring, and Crow Creek downstream of South Fork Sage Creek, as well as the extent and timing of predicted future selenium concentrations in Crow Creek.

Although the RI/FS included sampling and analysis of a number of contaminants of potential concern (COPCs), the primary focus was on using selenium as an indicator of COPCs, for specific reasons. First, previous investigations at the Smoky Canyon Mine led investigators to believe that it would be an appropriate indictor of COPCs due to the recognition that the primary

contamination issues have generally been associated with seleniferous overburden materials. Second, as stated in the RI/FS Report, eventual risk management decisions at the mine are likely to involve selenium because, "…it appears to have the greatest potential for unacceptable exposures for ecological receptors at the Site." The Report verifies the appropriateness of using selenium as an indicator by evaluating the spatial variation and concentration (relative to benchmarks) of other COPCs compared to selenium.

Comment 3-2

• *Include additional detail regarding groundwater/surface water quality, particularly cumulative effects* in *Crow Creek at the confluence of South Fork Sage Creek and downstream.*

Response 3-2

Sections 4.4, **5.3**, and **5.4** have been modified to include discussions on the combined cumulative effects of the Panel G modifications and the predicted effects from previously approved mining on South Fork Sage Creek using the RI/FS Report predictions as a basis for the discussion.

Comment 3-3

• *Include summary of referenced groundwater report and pertinent figures such as: generalized stratigraphic column, groundwater curves, and groundwater flow.*

Response 3-3

Sections 3.2 and **3.4** of the EIS have been revised and a brief summary of the relevant sections of the RI/FS Report have been added. A stratigraphic section of the geology has been added as **Figure 3.2-3** in **Section 3.2**, and figures showing the direction of groundwater flow have been added as **Figures 3.4-4**, **3.4-5**, and **3.4-6** in **Section 3.4**.

Financial Assurance

The DEIS includes a section on reclamation and financial assurance (Section 2.4.8). The discussion provides general information regarding the process, commitment to approve the financial amount prior to ground disturbing activities, and the periodic review of the adequacy of the bond. However, there is no detail regarding estimated costs or information regarding potential long-term monitoring.

One of the EPA's primary concerns with mining is securing adequate financial assurance for reclamation, closure and post closure activities. NEP A provides for the disclosure of all information concerning environmental consequences of a proposed action to the public and decision-makers before the decisions are made and before actions are taken. One key aspect that should be

discussed is the likelihood that mitigation will be implemented[4]. Although NEPA regulations do not directly refer to disclosure of financial assurances, the amount and viability of financial assurance are key factors in a discussion of whether mitigation will be implemented. Another key component to determining the environmental impacts of a mine is the effectiveness of closure and reclamation activities, including long-term water management. The amount and viability of financial assurance are critical factors in determining the effectiveness of reclamation and closure activities and, therefore, the significance of the environmental impacts.

We recommend that the final EIS analysis disclose the estimated cost to reclaim and close the site in a manner that achieves reclamation goals and post-mining land use objectives. The proposed financial assurance mechanisms should be identified. The analysis should disclose costs associated with implementing the reclamation plan, as well as costs associated with implementing contingency measures to deal with reasonably foreseeable but not specifically predicted outcomes. This is necessary to inform the public and decision-makers of the financial risk to the public posed by conditions at the site. These financial assurances should be in a form that protects the public interest in the event that a company is unable to implement contingency measures or perform long-term operation and maintenance at a closed mine site. The EPA believes that it is critical to anticipate environmental impacts that are reasonably foreseeable, yet not specifically predicted and to have financial assurance mechanisms in place to deal with such contingencies.

The DEIS states that the GCLL cover would require monitoring in perpetuity (Section 2.4.4.4). We acknowledge that applying GCLLs on proxy mine sites is relatively new and the surrogate for evaluating their performance is based on landfill disposal sites. We believe that maintenance during some timeframe will be necessary, which does not appear to be captured in the financial assurance discussion. We strongly encourage BLM to consider costs associated with long-term monitoring and potential maintenance in the bond estimate.

Comment 3-4

***Recommendations- the final EIS should**:*

• Include detailed information regarding the cost estimate and bonding instrument.

Response 3-4

The BLM (on lease) and the USFS (off lease) would require actual cost bonds to be calculated and posted prior to Project initiation. Bonds would be increased or otherwise reassessed to cover actual reclamation costs associated with the approved Project modifications. These reclamation bonds would be calculated by Simplot, and reviewed by BLM, USFS, and IDL after the RODs are signed. **Section 2.4.8** of the EIS discusses reclamation of disturbed areas in relation to financial assurances. All requirements of the M&RP must be fully completed and satisfactorily demonstrated prior to bond release. Financial assurance is an important part of BLM's inspection and enforcement program; it is undertaken according to existing policy that is generally described in **Section 2.4.8**. Bonding is not an environmental impact or mitigation to be addressed under NEPA and is outside the scope of this EIS. Financial assurance including bonding is however an important part of BLM's administration of any post NEPA activities that may be approved by the Agencies' RODs. Bonding would be used to ensure Simplot's compliance with any M&RP and SUA approval and conditions, the federal lease terms, royalty and reclamation requirements, and other established requirements.

On September 10, 2013, the BLM State Director issued a memorandum regarding bond requirements for phosphate mining operations. The text contained in the EIS conforms to this memorandum. Although BLM does not consider bond calculations part of the NEPA process, interested public and agencies are welcome to inspect and comment on the BLM's mining bonds and the evaluation/calculation process. Questions regarding the process, BLM's bond policy, and other mine plan implementation work such as environmental monitoring can be directed to the Pocatello Field Office.

Comment 3-5

• Discuss whether the long-term monitoring and maintenance contingency would be included in the bond.

Response 3-5

Long-term monitoring and maintenance contingency is a standard part of bond calculation. The BLM conducts periodic review of performance bond amounts; in addition, bonds are managed adaptively and can be increased if or as unforeseen issues arise.

Monitoring and Adaptive Management

The DEIS discusses aspects of the water management plan including water management ponds. The water management is primarily focused on sediment reduction. We are concerned with stormwater runoff interacting with seleniferous material during operations and prior to the applying the cover. The DEIS notes that water will be monitored for COPCs; however, there is no discussion of water management in the event that selenium and/or other COPCs are present. The final EIS should include a discussion of contingencies and adaptive management related to water resources.

The DEIS includes water monitoring locations (Figure 3.4-1). Monitoring station SW-CC-500 is located on Crow Creek; however, this station is upstream of the confluence of SFSC which is the main source of selenium contamination detected in Crow Creek. The final EIS should include monitoring with respect to cumulative selenium loading to Crow Creek at the confluence of SFSC and downstream. Monitoring of Crow Creek at the confluence with SFSC and continuing downstream should be a requirement in this document to insure that Panel G does not contribute to inorganic loading in the lower reaches of Crow Creek. It is recommended that coordination with the CERCLA monitoring efforts be explored to share data from these monitoring locations. Such monitoring could assist in adaptive management at Panels F & G.

A section on adaptive management was not included in the DEIS. We believe adaptive management is an integral component of managing mine sites to ensure resource protection. Key components of this plan would be a clear statement of expectations, linkage among monitoring information, action or trigger levels, resultant changes in operations, and the timing of follow up actions. The adaptive management plan would include specific and unambiguous descriptions of each trigger or action level. For each action level or trigger, include a description of necessary follow-up actions and a discussion of potential corrective actions that may ultimately be necessary to avoid or correct adverse impacts to the environment, along with an estimate of the time needed to implement such measures. This type of plan would ensure that

water quality and post-mining land use objectives can be achieved and sustained in the future, and avoid the types of problems that have occurred at other large mine sites. A discussion of these key components should be included in the final EIS. We also suggest including a table that demonstrate adaptive management measures.

Comment 3-6

Recommendations- the final EIS should:

• *Discuss how water would be managed during operation and measures that would be implemented in the event that COPCs are present.*

Response 3-6

Water management is discussed in **Section 2.5.5**. A new appendix, **Appendix 2B - Adaptive Management Plan**, includes measures that would be implemented in the event that COPCs are present, and is referenced in **Section 2.5.5** of the EIS.

Comment 3-7

• *Discuss how monitoring of water originating from Panel G would/ will be incorporated into potential loading increase at Crow Creek along additional stream segments that are currently impacted by South Fork Sage Creek.*

Response 3-7

Monitoring of Crow Creek at the confluence with South Fork Sage Creek is currently being conducted. **Figures 3.4-1** and **3.4-2** have been revised to show these monitoring locations. In addition, text changes have been made in **Section 3.4.1.1** to include monitoring results from these locations.

Comment 3-8

• *Include a figure illustrating water management flow (water balance) and mine facilities.*

Response 3-8

A description of how the GCLL would be constructed on the East ODA, the timing of the GCLL construction, and how stormwater would be managed on and around this ODA and was added to **Section 2.4.4.2**.

Comment 3-9

• *Include an adaptive management plan discussion with table highlighting the key components.*

Response 3-9

A new appendix, **Appendix 2B - Adaptive Management Plan**, has been added, and is referenced in **Section 2.5.5** of the EIS.

Comment 3-10

Other recommendations

• The EIS should discuss whether the Corps of Engineers will be publishing a public notice for the revised permit.

Response 3-10

Simplot has revised their Proposed Action, eliminating disturbances to waters of the U.S, including wetlands. Therefore, a revised Corps permit would not be required. The EIS has been revised in **Chapters 2**, **3**, **4**, and **5** to reflect the changes in the Proposed Action and all Action Alternatives as related to the avoidance of all impacts to wetlands.

Comment 3-11

• The EIS should discuss the 404 (b)(1) analysis and mitigation to jurisdictional Waters' of the US (0.002 wetlands and 30 feet of waters).

Response 3-11

See Response 3-10.

Comment 3-12

• The EIS should discuss the mine life of the project in the context of the resource at Smoky Canyon Mine.

Response 3-12

Section 2.4 of the 2007 FEIS on page 2-18 states, "Mining in Panel G would take between 6 and 8 years at full ore production rate." **Section 2.6.3**, No Action Alternative, states, "There would be no reduction in the duration of mining Panel G; however, Simplot estimates approximately 50 percent of the phosphate ore in Lease IDI-01441, previously considered economically recoverable, would not be mined because there is not sufficient storage area for the associated overburden/waste rock disposal external to the Panel G pit without expansion of the East ODA." **Section 4.17.2.5**, No Action Alternative, states, "…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."

[1] J.R. Simplot Company. May 2014. Draft CERCLA Remedial Investigation Report.

[2] Table 7.4.8 of the draft RI. Crow Creek Segment. The assumptions include Pole Canyon non-time critical removal action.

[3] Figure 30 groundwater curves provided by lead agency during interagency meeting.

[4] CEQ. 2011. "Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact."

http://ceg.hss.doe.gov/current developments/docs/Mitigation and Monitoring Guidance 14Jan2011.pdf

Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO-Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring

substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC- Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO-Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU- Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

(Attachment: Figure 7.4-8, Predicted Concentrations at Locations Downstream of Springs Complex Based on Modeled Loading, Smoky Canyon Mine, Remedial Investigation Report)

Letter #4

BOARD OF LINCOLN COUNTY COMMISSIONERS

T. Deb Wolfley
Chairman
Fairview, Wyoming

Kent Connelly
Kemmerer, Wyoming

Paul C. Jenkins
Thayne, Wyoming

925 Sage Avenue, Suite 302, Kemmerer, WY 83101
Phone: 307-877-2004
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July 14, 2014

Submitted Electronically at: blm_id_scm_panelsfg@blm.gov
Panels F and G Lease and Mine Plan Modification Project EIS
c/o JBR Environmental
8160 South Highland Drive
Sandy, UT 84093

Re: Board of Lincoln County Commissioners Comments on Panels F and G Lease and Mine Plan Modification Project at Smoky Canyon Mine – Environmental Impact Statement

Dear Sir or Madam,

Comment 4-1

Thank you for the opportunity to comment on the panels F and G Lease and Mine Plan Modification Project -EIS proposed by J.R. Simplot Company. Lincoln County supports the efforts of the J.R. Simplot Company to mitigate site-specific environmental consequences related to the proposed mining activities. We believe it is technically feasible to permit appropriate access to mineral resources while protecting other resources from irreparable harm.

The J.R. Simplot Company operates the Smoky Canyon Mine which physically resides in Caribou County Idaho. However, the majority of the employees at the mine reside within Lincoln County Wyoming. Numerous businesses within Lincoln County also benefit from the Smoky Canyon operation. Lincoln County has a vested interest in assuring the mine maintains a profitable position at this location. We appreciate the Bureau of Land Management (BLM) and United States Forest Service (USFS) fully considering these comments in support of Smoky Canyon's proposal.

Smoky Canyon employs approximately 255 people with an annual payroll in the range of 24 million dollars. This represents a major employer in the region. In addition, previous economic studies

Response 4-1
Thank you for the comment.

have estimated that Smoky Canyon Mine spends approximately 30 million dollars annually with local suppliers. Smoky Canyon Mine's January 2013 proposal assures that Simplot will fully develop the phosphate ore resource at the mine in an environmentally responsible manner while assuring the company's financial solvency. Lincoln County supports this proposal and respectfully asks the agencies to approve Simplot's proposal in an expeditious manner.

As currently approved, Simplot is unable to mine all the available phosphate ore present at Panel G. Simplot's proposed mine and lease modification, which includes an additional 113 acres of permanent overburden disposal area, will assure all the economically recoverable ore will be mined. In addition, the geo-synthetic clay laminate liner (GCLL) proposed over the entire area where seleniferous overburden is present in this panel is a significant investment by Simplot to assure long-term environmental protection—even greater than what is currently approved.

Lincoln County requests the BLM approval for all three components of Simplot's proposal at Panel G: 1) approval of the modification of lease IDI-01441 by 280 acres to accommodate the overburden; 2) increase the current disturbance boundary for the temporary storage of chert to allow for the currently proposed mine sequence; and 3) utilization of the GCLL as opposed to the currently approved dinwoody cover.

Simplot has also proposed the construction of a conveyor system to more efficiently deliver ore mined in Panels F and G to be transported back to the existing mill. This conveyor includes a crusher and ore stockpile in Panel F. Lincoln County supports the efficiencies provided by the proposed conveying system and requests the BLM and the USFS approve this system as proposed.

Lincoln County sincerely appreciates the opportunity to participate in this process as the agencies consider these important issues that are proposed by Simplot. Long-term success at Smoky Canyon Mine is in the best interest of Lincoln County as well, so approval of this proposal is strongly encouraged.

Thank you for the consideration of the Board's comments.

Sincerely,

/s/ T. Deb Wolfley, Chairman

T. Deb Wolfley, Chairman
Board of Lincoln County Commissioners

Letter #5

Email

Comment 5-1

I am an Idaho citizen, and I want to voice my support for the mine's expansion. I have just stumbled across the notice on your website, and also just realized that this is the last day the subject is open for public comment.

Mining is what drives economies and generates prosperity. Without mining, it is doubtful that Idaho and most of the other western states would ever have become states.

Sure, a few acres will be disturbed. But what, are you going to let it grow timber and either wait to log it off, or else not log it at all and "conserve" it for future generations who will never be allowed to harvest the resources? We need the jobs, we need the prosperity, and the impact on the environment is negligible. In due time, when the mine has ran out, it will be reclaimed and even if it isn't reclaimed by some miraculous reason, nature will always reclaim what has been disturbed. I was (wrongly) taught in school when I was growing up that things like clearcuts never grew back. I have seen tracts of land that were clearcut 40 years ago and they came back thicker than they ever were and the timber is already merchantable again. I know people see a big mine and think wow, what an eye sore. But really, it's not. I look at places like the Berkley Pit in Butte, and think wow, look at what our American exceptionalism has done. But consider also the legacy: Every coin in your pocket has at least some copper in it that came from the Berkley Pit. The wiring in your house has copper from the Berkley Pit, unless of course it was built before they started mining, but it still probably has copper that came from Butte even if a different mine. Think of the billions of lives those mined resources have touched and shaped.

Response 5-1
Thank you for the comment.

Now, go one step further and imagine every step those phosphates being mined make in their entire life cycle. How many jobs will it impact. How many people will put food on their table because that mine helped give them their job. I know phosphates are important as fertilizers, so think of the farmers who will have a better yield thanks to that mines product. This in turn means lower food prices. Everyone benefits from this mine being expanded and kept in operation.

If the mine were to shut down, all it would do is require the phosphates to be mined somewhere else, perhaps even in other countries where there are no environmental regulations at all to worry about. The only benefit would be a handful of acres and a few trees that weren't disturbed. The consequences would be countless jobs lost, and countless others impacted along the way. And Idaho's economy would suffer greatly while bolstering whoever moved in to fill the vacuum created in the marketplace with the loss of this mine.

Further, I really would like anyone who still opposes any mining operation, to pick up a copy of De Re Metallica by Georgius Agricola, read his first chapter. Even back in the 1600's there was fierce debate regarding mining and minerals, most arguments against mining are indeed not based in reality or fact, but are reactionary in nature. All of it in modern times is largely due to someone hating the fact others are making money doing something useful, and yet others have a "not in my back yard" mentality.

If we fail to support our mining industry, we are starting down a short and dark path towards despotism and poverty. All that we have begins with a hole in the ground. We can no longer be a nation of consumers and not of producers if we are to have any standard of living left by the time the decade is out. I would like to point out also, if you add up all the acreage that is taken up by say, airports in this country... It far outweighs the acreage that has been taken up by mining operations. Yet airports are welcomed with open arms, yet without mines, there could be no to have airports shut down because of environmental concerns.

There's just so many places to start on this issue, I know I've jumped around quite a bit, but I had to say something, and I figure

the best way was to start typing and not look back. I don't see how anyone in good conscience would want to stop a mine's expansion.

Sincerely,
Adam G. Koch

Goldbaron357@gmail.com

Letter #6

J.R. SIMPLOT COMPANY
ONE CAPITAL CENTER 999 MAIN STREET SUITE 1300
P.O. BOX 27
BOISE, IDAHO 83707
(208) 336-2110 FAX (208) 389-7515

CORPORATE HEADQUARTERS

July 15, 2014

SENT VIA EMAIL TO: blm id scm panelsfg@blm.gov

ORIGINAL TO FOLLOW VIA CERTIFIED MAIL #7011 0470 0002 4792 9652

RETURN RECEIPT REQUESTED

Panels F and G Lease and Mine Plan Modifications Project EIS
JBR Environmental
8160 South Highlands Drive
Sandy, UT 94093

Dear Sir or Madam:

The J.R. Simplot Company (Simplot) proposed in January 2013 several actions associated with the Panel G Phosphate Lease that allow for full recovery of phosphate ore and enhance environmental protection. The Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) has released the Draft Environmental Impact Statement (DEIS) for this Proposed Action. Simplot has the following comments on the DEIS.

Introduction

The following comments provide information for the agencies' consideration in preparing the final EIS and issuing a Record of Decision (ROD) for approval of the final action. The DEIS

represents a thorough analysis of the Proposed Action as well as the No Action and action alternatives. A review of the DEIS document makes it apparent that the agencies conducted a close examination of the environmental impacts, and made a fully informed and well considered decision in selecting the Preferred Alternative.

The Proposed Action consists of five distinct components (see DEIS page 2-4):

• Modification of the existing mining and reclamation plan (M&RP) to allow construction and operation of an ore conveyor system between Panel F and the mill,

• Modification of Lease IDI-01441 by 280 acres to accommodate the 160-acre expansion of the previously approved East overburden disposal area (ODA) for (Panel G),

• Increase of the on-lease disturbance area of the previously approved South ODA (Panel G) by 19.4 acres for the temporary storage of chert to be used for eventual reclamation of the Panel G pit,

• Utilization of a geo-synthetic clay laminate liner (GCLL) instead of the currently approved geologic store and release cover over the in-pit backfill and the East ODA (Panel G), and

• Implementation of on- and off-lease stormwater control measures associated with the GCLL.

The Purpose and Need section (DEIS Section 1.2) accurately describes the Agencies' responsibilities in response to Simplot's Proposed Action.

As discussed in detail below, Simplot recognizes the valuable observations and recommendations made by the Agencies in the NEPA process, and would support the selection of the Proposed Action as well as any of the action alternatives. Simplot agrees all action alternatives are feasible and assure full recovery of the resource in accordance with BLM requirements.

Appropriate and Thorough Analysis

The DEIS recognizes that "the direct and indirect impacts specifically from the Project are expected to have negligible to

minor overall impacts ... " (DEIS Page 5-1). This characterization is accurate because the vast bulk of the actions and consequences were previously described in the 2007 FEIS, to which this DEIS was properly tiered.

Mining and milling at Smoky Canyon has been occurring for over 30 years. As the DEIS Notice of Availability recounted:

"The existing Smoky Canyon mining and milling operations were authorized in 1982 by a mine plan approval issued by the BLM and special use authorizations issued by the USFS for off-lease activities, supported by the Smoky Canyon Mine Final EIS and Record of Decision (ROD). Mining operations began in Panel A in 1984 and have continued ever since with the mining of Panels A-E." [79 Fed. Reg. 31131, 31132]

The DEIS recognizes this long history at Smoky Canyon and properly tiers to the 2007 FEIS, which allows the DEIS to incorporate applicable information from the 2007 FEIS throughout the DEIS. The DEIS repeats many times (see, e.g., DEIS pages 2-2, 3-1, 4-3, and 5-1) how it tiers to the 2007 FEIS. For example, Section 3.1.1 states:

"As stated in Chapter 1, 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. Much of Chapter 3 of the 2007 FEIS provides general information about existing conditions in the Project Area. That information is generally not repeated in the sections following. Rather, where specific sections of Chapter 3 are tiered to the 2007 FEIS, the text is incorporated by reference or briefly summarized for some resources, followed by any specific Project-related information. Any new data collected for this EIS, which was not contained in the 2007 FEIS, is clearly identified." [DEIS, page 3-1]

The Smoky Canyon NEPA process appropriately uses tiering because the operations occur in the same area, entail essentially identical components, create the same potential environmental consequences, and are subject to review by the same federal and state agencies.

The 2007 FEIS and the underlying process were repeatedly reviewed and upheld by the Idaho District Court and the Ninth Circuit Court of Appeals. Beginning with the Idaho District Court decision in 2008 rejecting the motion for preliminary injunction and other relief sought by Greater Yellowstone Coalition, Natural Resources Defense Council, Sierra Club, and Defenders of Wildlife, see Greater Yellowstone Coalition v. Timchak, 2008 WL 5101754 (Nov. 26, 2008), and continuing through six additional judicial reviews, culminating in Greater Yellowstone Coalition v. Lewis, 628 F.3d 1143 (Jan. 25, 2011), the Idaho District Court and the Ninth Circuit Court of Appeals considered numerous objections and arguments about the 2007 FEIS process. The Courts rejected those objections and arguments and upheld the FEIS and the underlying process.

The 2007 FEIS process is over and complete, and judicially upheld. The Proposed Action and the action alternatives cannot reopen that process. However, the 2007 FEIS provides a verified basis for tiering by the DEIS, particularly when the "the direct and indirect impacts specifically from the Project are expected to have negligible to minor overall impacts ... " (see DEIS, Page 5-1).

Perhaps the best way to understand the Project's "negligible to minor overall impacts" is to focus on the No Action Alternative, which is defined in Section 2.6.3 as follows:

"Under the No Action Alternative, the decisions from the 2008 RODs would continue to govern development of the phosphate resources of Panels F and G, and the currently approved M&RP would be executed. The M&RP would remain unchanged and Lease IDI-01441 would not be modified. There would be no reduction in the duration of mining Panel G; however, Simplot estimates approximately 50 percent of the phosphate ore in Lease IDI-01441, previously considered economically recoverable, would not be mined because there is not sufficient storage area for the associated overburden/waste rock disposal external to the Panel G pit without expansion of the East ODA. Overall disturbance would remain essentially the same as that approved in the 2008 RODs. Ore mined from Panels F and G would continue to be delivered to the mill via haul trucks. The previously approved geologic store

and release cover would be used for reclamation as described in the 2007 FEIS and approved by the 2008 RODs." [DEIS Page 2-28.]

The No Action alternative underscores the ongoing and extensive previously-approved operations. The Proposed Action and the action alternatives do not meaningfully increase the environmental impacts of previously approved operations. In fact, the Proposed Action provides a number of environmental benefits. Simplot is authorized to undertake actions reviewed and approved based on the 2007 FEIS without regard to decisions made or not made in the DEIS and related agency actions regarding the Proposed Action.

As a result of the thorough analysis conducted by the Agencies, Simplot agrees that implementation of the Proposed Action or any action alternative will assure full recovery of the resource as mandated by BLM requirements.

Comment 6-1

Inventoried Road less Areas

Road less areas in national forests in Idaho are managed by the "Idaho Road less Rule", found in 36 CFR Part 294. The DEIS (page 3-67) needs to recognize that both the Federal District Court for Idaho and the Ninth Circuit of Appeals have upheld the Idaho Roadless Rule (see Attachment A). The Idaho Roadless Rule provides for the construction of roads in inventoried roadless areas for the purposes of phosphate mining as long as such roadless areas are classified as *General Forest, Rangeland, and Grassland.*

(e) General Forest, Rangeland, and Grassland. (1) except such road construction or reconstruction may be authorized by the responsible official in association with phosphate deposits as described in Figure 3-20 in section 3-15 Minerals and Energy in the Roadless Area Conservation; National Forest System Lands in Idaho Final Environmental Impact Statement. [§294.25.(e)(1)].

The roadless areas that are present in the Proposed Action are classified as *General Forest, Rangeland, and Grassland.* As the DEIS states on pages 4-58 through 4-62, the road building in the Proposed Action and both alternatives is in compliance with 36 CFR 294.

Response 6-1

Section 3.12.3 of the EIS was revised to add, “Both the Federal District Court for Idaho and the Ninth Circuit Court of Appeals (2013) have upheld the Idaho Roadless Rule.” A reference to the 9th Circuit opinion was added to Chapter 8.

Comment 6-2

Avoiding Potential Impacts to Wetlands

A cornerstone to compliance with Section 404 of the Clean Water Act includes an evaluation to determine if potential impacts to wetlands may be avoided. Simplot has reviewed the area determined to be potentially impacted according to Section 4.7.2. As a result, it is clear any disturbance to this delineated wetland may be avoided by accessing the proposed stormwater control features from the mine as opposed to Wells Canyon road and terminating this access prior to any disturbance in this area. This makes sense from an operational perspective as well as from a security perspective, by lessening any potential public access via this access from Wells Canyon road. Consequently impact to this wetland area will be avoided.

Alternatives and Record of Decision Considerations

The Proposed Action includes a geo-synthetic liner (GCLL) over the in-pit backfill and the east overburden disposal area. The purpose of the liner is to enhance environmental protection so as to further reduce or eliminate water quality impacts. The DEIS (pages 4-16 through 4-18) acknowledges this, stating:

"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 .... " [page 4-18]

Response 6-2

The EIS has been revised document-wide throughout applicable chapters and sections to show the access to the proposed stormwater control features (i.e. the series of stormwater ponds to the south of Panel G) under the Proposed Action and all Action Alternatives would be down from the mine rather than up from the Wells Canyon Road, which eliminates the potential for any wetland impacts.

Comment 6-3

Simplot encourages the agencies to provide flexibility within the decision if a mixed cover alternative is selected. For example, if Alternative 2 is selected, the decision should set a minimum of synthetic cover to be used, but allow a maximum of a 100% synthetic cover as provided for in the Proposed Action in order that the abovementioned environmental enhancements be realized.

The chosen alternative could also allow for a different synthetic cover, if its demonstrated performance would be the equivalent of, or better than, the GCLL. If better technology is available in the future, this would allow for evaluation of other synthetic covers then, while at the same time assuring the analysis provided in the EIS is supported.

Response 6-3

Should an alternative cover, other than what was analyzed in the EIS, be proposed in the future, the Agencies would evaluate that proposal in comparison to the analysis contained in this EIS.

Comment 6-4

Further, Simplot wants to offer a clarification to Section 2.4.6: even if the Panel G lease modification and the ore conveyor system from Panel F to the mill is approved, the possibility exists that the conveyor may not be built due to economic considerations. In fact, the more time that elapses, the less likely the economic feasibility of the ore conveyor becomes. This is because mining is currently occurring in Panel F, resulting in less ore available to be transported via this proposed conveyor. The current proposal for the conveyor includes delivery of power to Panel F along the conveyor. If the conveyor is approved, but Simplot determines the conveyor to be economically infeasible, consideration of construction of a 25 kV power line in place of the conveyor consistent with the disturbance analyzed in this EIS is requested. For purposes of this power line, the poles will range in height from 35 to 60 feet with an average span of approximately 250 feet. Disturbance off-lease in areas not currently approved for disturbance would correlate with the area analyzed for the proposed conveyor route.

Response 6-4

The EIS contains a change to the description of the Proposed Action in **Section 2.4** indicating that should the conveyor be determined by Simplot to not be economically feasible, the power line that is proposed as a part of the conveyor would instead be constructed on wooden poles following the proposed conveyor route alignment.

Section 2.4.6 of the EIS has been revised as follows: "Implementation of the proposed ore conveyor system between Panel F and the mill would not be contingent upon approval of modification of the lease and M&RP for Panel G; however, should the BLM and USFS approve the conveyor system either with or without approval of the Panel G modifications, Simplot would evaluate the economic viability of implementing the conveyor system at that time. In the event the conveyor is approved by the Agencies but not constructed by Simplot due to economic considerations, Simplot could still opt to install the 25 kV power line, but on poles rather than attached to the conveyor. The power line would be located along the haul road as previously approved by the 2008 RODs, except it would follow the conveyor route between the proposed stockpile area and the point where the conveyor route joins the haul road. The power poles would range in height from 35 to 60 feet and have an average estimated span of 250 feet. This would be less disturbance than would result from the support bents for the conveyor in this area, which would be spaced at 120-foot intervals and range in height from 15 to 73 feet."

Conclusion

Simplot appreciates the agencies consideration of these comments. Simplot agrees that all action alternatives are feasible and assure full recovery of the resource in accordance with BLM requirements. The use of a geo-synthetic liner, as provided for in the Proposed Action and Alternatives 1 and 2 will provide enhanced environmental protection. The No Action alternative, which will not allow for full economic recovery of the resource, should be rejected in light of the negligible to minor overall impacts accurately described in the DEIS.

Please contact either Lori Hamann (208-235-5670) or myself (208-389-7365) if you have any questions or you would like to discuss these comments.

Sincerely,

Alan L. Prouty
Vice President, Sustainability and Regulatory Affairs

Attachment

C:
Sheila Bush, J.R. Simplot Co.
Lori Hamann, J.R. Simplot Co.

Scott Lusty, J.R. Simplot Co.

Letter #7

GREATER YELLOWSTONE COALITION
America's Voice for a Greater Yellowstone
Lands Waters Wildlife

July 14, 2014

Panels F and G Lease and Mine Plan Modification Project EIS Comments - Idaho Falls District
Attn: Joe Kraayenbrink District Manager
Bureau of Land Management
8160 South Highland Drive, Sandy, UT 84093
blm_id_scm_panelsfg@blm.gov

RE: Greater Yellowstone Coalition comments on Draft Environmental Impact Statement, Smoky Canyon Mine, Panels F & G, Lease and Mine Plan Modification Project, U.S. Department of the Interior, Bureau of Land Management, U.S. Department of Agriculture, Forest Service, April 2014.

Dear Mr. Kraayenbrink,

The Greater Yellowstone Coalition (GYC) appreciates the opportunity to provide comments on the Smoky Canyon Mine Plan Modification Draft Environmental Impact Statement. For 30 years, GYC has worked to protect the lands, waters and wildlife of the Greater Yellowstone Ecosystem. Bureau of Land Management

(BLM) and U.S. Forest Service (USFS) managed resources are a critical component of this region and GYC has long cooperated with these agencies to preserve and conserve these resources to maintain the integrity and function of the region for present and future generations of people to enjoy.

We value the work that the BLM and USFS staff have done in preparing the Draft Environmental Impact Statement for the Smoky Canyon Mine, Panels F & G, Lease and Mine Plan Modification (DEIS). For assistance with our comments GYC has contracted David M. Chambers, Ph.D., P. Geop. and Stuart M. Levit, M.S., J.D. with the Center for Science in Public Participation to provide technical assistance in the review, analysis and preparation of the following recommendations for surface mining operations and specifically for water quality measures and reclamation practices described in the DEIS.

GYC supports the agencies' need and effort to provide a thorough review and assessment of the proposed project modification and to approve a project plan that best meets and protects the public interest.

To that end GYC would like to emphasize the need for the DEIS to evaluate the project with respect to potential long term impacts from mine operations.

Comment 7-1

The proposed project should meet water quality standards and minimize the possibility of new adverse impacts to surface and ground water. New actions, the use of new technology or practices based on new empirical evidence, should be accompanied by a full presentation of the associated data, and analysis of that data, to support changes to the mine plan from the plan based on the 2007 EIS and 2008 ROD.

Response 7-1

The EIS contains text revisions and additions where appropriate as described in the following Responses 7-2 through 7-41. Explanations are also provided when text revisions or additions were not required.

Comment 7-2

Summary of Comments

Water quality data and a history of Idaho phosphate mines releasing selenium into the environment underscores the hazards posed by their waste rock (overburden) repositories. The 2014 DEIS does not explain why the regulatory agencies decided that the storage and release reclamation was better than a HDPE-type or clay liner.

Response 7-2

As indicated in **Section 2.4.4.1 (**last sentence of the second paragraph), the geologic store and release cover is predicted to meet the required water quality standards. Because the GCLL would reduce infiltration more than the geologic store and release cover, it would prevent any additional impacts that were not previously modeled. The Agencies must balance potential impacts to water quality against potential impacts to revegetation

diversity. Using a GCLL over only new disturbance would ensure water quality standards would be met; see **Section 2.6.2.5**, which explains the rationale for the Preferred Alternative.

Comment 7-3

It would also be relevant to know why Simplot decided that the geosynthetic clay liner was preferable in its proposed alternative. It is not sufficient to simply say that one is the product of a previous analysis and another is the product of a new analysis - particularly when many aspects of the 2008 BLM ROD are being adjusted because of Simplot's desire to expand the mine.

Response 7-3

Although GCLLs have been used extensively for similar applications (e.g., solid waste landfills), they are a relatively new technology for phosphate mines in southeast Idaho. Subsequent to the 2008 ROD, GCLLs have been approved for use at the Blackfoot Bridge Mine and for a pilot study at the South Rasmussen Ridge Mine. The geologic store and release cover analyzed in the 2007 FEIS was designed and is anticipated to meet applicable water quality standards. Because the proposed GCLL is anticipated to be even more protective of surface and groundwater than the previously approved cover, no additional water quality impacts would be anticipated from the additional disturbance.

Comment 7-4

It is also unclear from the 2014 DEIS what exactly constitutes the Smoky Canyon's final or latest plan for reclamation. The 2014 DEIS, 2007 FEIS, and 2008 BLM ROD refer to the following documents, none of which appear to exist as separate documents from the EISs/ROD.

- Mine and Reclamation Plan (M&RP)
- Reclamation Plan
- Reclamation Requirements for the Potential Bond Release.

For the public to evaluate the mine's reclamation plan it seems it would make sense to have that document available in some clear form, ideally in an appendix.

Response 7-4

In general, what is initially proposed by a mining company is modified to some extent as a result of the NEPA process. The EIS and associated ROD is often considered by the BLM Pocatello Field Office to be the approved M&RP, which includes the reclamation requirements. However, since release of the 2008 ROD, it was determined that mining companies must submit a revised M&RP document for all new projects to reflect the changes and requirements of the associated EIS and ROD. Simplot is aware of this requirement and will submit a revised M&RP as needed upon issuance of the ROD for this Project. The original application submitted to the BLM for the Project is available upon request.

Comment 7-5

The comments below, therefore, are based on our understanding of reclamation proposals as explained in the 2014 DEIS and the 2007 FEIS.

These elements and relevant background should be described in the EIS so that the public can understand and evaluate/comment on the underlying data, especially the data on water quality from the areas of the mine under the EECA, and agencies' decisional priorities. As written, the decision process is unexplained, and the agencies'

Response 7-5

Additional data, in particular water quality data, has been added to the EIS, as described in the comment responses that follow. NEPA is a decision-making process. **Section 1.3** of the EIS lists the decisions to be made and the Agencies' responsibilities for those decisions. Future steps involved in the NEPA process are described in **Sections 6.1.4** and **6.1.5**.

decisions are being made without sharing all of their data and reasoning with the public.

Specific Comments

2.3.2 CERCLA Studies and Remediation

In discussing the ongoing selenium contamination at the Smoky Canyon mine, and the efforts to remediate this contamination, it is noted:

The Agencies continue to work with Simplot to remediate selenium issues at the Smoky Canyon Mine. The EE/CA for Smoky Canyon Mine (Panels A, B, C, D, and E and their associated mining operations) was written in May 2006. Part 1 of Appendix 2A of the 2007 FEIS addressed the findings of the SI with regard to the Pole Canyon ODA contribution to increased selenium levels in Hoopes Springs and Sage Creek, and proposed removal action efforts. A separate report included in Part 2 of Appendix 2A addressed the reclamation and other actions proposed for the Panel E operations to reduce selenium concentrations at South Fork Sage Creek Springs. The CERCLA removal action specified for the Pole Canyon ODA was initiated in the fall of 2006.

Any potential water quality impacts related to the Smoky Canyon Mine are currently under CERCLA investigation. As of the writing of this EIS, the Smoky Canyon Mine is currently the subject of an Administrative Settlement Agreement and Order on Consent/Consent Order for Remedial Investigation/Feasibility Study entered into by Simplot and the USFS, EPA, and IDEQ. The USFS is the lead agency, and the EPA, USFWS, BLM, IDEQ, and the Shoshone-Bannock Tribes have elected to participate as support agencies. Appropriate future remedial actions will be determined based on the findings of the remedial investigation currently underway.

While remediation actions have been taken and will continue into the future for the Smoky Canyon Mine, they have no bearing on the previously approved mining operations at Panels F and G. Further, the mining of Panels F and G has no connection to existing water quality impacts to Smoky Canyon Mine that is currently under investigation because the South Fork of Sage Creek drainage,

which essentially separates Panels F and G (to the south) and Panels A through E (to the north), is the low point for both areas and groundwater flows converge to this low point from both directions. For these reasons, this EIS will focus solely on the proposed mine and lease modifications for Panels F and G described in Section 2.4. *(2014 DEIS, p. 2-4)*

The 2014 Draft EIS on the Lease and Mine Plan Modification depend heavily on the 2007 FEIS,[1] with almost 500 references to the 2007 FEIS in the 2014 DEIS. To the best of our understanding, the 2007 FEIS has been adopted by the BLM and USFS as the Mine and Reclamation Plan (M&RP). We also understand why it has been chosen to "*focus solely on the proposed mine and lease modifications for Panels F and G*" because the previous Smoky Canyon mine developments have taken place in the lower part of the watershed, and the contaminants coming from the Pole Canyon ODA and Panel E operations.

Comment 7-6

However, what is of relevance is how well the mitigation modeling and measures for the Pole Canyon ODA have performed since the initiation of the CERCLA removal action in 2006. In particular, have changes in water quality from the Pole Canyon ODA seepage, and water in Hoopes Springs and Sage Creek followed model predictions? This has bearing on the assumptions made for the modeling in the 2014 DEIS, which was done in the same time frame as the 2007 FEIS and CERCLA removal action. There was no new ground or surface water modeling performed for the 2014 DEIS.

Furthermore, it was noted in the BLM Record of Decision subsequent to the 2007 FEIS:[2]

*… **remediation for the existing contamination is underway and the first actions were implemented in 2007**. Remedial actions intended to address the existing selenium contamination issues are designed to lower selenium concentrations in Hoopes Spring and South Fork Sage Creek Springs well before the peak water quality impacts from Panels F & G arrive at South Fork Sage Creek Springs. (BLM ROD, 2008, p. 16, **emphasis added**)* and;

*It was determined that the **new empirical evidence** provided sufficient information to adopt a selenium attenuation factor in the*

Response 7-6

The information contained in the 2007 FEIS regarding Smoky Canyon Mine contaminant sources and estimated effects was the best available information at the time of that EIS. Since then, additional CERCLA studies have updated this information and continued monitoring has described the actual impacts to Hoopes Spring and Sage Creek, which are greater than previously predicted. All of this was described in the 2014 EIS in **Sections 2.3.2** and **5.4.3**. In addition, the EIS explained that the effects from the proposed changes to Panels F and G would have no impact on Hoopes Spring and Sage Creek. Groundwater modeling conducted for the 2007 FEIS regarding the potential effects of Panels F and G is still considered to be accurate and is unaffected by the subsequent environmental monitoring data and recent CERCLA studies conducted north of South Fork Sage Creek. The impacts to groundwater and surface water from the potential backfill source at Panel G do not need to be remodeled because the source term under the EIS Action Alternatives would actually be smaller than was calculated for the 2007 FEIS (the No Action Alternative in the EIS) and the lesser environmental effects to groundwater and surface water can be estimated arithmetically, as is fully described in the EIS. Additional description of the Smoky Canyon Mine CERCLA studies and

groundwater model. It was also determined that including a selenium attenuation factor would not be in conflict with the project record or DEIS. (BLM ROD, 2008, p. 15, ***emphasis added)***

effects monitoring conducted since 2007 has been added to **Sections 3.4**, **4.4**, and **5.4** of the EIS to provide more detail.

Comment 7-7

Recommendation: The FEIS should contain a section describing the water quality monitoring results from the Pole Canyon ODA seepage, and Hoopes Springs and Sage Creek, in the 7 years since in the CERCLA removal action was initiated.

Response 7-7

Relevant information has been added to **Chapters 3**, **4**, and **5** under the Water Resources sections.

Comment 7-8

It is suspect to trust the efficacy of the DEIS' plan to visually inspect 300 acres of area for potential physical threats that could damage the GCLL (e.g. cracks, protrusions, rocks). It is perilous to presume that construction activities such as trucks and other equipment operations will not harm the liner. Given the liner's importance to reclamation success, it should be further protected both above and below by a layer of sand in addition to a "subgrade" of unspecified material type and thickness, and above the liner a drainage layer that will contain some coarse rock. The cost is negligible compared to the harm caused by an inadvertent or undetected liner perforation and failure.

Recommendation: A 6-inch layer of sand should be required below and above the liner to prevent liner injury from physical objects or operational injury.

Response 7-8

Integrity of the GCLL, and therefore damage resistance, is crucial to its performance. The GCLL has been designed and laboratory tested to ensure that it can be installed and operate without puncturing. The potential for puncture of the geomembrane is evaluated based on the cushion provided by the geotextile between the GCLL and the drainage membrane (see **Appendix 2A**).

The subgrade is evaluated for protrusions to meet specification requirements, and thus would not pose a risk for puncture of the geomembrane. The drainage rock undergoes sieve testing to confirm it would not be in excess of the calculated maximum particle size assumed when sizing the cushion overlying the geomembrane. This information is detailed in a technical memorandum included in the Project Record. **Section 2.4.4.2** also indicates that a final design report for the GCLL would be prepared and approved by the Agencies prior to implementation of the Project.

Comment 7-9

The regulatory agencies should also require a specified minimum permeability for those areas that require liners. This places the burden on the mine of meeting a relevant permeability requirement, not just on installing a particular type of liner. The permitted/regulatory permeability requirement is more important in terms of environmental protection and enforceability. For most mining applications it is typical to require a minimum permeability of 1x10-6 cm/s for a liner, especially on seleniferous waste.

Recommendation: The regulatory agencies should require that the mine maintain a minimum permeability 1x10-6 cm/s on the liner used above all seleniferous wastes.

Response 7-9

The currently approved geologic store and release cover for Panels F and G is required to meet a minimum permeability of 1.0×10^{-6} cm/sec (see Section 2.6.1 of the 2007 FEIS). As described in **Section 2.4.4.3** of the EIS, the GCLL is less permeable than the approved geologic store and release cover.

Comment 7-10

The description of the liner appears to contain an inconsistency. Section 2.4.4.2 states that:

The GCLL consists of a layer of bentonite clay inserted between two geotextile layers. A geotextile is a woven sheet material that is resistant to penetration damage. The top geotextile layer would be laminated with a polyethylene geomembrane layer, which would provide an additional layer of protection against desiccation and ion exchange degradation.

Minimum roll width for the geotextile fabric would be 14 feet. Adjoining sheets of geotextile fabric would be overlapped by a minimum of 12 inches in accordance with the manufacturer's recommendations. During construction of the GCLL, should the geotextile layer be torn, the layer would be repaired by placing a patch over the defect. The patch would overlap the edges of the defect by a minimum of two feet in all directions and secured with a manufacturer recommended water-based adhesive; the patch would not be nailed or stapled.

The bentonite component of the GCLL is dry when manufactured, and becomes hydrated by contact with natural moisture present in the surrounding materials. When hydrated, the bentonite swells, and the voids and spaces between the bentonite granules close. This swelling allows the GCLL to attain low permeability.

Synthetic geotextiles are made of stabilized polymers resistant to long-term degradation. Studies have shown that the HDPE liners of the GCLL have lifetimes of at least several hundred years (Rowe and Sangam 2002 in Geosyntec 2013b) and the natural and synthetic components of a geosynthetic clay liner will likely uphold hundreds of years under normal cover application conditions (Hsuan and Koerner 2010 in Geosyntec 2013b). (2014 DEIS, p.2-18)

The geotextile layer described in the first paragraph above and the overlapping of layers in the second paragraph suggests that the geofabric is not HDPE. But the fourth paragraph discusses the durability of HDPE, which is itself impermeable. It is also impenetrable to roots. Section **2.4.4.4 Operation and Maintenance of the GCLL** describes that tree roots may penetrate the GCLL. This suggests a material other than HDPE:

Response 7-10

Section 2.4.4.2 of the EIS has been revised as follows: "The GCLL consists of a layer of bentonite clay inserted between two geotextile layers. A geotextile is a woven sheet material that provides enhanced resistance to penetration damage. The top geotextile layer would be laminated with a 20-millimeter textured HDPE geomembrane layer, which would provide an additional layer of protection against desiccation and ion exchange degradation."

Once construction is completed, operation and maintenance requirements of the GCLL would be limited. Lateral drains and down drains may require routine maintenance to maintain flow. The surface of the area where the GCLL is installed would be routinely inspected for erosion of the surface layers to assure that the GCLL or drain layer are not exposed.

The GCLL would be susceptible to damage from deep rooted species growing on the reclaimed surface of the area covered by the GCLL. The area covered by the GCLL would be revegetated with grasses and forbs, and would never be allowed to become revegetated by deep rooted tree and shrub species. Consequently, the area covered by the GCLL would be monitored in perpetuity and be maintained free of deep rooted tree and shrub species.

These descriptions of the GCLL appear to conflict with each other. If the GCLL includes two layers of HDPE then tree roots should not be able to grow into/thru the liner. If the GCLL does not contain HDPE then the thin bentonite layer is going to be the 'key' to preventing infiltration into the waste rock. This inconsistency should be clarified - and underscores why the regulatory agencies should require a permeability, not simply a specific commercial product.

Comment 7-11

The bottom line is that water must be limited from contacting seleniferous wastes in the waste rock. This would be best accomplished by a combined HDPE-clay liner.

The efficacy of HDPE is underscored by the discussion and application of HDPE under the Crusher, Stockpile, and Containment Pond (*see e.g.* figure 2.4-3).

It would be expensive but arguably the cost of preventing further selenium contamination and related environmental, CERCLA, and other costs is less than requiring a combined HDPE and GCLL combination. Together the HDPE would significantly reduce the chances of a leak, and the clay would increase the chance that if a leak occurs it would self-seal, maintaining the integrity of the liner. This would maintain the costs of potential impacts with the mining company, and not shift the risks to the environment and public. Given the consistent contamination and leaking at phosphate mines

Response 7-11

See Responses 7-9 and 7-10.

throughout Idaho, requiring both HDPE and clay seems eminently reasonable.

As discussed elsewhere, in all cases liner design should further employ a sand layer below and above the synthetic liner to protect it from compacting rock-punctures or human error (e.g. driving over the liner with heavy equipment or other vehicles).

Recommendation: It is critical to limit water from contacting selenium. Therefore, the run of mine overburden should be capped with a fully impermeable liner that can ensure permanence and leak detection. This should include compacted swelling clay plus an HDPE or similar geosynthetic liner capable of achieving a minimum permeability of permeability 1x10-6 cm/s.

Comment 7-12

2.5.5 Surface and Groundwater

Regarding groundwater the DEIS states that:

Runoff and sediment control facilities would be located off ODAs to the extent feasible to reduce infiltration of collected water into seleniferous overburden. (2014 DEIS, p. 2-24.)

The "extent feasible" can easily be interpreted to mean many things - impacted by many things such as cost, timing, weather, workforce or equipment availability. The DEIS should describe and commit to specific treatments and their application, without which it is merely a speculative document.

Recommendation: The location, design, and implementation of all runoff and sediment control facilities should be identified and evaluated in the DEIS and by agencies prior to agency decision-making or permitting. It is reasonable to provide for some flexibility in such matters but the range of designs/locations should be considered in the DEIS so that the public can review and comment on the range of options considered.

Response 7-12

Section 2.5.5 under the Groundwater heading of the EIS has been revised as follows: "Stormwater would be managed to reduce or eliminate contact with ROM. During construction of the East ODA, material would be left at angle of repose (i.e., not sloped) in order to minimize infiltration of snowmelt and stormwater. Once the slope is covered with a GCLL, runoff and sediment control facilities would be located off the ODA to the extent feasible in order to protect the reclaimed slope from erosion and damage related to heavy equipment use." In addition and as described in **Section 2.4.4.2**, the GCLL would be designed with a drainage system that contains toe drains installed along the toe of the slope to allow the water collected in the drainage layer to be conveyed to the stormwater management features away from the cover area. Stormwater control features in relation to the ODAs are shown on **Figures 2.4.4**, **2.6.1**, and **2.6.2**. Impacts resulting from stormwater features are analyzed by resource throughout **Chapter 4**.

Comment 7-13

2.4.1.2 Description of Ore Conveyor System

The description of the ore conveyor system is generally good - particularly that it is covered to protect from exposure and curved/piped to prevent loss of materials. That the low-point of the

Response 7-13

Noise impacts to wildlife are discussed in **Section 4.8.2.2** of the EIS. **Section 2.4.1.2** under the heading of **Crossings** describes the four crossings designed to provide access to wildlife across the conveyor route. Direct and indirect impacts to wildlife,

system is only 3.5 feet from the ground could reasonably impede wildlife from crossing its above-ground portions (representing the super-majority) of its 4.5 mile length. The 2014 DEIS discusses this but further study and biological assessment and discussion are necessary to fully demonstrate impacts and develop alternatives/mitigation to ensure terrestrial wildlife is not adversely impacted by the physical conveyor system or the crossings.

The three 100-foot buried crossings for vehicles and wildlife seem insufficient when combined with the total miles of length.

Recommendation: Ensure that the conveyor system will not cause adverse impacts to wildlife (presumably terrestrial, but birds should be eliminated as a potential impact also). Ensure that mitigation measures for noise, direct impacts, or impacts to movement are fully mitigated.

including those associated with the crossings, are provided in **Section 4.8** of the EIS. No mitigation was deemed necessary for noise impacts to wildlife as **Table 4.3-5** demonstrates that the noise generated by the conveyor would be less than that generated by haul trucks currently being used as approved by the 2008 RODs.

Comment 7-14

Stockpile and Containment Pond

The 2014 DEIS states:

*The M&RP for Panel F would be modified to allow for development of an ore stockpile, underlain by a high density polyethylene (HDPE) stockpile liner (**Figure 2.4-3**). (2014 DEIS p. 2-11)*

The liner should extend so that it underlays the entire ore crushing and conveyor loading areas. Its design should be similar to the selenium stockpile area liners capable of sequestering water - in this case within the crusher/loading areas so that spilled material, dust, etc., will not contaminate the area below and down gradient. The stockpile liner should be a constructed or composited clay liner between two geosynthetic liners.

The stockpile liner should be specifically designed for capture and collection of fluid/contaminant runoff. This design should ensure that the liner is sufficiently designed - and protected so that heavy-truck traffic will not impair it. Further, the mining plan should implement monitoring via monitoring wells that can be used for pumpback should the liner fail. This is particularly important given the steep/sloped/steep nature of the hill into which it is being constructed.

Response 7-14

As shown in **Figure 2.4.3**, the stockpile and conveyor loading area would be underlain by an HDPE stockpile liner. The text in **Section 2.4.1.2** of the EIS under the subheading of Stockpile and Containment Pond (first paragraph) has been revised as follows: "The M&RP for Panel F would be modified to allow for development of an ore stockpile located within the footprint of the mined out north end of Panel F. The stockpile would contain a maximum of 140,000 tons of ore at any one time. The stockpile and point at which the ore would be loaded onto the ore conveyor system (ore feeder) would be located within a 250,000 square–foot area, and would be underlain by a protective liner (**Figure 2.4-3**)".

The proposed HDPE liner is expected to adequately prevent infiltration from the stockpile area for the duration of operations. The text in **Section 2.4.1.2** of the EIS under the subheading of Stockpile and Containment Pond (first paragraph) has been revised to add the following text: "The liner, a high density polyethylene (HDPE) geomembrane, would be placed a minimum of 5 feet below the active working surface of the stockpile area to protect the liner system. A cushion layer (e.g., a geotextile or finely screened sand or gravel layer) would be placed directly above and below the liner as needed to prevent any damage to the liner during construction and operation. The

Recommendation: The stockpile liner should be a combined clay and geosynthetic liner, similar to the Geo-synthetic Clay Laminate Liner.

material between the upper cushion layer and active working surface would be crushed and screened chert or limestone. This information is detailed in a technical memorandum included in the Project Record."

The liner would be removed when operations are complete; it is not intended to be part of the site reclamation.

Section 2.4.1.2 of the EIS under the subheading of Stockpile and Containment Pond (second paragraph) has been revised as follows: "The 250,000 square-foot area would be sloped to manage drainage. Runoff would be directed to a HDPE-lined pond, which would be located north of the stockpile and designed to handle a 100-year, 24-hour storm event. The pond capacity would be 18.3 acre-feet and constructed to have a large surface area to allow for evaporation."

Comment 7-15

Recommendation: The lined area should include the footprint below the crusher and loading - and unloading - areas.

Response 7-15

See Response to 7-14.

Comment 7-16

Recommendation: The stockpile, crusher, and loading and unloading areas should include monitoring wells sufficient to detect leakage from this area (such as from liner failure) and further that can be used for pumpback to capture contaminated leakage (that can then be sent for appropriate storage or treatment).

Response 7-16

The current design of the stockpile area directs all potentially contaminated water to the lined containment pond as described in Response 7-14. However, there are two existing monitoring wells located downgradient of the proposed stockpile area, MW-F1 and MW-F1A, which could detect unanticipated contamination coming from the stockpile area. **Figures 3.4-1** and **3.4-2** have been revised to show these monitoring wells.

The lined containment pond would be situated on a mined out portion of Panel F that would not contain any alluvium. Any potential contamination resulting from a leak in the containment pond would be identified in either the existing monitoring wells (MW-FI and MW-F1A) or from the downgradient springs (i.e. the Hoopes Spring complex) that are routinely monitored.

Comment 7-17

Wind will also blow contaminants from the stockpile onto surrounding areas.

Recommendation: If the seleniferous contaminant(s) is soluble, then an enclosed stockpile building should be considered. This could be a more cost-effective solution to both groundwater and

Response 7-17

As shown in **Figure 2.4-3**, the area containing the stockpile and loading area for the proposed conveyor would be underlain by an HDPE liner. Text under **Section 2.4.1.2** under the heading of Stockpile and Containment Pond indicates that runoff from this

off-area non-point source contamination that could be an expensive post-mining problem.

area would be directed to the HDPE-lined pond, also shown on **Figure 2.4-3**. The pond would be designed to handle a 100-year, 24-hour storm event. Therefore, enclosure of the stockpile area would not be necessary for control of non-point source contamination.

Regarding wind-blown contaminants, see Response 7-36.

2.4.8 Reclamation of Disturbed Area and Financial Assurances

Financial Assurance

Scoping for 2014 DEIS clearly identified estimating and disclosing calculations for the financial assurance in an EIS as an important issue:

We recommend that the NEPA analysis disclose the estimated cost to reclaim and close the site in a manner that achieves reclamation goals and post-mining land use objectives. The proposed financial assurance mechanisms should be identified. The analysis should disclose costs associated with implementing the reclamation plan, as well as costs associated with implementing contingency measures to deal with reasonably foreseeable but not specifically predicted outcomes. (2014 DEIS, p. 1-17)

In response to comments in the original Draft EIS (2005), it was noted:

Comment: Several commenters requested the detailed bond calculations be included in the Final EIS. (2007 FEIS, p. 7-54)

And the response to this comment in 2007 FEIS was:

Response: The BLM and FS have developed an actual-cost bond estimate for the Agency Preferred Alternative and a summary of this information is included in Chapter 2 of the 2007 FEIS. (2007 FEIS, p. 7-55)

In Chapter 2 of the 2007 FEIS there was an estimated financial assurance, and it was noted:

While not a requirement of the NEPA process, an actual-cost bond calculation is typically a requirement spelled out in the ROD. In

this case, an actual-cost reclamation estimate has been prepared for Panels F and G, using the Agency Preferred Alternative (Table 2.10-3), in order to give the public an idea of what the bond would include and an approximate value. This estimate would be refined as a condition of the Record of Decision when all conditions of approval are known. (2007 FEIS, p. 2-108)

However, in the 2014 DEIS, it is noted:

Reclamation performance bonds are calculated according to BLM policy regarding bond requirement and calculation guidance for phosphate mining operations (BLM 2013). The ROD would describe the methodology to be used to calculate the performance bond amount for the Project. (2014 DEIS, p. 2-21)

Why the BLM and Forest Service have chosen to exclude as estimate of the financial assurance in the 2014 DEIS is not clear, especially given the clear concern of several commenters for this information, and the BLM and Forest Services' recognition of the importance of the issue in the 2007 FEIS.

Comment 7-18

Recommendation: The new FEIS should include an estimate of the financial assurance for the project, as was done in the 2007 FEIS. An appendix in the new FEIS should include enough detail on the financial assurance calculations to allow an informed member of the public, like CSP2, to see what assumptions have been made, and how those were applied to the basic calculations.

Response 7-18

See Response 3-4.

Reclamation of Disturbed Area

The 2014 DEIS seems to pick and choose where it will diverge from the 2007 analysis. The reclamation plan, for example, is identified as something that was completed and is not being changed. The Lease Modification on certain lands are identified as something that will be changed. Much as the law changed allowing the agencies to allow Lease Modification[3] on certain lands, in the seven years since the last EIS the understanding of reclamation and best practices have changed - behooving the regulatory agencies to revisit the reclamation requirements.[4] The agencies and public have also changed in their understanding of the sources and impacts of selenium from phosphate mining in Idaho (and elsewhere).

Comment 7-19

It seems imprudent if not unreasonable for the agencies to simply ignore and largely not modify the seven-year old analysis when available science and study demonstrates that an old study/conclusions are no longer the best available. Simplot's requested modifications should trigger a re-analysis of reclamation and bonding requirements to ensure that the agencies' 2014 decisions reflect the latest science and practices in all areas of mining - not just those that benefit the company.

These comments reflect the importance of re-assessing reclamation requirements approved in the 2008 Record of Decision.

The 2014 DEIS states that:

Reclamation specified by the currently approved M&RP includes shrubs and trees to be seeded or planted in clusters where they are most likely to establish and where there are no concerns relative to the integrity of the overburden covers or potential selenium uptake. Reforestation of reclaimed surfaces would not be implemented in areas covered by the GCLL in order to maintain its integrity. A seed mix approved by the USFS would be applied during reclamation. All other disturbed areas would be reclaimed in accordance with the 2008 BLM ROD. (2014 DEIS at p. 2-21)

2.5.3 Soil

The 2014 DEIS provides for soil resources with the following:

Soil resources in the proposed disturbance areas have been described with baseline surveys. Suitable topsoil and growth medium from disturbed areas would be salvaged and stockpiled for use in reclamation. Soil stockpiles would be protected from erosion by seeding and establishment of short-term vegetation cover. Reclamation of disturbed areas that are no longer required for active mining operations would be conducted concurrent with other mining operations. (2014 DEIS at p. 2-23)

Response 7-19

Simplot's proposed use of a GCLL specifically recognizes changes in reclamation practices over the past seven years. At the time of the 2007 FEIS, the use of a GCLL was not an established practice and deemed to be economically unfeasible, but now GCLLs are being used for reclamation in some mining operations in the region (see Response 7-3). Use of a GCLL would require the exclusion of deep-rooting vegetation species such as trees, but otherwise the reclamation requirements from the 2008 RODs would remain unchanged. As described in **Section 2.7** of the EIS, the Agencies' Preferred Alternative would balance the environmental advantages and disadvantages of the two cover types. Thus, the Preferred Alternative takes into account changes in technology, economics, and scientific understanding that have evolved over the past seven years.

The 2007 FEIS establishes the amount of available soil for reclamation based on the amount of soil that will be salvaged. It provides:

Soil salvage would be based on suitability criteria as described in this document, including site slope and configuration. Direct haul and placement of growth medium to sites ready for immediate reclamation would minimize the need for stockpiling the material and would be done whenever possible. Based on suitable soil depths shown in Tables 3.4-1 and 3.4-4, the average potential topsoil stripping depth for soils within the area of the Proposed Action is estimated to be about 22 inches. A summary of in-situ topsoil/growth medium volumes for mapped soil units in the area of the Proposed Action and Alternatives is presented in Table 3.4-4. These mapped units occur within a specific study area and do not represent the entire area encompassed by the transportation alternatives or haul/access roads. The total volume of suitable, in-situ growth medium to be salvaged with implementation of the Proposed Action is estimated at 3,962,700 cubic yards. The amount of growth medium to be salvaged was calculated using the estimated 1,340 acres of disturbance and the average topsoil stripping depth of 22 inches (1.833 feet). Although the topsoil within the topsoil stockpile footprints would not be salvaged, once the stockpiled topsoil is removed from these areas and used for reclamation, the existing topsoil underneath the stockpiled locations would be ripped and scarified to aid in reclamation. Thus, this proposed disturbance acreage was included in calculating the available topsoil to be salvaged.

Considering the effects of inaccuracies in the estimation of average thickness of suitable soils within the disturbance footprint, potential swell of soil volumes during excavation, and potential compaction of soil during reapplication, the resulting re-applied soil would yield a layer of growth medium of about 18 inches (ranging from one to two feet) available for placement over the 1,269 acres of disturbance to be reclaimed. Growth medium placed to this depth would enhance the long-term productivity of the reclaimed areas. The actual total volume of available growth medium resources may be slightly different than estimated, due to variable site conditions. (2007 FEIS at p. 4-111, 112)

Comment 7-20

This requires two points in response. First, the plan should ensure that all usable material is salvaged.

The Plan and permit should require salvaging all topsoil and subsoil from areas disturbed by mining activities - regardless of location or volume. Post-mine plant growth and establishment benefit substantially from maximizing plant growth media (soils), particularly where agriculture is a proposed post-mine land use. The more soil, the better the post-mine revegetation success, particularly in the first five years.

Response 7-20

All suitable growth media would be salvaged during mining activities, as described in **Section 3.5.1.3** of the EIS.

Comment 7-21

Second, the reclamation plan should establish the amount of material needed, and work backwards to secure that material from onsite salvage, and if necessary, from offsite salvage. Eighteen inches is indeed between one and two feet, but the difference between one foot, eighteen inches, and two feet of soil can make a considerable difference to long-term reclamation success.

Response 7-21

As shown in **Figure 2.4-5**, the GCLL design assumes a minimum of 12 inches of topsoil.

Table 3.5-3 of the EIS provides an accounting of the estimated amount of topsoil and suitable subsoil horizons that would be available for reclamation. This table contains an estimate of 686,842 cubic yards of soil material from the proposed approximately 170 acres of disturbance, and although this is just an informed estimate, this volume of material would cover the disturbed area with about 2.6 feet of salvaged material. The estimate of 1 to 2 feet of soil was a minimum, preliminary, conservative estimate. All suitable soil materials, as described in detail in the baseline soil report, in areas approved for disturbance, would be salvaged and used for reclamation.

Comment 7-22

The best reclamation practice would be for the company to salvage existing soil materials in two lifts - the first being A and B horizons and the second lift being sub-B-horizon. During reclamation (re)placement, the lower horizons should then be placed as the first step of replacing cover material, upon which the upper (A and B horizons) would be placed. The net effect is more cover material that will better support plants and more quickly further develop soils than just the A and B horizons placed on top of sand, waste rock, liners, etc.

The topsoil salvage piles will stand unused for years. As a result the soils quality will degrade during mine operations and the soil value will be reduced from when it was salvaged compared to when it is replaced. To preserve soil integrity (including organic materials,

Response 7-22

As stated in **Section 2.5.3**, topsoil stockpiles would be protected from erosion by seeding and establishment of short-term vegetation cover.

Sampling of select physical and chemical properties occurred as part of the original baseline assessment of soil resources and would occur again once salvaged material has been replaced to determine what amendments may be necessary. As part of routine reclamation practice, Simplot conducts agronomic sampling, which tests for nitrogen, phosphorous, potassium, etc.

The M&RP, along with the baseline soil resources report, provides the detail and flexibility needed for Simplot to salvage

microbes such as mycorrhizae, promote aeration, reduce weed introduction, and reduce erosion, the Reclamation Plan should identify specific steps that it commits to employ to establishing 'nurse' crops on the topsoil salvage piles. These plants should be consistent with, and not compete, with the planned postmine revegetation, especially agricultural seeding/planting.

The Reclamation Plan should analyze and the company should commit to characterizing stored topsoil resources (one or two years prior to starting reclamation) to identify basic physical and chemical characteristic. These results can then be used to modify the reclamation plan and determine what, if any, amendments are necessary and appropriate to enhance and ensure revegetation success. Criteria should include material size fractions, nutrients, pH, microbial condition (such as mycorrhizae), and organic content. Sampling should be done at the surface and deep in the piles. This will ensure that the replaced soil and subsoil materials/horizons are best able to support post-mine agricultural goals. By sampling and evaluating the materials before they are disturbed, the mine can mix-in organics and other materials/amendments that may be necessary to ensure they are fully integrated into the replaced soils (as compared to simply added as top-dressing).

Recommendation: The Plan should develop detailed topsoil salvage and storage plans to ensure that the maximum amount of materials is salvaged for reclamation. These materials should be stored to maximize soil health and reclamation efforts. To ensure that all viable growth media is salvaged, characterization of materials should be include field observation and not solely rely on a 'standardized' depth measurement.

Reclamation - Soils

The 2008 Record of Decision states that:

*The USFS will determine soil suitability in accordance with USDA Forest Service Soil Salvage guidelines (USDA 2003a). Baseline surveys have been completed to identify available topsoil resources. Simplot will salvage suitable topsoil and growth medium and transport it directly to areas being reclaimed, or temporarily soil in a way that values the resource and provides for reclamation. See Response 7-21 for topsoil salvage and use in reclamation. As described in the EIS, salvage of soil is determined based on suitable physical and chemical properties (**Table 3.5-2**). The EIS is tiered to the 2007 FEIS, and the text from the 2007 FEIS includes an overview of soil conditions in the Project Area using terms such as an "average" depth of available topsoil per soil map unit. In this case, the use of averages allows the reader to visualize the depth of the estimated salvage volume spread evenly over the acres of disturbance, and it is not prescribing a "standardized" depth to which topsoil resources would be stripped. It is Simplot's responsibility to utilize the information available in the baseline soil resources report to guide salvage operations. Periodically, as part of routine inspections and as requested, an Agency soil scientist would provide additional site-specific recommendations in the field during soil salvage activities.*

stockpile in approved locations along the Haul/Access road prism. Temporary stockpiles will be seeded with short-term vegetation cover. Simplot will reduce the loss of soil fertility within the Project area by incorporating slash into the salvaged growth medium to increase the organic matter content, by mixing soil types with appropriate coarse fragment content to maintain proper fragment ratios. Salvage operations will be timed to optimize revegetation. In the reclamation areas and beneath stockpiles, compacted soils will be loosened using appropriate methods to a depth of 12 inches to allow unrestricted root growth. (2008 BLM ROD, p. 32)

The 2014 DEIS considers soil salvage largely in terms of selenium or other contamination. It states:

3.5.1.4 Potential Salvage Limitations Based on Heavy Metal Content

In an effort to develop soil suitability standards for use in reclamation efforts, Simplot has used guidelines developed by the CTNF specific to selenium (USDA 2003). This guideline states that soils with less than 13 milligrams per kilogram (mg/kg) total selenium or 0.10 mg/kg extractable selenium have been demonstrated to yield vegetation that meets applicable reclamation standards for selenium. While these limits are not mandated, such guidelines may help assist with decisions regarding soil suitability. Although additional metals, such as nickel, zinc, and cadmium, may be present in unsuitable levels, selenium has been identified as a parameter affecting soil management.

For the soil map units identified within the Project Area, ***Table 3.5-4*** *presents the maximum selenium concentrations for sampled soils based upon the data provided in Maxim 2004c. In addition, concentrations for cadmium, nickel, and zinc are also included, even though there are currently no specific guidelines that would limit use in reclamation. (2014 DEIS at p. 3-27).*

Neither of these provides sufficient detail to ensure that maximum soil is salvaged and re-used for reclamation. The higher the volume and quality of topsoil (soil growth media) then the better the likelihood of successfully establishing durable vegetative covers. The discussion of contaminants is important when considering what soils to salvage. Equally important is the reality that the existing

soils have developed steady, self-sustaining vegetation and not caused excessive known impacts to wildlife or water quality. As a result, it is appropriate to consider contaminants - but also to consider that these areas of contamination will be mixed with less- or non-contaminated salvaged soils (during collection and replacement during reclamation) and that their contaminants will be mixed. The CTNF Standards are reasonable - but should be considered in light of the importance of growth media to obtain successful reclamation.

The 2014 DEIS references and discusses the USGS (NRCS)/USFS adopted criteria (See USDA. 2013b. Soil Survey Staff. Natural Resources Conservation Service. ENG-Construction Materials; Reclamation. August 21, 2013) and other materials. These are important guidelines but should be considered as guides, not rules, which should be balanced against local agency expertise to maximize soil material salvaged and required for reclamation. They should also be viewed in light of the limited representativeness of the soil-contaminant data. The 2014 DEIS suggests that samples are not necessarily reflective of broad soils trends/contamination and therefore that conclusions about soil suitability are suspect.

The 2014 DEIS states:

It should be noted that data collected from individual soil sample sites, especially within soil inclusions within various soil complexes, may not be representative of the surrounding soil in the major map unit based upon soil sample laboratory analysis reported in Maxim 2004c. (2014 DEIS at p. 3-28; see also 2007 FEIS at p. 3-98)

Comment 7-23

The agencies should establish specific topsoil objectives and requirements to ensure that all reasonably suitable growth media is salvaged to maximize the potential for revegetation success (balanced against the need to minimize contamination from soil contaminants). The greater the depth/quantity of topsoil (soil growth media) then the greater the likelihood of revegetation success. Long-term vegetation success will significantly depend on greater soil depths compared to short-term vegetation success. Greater soil depth may not benefit revegetation success in the few-year period of revegetation monitoring but greater soil depths is highly likely to benefit longer-term (that is, permanent)

Response 7-23

See Response 7-21 for topsoil salvage and use in reclamation. Soils would be amended as needed, based on the outcome of testing of agronomic samples (see Response 7-22).

revegetation success. It would be a waste - and potentially impair long-term revegetation success to not salvage, preserve, and re-use all appropriate topsoil resources. Further it could impair long term revegetation success to not ensure that all sites have sufficient growth media. Soil salvage, storage, and replacement represent a cost to mines that should not outweigh the benefit of long-term reclamation success.

For the mining company, extra topsoil salvaged and used for reclamation may be more of a liability than a benefit because it means extra near-time costs of operations and the extra benefit of long-term reclamation success will not be realized for decades (the company seeks the return of its bond and then it will leave the site forever). For the public - increasing revegetation success is highly valuable - and it is the public that will ultimately be responsible for the site when the company leaves.

Therefore, it is important to ensure that all usable soils materials are salvaged and effectively used for reclamation. Where the existing materials are deficient, such as from too much clay or a contaminant, then those deficiencies should be mitigated - much as the mine does for other features in the mine plan - to render the soil into a usable condition (such as thru mixing, amendment, or special handling.

Comment 7-24

Recommendation: All soil material that is not critically contaminated (such as by selenium) should be salvaged, stored, accounted for, and distributed to maximize revegetation potential. Where necessary, the soil materials should be treated to increase suitability, such as by mixing, amendment, and selective handling/placement.

The Plan and permit should eliminate from salvage only those soils known to be significantly deleterious, such as from high selenium or metals contamination - IF those soils cannot effectively be mitigated for suitable use.

Response 7-24

See Response 7-22.

Comment 7-25

The goal should be maximizing salvaging all topsoil and subsoil from areas disturbed by mining activities - regardless of location or volume. Post-mine plant growth and establishment benefit substantially from maximizing plant growth media (soils), particularly where agriculture is a proposed post-mine land use. The

Response 7-25

See Responses 7-21 and 22.

more soil, the better the post-mine revegetation success, particularly in the first five years.

The best reclamation practice would be for the company to salvage existing soil materials in two lifts - the first being A and B horizons (separately if they are sufficiently thick to separately salvage) and the second lift being sub-B-horizon. During reclamation (re)placement, the lower horizons should then be placed as the first step of replacing cover material, upon which the upper (A and B horizons) would be placed. The net effect is more cover material that will better support plants and more quickly further develop soils than just the A and B horizons placed on top of sand, waste rock, liners, etc.

The topsoil salvage piles will stand unused for years. As a result the soils quality will degrade during mine operations and the soil value will be reduced from when it was salvaged compared to when it is replaced. The EIS describes storage but it is essential to preserve soil integrity (including organic materials, microbes such as mycorrhizae, promote aeration, reduce weed introduction, and reduce erosion. To achieve this the Reclamation Plan should identify specific steps that it commits to employ to establishing 'nurse' crops on the topsoil salvage piles. These plants should be consistent with, and not compete, with the planned postmine revegetation, especially agricultural seeding/planting.

The Reclamation Plan should analyze and the company should commit to characterizing stored topsoil resources (one or two years prior to starting reclamation) to identify basic physical and chemical characteristic that will more accurately identify benefits and deficiencies discussed in section 3.5.1.3 Topsoil/Growth Medium Suitability (2014 DEIS). These results can then be used to modify the reclamation plan and determine what, if any, amendments, mixing, or other treatments are necessary and appropriate to enhance and ensure revegetation success. Criteria should include contaminants, material size fractions, nutrients, pH, microbial condition (such as mycorrhizae), and organic content. Sampling should be done at the surface and deep in the piles. This will ensure that the replaced soil and subsoil materials/horizons are best able to support post-mine agricultural goals. By sampling and evaluating the materials before they are disturbed, the mine can

mix-in organics and other materials/amendments that may be necessary to ensure they are fully integrated into the replaced soils (as compared to simply added as top-dressing). The mine's existing sampling is informative but does not substitute for assessing the salvaged materials when they are going to be used.

Comment 7-26

Recommendation: The regulatory agencies should specify detailed topsoil salvage and storage plans to ensure that the maximum amount of materials is salvaged for reclamation. These materials should be stored to maximize soil health and reclamation efforts.

Response 7-26
See Responses 7-21 and 22.

Vegetation

The 2014 DEIS provides general requirements for revegetation. It states:

Timber would be cruised by the USFS and then harvested from proposed disturbance areas as directed by the USFS. Simplot would purchase the timber at the market value appraised at the time of harvest. Small brush and slash would be incorporated in the topsoil when it is salvaged. (2014 DEIS p. 2-23)

Revegetation of disturbed areas would be conducted during reclamation activities by seeding and planting with the vegetation

species mix approved by the USFS. Seeding would proceed no later than the first fall after earthwork is complete. (2014 DEIS p. 2-23)

Comment 7-27

Earthwork should be timed to ensure that no large areas of untreated lands are exposed during the winter. To the maximum extent practicable, the agencies should require that earthwork and revegetation are timed to protect reclaimed areas and minimize loss of seed and treatments and minimize erosion or surface failure.

Response 7-27
Section 2.5.4 has been revised to include this recommendation as follows: "Reclamation earthwork would be timed to ensure that no large areas of untreated lands are exposed during the winter months."

Comment 7-28

The 2014 DEIS' discussion of contaminated soils, discussed above, suggests that plants growing on the contaminated soils will be/have accommodated to the contaminants in the soils. Therefore, it is appropriate for the regulatory agencies to require seed harvest from those areas where soils are known to be contaminated. During the reclamation phase, this seed should then be applied to re-soiled areas where soil may be contaminated. This will help ensure that revegetation species are maximally adapted to the soils

Response 7-28
Contaminated soils would not be considered suitable for reclamation; see Response 7-22. Therefore, seed harvested from plants in areas of contaminated soil would not be appropriate for revegetation use.

Recommendation: Seed from plants growing in areas where soil is known to be contaminated (of concern) should be harvested prior to mining disturbance and used as a seed source for reclamation of areas where that contaminated soil is used for reseeding.

Revegetation

The 2014 DEIS describes generalized reclamation goals. The 2007 FEIS describes more detail about revegetation but neither are sufficiently detailed and neither have meaningful revegetation/reclamation criteria.

The 2007 and 2014 DEIS' state:

Reclamation monitoring would follow for a period of a few years to ensure reclamation meets agency requirements. (2007 FEIS at p. ES-1)

Revegetation would be conducted to stabilize reclaimed surfaces with perennial vegetation communities and restore a post-mining land use for multiple use management. Livestock grazing in reclaimed areas would be controlled until the areas have become

stabilized and are deemed ready for grazing by the USFS. (2014 DEIS p. 2-23)

Comment 7-29

The Reclamation Plan should establish specific goals for essential revegetation features and not just generalized, conceptual goals. There should be clear noxious weed criteria, based on basal and aerial cover, which should be used to trigger treatment and/or retreatment.

Recommendation: Establish minimum percentage vegetative cover goals of at least 50% after three years and 80% for five years before determining "success" or allowing relevant bond release.

Response 7-29

The 2008 RODs includes specific reclamation criteria, which would also apply to the current modification. For example, page 8 of Appendix II in the BLM ROD states, "A minimum of 60 percent groundcover or 85 percent of pre-existing cover conditions will be met for three consecutive years on reclaimed areas. Proportions of vegetation litter and rock should be similar to pre-existing conditions."

Requirements applicable to noxious weeds may be found in the BLM 2008 ROD, Appendix II, page 3, which states, "Simplot will continue their program of monitoring and controlling noxious weed infestations. Simplot will develop a plan for annual noxious weed treatment." In addition, **Section 2.5.4** of the EIS states, "In order to control and prevent the spread of noxious

weeds, Simplot would comply with guidelines established by the USFS."

Comment 7-30

Vegetation cover goals should be established. Further, the percentage cover should be required to persist for at least 5 consecutive years prior to bond reduction or release. Plant growth (germination and early growth) is not as important as long-term establishment.

The 5-year period described for bond reduction/release should re-start whenever revegetation activities are taken to enhance revegetation. The goal of any minimum period should be reasonably demonstrating that plants have established and are self-sustaining. If supplemental activities are taken (such as watering, adding amendments, fixing erosion or subsidence, recontouring, reseeding, planting, weed control, etc.) then the clock should re-start to ensure that vegetation is actually surviving on its own. The 5-year period should demonstrate the site's ability to sustain itself - not demonstrate that with various treatments the company can keep the site growing.

Recommendation: Revegetation success should be measured no sooner than five years after revegetation goals have been met - without additional treatments or activities. If additional treatments or activities are undertaken, the 5-year clock should restart to ensure that revegetation and long-term plant establishment has actually occurred.

Response 7-30

See Response 7-29.

Comment 7-31

Because post-mine land uses will not be homogenous, it will be important to establish criteria for both alpha and beta diversity. Such criteria should make clear both aerial and basal cover-percent and further identify criteria for success and failure for both alpha and beta diversity. Without these standards revegetation could achieve some goal or required percent coverage but not establish, or even provide a reasonable ecological basis for future establishment of the diverse vegetative cover that will persist and support post-mine land uses. These standards should roughly mimic the pre-mine alpha and beta diversity numbers for the mine, broken down into appropriate sub-regions. The goal should be to ensure that both species numbers and richness are established - which is necessary to achieve post-mine land use goals.

Response 7-31

Phosphate mine reclamation direction for lands managed by the CTNF is found in the RFP under Prescription 8.2.2(g) (RFP pages 4-82 to 4-84) and under Forest-wide Standards and Guidelines for Minerals and Geology, Drastically Disturbed Lands (RFP pages 3-13 to 3-12). For example, Guideline 2 on page RFP 3-14 states "Selection of plant species for establishment should reflect the surrounding ecosystem and post-remedial land use. Plant material used should be adapted to the climate of the site. Consideration and preference should be given to promoting natural succession, native plant species, and structural diversity."

Recommendation: Establish clear alpha and beta diversity requirements for vegetative cover.

With regard to reclamation for phosphate mines, the Forest's first priority is to assure that factors such as surface and groundwater standards, bio-accumulation, and surface water management are adequately addressed and effectively managed; managing for species diversity is secondary.

Weeds

The 2014 DEIS describes generalized to be followed for weed prevention. The 2007 FEIS similarly describes generalized and some specific planning to prevent weeds but neither are sufficiently detailed and neither have meaningful revegetation/reclamation criteria.

The 2014 DEIS states:

In order to control and prevent the spread of noxious weeds, Simplot would comply with guidelines established by the USFS. This includes cleaning all off-road vehicles prior to entering and

re-entering the Project Area and using only certified weed-free seed, mulch, straw bales, etc. (2014 DEIS p. 2-23)

The Reclamation Plan does not establish a detailed weed control plan, but weeds could significantly threaten the post-mine land uses. Weed problems can begin during the first stages of mining, particularly during topsoil salvage operations and establishing nurse crops, when weeds can begin to take hold.

Comment 7-32

Recommendation: A weed-prevention program should be developed and implemented. At a minimum, this plan should include, but not necessarily be limited to:

1. Certification of weed-free seed and weed-free hay/mulch;

2. Detailed requirements and processes to prevent weed introduction (such as washing vehicles entering the site);

3. Weed criteria identifying 'triggers' for weed treatment.

4. Weed-response plan identifying how weeds will be controlled if they do come to the site.

Response 7-32

See Response 7-29 and **Section 2.5.4** of the EIS.

Comment 7-33

Recommendation: Establish clear noxious species/weed financial surety criteria, including the lowest amount of weeds that will trigger treatment and the highest allowable percentage of noxious weeds that will be allowed for bond reduction or release.

Response 7-33

Noxious weed control is a standard part of bond calculations, and would be included in the performance bond for this Project. The BLM and the USFS conduct routine (typically monthly) mine inspections to provide the required oversight and assure that

noxious weeds receive an acceptable level of treatment to meet reclamation goals and requirements.

Comment 7-34

Erosion

Neither the Reclamation Plan nor the Mine Plan describes adequate preventative reclamation methods to reduce overburden slope erosion or measures to ensure that erosion does not contaminate surface waters. The Reclamation Plan should describe detailed methods to be employed to prevent erosion. Should those methods prove inadequate then further planning and implementation should be employed. Methods to prevent erosion may include, but not be limited to, dozer basins, terraces, rock and rip-rap placement, etc. What matters is to ensure that prevention takes primacy over responses to failure.

Where erosion does occur there should be a clear commitment to not only correct the cause/problem but to employ further preventative measures.

The Reclamation Plan should establish specific goals for erosion - the failure of which will trigger specified responses. Given that erosion may occur many years after successful revegetation (such as after a drought year stresses erosion-protecting plants or a particularly wet year or piping causes new or increased erosion) it is important for the Reclamation Plan to develop these goals and commitments.

Recommendation: The Reclamation Plan should establish clear, measurable erosion goals including success criteria(such as less than x-feet of rilling per y-area and no erosion wider or deeper than z-inches) and responses to failure to meet those reclamation criteria, including but not limited to treatment protocols; long-term protection from post-reclamation disturbances; timeframes over which success will be measured and how criteria failure or re-treatment activities will re-start timeframes, etc.

Response 7-34

As stated in the 2008 BLM ROD, Appendix II, on page 8 under the heading of Surface Water Monitoring, “Simplot will monitor for the formation of erosion related rills on the external overburden fills and backfilled surfaces. Where necessary, corrective actions will be taken.”

Comment 7-35

Reclamation Maintenance

In the first two years after construction, reclaimed sites should be monitored (at least) monthly to ensure that problems are detected early-on. Where no problems are evident for one year those inspections may be reduced to quarterly. Where no problems are evident after two years of quarterly inspections then the inspection

Response 7-35

These are important issues and we concur. Common prevention methods currently utilized at the mine include sediment basins, ditches, armoring via rip-rap, etc. These methods would also be employed for the proposed modifications. Erosion control features and potential erosion are items routinely evaluated

frequency may be reduced to twice per year. The timing should be reasonably based on capturing problems early-on and should be approved by the state regulatory agencies. If a problem is detected that requires remedial action then the inspection schedule should restart for that site.

Recommendation: Inspection of reclamation at all sites should be based on a decreasing schedule of frequency that begins with a monthly or every-other-month schedule and reduces to quarterly after one year and semi-annually after two years of each inspection schedule without the need for remedial actions. If remedial actions are required then the inspection schedule should re-start for that site.

4.3.2 Air Resources - Direct and Indirect Impacts

The potential for fugitive dust from the Conveyor System to contaminate surrounding areas should be fully examined.

The 2014 DEIS states:

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. (2014 DEIS, p. 4-8)

The DEIS further concludes that the Conveyor System will reduce emissions over truck traffic.

during inspections conducted by both Simplot and the Agencies. Areas of erosion are assessed on a case-by-case basis and repaired appropriately. As stated on page 8 of Appendix II in the 2008 BLM ROD, "Simplot will monitor for the formation of erosion related rills on the external overburden fills and backfilled surfaces. Where necessary, corrective actions will be taken."

Comment 7-36

Monitoring should be required to determine if contaminated dust, particularly selenium-contaminated dust is not leaking from and/or settling/concentrating near the conveyor or being concentrated/transported by precipitation or stormwater.

Moreover, these points should be considered beyond their potential air contamination to ensure that the dust or particulates that emit from these points do not concentrate or otherwise cause contamination. In other words, air emissions may not violate air quality regulations but over time the emitted particles may

Response 7-36

Selenium in dust generated from the operation is not predicted to be an issue and there is not an indication that specific monitoring is warranted. This is discussed on pages 6-15 through 6-17 in Chapter 6 of the 2007 FEIS, specifically: "Past monitoring results obtained from MSHA indicate that Simplot's Smoky Canyon Mine controls dust at the mine to well below the applicable nuisance dust Threshold Limit Values (TLVs) of 10 mg/M^3. … The majority of dusts generated from mining and transportation activities are likely to settle soon after generation. Selenium

accumulate on or off-site and cause soil or water contamination.

Further, the pipe-conveyor should be evaluated during use to ensure that it does not cause contamination from the ore or the empty/return trip. Pipe-conveyor belt manufacturer literature suggests that even on the return trip (empty) that contaminants sticking to the belt do not leak - but it may be difficult to contain dust and small particles in any moving structure. Therefore the regulatory agencies should require and the mine implements an appropriate study to measure dust and particle leakage (and liquid during wet conditions) from the conveyor system. Because of the high volume of material being transported it is important to ensure that the conveyor system is not creating a linear contamination zone. This may be akin to railcars or truck traffic that may "lose" only a very small quantity per unit transported but over time these small quantities add-up and may cause significant contamination (and their transit corridors themselves become contamination sources).

Recommendation: Monitor dust from the Conveyor System, including loading and unloading facilities and where storm water may transport contaminated, precipitated dust or particulates. Similarly, monitoring should be capable of capturing liquid from inside or outside of the conveyor that could spill or otherwise leak (notably during wet weather).

emissions may result in levels at 0.0005 mg/M^3, with a TLV of 0.2 mg/M^3; 0.25 percent of the TLV."

"We conclude from the above that the amount of selenium in the dust fallout from Panel G would present a negligible to minor impact to surface water quality, topsoil quality, or vegetation in the adjacent fallout area. This conclusion is also applicable for Panel F because, if the calculations were done, lower impacts would be estimated due to the calculated dust releases for Panel F being lower than Panel G. The same can also be said of the Panel G West Haul Road because the selenium concentration in the dust would be over an order of magnitude less than Panel G (1.5 mg/Kg v. 41.7 mg/Kg) and would be spread out over a larger fallout area than Panel G. This would result in significantly lower impact levels than are estimated herein for Panel G."

Further, **Section 4.3.2.1** of the EIS, under the heading of Panel F Ore Conveyor System discusses anticipated fugitive emissions. **Table 4.3-2** indicates that the conveyor would reduce fugitive emissions below those estimated for haul truck traffic. Therefore, fugitive emissions from the conveyor would be anticipated to be less than those described in the 2007 FEIS, which were a fraction of the TLVs.

As stated in **Section 4.3.2.1**, IDEQ concurred that the proposed conveyor system meets the permit to construct exemption.

Materials are already transported to the unloading location at the mill; the Proposed Action would not change operations at that location. The unloading area at the mill is part of previously approved operations, which is out of the scope of analysis for this Project.

The transfer towers where the ore would be loaded onto or unloaded from the conveyor would be contained within buildings or tunnels (**Section 2.4.1.2** of the EIS), which would prevent precipitation from entering and collecting in the pipe conveyor. The only potential liquid in the conveyor would come from the ore itself. The conveyor belt would be rubber reinforced with steel cable, which would be impermeable to water, and thus would not leak water along the length of the conveyor. The conveyor belt is rolled to form a pipe (**Section 2.4.1.2** of the EIS)

where the rubber belt would overlap itself, with the seam on the top of the pipe, which would significantly limit water or dust escaping from the pipe.

Comment 7-37

Recommendation: Given the statistical probability of human error or mechanical failure, and the potential during a conveyor spill/failure for ore conveyed to contaminate waterbodies (e.g. Sage Creek) over which it is crossing, the regulatory agencies should require the mine to develop a conveyor system monitoring, failure/environmental response and mitigation plan.

Response 7-37

The conveyor is a closed system in which the conveyor is rolled to form a pipe, as shown and described in **Figure 2.4-2**. The conveyor system would be designed with in-belt sensors or external camera systems to detect malfunctions, and the conveyor would be shut down should there be a break in the belt.

The conveyor would be following the haul road at the point where it would cross Sage Creek. At that point, the conveyor would be on the west side of the existing haul road, approximately 43 feet from the edge of the existing road near Sage Creek. Should the conveyor belt fail at that point and be shut down, there is potential for the ore uphill in either direction from that point to discharge at the break, spilling out onto the haul road. However, the amount of ore in that section of the conveyor would not be enough to accumulate and spill over the edge of the haul road into Sage Creek.

Commitment to Reporting

It is important that the public be able to participate in all phases of mine permitting, operations, closure, and post-closure activities. To support this need, monitoring and discharge reports, including reporting on contamination of surface and ground water, should be made publicly available in a timely manner.

Comment 7-38

The mine should immediately notify the public of leaks, contamination, etc., and develop a system for such timely notification in a way that is broadly accessible to all affected parties. This is essential for trust and to develop a working relationship with the public, especially affected communities. Adequate monitoring is the only way to determine spills and their impacts. Unknown leaks, or leaks that employees fail to report or attempt to hide will remain undiscovered and their contamination will continue or disperse unless monitoring is in place to detect them. Adequate monitoring before, during, and following mining also protects the company, because it allows all involved to determine what is caused by the mine versus other sources/causes.

Response 7-38

In addition to annual reporting requirements to the BLM, monitoring and discharge reporting is handled through EPA's Enforcement and Compliance History Online (ECHO) system, which provides the public with facility details, including types of permits held, compliance and enforcement history, permit limits, and other related information (http://echo.epa.gov/). The mine is also required to immediately notify the BLM, USFS, and other jurisdictional agencies of accidents, spills, and other environmental impact events.

Recommendation: Contaminant release and incident reporting structures should require that the company provide environmental data and reports to the public. There should be full transparency and the company should commit to informing the public and government about any unplanned or unpermitted releases as soon as it becomes known - not just during the regular document/reporting cycle. Annual or even quarterly reports do not adequately address the public's right to know about problems at the mine. These are essential for good operating procedures and public trust.

Comment 7-39

Before permit issuance, actual monitoring points for all monitoring should be clearly identified in terms of location and times of sampling. Moreover, monitoring points should be representative and be close to the discharge, to prevent long mixing zones that may become essentially sacrifice zones.

Response 7-39

This Project is a proposed modification to an approved M&RP, and monitoring points are described in the 2007 FEIS. Additional monitoring points required by CERCLA are identified in the RI/FS Report. The monitoring points are selected in consultation and coordination with the agencies responsible for compliance. These considerations include early detection of contamination.

Chapter 5 Cumulative Effects / 5.4 Surface Water Resources / 5.4.3 Past and Present Disturbances

In analyzing the cumulative impacts in the 2014 DEIS, as was noted in Section 2.3.2 CERCLA Studies and Remediation, it is noted:

While remediation actions have been taken and will continue into the future for the Smoky Canyon Mine, they have no bearing on the previously approved mining operations at Panels F and G. Further, the ***mining of Panels F and G has no connection to existing water quality impacts to Smoky Canyon Mine*** *that is currently under investigation because the South Fork of Sage Creek drainage, which essentially separates Panels F and G (to the south) and Panels A through E (to the north), is the low point for both areas and groundwater flows converge to this low point from both directions. For these reasons, this EIS will focus solely on the proposed mine and lease modifications for Panels F and G described in Section 2.4. (2014 DEIS, p. 2-4,* ***emphasis added****)*

Comment 7-40

Even though Panels F and G are in the Deer Creek sub-drainage of Crow Creek, while Panel E is in the Sage Creek sub-drainage of Crow Creek, there could potentially be cumulative impacts to Crow Creek due to the combination of past (Panels A-E) and future (Panels F-G) mining.

BLM also noted in its 2008 ROD:

*Since the analysis in the EIS was completed, the **BLM has approved a more stringent reclamation plan at Panel E than was analyzed in the FEIS**. It is expected to reduce water quality impacts at South Fork Sage Creek Springs from Panel E beyond what is described in the FEIS. (2008 BLM ROD, p. 16, **emphasis added**)*

Response 7-40

Sections 4.4, **5.3**, and **5.4** have been modified to include discussions on the combined cumulative effects of the Panel G modifications and the predicted effects from previously approved mining to Deer Creek using the RI/FS Report predictions as a basis for the discussion.

Comment 7-41

So not only do Panel E (and other EE/CA related mitigation measures) reclamation measures potentially have cumulative impacts to Crow Creek, but the analysis that was presented in the 2007 FEIS has changed.

Recommendation: The 2014 DEIS should have contained a cumulative effects analysis that evaluated the changes to the Panel E reclamation, as well as incorporating information from the EE/CA on the effectiveness of the reclamation measures employed so far to mitigate impacts from earlier mining.

In conclusion, GYC feels our recommendations represent a prudent course of action to achieve the best possible project analysis and operational controls from which to make a sound decision on the project's proposed modification. Because many factors influence water quality and terrestrial habitat, project monitoring and reporting will play a significant role in future permitting and in the timely detection and remediation of potential contamination, it will be necessary for the project to provide regular updates on the project's performance.

Thank you again for the opportunity to comment.

Response 7-41

See Response 7-40. The relevant information within the scope of this Project has been added to **Sections 4.4**, **5.3**, and **5.4**.

Sincerely,

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1 Final Environmental Impact Statement Smoky Canyon Mine, Panels F & G, U.S. Department of the Interior, Bureau of Land Management and U.S. Department of Agriculture, Forest Service, October 2007
2 Record of Decision Environmental Impact Statement Smoky Canyon Mine, Panels F&G, U.S. Department of the Interior, Bureau of Land Management, Idaho Falls District, June 6, 2008

3 For Lease Modification *see*:

The 2007 FEIS analyzed the potential impacts of increasing the lease area by 18 acres of USFS-administered lands to accommodate the seleniferous ODA. However, BLM regulations at 43 CFR 3510 in effect at the time the 2008 RODs were issued did not allow for the modification of a lease for the purpose of permanently disposing of overburden. In addition, permanent disposal of overburden off lease did not meet the requirements and criteria contained in USFS regulations at 36 CFR 251.54(e)(ix) for approval of a USFS SUA. The 2008 RODs required Simplot to keep disposal of all overburden on-lease; however, the BLM ROD recognized the potential for future consideration of off-lease overburden disposal:

"...the impacts of the off-lease overburden storage were analyzed in the FEIS and if regulations change in the future, a separate decision could be considered at that time by both agencies. Otherwise, Simplot will have to submit a revised dump design for BLM and FS consideration prior to construction of Panel G."

2.4.2.2 Regulations Governing Lease Modifications

In 2009, BLM promulgated revised regulations (43 CFR 3510) that allow the modification of a lease for purposes of permanent disposal of overburden materials, if specific criteria are met. . (2014 DEIS p. 2-13)

4 *See generally*:

2.4.8 Reclamation of Disturbed Area and Financial Assurances

Reclamation specified by the currently approved M&RP includes shrubs and trees to be seeded or planted in clusters where they are most likely to establish and where there are no concerns relative to the integrity of the overburden covers or potential selenium uptake. Reforestation of reclaimed surfaces would not be implemented in areas covered by the GCLL in order to maintain its integrity. A seed mix approved by the USFS would be applied during reclamation. All other disturbed areas would be reclaimed in accordance with the 2008 RODs. (2014 DEIS p. 2-21)

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CHAPTER 8

REFERENCES, ACRONYMS, ABBREVIATIONS, GLOSSARY, AND INDEX

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CHAPTER 8 REFERENCES, ACRONYMS, ABBREVIATIONS, GLOSSARY, AND INDEX

8.1 REFERENCES

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8.2 ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	DEFINITION
ABA	acid base accounting
AMP	Adaptive Management Plan
AIZs	aquatic influence zones
AOC	Administrative Order on Consent
ARD	acid rock drainage
ASQ	allowable sale quantity
ATV	all-terrain vehicle
AU	assessment unit
AUM	animal unit month
BCP	Bird Conservation Plan
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMPs	best management practices
CAA	Clean Air Act
CCE	calcium carbonate equivalent
CD	compact disc
C&H	cattle and horses
CEA	cumulative effects area
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations

ACRONYM/ABBREVIATION	DEFINITION
cfs	cubic feet per second
CNF	Caribou National Forest
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COPCs	contaminants of potential concern
Corps	U.S. Army Corps of Engineers
CTNF	Caribou-Targhee National Forest
DAP	diammonium phosphate
dB	decibel
dBA	decibel-A weighted
DEIS	draft environmental impact statement
DNA	deoxyribonucleic acid
DPS	distinct population segment
EE/CA	engineering evaluations/cost analyses
EIS	environmental impact statement
EO	Executive Order
EPA	Environmental Protection Agency
EPMs	environmental protection measures
ESA	Endangered Species Act
F	Fahrenheit
FEIS	final environmental impact statement
FR	forest road

ACRONYM/ABBREVIATION	DEFINITION
FSEIS	final supplemental environmental impact statement
GAP	gap analysis program
GCLL	geo-synthetic clay laminate liner
GHGs	greenhouse gases
GIS	geographic information system
HDPE	high density polyethylene
HUC	hydrologic unit code
IDAPA	Idaho Administrative Code
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDL	Idaho Department of Lands
IDWR	Idaho Department of Water Resources
IFWIS	Idaho Fish and Wildlife Information System
IM	Instruction Memorandum
IPM	integrated pest management
IRAs	inventoried roadless areas
ISO	International Organization for Standardization
ISU	Idaho State University
IWJV	Intermountain West Joint Venture
K	Hydraulic Conductivity
km	kilometer
KPLA	known phosphate lease areas

ACRONYM/ABBREVIATION	DEFINITION
kV	kilovolt
Leq	equivalent sound level
M&RP	mine and reclamation plan
MBTA	Migratory Bird Treaty Act
MCC	motor control center
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MIS	management indicator species
MOU	Memorandum of Understanding
MPH	miles per hour
MPRA	Meade Peak Roadless Area
MSHA	Mine Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_x	nitrogen oxides
NO_2	nitrogen dioxide
N_2O	nitrous oxide

ACRONYM/ABBREVIATION	DEFINITION
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTUs	nephelometric turbidity units
ODA	overburden disposal area
OHV	off highway vehicle
OSHA	Occupational Safety and Health Administration
O_3	ozone
Pb	lead
PEL	permissible exposure limit
PGH	preliminary general habitat
PIF	Partners in Flight
PM	particulate matter
PPH	preliminary priority habitat
PSD	prevention of significant deterioration
RFP	revised forest plan
RI/FS	Remedial Investigation/Feasibility Study
RM	Roaded Modified
RMP	resource management plan
ROD	Record of Decision
ROM	run-of-mine
ROS	Recreation Opportunity Spectrum

ACRONYM/ABBREVIATION	DEFINITION
S	sensitive
S&G	sheep and goats
SAR	sodium adsorption ration
SCRA	Sage Creek Roadless Area
SHPO	State Historic Preservation Office
SI	site investigation
SIP	State Implementation Plan
SIO	scenic integrity objective
SMS	scenery management system
SO_2	sulfur dioxide
SPM	Semi-primitive Motorized
SUA	special use authorization
SWPPP	Stormwater Pollution Prevention Plan
TDS	total dissolved solids
TEPC	threatened, endangered, proposed, and candidate
TSP	total suspended particles
USDA	U. S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UV	ultraviolet
VOCs	volatile organic compounds
VQO	visual quality objective

ACRONYM/ABBREVIATION	DEFINITION
WOUS	waters of the U.S.
WRAP	Western Regional Air Partnership
YCT	Yellowstone cutthroat trout

8.3 GLOSSARY

Acre-feet. The volume required to cover 1 acre to a depth of 1 foot, which is equivalent to 43,560 cubic feet.

Acid Rock Drainage (ARD). Water with pH less than 5, elevated TDS, SO_4, and trace metal concentrations that result from the oxidation of acid generating sulfide minerals with subsequent dissolution and transport of the oxidation products.

Allowable Sale Quantity (ASQ). The maximum amount of timber that can be sold from a National Forest, often within a year.

Alluvial. Pertaining to material or processes associated with transportation or deposition of soil and rock by flowing water (e.g., streams and rivers).

Alluvium. Soil and rock deposited by flowing water (e.g., streams and rivers); consists of unconsolidated deposits of sediment, such as silt, sand, and gravel.

Ambient. Surrounding, existing, background conditions.

Animal Unit Month (AUM). A unit used in federal and state livestock grazing permits to mean the amount of forage (i.e., food) required for one animal unit. An animal unit refers to the equivalent of one mature cow.

Aquatic Influence Zones (AIZs). Defined by the National Forest as the areas between streams or water bodies and the adjacent upland area that have an influence on water quality.

Best Management Practices (BMPs). Vegetative and structural methods to control erosion and sedimentation.

Biological Assessment. Information prepared by or under the direction of the federal agency concerning listed species that may be present in the action area and the evaluation of potential effects of the action on such species and habitats. The purpose of the biological assessment is to evaluate the potential effects of the action on listed or proposed species or designated or proposed critical habitat, and determine whether any such species and habitats are likely to be adversely affected by the action. Biological Assessments are conducted for major federal construction projects requiring an EIS.

Bird Conservation Plan (BCP). Plans initiated by Partners In Flight to guide conservation and for birds.

Carbon Dioxide Equivalent (CO_2e). A quantity that describes the amount of CO_2, when measured over a specific time, that would have an impact on global warming potential.

Cubic Feet per Second (cfs). Metric of water flow that describes a cubic feet of water that passing over a given point on a water body (i.e., stream or river).

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). A federal law that taxes chemical and petroleum industry to fund releases of hazardous substances. Also known as "Superfund."

Chert. A hard, dense microcrystalline or cryptocrystalline sedimentary rock, consisting chiefly of interlocking crystals of quartz; it may contain amorphous silica (opal). It has conchoidal fracture, and may be white or variously colored. Chert occurs principally as nodular or concretionary segregations, or nodules in limestone and dolomite, and less commonly as layered deposits, or bedded chert; it may be an organic or inorganic precipitate or a replacement product.

Contaminants of Potential Concern (COPCs). A contaminant which may cause risk or adverse effects to humans or other plants and animals.

Contrast (visual). The effect of a striking difference in form, line, color, or texture of the landscape features within the area being viewed.

Critical (Crucial) Habitat/Range. Habitat that is present in minimum amounts and is a determining factor for population maintenance and growth.

Decibel-A Weighted (dBA). The sound pressure levels in decibels measured with a frequency weighing network corresponding to the A-scale on a standard sound level meter. The A-scale tends to suppress lower frequencies (e.g., below 1,000 Hz).

Decibel (dB). One-tenth of a Bel is a measure on a logarithmic scale that indicates the ratio between two sound powers. A ratio of 2 in power corresponds to a difference of 3 decibels between two sounds. The decibel is the basic unit of sound measure.

Dissolution. The process of dissolving.

Distinct Population Segment (DPS). The designation of a taxonomic division of a species, as used under the Endangered Species Act.

Electrical Conductivity (or Specific Conductance). The ability of a water or a soil-water paste to transmit electrical current, used to estimate ion concentration.

Endangered Species. Species in danger of extinction throughout all or a significant portion of its range.

Engineering Evaluations/Cost Analyses (EE/CA). An evaluation of methods and alternatives for restoration or clean up of the environment.

Environmental Impact Statement (EIS). A document prepared under the National Environmental Policy Act that describes environmental effects of an action.

Environmental Protection Measures (EPMs). Standards used to protect the environment.

Ephemeral Stream. A stream or portion of a stream which flows briefly in direct response to precipitation in the immediate vicinity, and whose channel is at all times above the water table.

Equivalent Sound Level (Leq). A term that describes the noise in the environment, as a value of sound for a specific duration.

Fahrenheit (F). A metric of temperature.

Fate and Transport. Description of the movement of a contaminant through a groundwater system which may include the effects of dilution, dispersion, attenuation and various chemical reactions.

Floodplain. The low and relatively flat areas adjacent to rivers and streams. A 100-year floodplain is that area subject to a 1 percent or greater chance of flooding in any given year.

Forage. Vegetation used for food by wildlife, particularly big game wildlife and domestic livestock.

Forbs. Any herbaceous plant other than a grass.

Fry. The young of fish.

Game Species. Animals commonly hunted for food or sport.

Geographic Information Systems (GIS). A system that presents spatial geographic data.

Geosynthetic Clay Laminate Liner (GCLL). A technology that uses a synthetic liner on top of overburden to reduce infiltration.

Graminoid. Grasses, or more technically graminoids, are monocotyledonous, usually herbaceous plants with narrow leaves growing from the base. They include the "true grasses", of the family Poaceae, as well as the sedges and the rushes.

Greenhouse Gases (GHGs). An atmospheric gas such as water vapor, CO_2, methane, and ozone, that absorb and emits radiation.

High Density Polyethylene (HDPE). A product commonly used in the production of plastic bottles, piping, and geomembranes because of its high strength to density ratio.

Hydraulic Conductivity (K). A coefficient of proportionality describing the rate at which water can move through a permeable medium.

Hydrologic Unit Code (HUC). A number that is used to identify a watershed.

Instruction Memorandum (IM). Supplementary documents used by the BLM to help to address new policies, interpret policies, and provide immediate instruction.

Integrated Pest Management (IPM). An approach used to control pests such as insects that uses careful consideration of economics and environment to reduce risks to human and environmental health.

Intermittent Stream. Stream that flows only part of the time or during part of the year; some segments of the stream may flow year-round.

Intermountain West Joint Venture (IWJV). A partnership to conserve bird habitats in the western United States.

International Organization for Standardization (ISO). Developer of voluntary standards for products, services, and practices that improve the efficiency and effectiveness of industry.

Kilometer (km). A unit that measures length equivalent to 0.621 miles.

Land Use Plan. The organized direction or management of the use of lands and their resources to best meet human needs over time, according to the land's capabilities.

Limestone. A sedimentary rock consisting chiefly of the mineral calcite (calcium carbonate), with or without magnesium carbonate. Common impurities include chert and clay. Limestone is the most important and widely distributed of the carbonate rock and is the consolidated equivalent of limy mud, calcareous sand, and/or shell fragments. It yields lime on calcination.

Land and Resource Management Plan. Document that established direction for future decisions of the use of lands and resources in the planning area to best meet human needs over time, according to the land and resource capabilities.

Management Indicator Species (MIS). Species used to represent the health of wildlife habitats, in relation to management activities.

Mesic. Moist habitats associated with springs, seeps, and riparian areas.

Memorandum of Understanding (MOU). A document describing an agreement between two or more parties.

Milligrams per kilogram (mg/kg). A unit of volumetric measurement.

Milligrams per liter (mg/L). A unit of volumetric measurement.

Migratory Bird Treaty Act (MBTA). A law that makes it unlawful to pursue, hunt, take, capture, kill, or sell birds such raptors and songbirds.

Miles Per Hour (MPH). A measurement of speed.

Mine and Reclamation Plan (M&RP). A plan that describes the mining and reclamation activities of a mine.

Mitigation. Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Motor Control Center (MCC). A device that controls performance of an electric motor.

Nephelometric Turbidity Units (NTUs). A measurement of turbidity, or the "cloudiness" of water.

Notice of Intent (NOI). A formal announcement from the federal government that an Environmental Impact Statement will be prepared.

Off Highway Vehicle (OHV). Any vehicle that can drive off a paved or gravel road.

Overburden. Sub-economic non-ore rock or soil associated with a mineral deposit.

Overburden Disposal Area (ODA). An area where overburden is placed and stored.

Oxidation. A geochemical process involving chemical and mineralogic changes to rock or soil under chemical weathering conditions. Oxidation is typically associated with exposure of buried materials to atmospheric oxygen and water. The process occurs naturally, but is accelerated by mining activity.

Peak Flow. The greatest flow attained during melting of winter snowpack or during a large precipitation event.

Perennial Stream. A stream that flows throughout the year and from source to mouth.

Permeability. The capacity of porous rock, sediment, or soil to transmit a fluid.

Permissible Exposure Limit (PEL). The legal limit of a chemical substance an employee many be exposed to, often measured in parts per million.

pH. The negative $\log_{10}$ of the hydrogen ion activity in solution; measure of acidity or alkalinity of a solution.

Particulate Matter (PM). Small particles or liquid droplets that are in the air. Can also be known as Particle Pollution.

$PM_{2.5}$. Particulate matter less than 2.5 microns in aerodynamic diameter.

PM_{10}. Particulate matter less than 10 microns in aerodynamic diameter.

Preliminary General Habitat (PGH). In reference to greater sage-grouse, areas of high quality habitat but lacks characteristics to make the habitat priority.

Preliminary Priority Habitat (PPH). In reference to greater sage-grouse, essential and irreplaceable and important habitats.

Prevention of Significant Deterioration (PSD). A permit program to prevent environmental impacts from large sources of air pollution.

Raptor. A bird of prey (e.g., eagles, hawks, falcons, and owls).

Riparian. Situated on or pertaining to the bank of a river, stream, or other body of water. Riparian is normally used to refer to plants of all types that grow along streams, rivers, or at spring and seep sites.

Record of Decision (ROD). A record that explains why a federal action was selected, based on alternatives described in a Final Environmental Impact Statement.

Recreation Opportunity Spectrum (ROS). A system for managing opportunities for recreation, often on federal lands.

Revised Forest Plan (RFP). A Plan that has been updated to reflect changes to an existing Forest Plan.

Resource Management Plan (**RMP).** Document that establishes direction for the use of resources to best meet the needs of humans over time, according to the resource potential or capability.

Roadless Area. Natural or federal lands that are without roads.

Run-of-Mine (ROM) Overburden. Sub-economic rock mined from the phosphate deposit, which is and placed in surface dumps or as pit backfill.

Salinity. Measure of solute concentration, in grams per kilogram; "saltiness".

Scenic Integrity Objective (SIO). Scenic integrity is how visually intact people perceive the landscape to be**.** A SIO is an objective that defines how visually intact the landscape should be.

Scenery Management System (SMS). Used to analyze impacts of activities on the scenery of federal lands.

Scoping. Procedures by which agencies determine the extent of analysis necessary for a proposed action, (i.e., the range of actions, alternatives, and impacts to be addressed; identification of significant issues related to a proposed action; and the depth of environmental analysis, data, and task assignments needed).

Sediment Load. The amount of sediment (sand, silt, and fine particles) carried by a stream or river.

Semi-primitive Motorized (SPM). Areas that are managed for a natural-looking environment but vehicle assess is allowed on low standard roads and trails.

Sensitive (as in Species). Those plant or animal species that are susceptible or vulnerable to activity impacts or habitat alterations.

Shale. A fine-grained detrital sedimentary rock, formed by the compaction of clay, silt, or mud. It has a finely laminated structure, which gives it a fissility along which the rock splits readily, especially on weathered surfaces. Shale is well indurated, but not as hard as argillite or slate. It may be red, brown, black, or gray.

Significant. As used in NEPA, requires consideration of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole, and the affected region, interests, and locality. Intensity refers to the severity of impacts (40 CFR 1508.27).

Site Investigation (SI). In relation to mining, a survey used to document mining features. Drilling may be used.

State Implementation Plan (SIP). A Plan created by a state for compliance with the Clean Air Act at sites that are polluted.

Sodium Adsorption Ratio (SAR). Ratio of dissolved sodium to calcium and magnesium in water; provides a prediction of cation exchange reaction potential.

Special Use Authorization (SUA). A permit that authorizes the use of or action on National Forest System lands.

Storm Water Pollution Prevention Plan (SWPPP). A plan that is used to reduce pollutants entering waterbodies during storm (i.e., rain) events. Includes sources of pollution and control measures.

Swell. The increase in volume exhibited by certain soils and rocks on absorption of water; an enlarged place in an orebody.

Threatened Species. Any species of plant or animal which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Total Suspended Particulate/Particles (TSP). Particulates less than 100 microns in diameter (Stokes equivalent diameter).

Total Dissolved Solids (TDS). Total amount of dissolved material, organic or inorganic, contained in a sample of water.

Ultraviolet (UV). A light with wavelengths shorter than visual light in the range of 10 to 400 nanometers.

Visual Quality Objective (VQO). A desired level of excellence based on physical and sociological characteristics of an area. Refers to degree of acceptable alteration of the characteristic landscape.

Watershed. Drainage basin for which surface water flows to a single point.

Wetlands. Areas inundated by surface water or groundwater with a frequency sufficient to support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

8.4 INDEX

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Wildlife: ES-7, ES-8, 1-8, 1-11, 1-13, 1-17, 2-10, 2-25, 2-35, 2-36, 2-35, 2-36, 3-1, 3-10, 3-36, 3-42, 3-45, 3-47, 3-50, 3-53, 3-58, 3-87, 3-88, 4-34, 4-35, 4-36, 4-42, 4-43, 4-44, 4-45, 4-53, 4-58, 4-75, 4-76, 4-78, 4-87, 4-88, 5-22, 5-23, 5-24, 5-25, 5-35, 6-3, 6-4, 6-5, 6-6, 7-3, 7-24, 7-28, 7-37, 7-36, 7-46, 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, 8-8, 8-9, 8-11, 8-14, 8-17, 8-21, 8-22

Yellowstone cutthroat trout: ES-8, 1-13, 1-17, 3-60, 4-45, 4-46, 4-47, 4-48, 4-78, 5-26, 5-27, 8-18

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APPENDIX 2A

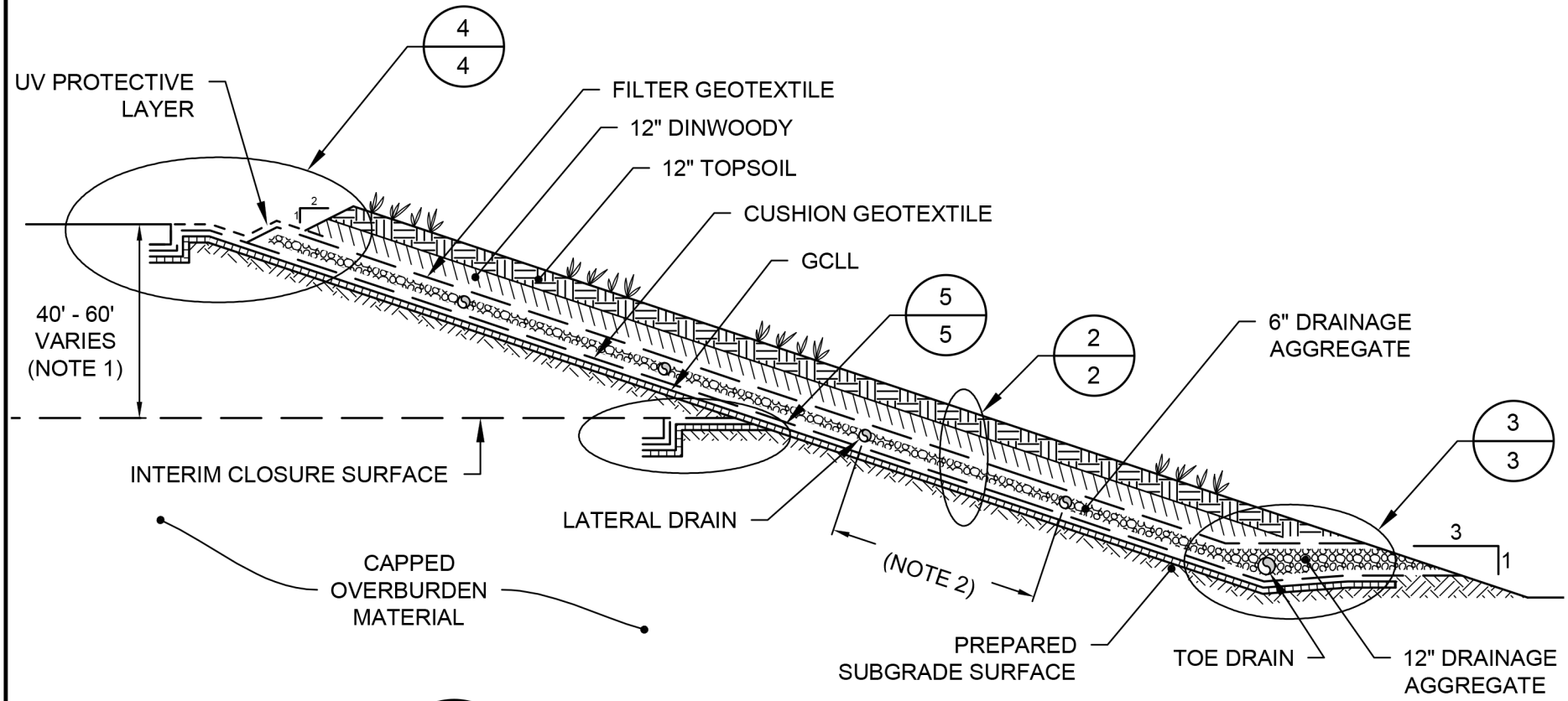
PRELIMINARY GCLL DESIGN DETAILS

Acronyms

GCLL - Geosynthetic Clay Laminated Liner

CPE - Corrugated Polyethylene

UV - Ultra-violet



1 / - DETAIL

OVERALL COVER LAYOUT

SCALE: N.T.S.

NOTES:

1. VERTICAL DISTANCE BETWEEN ANCHOR TRENCHES TO VARY BETWEEN 40 AND 60 VERTICAL FEET DEPENDING ON ROLL LENGTH, RUNOUT LENGTH, AND ANCHOR TRENCH SIZING. VERTICAL DISTANCES WILL BE EVALUATED DURING FINAL DESIGN.

2. SPACING AND SIZING OF LATERAL DRAINAGE COMPONENTS WILL BE DETERMINED DURING FINAL DESIGN.

OVERALL COVER LAYOUT CONCEPTUAL COVER DESIGN SIMPLOT - SMOKY CANYON MINE		
Geosyntec consultants	DATE: AUGUST 2013	FIGURE
	PROJECT NO. SC0564	1

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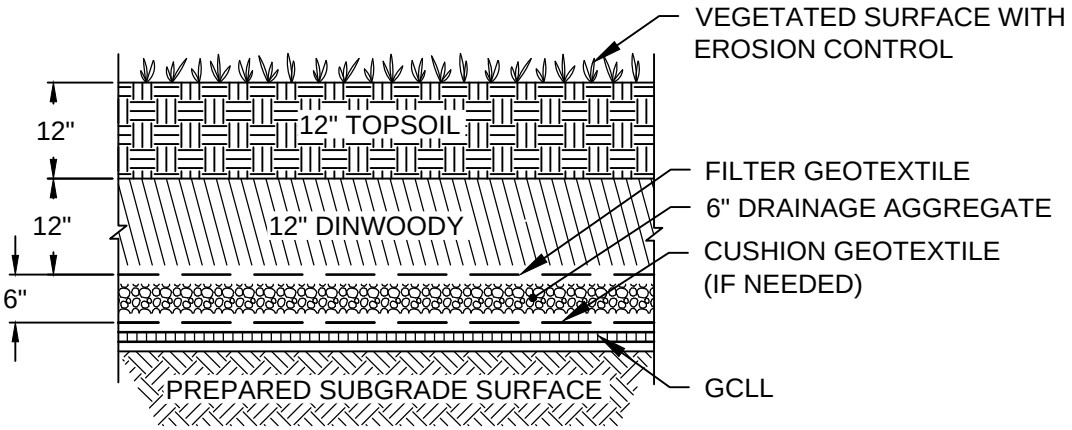

2
-

DETAIL

LINER SYSTEM

SCALE: N.T.S.

LINER SYSTEM
CONCEPTUAL COVER DESIGN
SIMPLOT - SMOKY CANYON MINE

Geosyntec consultants

DATE:	AUGUST 2013	FIGURE
PROJECT NO.	SC0564	2

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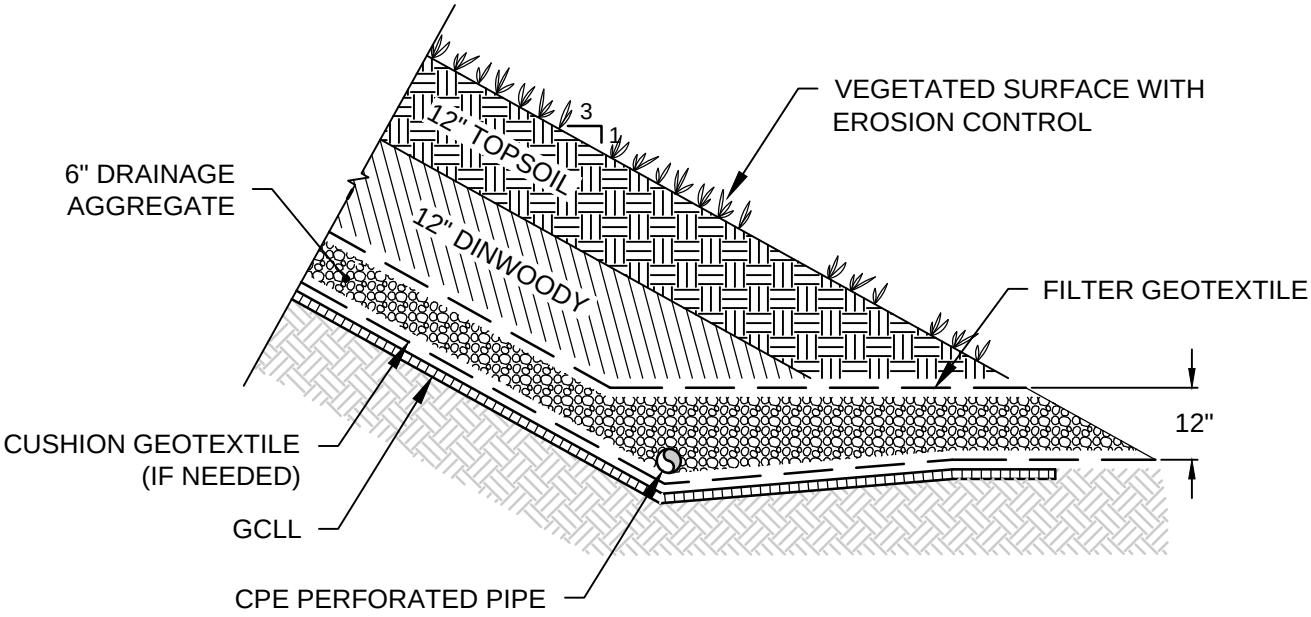

3 / - DETAIL

TOE DRAIN

SCALE: N.T.S.

TOE DRAIN
CONCEPTUAL COVER DESIGN
SIMPLOT - SMOKY CANYON MINE

Geosyntec consultants

DATE:	AUGUST 2013	FIGURE
PROJECT NO.	SC0564	3

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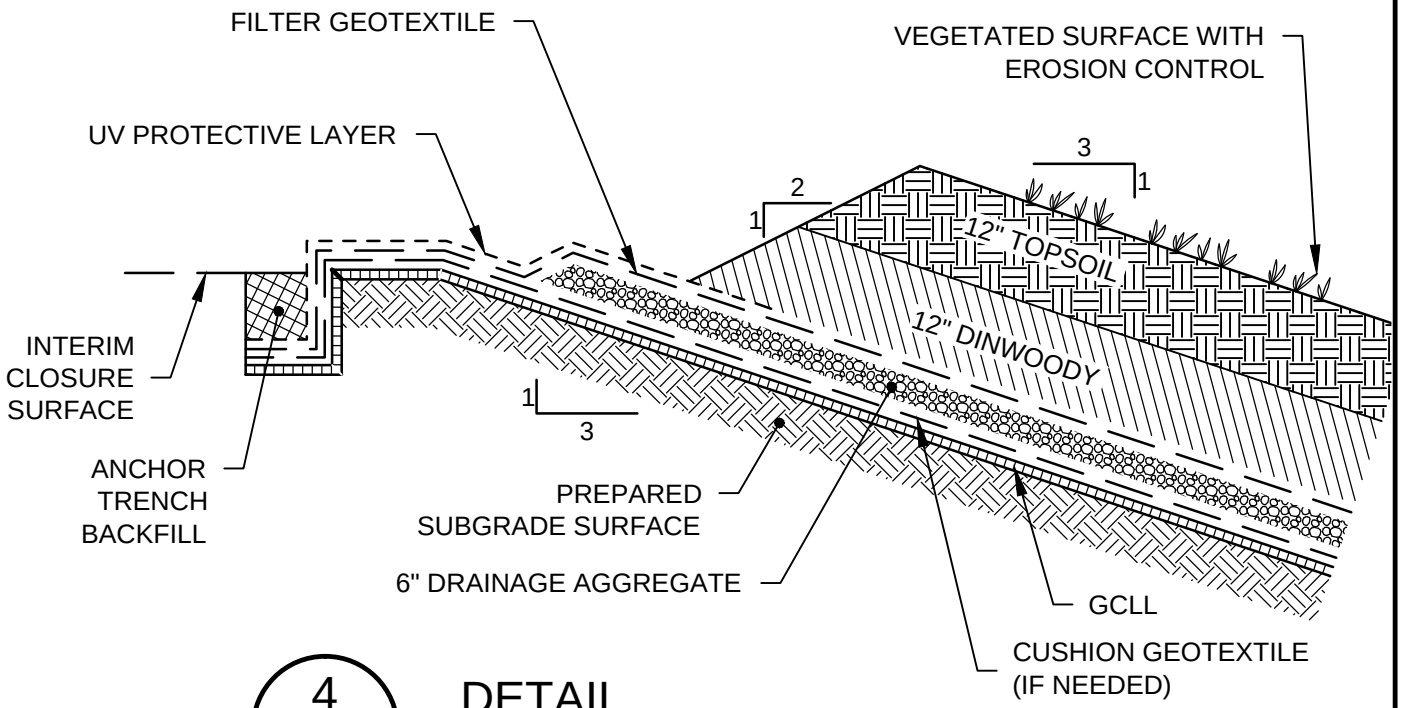

4 / - DETAIL

INTERIM CLOSURE

SCALE: N.T.S.

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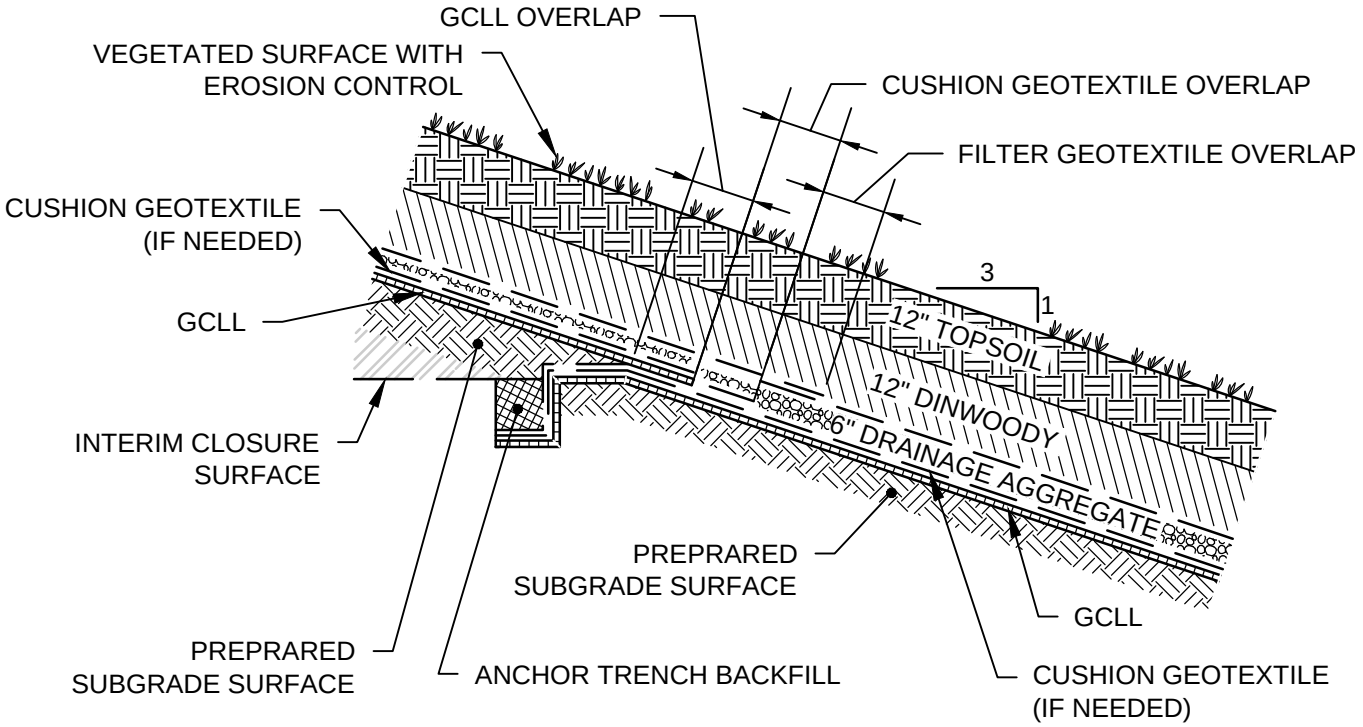
INTERIM CLOSURE CONCEPTUAL COVER DESIGN SIMPLOT - SMOKY CANYON MINE		
Geosyntec consultants	DATE: AUGUST 2013	FIGURE
	PROJECT NO. SC0564	4



5 / - DETAIL

PHASED COVER CONSTRUCTION

SCALE: N.T.S.

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PHASED CAP CONSTRUCTION CONCEPTUAL COVER DESIGN SIMPLOT - SMOKY CANYON MINE		
Geosyntec consultants	DATE: AUGUST 2013	FIGURE
	PROJECT NO. SC0564	5

APPENDIX 2B

ADAPTIVE MANAGEMENT PLAN

SMOKY CANYON MINE

PANELS F & G

LEASE AND MINE PLAN MODIFICATION PROJECT

ADAPTIVE MANAGEMENT PLAN

WATER MANAGEMENT FACILITIES

December 2014

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ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	DEFINITION
AME	Active Minerals Extraction
AMP	Adaptive Management Plan
BLM	Bureau of Land Management
BMPs	best management practices
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COPCs	Contaminants of Potential Concern
Corps	U.S. Army Corps of Engineers
CQC	Construction Quality Control
DEIS	draft environmental impact statement
EIS	environmental impact statement
EPA	Environmental Protection Agency
FEIS	final environmental impact statement
GCLL	geo-synthetic clay laminate liner
GWQR	Ground Water Quality Rule
IDEQ	Idaho Department of Environmental Quality
MSGP	Multi Sector General Permit
NFS	National Forest System
NOC	naturally occurring constituent
NPDES	National Pollution Discharge Elimination System
ODA	Overburden Disposal Area

ACRONYM/ABBREVIATION	DEFINITION
QA/QC	Quality Assurance/Quality Control
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Simplot	J.R. Simplot Company
SWPPP	Stormwater Pollution Prevention Plan
USFS	U.S. Forest Service
WQMP	Water Quality Management Plan

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1.0 INTRODUCTION AND BACKGROUND

This Adaptive Management Plan (AMP) has been developed for the Panels F and G Lease and Mine Plan Modification Project (the Project) at the Smoky Canyon Mine to address water management issues during and after the Project. This document is responsive to comments from the Environmental Protection Agency (EPA) on the Draft Environmental Impact Statement (DEIS) prepared by the Bureau of Land Management (BLM), Pocatello Field Office and the U.S. Forest Service (USFS), Caribou-Targhee National Forest (CTNF) with cooperation from the Idaho Department of Environmental Quality (IDEQ) for this Project (BLM and USFS 2014).

The J.R. Simplot Company's (Simplot) Smoky Canyon Mine is an open pit phosphate mine that has been operating since 1983. It is located about 10 miles southwest of Afton, Wyoming, in Caribou County, Idaho (Appendix A - Figure 1). Mining is conducted using standard open pit techniques and then concentrating the phosphate content of the ore in an onsite mill. Tailings from the milling operation are disposed in two on-site permitted tailings disposal ponds located on private land owned by Simplot. Water management activities have been ongoing throughout operations, and include such practices as containing tailings, recycling process water, rerouting stormwater and retaining sediment, as well as numerous best management practices (BMPs).

It was previously recognized that there is some inherent potential for mobilization of certain elements that are naturally present in the geologic materials once they become exposed through mining; however, elevated selenium concentrations in both surface waters and groundwater water were discovered downgradient of the existing Smoky Canyon Mine in the mid-1990s. Since that time, water management practices have continued to evolve to better protect water resources.

Selenium is the primary element characterized in the ongoing Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) investigations at the Smoky Canyon Mine. It has been found to be more spatially ubiquitous and in more elevated concentrations than other contaminants of potential concern (COPCs). Thus, among the COPCs, selenium is key from an exposure risk standpoint and it is also considered to be an appropriate COPC indicator for the site (Formation Environmental 2014). Mining and reclamation design at the mine now focuses on isolating seleniferous waste and minimizing its contact with precipitation and runoff. The Project reflects that focus.

As described in **Chapter 2** of the final EIS (FEIS), Simplot has proposed to: 1) enlarge the existing Panel G lease to accommodate the expansion of the previously approved East overburden disposal area (ODA); 2) modify the approved mine plan for Panel F to allow for construction and use of an ore conveyance system between Panel F and the existing mill; 3) increase the ODA on the southwest side of Panel G for the temporary storage of chert to be used for reclamation; and 4) utilize a geo-synthetic clay laminate liner (GCLL) in Panel G instead of the currently approved geologic store and release cover. The Agency Preferred Alternative (Section 2.7 of the EIS)) would reduce the proposed lease modification area, reduce the disturbance area associated with the expanded East ODA, and utilize a mixed geologic store and release cover/GCLL. This AMP is based upon the Agency Preferred Alternative rather than Simplot's original proposal.

This Project includes the same types of approaches to water management as are currently being used at the mine. The overall approach is that water management structures capture and control water (e.g., precipitation and runoff) that contracts mine materials so that it does not mix with and significantly degrade other waters. In addition, the use of the proposed GCLL would further minimize contamination of surface and groundwater over the long term.

2.0 OBJECTIVES

The overarching goal of this AMP is to provide a plan for the adaptive management of any water quality issues that may occur specifically as a result of the Project both during operations and after reclamation. The purpose of the AMP is to establish specific contingencies and practices in the event that monitoring shows exceedance of numeric water quality standards for various constituents.

3.0 CONSULTATION

Several agencies are party to the EIS and/or have active roles in environmental permitting/compliance issues at the Smoky Canyon Mine. This AMP addresses the individual and collective concerns of those agencies.

The BLM administers the federal phosphate leases associated with the Smoky Canyon Mine and issues decisions related to the development of those leases. The BLM also coordinates with the applicable land management agencies, which in this case is the USFS. The USFS makes recommendations to the BLM concerning surface management and mitigation on leased lands within the CTNF, and issues decisions on special use authorizations for off-lease activities. The BLM and USFS are the lead agencies for the EIS, and they will make separate but coordinated decisions related to this Project.

EPA is responsible for administering the National Pollution Discharge Elimination System (NPDES) program under Section 402 of the Clean Water Act. Simplot currently has permit coverage for stormwater discharges under EPA's NPDES Multi-Sector General Permit (MSGP) for industrial stormwater discharges.

The U.S. Army Corps of Engineers (Corps) has regulatory jurisdiction over waters of the U.S., including wetlands, under Section 404 of the Clean Water Act. Simplot currently maintains Corps permits for activities at the Smoky Canyon Mine; however, since no impacts to waters of U.S. would occur from the Project, no amendments or revisions to the existing permits are anticipated.

IDEQ administers Section 401 of the Clean Water Act, which includes issues related to compliance with Idaho water quality standards for streams. IDEQ also implements and ensures compliance with groundwater quality standards. In January of 2008, Simplot entered into a Consent Order with IDEQ that defined an active mineral extraction area (AME) for the Panels F and G Project. The Consent Order would still be applicable to the Project; however, the proposed change to the lease boundary would require an amendment of the AME area.

All of these agencies (with the exception of the Corps) as well as the Bureau of Indian Affairs are signatories to the previously mentioned CERCLA investigations at the Smoky Canyon Mine. As such, water management and this AMP are subjects of specific interest to them.

4.0 WATER MANAGEMENT PLAN

4.1 PANEL G AREA

Under the Agency Preferred Alternative, Simplot would construct numerous stormwater features in the Panel G area. This would include 13 settling ponds, two infiltration basins on the reclaimed limestone within the pit boundary, and ditches/channels as conceptually presented in Appendix A - Figure 2. The design criteria and operational strategy is the same as is currently used for the existing ponds in other areas of the Smoky Canyon Mine, which builds upon past experience with water management strategies and the resultant water quality implications.

During construction of the East ODA, stormwater would be managed to reduce or eliminate contact with ROM and material would be left at angle of repose (i.e., not sloped) in order to minimize infiltration of snowmelt and stormwater. Once the slope is covered with a GCLL, runoff and sediment control facilities would be located off the ODA to the extent feasible in order to protect the reclaimed slope from erosion and damage related to heavy equipment use.

Drainage and diversion ditches would be constructed to either divert run-on water around disturbance areas or to collect and route stormwater to infiltration basins or settling ponds. While BMPs would minimize erosion that would contribute to sediments transported in runoff, directing runoff to sediment ponds allows sediments to be captured and contained. These ponds would be designed and maintained to provide total retention for the runoff from the 100-year, 24-hour storm event. For conservatism in the design process, no interception/infiltration considerations are made: 100 percent of the precipitation falling within a given contributing area is assumed to run off. Table 1 provides pond and infiltration basin design storage capacities and information used to derive those capacities.

The ponds would be used to collect stormwater and snow melt runoff exclusively; no other waste streams would be allowed to enter the ponds and/or commingle with this runoff. However, some of the runoff collected would not be overland flow, but instead would be precipitation that has infiltrated through the drainage layer at the top of the GCLL, collected in drainage pipes (the lateral cover drain system), and then discharged to the surface water ditch/sediment pond system. The intent is to provide a relatively rapid flow-through for water that is prevented from percolating through the GCLL, which is designed to inhibit percolation, thereby preventing contact between water and the underlying seleniferous waste materials.

Table 1 Panel G Stormwater Pond Volumes and Design Information

POND ID	CONTRIBUTION AREA (ACRES)	RUN-OFF VOLUME (ACRE-FEET)	POND VOLUME (ACRE-FEET)
1	5.7	1.4	1.6
2	187.0	46.8	51.9
3	15.4	3.9	8.9
4-9	45.0	11.2	11.2
10	15.1	3.8	5.2
11	3.2	0.8	2.0
12	2.4	0.6	0.7
13	58.2	14.6	17.8
14*	7.3	1.8	4.0
15*	250.2	62.6	40.9

*Ponds 14 and 15 are designed as infiltration basins.

While the sediment ponds would not routinely discharge, this may occur infrequently due to heavy precipitation and runoff events. Such discharge of stormwater is allowed under Simplot's existing stormwater permit. If discharge does occur, some of the suspended solids would have settled out in the pond prior to discharge so that the concentration of solids in the discharge would be less compared to the incoming concentrations. To control any such releases, all ponds would be designed with stable spillways so that any discharge would not erode the spillways or instigate structural failure of the ponds. Discharges would be sampled and assessed for COPCs as discussed in the StormWater Pollution Prevention Plan (SWPPP) that is required by the stormwater permit. This monitoring is discussed in Section 4.4, as is other surface water monitoring in downstream receiving waters.

Two infiltration basins would be constructed within the portion of the Panel G pit that would be backfilled with non-seleniferous material. That portion of the pit would receive a more tradition topsoil cover rather than the GCLL or geologic store and release cover. The infiltration basins would be designed to both contain runoff and allow infiltration, as there would not be negative water quality connotations from contact with any seleniferous waste.

As described in **Section 2.4.4.2** of the FEIS, the lateral cover drain system of the GCLL would consist of a cover layer that is made up of a minimum of six inches of crushed drainage rock (chert or limestone), with a filter geotextile placed between the drainage layer and cover material to reduce migration of fines. Depending on the design and performance needs, a cushion geotextile may be placed above the GCLL to provide puncture protection from the crushed rock

drainage material. Lateral drains, consisting of corrugated polyethylene pipes, would be installed at specific distances along the slope within the drainage layer. The pipes would connect to down drains or outlets at surface water management features on the cover surface. The lateral cover drainage would be sized to accommodate the anticipated flow, as determined through modeling of the cover layers. Toe drains would be installed along the toe of the slope to allow the water collected in the drainage layer to be conveyed to the stormwater management features away from the cover area. The toe drains would be constructed of the crushed drainage rock, and separated from the overlying Dinwoody material and topsoil by a filter geotextile.

4.2 PANEL F AREA

In the Panel F area, the proposed modifications associated with the conveyor installation and operation would not significantly alter the existing water management practices for Panel F. One new containment pond would be constructed adjacent to the proposed ore stockpile located at the north end of Panel F. The stockpile and conveyor loading (ore feeder) area would be sloped to drain to the containment pond. The pond would be lined with a high density polyethylene geomembrane and designed to handle a 100-year, 24-hour storm event. Pond capacity would be 18.3 acre-feet and constructed to have a large surface area to allow for evaporation. Because the pond is designed to dry up every summer, it would include two evaporation misters. While one mister would be sufficient to aid in evaporation, two would be installed to ensure that all accumulated water is evaporated before freezing conditions occur, and that full capacity of the pond would be available going into the winter.

4.3 GENERAL BMPS RELATED TO WATER MANAGEMENT

In addition to the ponds, infiltration basins, and ditches, numerous other structural and operational BMPs are part of Simplot's water management program or indirectly contribute to its goals. Some of these are required by the Record of Decisions (RODs) (BLM 2008 and USFS 2008) for the original Panels F and G EIS and some are required by the Consent Order (IDEQ 2008). Still others are included in the SWPPP (Simplot 2008). These requirements include, among others:

- Locating runoff and sediment control facilities off ODAs to the extent feasible to reduce infiltration of collected water into seleniferous overburden;
- Controlling snow melt by placing snow stockpiles in areas where infiltration or mixing of snow or snow melt into/with external overburden is reduced to the extent practicable;
- Mining and disposing seleniferous overburden in a timely manner to reduce exposure of this material to surface weathering and oxidation;
- Reducing the surface area of seleniferous ODAs to the extent practicable to limit the amount of water infiltration and potential release;
- Inspecting the facilities daily to ensure activities comply with all approvals, permits, and regulations; and
- Inspecting, maintaining, and repairing water management structures to ensure functionality.

Further, Simplot routinely monitors and samples stormwater, groundwater, soil, sediment, aquatic biota, vegetation, and surface water, as required by the various permits and conditions of approvals. Water monitoring is described further in the following Section 4.4.

4.4 WATER MONITORING

The water quality monitoring plan prepared for the original Panels F and G FEIS addresses the concern that the Panels F and G activities could potentially impact groundwater and surface water quality by mobilizing selenium and other COPCs that are naturally present in mined materials. That plan was intended to compliment other ongoing water monitoring at the Smoky Canyon Mine. Simplot is required to maintain a comprehensive environmental monitoring plan for the entire Smoky Canyon Mine including Panels F and G. That monitoring plan is routinely revised and submitted to the Agencies for review.

Simplot also monitors stormwater that collects in various sediment ponds as required by EPA's NPDES MSGP. Selenium and total suspended solids are the pollutant parameters that are required to be sampled and reported under the terms of the MSGP (Simplot 2008).

CERCLA investigations include monitoring and data analyses focused on the portion of the Smoky Canyon Mine that is north of Panels F and G. The recent Revised Draft Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) Remedial Investigation Report (Formation Environmental 2014) provides an extensive discussion of this data.

5.0 ADAPTIVE MANAGEMENT PLAN

Water management at the Smoky Canyon Mine has evolved over the years to respond to changing conditions and evolving understanding of site characteristics, particularly as more information from ongoing monitoring has become available. This will continue in the future throughout the existing mine, and this AMP details specific responses related to the Project. Several specific conditions and related responses are described below.

5.1 EXCEEDANCE OF BACKGROUND LEVELS

Section 400.06 of the Ground Water Quality Rule (GWQR) as discussed in the Consent Order (IDEQ 2008), allows an AME area within which elevated levels of naturally occurring constituents (NOCs) are not contaminants. The AME is identified in Figure 1 of the Panels F and G IDEQ Consent Order Water Quality Monitoring Plan (WQMP), incorporated by reference into the 2008 Consent Order. The AME is defined by reference to boundaries of property or leases held by Simplot. As the lease and mine plan modifications at Panel G would expand Simplot's lease area, the AME boundary would be updated by the submittal of a modified Figure 1 of the WQMP. In order to determine compliance outside of the AME, monitoring wells have been drilled in the Panels F and G area. Establishment of background levels of various constituents is key to determining compliance, and exceedance of background levels would instigate adaptive management response.

5.1.1 Condition

According to the Consent Order (IDEQ 2008), COPC concentrations in samples collected from the groundwater monitoring wells that have been designated as indicator wells within the defined AME area should, when analyzed as demonstrated using the methods specified by the WQMP, not exceed the background levels.

5.1.2 Response if Condition is Not Met

As per the Consent Order (IDEQ 2008), within 10 days of the receipt of such sample results, Simplot must provide written notification of the potentially elevated levels to the IDEQ, along with the analytical results from the laboratory and, within 60 days of receipt of the sample results, determine (through monitoring, modeling, or other generally accepted scientific methods) and notify IDEQ whether or not the NOCs are likely to exceed background levels at the boundary of the AME area. The RODs (BLM 2008 and USFS 2008) for the original Panels F and G EIS describes the re-sampling and statistical analysis required to support that determination. If Simplot or IDEQ determines that background levels are likely to be exceeded at the AME area boundary, Simplot must submit a report that addresses the criteria set forth in the GWQR, Section 58.01.11.400.02.b for IDEQ approval within 30 days of notification of determination by Simplot or IDEQ. If IDEQ then notifies Simplot that the degradation represented by the elevated levels of NOCs is "significant," Simplot must, within 60 days of the notice, submit a plan for IDEQ's approval describing the actions proposed to be taken in response to the degradation consistent with the GWQR, Section 58.01.11.400.02.a. The plan must take into consideration the action options set forth in the WQMP that is Attachment 1 of the Consent Order and also is incorporated into the current comprehensive environmental monitoring plan for Smoky Canyon Mine.

5.2 EXCEEDANCE OF GROUNDWATER QUALITY STANDARDS

Similar to Section 5.1, the Consent Order (IDEQ 2008) describes the conditions for evaluating compliance with the GWQR for monitoring wells that have been drilled in and outside of the Panels F and G AME area. Based on water quality modeling, actual monitoring, and operating experience, mining in Panels F and G was not anticipated to result in levels of NOCs exceeding numeric groundwater quality standards in the indicator wells developed in the Wells Formation aquifer (IDEQ 2008). The lease and mine plan modifications proposed by the Project are not anticipated to result in any exceedances and the use of a GCLL would further minimize contamination of surface and groundwater. Any exceedance of groundwater quality standards would trigger adaptive management response. Adaptive management has been considered in that event.

5.2.1 Condition

According to the Consent Order (IDEQ 2008), COPC concentrations in samples collected from the groundwater indicator wells within the defined AME area should not exceed numeric groundwater quality standards.

5.2.2 Response if Condition is Not Met

As per the Consent Order (IDEQ 2008), Simplot must, within 10 days of receipt of such sample results, provide written notification of the potentially elevated levels to IDEQ along with the analytical results from the laboratory and, within 60 days of receipt of sample results, determine (through monitoring, modeling, or other generally accepted scientific methods) and notify the IDEQ whether or not the numeric groundwater quality standards are likely to be exceeded at the boundary of the AME area. In addition, if samples taken from monitoring wells outside the AME area exceed the numeric groundwater quality standards, Simplot must, within 10 days of receipt of such sample results, provide written notification of the potentially elevated levels to IDEQ along with the analytical results from the laboratory.

Further, unless directed otherwise in writing by IDEQ, Simplot must, within 60 days of determining and notifying IDEQ whether or not the numeric groundwater quality standards are likely to be exceeded at the boundary of the AME area, or that the groundwater quality standards are exceeded in monitoring wells outside the AME area, prepare and submit to IDEQ for approval a corrective action plan (CAP). The CAP would describe the actions Simplot proposes to take in response to the elevated levels of NOCs, which may include, but are not limited to, modifications to the cover system. The CAP would evaluate and address those actions necessary to investigate and evaluate the contamination, including the potential for contamination of surface waters (including the possible construction of other monitoring wells and/or modeling to determine the extent of contamination), to prevent further contamination, and to cleanup or mitigate existing contamination. The CAP would consider the action options set forth in the WQMP.

A cost estimate for investigating and evaluating mitigation of the contamination (including the possible construction of other monitoring wells and/or modeling to determine the extent of contamination) would also be submitted to IDEQ. Upon completion of investigating and evaluating the contamination, Simplot would submit an estimate of the costs of cleaning up or mitigating the existing contamination.

5.3 ELEVATED COPC CONCENTRATIONS IN SURFACE WATER

Monitoring at several surface water locations in the Deer Creek, Wells Canyon, and Stewart Canyon watersheds (BLM and USFS 2007) will allow: changes in surface water quality and quantity associated with the mine operations to be detected; compliance with the Clean Water Act and Idaho surface water quality standards downstream of mine operations to be demonstrated; empirical surface water monitoring data to be compared with impact results predicted in the FEIS (BLM and USFS 2007); and the effectiveness of mitigations applied at the mine to protect surface water quality from sediment and chemical pollutants.

5.3.1 Condition

The surface water monitoring data evaluation, including trend analysis should indicate no statistically significant change in COPC concentrations compared to baseline conditions.

5.3.2 Response if Condition is Not Met

If data indicate that there is a statistically significant change in COPC concentrations, which could indicate impacts from the Project, sampling frequency will increase and if necessary Simplot will take actions which at minimum will include determination of the source of the release and development of preventative and response measures to address the release, as described in the ROD (BLM 2008). If long-term monitoring reveals that there is a statistically significant change in COPC concentrations occurring to surface water and springs, Simplot will be required to clean up the water chemistry (BLM 2008 and USFS 2008).

5.4 UNDERPERFORMANCE OF COVER

As described by the Agency Preferred Alternative in the FEIS, both the previously-approved geologic store and release cover and a GCLL would be used at Panel G. The ROD (BLM 2008) for the original Panels F and G EIS identified monitoring the percolation rate through the geologic store and release cover as a key indicator for potential impacts to groundwater and surface water quality. Appendix 2E of the 2007 FEIS describes quality assurance and quality control (QA/QC) requirements for construction and monitoring of the geologic store and release cover. Cover performance monitoring as required by the ROD (BLM 2008) is ongoing, and is key to maintaining the ability of the cover to be adaptively managed.

Similar requirements would be required for construction and monitoring of the GCLL. A final design report and monitoring program for the GCLL would be prepared and submitted by Simplot for review by the BLM, USFS, and IDEQ (the Agencies). Agency approval would be required prior to implementing any construction activities for the GCLL. Simplot would provide funding to the Agencies, through a cost-recovery agreement, to pay for an agency-selected third-party licensed engineer with experience in cover design and QA/QC methods to assist and advise the Agencies with construction and monitoring activities. The GCLL would be constructed in phases and during specific seasons as described in the FEIS to minimize infiltration of snowmelt and stormwater.

5.4.1 Condition

Monitoring of the approved geologic store and release cover and associated lysimeter would continue to be conducted as specified in Appendix 2E of the original Panels F and G FEIS (BLM and USFS 2007). This monitoring will determine if there is any variance between the modeled and actual cover performance.

Simplot would be required to develop a construction quality control (CQC) plan for the GCLL. The CQC plan would outline the monitoring activities and testing requirements to be performed by Simplot to demonstrate the constructed cover would meet the requirements of the approved design. Technical specifications would be developed to define the construction materials and methodology and performance requirements.

In addition, following construction and installation of the GCLL, monitoring activities would be implemented to ensure the GCLL is performing as designed. Monitoring activities would include:

- Routine sampling of the two Panel G Consent Order groundwater monitoring wells, situated northeast of the East ODA, referred to as MW-G-1 (indicator well) and MW-G-1A (downgradient well).
- Routine visual inspections of the cover surface to identify changes (i.e. sloughing, fissures, or slumping due to mass movement, distortion due to differential settlement, excessive or focused erosion, or the presence of cracks).

5.4.2 Response if Condition is Not Met

In the event that monitoring indicates the covers are not meeting the performance standards specified by the manufacturer and the long-term environmental effects of the variances were considered to be significant, the Agencies and Simplot would determine what changes would be necessary to maintain compliance with applicable water quality standards as per the ROD (BLM 2008).

5.5 BREAKTHROUGH OF INFILTRATED WATER THROUGH ODAS

As required by the 2008 BLM ROD, Simplot must inspect the areas along the outer toes and slopes of all external ODAs on a monthly basis during snow free periods to look for indications of seeps or springs discharging from the overburden. This requirement would also apply to the expanded East ODA associated with the Project.

5.5.1 Condition

The ODA design and water management practices should prevent seep/spring issuances at the toe or surface slopes of these features.

5.5.2 Response if Condition is Not Met

Any such newly identified seepage locations would be captured and/or conveyed as needed. They would be added to the surface water monitoring stations in order to determine and track the presence of COPCs as well as discharge rates.

6.0 NOTIFICATION

Simplot must meet all of the notification requirements previously summarized in Section 5**,** those fully described in the original Panels F and G FEIS and associated ROD (BLM and USFS 2007; BLM 2008), the Consent Order (IDEQ 2008), and the 2014 FEIS for the Project (BLM and USFS 2014).

7.0 REFERENCES

BLM (Bureau of Land Management). 2008. Record of Decision Environmental Impact Statement Smoky Canyon Mine, Panels F and G. June 6, 2008.

BLM and USFS (United States Forest Service). 2014. Final Environmental Impact Statement for the Smoky Canyon Mine, Panels F & G Lease and Mine Plan Modification Project. December 2014.

BLM and USFS. 2007. Smoky Canyon Mine, Panels F and G—Final Environmental Impact Statement.

Formation Environmental. 2014. Draft Smoky Canyon Mine Remedial Investigation/Feasibility Study Remedial Investigation Report. Prepared for J.R. Simplot Company. May 2014.

IDEQ (Idaho Department of Environmental Quality). 2008. Consent Order, in the matter of J.R. Simplot Company Smoky Canyon Mine, Panels F and G. Signed January 12, 2008.

J. R. Simplot Company (Simplot). 2008. Smoky Canyon Mine Stormwater Pollution Prevention Plan. 2008.

USFS. 2008. Record of Decision. Smoky Canyon Mine, Panels F and G Authorization of Off-Lease Activities. June 2008.

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APPENDIX A FIGURES

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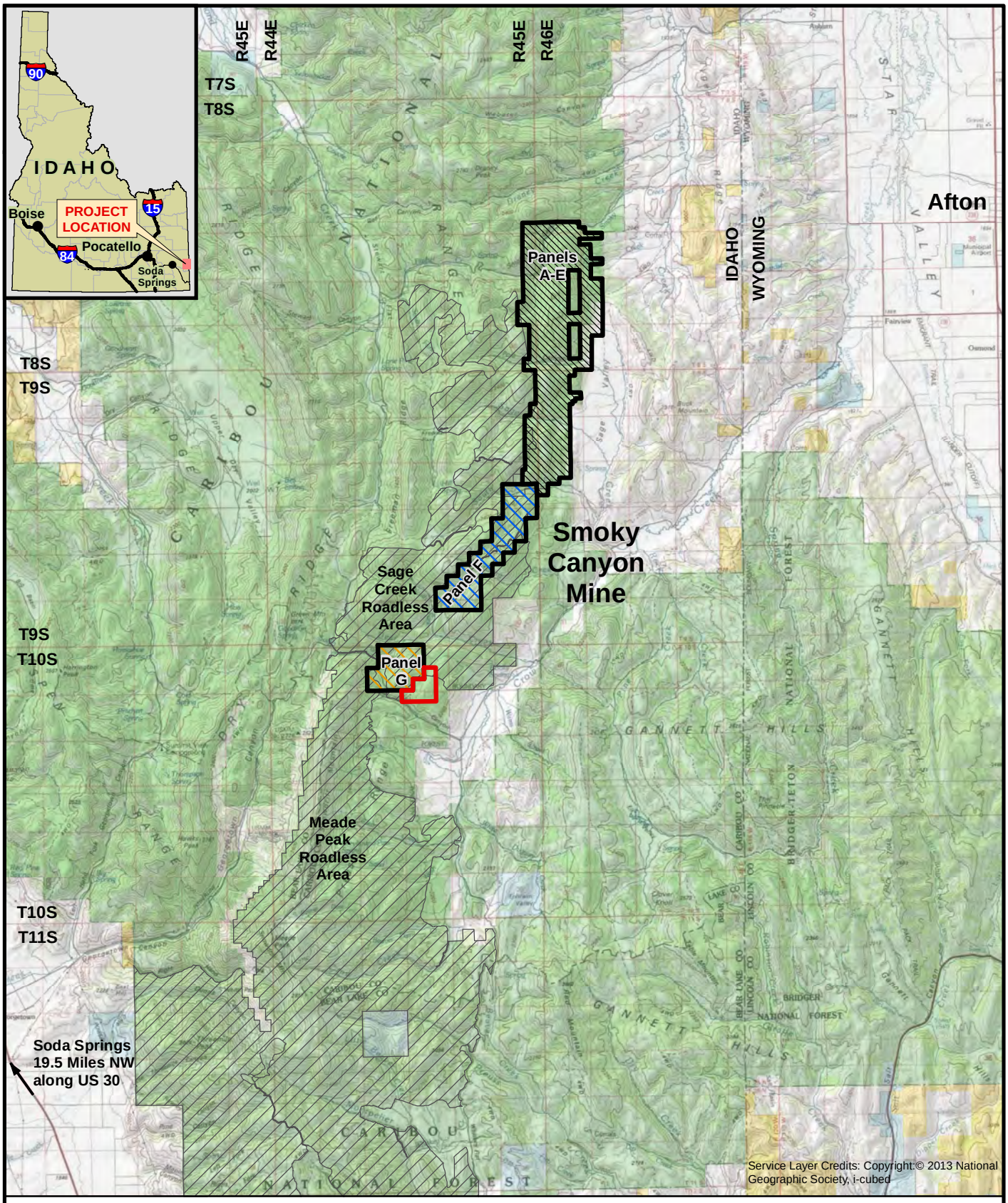


Explanation

- Smoky Canyon Mine
- Panel F (Lease IDI-27512)
- Panel G (Lease IDI-01441)
- Proposed Lease Modification Area
- Roadless Area

Land Ownership

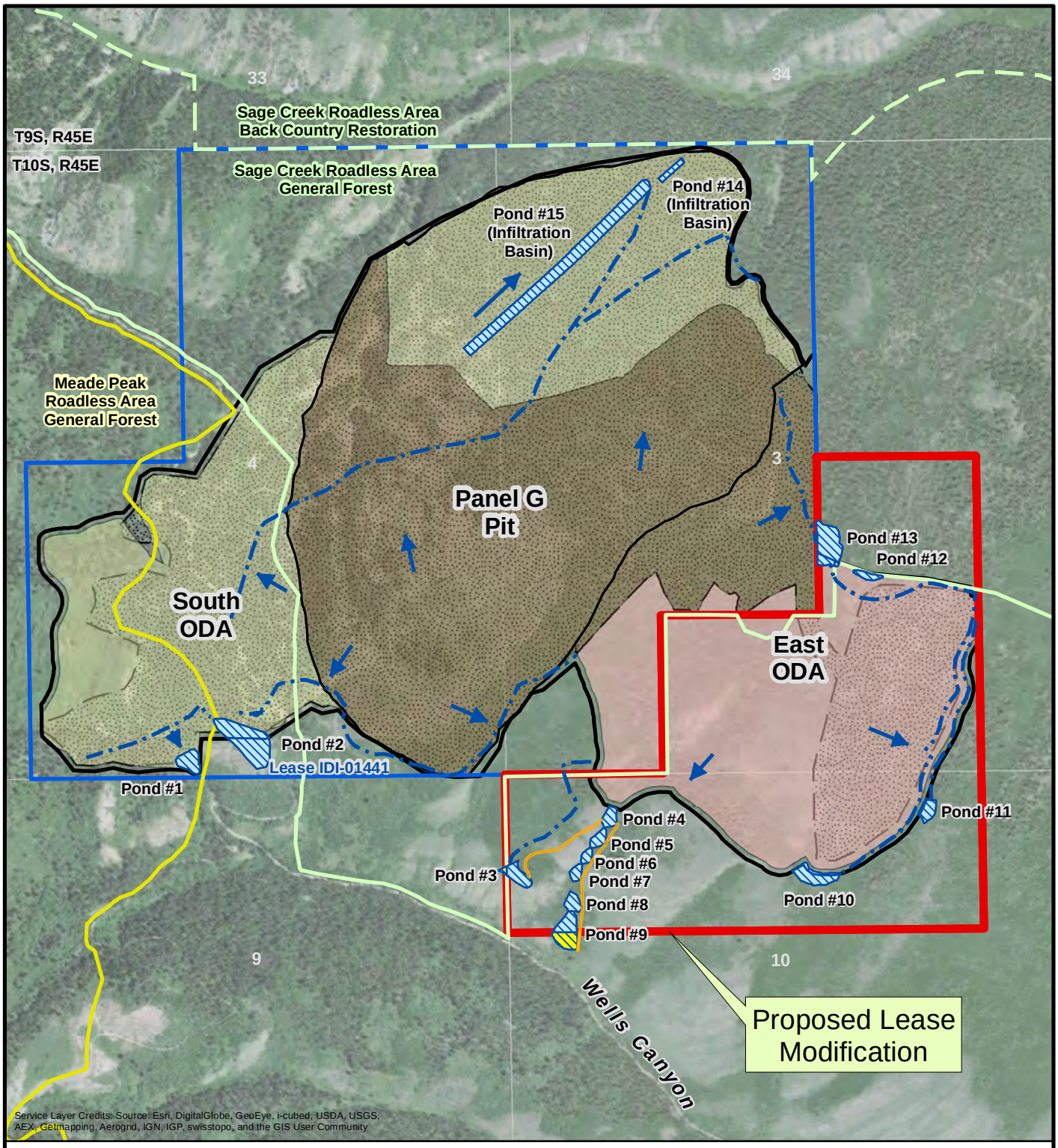
- BLM
- Private
- State
- USFS

N

3 0 3 Miles

Figure 1
General Project Area
Panel F & G Lease/Mine Plan Modifications
Adaptive Management Plan

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\AdaptiveManagementPlan\Figure 1 General Project Area.mxd



Explanation

- Panel G Reduced Disturbance Boundary
- Panel G Pit Boundary
- Proposed Lease Modification Area (240 acres)
- JR Simplot Lease
- Approved Panel G Disturbance
- GCLL (138 acres)
- Geologic Store and Release Cover (257.3 acres)
- Topsoil Cover (222.6 acres)
- Sage Creek Roadless Area
- Meade Peak Roadless Area
- Proposed Stormwater Control Ditch (On Lease)
- Proposed Stormwater Control Pond (On Lease)
- Proposed Stormwater Control Road Disturbance (On Lease)
- Proposed Stormwater Control Pond (Off Lease)
- Proposed Stormwater Control Road Disturbance (Off Lease)
- General Direction of Runoff (Post-Reclamation)

N

1,200 0 1,200 Feet

Figure 2
Agency Preferred Alternative:
Reduced East ODA with Mixed Cover
Panel F & G Lease/Mine Plan Modifications
Adaptive Management Plan

Document Path: X:\ID\Clients\JR_Simplot\PanenG_LeaseMod_ExpansionConveyorProject\MXDs\AdaptiveManagementPlan\Figure 2 Agency Preferred Alternative Reduced East ODA with Mixed Cover.mxd

APPENDIX 3A

SURFACE WATER DATA COLLECTED NEAR PANEL G 2006 - 2012

Surface Water Data Collected Near Panel G (2006-2012)

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SP-WC-400	5/25/2006		Flow	0.229	cfs						Not validated
SP-WC-400	5/25/2006	300	Sulfate	8.44	mg/L	0.037	MDL	0.3			Not validated
SP-WC-400	5/25/2006	200.8	Cadmium, Dissolved	0.00015	mg/L	0.00001	MDL	0.002	B		Not validated
SP-WC-400	5/25/2006	200.7	Chromium, Dissolved	0.00047	mg/L	0.00069	MDL	0.006	B		Not validated
SP-WC-400	5/25/2006	200.7	Nickel, Dissolved	0.0064	mg/L	0.004	MDL	0.01	B		Not validated
SP-WC-400	5/25/2006	200.7	Vanadium, Dissolved	0.0036	mg/L	0.00066	MDL	0.005	B		Not validated
SP-WC-400	5/25/2006	200.7	Zinc, Dissolved	0.0062	mg/L	0.0009	MDL	0.01	B		Not validated
SP-WC-400	5/25/2006	3114C	Selenium, Total	0.0034	mg/L	0.0002	MDL	0.002			Not validated
SP-WC-400	5/25/2006	200.7	Calcium, Total	42.6	mg/L	0.009	MDL	0.04			Not validated
SP-WC-400	5/25/2006	200.7	Magnesium, Total	8.45	mg/L	0.028	MDL	0.06			Not validated
SP-WC-400	5/25/2006		Conductivity at 25 C	185	umhos/cm						Not validated
SP-WC-400	5/25/2006	120.1	Conductivity at 25 C	269.3	umhos/cm	0.5	MDL	10			Not validated
SP-WC-400	5/25/2006	2340B	Hardness, as CaCO3	141	mg/L	0.06	MDL	0.347			Not validated
SP-WC-400	5/25/2006		Oxygen, Dissolved	7.8	mg/L						Not validated
SP-WC-400	5/25/2006		pH	7.749	SU						Not validated
SP-WC-400	5/25/2006	150.1	pH	7.89	SU	0.01	MDL	0.01			Not validated
SP-WC-400	5/25/2006	160.1	TDS	149	mg/L	4.4	MDL	10			Not validated
SP-WC-400	5/25/2006		Temperature	12.1	C						Not validated
SP-WC-400	5/25/2006	160.2	TSS	10	mg/L	4.2	MDL	5			Not validated
SP-WC-400	5/25/2006		Turbidity	5.58	NTU						Not validated
SP-WC-400	10/18/2006		Flow	0.00047053	cfs						Not validated
SP-WC-400	10/18/2006	300	Sulfate	18.1	mg/L	0.037	MDL				Not validated
SP-WC-400	10/18/2006	200.8	Cadmium, Dissolved	0.00005	mg/L	0.00004	MDL		B		Not validated
SP-WC-400	10/18/2006	200.7	Chromium, Dissolved	0.0007	mg/L	0.00069	MDL		U		Not validated
SP-WC-400	10/18/2006	200.7	Nickel, Dissolved	0.004	mg/L	0.004	MDL		U		Not validated
SP-WC-400	10/18/2006	200.7	Vanadium, Dissolved	0.0026	mg/L	0.00066	MDL		B		Not validated
SP-WC-400	10/18/2006	200.7	Zinc, Dissolved	0.0155	mg/L	0.0021	MDL				Not validated
SP-WC-400	10/18/2006	200.7	Calcium, Total	54.8	mg/L	0.009	MDL				Not validated
SP-WC-400	10/18/2006	200.7	Magnesium, Total	10.9	mg/L	0.028	MDL				Not validated
SP-WC-400	10/18/2006	3114C	Selenium, Total	0.0037	mg/L	0.0002	MDL				Not validated
SP-WC-400	10/18/2006		Conductivity at 25 C	220	umhos/cm						Not validated
SP-WC-400	10/18/2006	120.1	Conductivity at 25 C	384.4	umhos/cm	0.01	MDL				Not validated
SP-WC-400	10/18/2006	2340B	Hardness, as CaCO3	182	mg/L	0.06	MDL				Not validated
SP-WC-400	10/18/2006		Oxygen, Dissolved	8	mg/L						Not validated
SP-WC-400	10/18/2006		pH	7.924	SU						Not validated
SP-WC-400	10/18/2006	150.1	pH	8.04	SU	0.01	MDL				Not validated
SP-WC-400	10/18/2006	160.1	TDS	179	mg/L	4.4	MDL				Not validated
SP-WC-400	10/18/2006		Temperature	5.9	C						Not validated
SP-WC-400	10/18/2006	160.2	TSS	5	mg/L	4.2	MDL		U		Not validated
SP-WC-400	10/18/2006		Turbidity	8.7	NTU						Not validated
SP-WC-400	5/21/2007	4 inch Baski Cutthroat Fl	Flow	0.041	cfs						Not validated
SP-WC-400	5/21/2007	300	Sulfate	12.3	mg/L	0.037	MDL	0.3			Not validated
SP-WC-400	5/21/2007	200.8	Cadmium, Dissolved	0.00013	mg/L	0.00002	MDL	0.002	B		Not validated
SP-WC-400	5/21/2007	200.7	Chromium, Dissolved	0.0004	mg/L	0.0004	MDL	0.006	U		Not validated
SP-WC-400	5/21/2007	200.7	Nickel, Dissolved	0.0057	mg/L	0.0026	MDL	0.01	B		Not validated
SP-WC-400	5/21/2007	200.7	Vanadium, Dissolved	0.0022	mg/L	0.0004	MDL	0.005	B		Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SP-WC-400	5/21/2007	200.7	Zinc, Dissolved	0.0104	mg/L	0.0021	MDL	0.01			Not validated
SP-WC-400	5/21/2007	3114C	Selenium, Total	0.0029	mg/L	0.0002	MDL	0.002			Not validated
SP-WC-400	5/21/2007	120.1	Conductivity at 25 C	344	umhos/cm	1	MDL	1			Not validated
SP-WC-400	5/21/2007		Conductivity at 25 C	209	umhos/cm						Not validated
SP-WC-400	5/21/2007	2340B	Hardness, as CaCO3	172	mg/L	0.067	MDL	0.067			Not validated
SP-WC-400	5/21/2007		Oxygen, Dissolved	8.54	mg/L						Not validated
SP-WC-400	5/21/2007	150.1	pH	8.18	SU	0.01	MDL	0.01			Not validated
SP-WC-400	5/21/2007		pH	8.14	SU						Not validated
SP-WC-400	5/21/2007	160.1	TDS	173	mg/L	9.2	MDL	10			Not validated
SP-WC-400	5/21/2007		Temperature	7.6	C						Not validated
SP-WC-400	5/21/2007	160.2	TSS	6	mg/L	4.2	MDL	5			Not validated
SP-WC-400	5/21/2007		Turbidity	4.91	NTU						Not validated
SP-WC-400	6/17/2008	EPA 300.0	Sulfate	13	mg/L	0.05	MDL	0.3			Not validated
SP-WC-400	6/17/2008	EPA 200.8	Cadmium, Dissolved	0.0002	mg/L	0.000034	MDL	0.202	B		Not validated
SP-WC-400	6/17/2008	EPA 200.7	Chromium, Dissolved	0.001	mg/L	0.001	MDL	10.1	U		Not validated
SP-WC-400	6/17/2008	EPA 200.7	Nickel, Dissolved	0.005	mg/L	0.0023	MDL	10.1	B		Not validated
SP-WC-400	6/17/2008	EPA 200.7	Vanadium, Dissolved	0.0026	mg/L	0.00042	MDL	10.1	B		Not validated
SP-WC-400	6/17/2008	EPA 200.7	Zinc, Dissolved	0.012	mg/L	0.0019	MDL	10.1			Not validated
SP-WC-400	6/17/2008	EPA 200.7	Calcium, Total	44.8	mg/L	0.016	MDL	40			Not validated
SP-WC-400	6/17/2008	EPA 200.7	Magnesium, Total	9.38	mg/L	0.015	MDL	60			Not validated
SP-WC-400	6/17/2008	SM3114C	Selenium, Total	0.0043	mg/L	0.0002	MDL	2			Not validated
SP-WC-400	6/17/2008	EPA 120.1	Conductivity at 25 C	320	umhos/cm		MDL	1			Not validated
SP-WC-400	6/17/2008	Hach SensIon	Conductivity at 25 C	212	umhos/cm						Not validated
SP-WC-400	6/17/2008	SM 2340B	Hardness, as CaCO3	151	mg/L	0.102	MDL	350			Not validated
SP-WC-400	6/17/2008	Hach SensIon	Oxygen, Dissolved	8.45	mg/L						Not validated
SP-WC-400	6/17/2008	SM4500-H-B	pH	8.07	SU		MDL				Not validated
SP-WC-400	6/17/2008	SM 2540 C	TDS	170	mg/L	4.3	MDL	10			Not validated
SP-WC-400	6/17/2008	Hach SensIon	Temperature	10.6	C						Not validated
SP-WC-400	6/17/2008	SM 2540 D	TSS	5	mg/L	4.2	MDL	5	U		Not validated
SP-WC-400	6/17/2008	HF Scientific Handheld T	Turbidity	6.2	NTU						Not validated
SP-WC-400	11/19/2008	4 inch Baski Cutthroat F	Flow	0.005	cfs						Not validated
SP-WC-400	11/19/2008	EPA 300.0	Sulfate	18.6	mg/L	0.04	MDL	0.3			Not validated
SP-WC-400	11/19/2008	EPA 300.0	Sulfate	18.5	mg/L	0.04	MDL	0.3			Not validated
SP-WC-400	11/19/2008	EPA 200.8	Cadmium, Dissolved	0.000034	mg/L	0.000034	MDL	0.000202	U		Not validated
SP-WC-400	11/19/2008	EPA 200.8	Cadmium, Dissolved	0.000087	mg/L	0.000034	MDL	0.000202	B		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Chromium, Dissolved	0.0012	mg/L	0.001	MDL	0.0101	B		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Chromium, Dissolved	0.001	mg/L	0.001	MDL	0.0101	U		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Nickel, Dissolved	0.003	mg/L	0.0023	MDL	0.0101	B		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Nickel, Dissolved	0.0033	mg/L	0.0023	MDL	0.0101	B		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Vanadium, Dissolved	0.0027	mg/L	0.00048	MDL	0.0101	B		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Vanadium, Dissolved	0.0026	mg/L	0.00048	MDL	0.0101	B		Not validated
SP-WC-400	11/19/2008	EPA 200.7	Zinc, Dissolved	0.0116	mg/L	0.0019	MDL	0.0101			Not validated
SP-WC-400	11/19/2008	EPA 200.7	Zinc, Dissolved	0.0116	mg/L	0.0019	MDL	0.0101			Not validated
SP-WC-400	11/19/2008	EPA 200.7	Calcium, Total	57.5	mg/L	0.018	MDL	0.04			Not validated
SP-WC-400	11/19/2008	EPA 200.7	Calcium, Total	70.3	mg/L	0.018	MDL	0.04			Not validated
SP-WC-400	11/19/2008	EPA 200.7	Magnesium, Total	11.7	mg/L	0.015	MDL	0.06			Not validated
SP-WC-400	11/19/2008	EPA 200.7	Magnesium, Total	14.4	mg/L	0.015	MDL	0.06			Not validated
SP-WC-400	11/19/2008	SM3114C	Selenium, Total	0.0139	mg/L	0.0002	MDL	0.002			Not validated
SP-WC-400	11/19/2008	SM3114C	Selenium, Total	0.0053	mg/L	0.0002	MDL	0.002			Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SP-WC-400	11/19/2008	SM 2340B	Hardness, as CaCO3	192	mg/L	0.107	MDL	0.35			Not validated
SP-WC-400	11/19/2008	SM 2340B	Hardness, as CaCO3	235	mg/L	0.107	MDL	0.35			Not validated
SP-WC-400	11/19/2008	EPA 120.1	Conductivity at 25 C	380	umhos/cm		MDL	1			Not validated
SP-WC-400	11/19/2008	EPA 120.1	Conductivity at 25 C	370	umhos/cm		MDL	1			Not validated
SP-WC-400	11/19/2008	Hach SensIon	Conductivity at 25 C	355	umhos/cm						Not validated
SP-WC-400	11/19/2008	Hach SensIon	Conductivity at 25 C	355	umhos/cm						Not validated
SP-WC-400	11/19/2008	Hach SensIon	Oxygen, Dissolved	6.78	mg/L						Not validated
SP-WC-400	11/19/2008	Hach SensIon	Oxygen, Dissolved	6.78	mg/L						Not validated
SP-WC-400	11/19/2008	SM 4500 H B	pH	8.06	SU		MDL				Not validated
SP-WC-400	11/19/2008	Hach SensIon	pH	6.04	SU						Not validated
SP-WC-400	11/19/2008	Hach SensIon	pH	6.04	SU						Not validated
SP-WC-400	11/19/2008	SM 4500 H B	pH	8.03	SU		MDL				Not validated
SP-WC-400	11/19/2008	SM 2540 C	TDS	210	mg/L	4.3	MDL	10			Not validated
SP-WC-400	11/19/2008	SM 2540 C	TDS	220	mg/L	4.3	MDL	10			Not validated
SP-WC-400	11/19/2008	Hach SensIon	Temperature	10.8	C						Not validated
SP-WC-400	11/19/2008	Hach SensIon	Temperature	10.8	C						Not validated
SP-WC-400	11/19/2008	SM 2540 D	TSS	16	mg/L	4.2	MDL	5			Not validated
SP-WC-400	11/19/2008	SM 2540 D	TSS	18	mg/L	4.2	MDL	5			Not validated
SP-WC-400	11/19/2008	Hach	Turbidity	5.24	NTU						Not validated
SP-WC-400	11/19/2008	Hach	Turbidity	5.24	NTU						Not validated
SP-WC-400	6/3/2009	1 inch Baski Cutthroat Fl	Flow	0.10199853	cfs						Not validated
SP-WC-400	6/3/2009	EPA 300.0	Sulfate	9.32	mg/L	0.18	MDL	1.5		J+	Complete
SP-WC-400	6/3/2009	EPA 200.8	Cadmium, Dissolved	0.000161	mg/L	0.000024	MDL	0.000202	B	U	Complete
SP-WC-400	6/3/2009	Calculation	Chromium, +3, Dissolved	0.011	mg/L	0.00243	MDL	0.011	U	UJ	Complete
SP-WC-400	6/3/2009	SM 3500 Cr D	Chromium, +6, Dissolved	0.01	mg/L	0.002	MDL	0.01	U	UJ	Complete
SP-WC-400	6/3/2009	EPA 200.8	Chromium, Dissolved	0.0033	mg/L	0.00023	MDL	0.002			Complete
SP-WC-400	6/3/2009	EPA 200.7	Manganese, Dissolved	0.0014	mg/L	0.0013	MDL	0.0101	B		Complete
SP-WC-400	6/3/2009	EPA 200.8	Nickel, Dissolved	0.0044	mg/L	0.000111	MDL	0.001			Complete
SP-WC-400	6/3/2009	SM3114C	Selenium, Dissolved	0.0039	mg/L	0.0002	MDL	0.002			Complete
SP-WC-400	6/3/2009	EPA 200.7	Zinc, Dissolved	0.0086	mg/L	0.0019	MDL	0.0101	B		Complete
SP-WC-400	6/3/2009	EPA 200.7	Calcium, Total	48.4	mg/L	0.009	MDL	0.02			Complete
SP-WC-400	6/3/2009	EPA 200.7	Magnesium, Total	9.62	mg/L	0.0075	MDL	0.03			Complete
SP-WC-400	6/3/2009	SM3114C	Selenium, Total	0.0037	mg/L	0.0002	MDL	0.002			Complete
SP-WC-400	6/3/2009	YSI 556 Multiprobe	Conductivity at 25 C	298	umhos/cm						Not validated
SP-WC-400	6/3/2009	SM 2340B	Hardness, as CaCO3	160	mg/L	0.0535	MDL	0.175			Complete
SP-WC-400	6/3/2009	YSI 556 Multiprobe	ORP	187.2	mV						Not validated
SP-WC-400	6/3/2009	YSI 556 Multiprobe	Oxygen, Dissolved	8.75	mg/L						Not validated
SP-WC-400	6/3/2009	YSI 556 Multiprobe	pH	7.73	SU						Not validated
SP-WC-400	6/3/2009	SM 2540 C	TDS	180	mg/L	4	MDL	10		J	Complete
SP-WC-400	6/3/2009	YSI 556 Multiprobe	Temperature	7.9	C						Not validated
SP-WC-400	6/3/2009	SM 2540 D	TSS	5	mg/L	4	MDL	5	U	UJ	Complete
SP-WC-400	11/18/2009		Flow		cfs						Not validated
SP-WC-400	6/7/2010		Flow		cfs						Not validated
SP-WC-400	11/9/2010		Flow		cfs						Not validated
SP-WC-400	6/14/2011		Flow		cfs						Not validated
SP-WC-400	11/10/2011		Flow		cfs						Not validated
SP-WC-400	5/10/2012		Flow		cfs						Not validated
SP-WC-400	11/14/2012		Flow		cfs						Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-400	1/24/2006	300	Sulfate	9.21	mg/L	0.07	MDL	0.3			Not validated
SW-DC-400	1/24/2006	3114C	Selenium, Dissolved	0.0019	mg/L	0.0002	MDL	0.001			Not validated
SW-DC-400	1/24/2006	200.8	Cadmium, Total	0.00002	mg/L	0.000015	MDL	0.0002	B		Not validated
SW-DC-400	1/24/2006	200.7	Chromium, Total	0.00092	mg/L	0.0006	MDL	0.006	B		Not validated
SW-DC-400	1/24/2006	245.1	Mercury, Total	0.0001	mg/L	0.0001	MDL	0.0002	U		Not validated
SW-DC-400	1/24/2006	200.7	Nickel, Total	0.004	mg/L	0.004	MDL	0.01	U		Not validated
SW-DC-400	1/24/2006	3114C	Selenium, Total	0.0017	mg/L	0.0002	MDL	0.001			Not validated
SW-DC-400	1/24/2006	200.7	Vanadium, Total	0.0028	mg/L	0.0006	MDL	0.005	B		Not validated
SW-DC-400	1/24/2006	200.7	Zinc, Total	0.0005	mg/L	0.0005	MDL	0.01	U		Not validated
SW-DC-400	1/24/2006	120.1	Conductivity at 25 C	388.8	umhos/cm	0.5	MDL	0.01			Not validated
SW-DC-400	1/24/2006	2340B	Hardness, as CaCO3	211	mg/L	0	MDL	0.35			Not validated
SW-DC-400	1/24/2006	150.1	pH	7.92	SU	0.01	MDL	0.01			Not validated
SW-DC-400	1/24/2006	160.1	TDS	203	mg/L	4.4	MDL	10			Not validated
SW-DC-400	1/24/2006	160.2	TSS	7	mg/L	2.6	MDL	5			Not validated
SW-DC-400	1/24/2006	180.1	Turbidity	2.67	NTU	0.01	MDL	0.01			Not validated
SW-DC-400	5/24/2006		Flow	22.596	cfs						Not validated
SW-DC-400	5/24/2006	300	Sulfate	5.59	mg/L	0.037	MDL	0.3			Not validated
SW-DC-400	5/24/2006	200.8	Cadmium, Dissolved	0.00004	mg/L	0.00001	MDL	0.002	B		Not validated
SW-DC-400	5/24/2006	200.7	Chromium, Dissolved	0.0002	mg/L	0.00069	MDL	0.006	U		Not validated
SW-DC-400	5/24/2006	200.7	Nickel, Dissolved	0.0027	mg/L	0.004	MDL	0.01	U		Not validated
SW-DC-400	5/24/2006	200.7	Vanadium, Dissolved	0.001	mg/L	0.00066	MDL	0.005	B		Not validated
SW-DC-400	5/24/2006	200.7	Zinc, Dissolved	0.0009	mg/L	0.0009	MDL	0.01	U		Not validated
SW-DC-400	5/24/2006	3114C	Selenium, Total	0.0007	mg/L	0.0002	MDL	0.002	B		Not validated
SW-DC-400	5/24/2006	200.7	Calcium, Total	49	mg/L	0.009	MDL	0.04			Not validated
SW-DC-400	5/24/2006	200.7	Magnesium, Total	8.21	mg/L	0.028	MDL	0.06			Not validated
SW-DC-400	5/24/2006		Conductivity at 25 C	210	umhos/cm						Not validated
SW-DC-400	5/24/2006	120.1	Conductivity at 25 C	294	umhos/cm	0.5	MDL	10			Not validated
SW-DC-400	5/24/2006	2340B	Hardness, as CaCO3	156	mg/L	0.06	MDL	0.347			Not validated
SW-DC-400	5/24/2006		Oxygen, Dissolved	7.8	mg/L						Not validated
SW-DC-400	5/24/2006		pH	8.4	SU						Not validated
SW-DC-400	5/24/2006	150.1	pH	8.42	SU	0.01	MDL	0.01			Not validated
SW-DC-400	5/24/2006	160.1	TDS	157	mg/L	4.4	MDL	10			Not validated
SW-DC-400	5/24/2006		Temperature	10.1	C						Not validated
SW-DC-400	5/24/2006	160.2	TSS	5	mg/L	4.2	MDL	5	U		Not validated
SW-DC-400	5/24/2006		Turbidity	25.6	NTU						Not validated
SW-DC-400	10/19/2006		Flow		cfs						Not validated
SW-DC-400	5/20/2007	Global Water Flow Prob	Flow	3.306	cfs						Not validated
SW-DC-400	5/20/2007	300.0	Sulfate	7.071	mg/L	0	MDL	0.3			Not validated
SW-DC-400	5/20/2007	300.0	Sulfate	7.095	mg/L	0	MDL	0.3			Not validated
SW-DC-400	5/20/2007	200.8	Cadmium, Dissolved	0.00003	mg/L	0	MDL	0.0002	B		Not validated
SW-DC-400	5/20/2007	200.8	Cadmium, Dissolved	0.00004	mg/L	0	MDL	0.0002	B		Not validated
SW-DC-400	5/20/2007	200.7	Chromium, Dissolved	0.0004	mg/L	0	MDL	0.006	U		Not validated
SW-DC-400	5/20/2007	200.7	Chromium, Dissolved	0.0004	mg/L	0	MDL	0.006	U		Not validated
SW-DC-400	5/20/2007	200.7	Nickel, Dissolved	0.0013	mg/L	0	MDL	0.01	U		Not validated
SW-DC-400	5/20/2007	200.7	Nickel, Dissolved	0.002	mg/L	0	MDL	0.01	B		Not validated
SW-DC-400	5/20/2007	200.7	Vanadium, Dissolved	0.0012	mg/L	0	MDL	0.005	B		Not validated
SW-DC-400	5/20/2007	200.7	Vanadium, Dissolved	0.0011	mg/L	0	MDL	0.005	B		Not validated
SW-DC-400	5/20/2007	200.7	Zinc, Dissolved	0.0013	mg/L	0	MDL	0.01	B		Not validated
SW-DC-400	5/20/2007	200.7	Zinc, Dissolved	0.0015	mg/L	0	MDL	0.01	B		Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-400	5/20/2007	3114C	Selenium, Total	0.00095	mg/L	0	MDL	0.0003	B		Not validated
SW-DC-400	5/20/2007	3114C	Selenium, Total	0.00099	mg/L	0	MDL	0.0003	B		Not validated
SW-DC-400	5/20/2007	120.1	Conductivity at 25 C	329	umhos/cm	0	MDL	1			Not validated
SW-DC-400	5/20/2007		Conductivity at 25 C	2.3	umhos/cm						Not validated
SW-DC-400	5/20/2007	120.1	Conductivity at 25 C	318	umhos/cm	0	MDL	1			Not validated
SW-DC-400	5/20/2007	2340B	Hardness, as CaCO3	168	mg/L	0	MDL	0.35			Not validated
SW-DC-400	5/20/2007	2340B	Hardness, as CaCO3	166	mg/L	0	MDL	0.35			Not validated
SW-DC-400	5/20/2007		Oxygen, Dissolved	7.92	mg/L						Not validated
SW-DC-400	5/20/2007	150.1	pH	8.38	SU	0	MDL	0.01			Not validated
SW-DC-400	5/20/2007		pH	8.36	SU						Not validated
SW-DC-400	5/20/2007	150.1	pH	8.38	SU	0	MDL	0.01			Not validated
SW-DC-400	5/20/2007	160.1	TDS	166	mg/L	0	MDL	10			Not validated
SW-DC-400	5/20/2007	160.1	TDS	165	mg/L	0	MDL	10			Not validated
SW-DC-400	5/20/2007		Temperature	10.8	C						Not validated
SW-DC-400	5/20/2007	160.2	TSS	5	mg/L	0	MDL	5	U		Not validated
SW-DC-400	5/20/2007	160.2	TSS	5	mg/L	0	MDL	5	U		Not validated
SW-DC-400	5/20/2007		Turbidity	1.24	NTU						Not validated
SW-DC-400	5/20/2007		Turbidity	1.26	NTU						Not validated
SW-DC-400	9/25/2007		Flow		cfs						Not validated
SW-DC-400	6/17/2008	FP201 Global Flow Prob	Flow	15.334	cfs						Not validated
SW-DC-400	6/17/2008	EPA 300.0	Sulfate	7.27	mg/L	0.05	MDL	0.3			Not validated
SW-DC-400	6/17/2008	EPA 200.8	Cadmium, Dissolved	0.000038	mg/L	0.000034	MDL	0.202	B		Not validated
SW-DC-400	6/17/2008	EPA 200.7	Chromium, Dissolved	0.001	mg/L	0.001	MDL	10.1	U		Not validated
SW-DC-400	6/17/2008	EPA 200.7	Nickel, Dissolved	0.0023	mg/L	0.0023	MDL	10.1	U		Not validated
SW-DC-400	6/17/2008	EPA 200.7	Vanadium, Dissolved	0.00046	mg/L	0.00042	MDL	10.1	B		Not validated
SW-DC-400	6/17/2008	EPA 200.7	Zinc, Dissolved	0.0019	mg/L	0.0019	MDL	10.1	U		Not validated
SW-DC-400	6/17/2008	EPA 200.7	Calcium, Total	48.7	mg/L	0.016	MDL	40			Not validated
SW-DC-400	6/17/2008	EPA 200.7	Magnesium, Total	8.53	mg/L	0.015	MDL	60			Not validated
SW-DC-400	6/17/2008	SM3114C	Selenium, Total	0.001	mg/L	0.0002	MDL	2	B		Not validated
SW-DC-400	6/17/2008	EPA 120.1	Conductivity at 25 C	320	umhos/cm		MDL	1			Not validated
SW-DC-400	6/17/2008	Hach Senslon	Conductivity at 25 C	221	umhos/cm						Not validated
SW-DC-400	6/17/2008	SM 2340B	Hardness, as CaCO3	157	mg/L	0.102	MDL	350			Not validated
SW-DC-400	6/17/2008	Hach Senslon	Oxygen, Dissolved	9.35	mg/L						Not validated
SW-DC-400	6/17/2008	SM4500-H-B	pH	8.41	SU		MDL				Not validated
SW-DC-400	6/17/2008	SM 2540 C	TDS	170	mg/L	4.3	MDL	10			Not validated
SW-DC-400	6/17/2008	Hach Senslon	Temperature	11.2	C						Not validated
SW-DC-400	6/17/2008	SM 2540 D	TSS	5	mg/L	4.2	MDL	5			Not validated
SW-DC-400	6/17/2008	HF Scientific Handheld T	Turbidity	3	NTU						Not validated
SW-DC-400	11/19/2008		Flow		cfs						Not validated
SW-DC-400	6/3/2009	Marsh-McBirney, 0.6 tin	Flow	14.44735	cfs						Not validated
SW-DC-400	6/3/2009	EPA 300.0	Sulfate	5.5	mg/L	0.18	MDL	1.5		J+	Complete
SW-DC-400	6/3/2009	EPA 200.8	Cadmium, Dissolved	0.000049	mg/L	0.000024	MDL	0.000202	B	U	Complete
SW-DC-400	6/3/2009	Calculation	Chromium, +3, Dissolved	0.011	mg/L	0.00243	MDL	0.011	U	UJ	Complete
SW-DC-400	6/3/2009	SM 3500 Cr D	Chromium, +6, Dissolved	0.01	mg/L	0.002	MDL	0.01	U	UJ	Complete
SW-DC-400	6/3/2009	EPA 200.8	Chromium, Dissolved	0.0032	mg/L	0.00023	MDL	0.002			Complete
SW-DC-400	6/3/2009	EPA 200.7	Manganese, Dissolved	0.0019	mg/L	0.0013	MDL	0.0101	B		Complete
SW-DC-400	6/3/2009	EPA 200.8	Nickel, Dissolved	0.0024	mg/L	0.000111	MDL	0.001			Complete
SW-DC-400	6/3/2009	SM3114C	Selenium, Dissolved	0.00072	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-400	6/3/2009	EPA 200.7	Zinc, Dissolved	0.0019	mg/L	0.0019	MDL	0.0101	U		Complete

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-400	6/3/2009	EPA 200.7	Calcium, Total	53.2	mg/L	0.009	MDL	0.02			Complete
SW-DC-400	6/3/2009	EPA 200.7	Magnesium, Total	8.58	mg/L	0.0075	MDL	0.03			Complete
SW-DC-400	6/3/2009	SM3114C	Selenium, Total	0.00082	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-400	6/3/2009	YSI 556 Multiprobe	Conductivity at 25 C	308	umhos/cm						Not validated
SW-DC-400	6/3/2009	SM 2340B	Hardness, as CaCO3	168	mg/L	0.0535	MDL	0.175			Complete
SW-DC-400	6/3/2009	YSI 556 Multiprobe	ORP	249.4	mV						Not validated
SW-DC-400	6/3/2009	YSI 556 Multiprobe	Oxygen, Dissolved	8.54	mg/L						Not validated
SW-DC-400	6/3/2009	YSI 556 Multiprobe	pH	8.04	SU						Not validated
SW-DC-400	6/3/2009	SM 2540 C	TDS	185	mg/L	4	MDL	10		J	Complete
SW-DC-400	6/3/2009	YSI 556 Multiprobe	Temperature	11.01	C						Not validated
SW-DC-400	6/3/2009	SM 2540 D	TSS	5	mg/L	4	MDL	5		J	Complete
SW-DC-400	11/19/2009		Flow		cfs						Not validated
SW-DC-400	6/5/2010	Marsh-McBirney, 0.6 tin	Flow	16.337	cfs						Not validated
SW-DC-400	6/5/2010	EPA 300.0	Sulfate	5.4	mg/L	0.08	MDL	1			Complete
SW-DC-400	6/5/2010	EPA 6020	Cadmium, Dissolved	0.000036	mg/L	0.000036	MDL	0.0002	U		Complete
SW-DC-400	6/5/2010	Calculation	Chromium, +3, Dissolved	0.00196	mg/L	0.00196	MDL	0.0115	U	UJ	Complete
SW-DC-400	6/5/2010	SW846 7196A	Chromium, +6, Dissolved	0.002	mg/L	0.002	MDL	0.01	U	UJ	Complete
SW-DC-400	6/5/2010	EPA 6020	Chromium, Dissolved	0.00026	mg/L	0.00026	MDL	0.0015	U		Complete
SW-DC-400	6/5/2010	EPA 6020	Manganese, Dissolved	0.00351	mg/L	0.000015	MDL	0.001			Complete
SW-DC-400	6/5/2010	EPA 6020	Nickel, Dissolved	0.00244	mg/L	0.00013	MDL	0.001			Complete
SW-DC-400	6/5/2010	SM 3114 C	Selenium, Dissolved	0.0008	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-400	6/5/2010	EPA 6020	Zinc, Dissolved	0.00217	mg/L	0.00041	MDL	0.005	B	U	Complete
SW-DC-400	6/5/2010	EPA 6010B	Calcium, Total	47.7	mg/L	0.012	MDL	0.05			Complete
SW-DC-400	6/5/2010	EPA 6010B	Magnesium, Total	8.4	mg/L	0.011	MDL	0.1			Complete
SW-DC-400	6/5/2010	SM 3114 C	Selenium, Total	0.0008	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-400	6/5/2010	YSI 556 Multiprobe	Conductivity at 25 C	282	umhos/cm						Not validated
SW-DC-400	6/5/2010	SM 2340B	Hardness, as CaCO3	154	mg/L	0.075	MDL	0.537			Complete
SW-DC-400	6/5/2010	YSI 556 Multiprobe	ORP	154.2	mV						Not validated
SW-DC-400	6/5/2010	YSI 556 Multiprobe	Oxygen, Dissolved	11.23	mg/L						Not validated
SW-DC-400	6/5/2010	YSI 556 Multiprobe	pH	8.42	SU						Not validated
SW-DC-400	6/5/2010	SM 2540 C	TDS	140	mg/L	0	MDL	10			Complete
SW-DC-400	6/5/2010	YSI 556 Multiprobe	Temperature	7.47	C						Not validated
SW-DC-400	6/5/2010	SM 2540 D	TSS	10	mg/L	0	MDL	5			Complete
SW-DC-400	6/5/2010	HF Scientific MicroTPW	Turbidity	10.5	NTU						Not validated
SW-DC-400	11/12/2010		Flow		cfs						Not validated
SW-DC-400	6/17/2011	Marsh-McBirney, 0.6 tin	Flow	54.285	cfs						Not validated
SW-DC-400	6/17/2011	EPA 300.0	Sulfate	4.84	mg/L	0.07	MDL/RpToMRL	1			Complete
SW-DC-400	6/17/2011	EPA 200.8	Cadmium, Dissolved	0.000052	mg/L	0.000026	MDL	0.0002	B		Complete
SW-DC-400	6/17/2011	Calculation	Chromium, +3, Dissolved	0.0017	mg/L	0.0017	MDL	0.01	U	UJ	Complete
SW-DC-400	6/17/2011	SM 3500 Cr D	Chromium, +6, Dissolved	0.0024	mg/L	0.0017	MDL	0.01	B	UJ	Complete
SW-DC-400	6/17/2011	EPA 200.8	Chromium, Dissolved	0.0017	mg/L	0.00023	MDL	0.002	B		Complete
SW-DC-400	6/17/2011	EPA 200.7	Manganese, Dissolved	0.0029	mg/L	0.0017	MDL	0.0051	B		Complete
SW-DC-400	6/17/2011	EPA 200.8	Nickel, Dissolved	0.0024	mg/L	0.00027	MDL	0.001			Complete
SW-DC-400	6/17/2011	SM 3114C	Selenium, Dissolved	0.00071	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-400	6/17/2011	EPA 200.7	Zinc, Dissolved	0.0019	mg/L	0.0019	MDL	0.0101	U		Complete
SW-DC-400	6/17/2011	EPA 200.7	Calcium, Total	46	mg/L	0.006	MDL	0.02			Complete
SW-DC-400	6/17/2011	EPA 200.7	Magnesium, Total	7.6	mg/L	0.0105	MDL	0.03			Complete
SW-DC-400	6/17/2011	SM 3114C	Selenium, Total	0.00089	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-400	6/17/2011	YSI 556 Multiprobe	Conductivity at 25 C	274	umhos/cm						Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-400	6/17/2011	SM 2340B	Hardness, as CaCO3	146	mg/L	0.058	MDL	0.175			Complete
SW-DC-400	6/17/2011	YSI 556 Multiprobe	ORP	196.5	mV						Not validated
SW-DC-400	6/17/2011	YSI 556 Multiprobe	Oxygen, Dissolved	9.93	mg/L						Not validated
SW-DC-400	6/17/2011	YSI 556 Multiprobe	pH	8.44	SU						Not validated
SW-DC-400	6/17/2011	SM 2540 C	TDS	152	mg/L	0	MDL/RpToMRL	10			Complete
SW-DC-400	6/17/2011	YSI 556 Multiprobe	Temperature	4.7	C						Not validated
SW-DC-400	6/17/2011	SM 2540 D	TSS	12	mg/L	0	MDL/RpToMRL	5			Complete
SW-DC-400	6/17/2011	HF Scientific MicroTPW	Turbidity	17.33	NTU						Not validated
SW-DC-400	11/11/2011		Flow		cfs						Not validated
SW-DC-400	5/13/2012	Marsh-McBirney, 0.6 tin	Flow	7.08	cfs						Not validated
SW-DC-400	5/13/2012	EPA 300.0	Sulfate	6.38	mg/L	0.05	MDL/RpToMRL	0.3		J+	Complete
SW-DC-400	5/13/2012	EPA 200.8	Cadmium, Dissolved	0.000037	mg/L	0.000018	MDL	0.00025	J		Complete
SW-DC-400	5/13/2012	EPA 200.8	Chromium, Dissolved	0.00042	mg/L	0.00021	MDL	0.0025	J		Complete
SW-DC-400	5/13/2012	EPA 200.7	Manganese, Dissolved	0.002	mg/L	0.0014	MDL	0.0051	J		Complete
SW-DC-400	5/13/2012	EPA 200.8	Nickel, Dissolved	0.00075	mg/L	0.00043	MDL	0.0012	J	U	Complete
SW-DC-400	5/13/2012	SM 3114C	Selenium, Dissolved	0.00091	mg/L	0.0002	MDL	0.002	J		Complete
SW-DC-400	5/13/2012	EPA 200.7	Zinc, Dissolved	0.0026	mg/L	0.0026	MDL	0.0101	U	UJ	Complete
SW-DC-400	5/13/2012	EPA 200.7	Calcium, Total	47.4	mg/L	0.0065	MDL	0.02			Complete
SW-DC-400	5/13/2012	EPA 200.7	Magnesium, Total	8.39	mg/L	0.013	MDL	0.03			Complete
SW-DC-400	5/13/2012	SM 3114C	Selenium, Total	0.00088	mg/L	0.0002	MDL	0.002	J		Complete
SW-DC-400	5/13/2012	YSI Pro Multiprobe	Conductivity at 25 C	281.3	umhos/cm						Not validated
SW-DC-400	5/13/2012	SM 2340B	Hardness, as CaCO3	153	mg/L	0.07	MDL	0.175			Complete
SW-DC-400	5/13/2012	YSI Pro Multiprobe	ORP	189.6	mV						Not validated
SW-DC-400	5/13/2012	YSI Pro Multiprobe	Oxygen, Dissolved	10.69	mg/L						Not validated
SW-DC-400	5/13/2012	YSI Pro Multiprobe	pH	8.3	SU						Not validated
SW-DC-400	5/13/2012	SM 2540 C	TDS	192	mg/L	0	MDL/RpToMRL	10			Complete
SW-DC-400	5/13/2012	YSI Pro Multiprobe	Temperature	7	C						Not validated
SW-DC-400	5/13/2012	SM 2540 D	TSS	5	mg/L	0	MDL/RpToMRL	5	U		Complete
SW-DC-400	5/13/2012	HF Scientific MicroTPW	Turbidity	2.12	NTU						Not validated
SW-DC-400	11/16/2012		Flow		cfs						Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-500	5/24/2006		Flow	20.387	cfs						Not validated
SW-DC-500	5/24/2006	300	Sulfate	6.48	mg/L	0.037	MDL	0.3			Not validated
SW-DC-500	5/24/2006	200.8	Cadmium, Dissolved	0.00004	mg/L	0.00001	MDL	0.002	B		Not validated
SW-DC-500	5/24/2006	200.7	Chromium, Dissolved	0.0002	mg/L	0.00069	MDL	0.006	U		Not validated
SW-DC-500	5/24/2006	200.7	Nickel, Dissolved	0.0027	mg/L	0.004	MDL	0.01	U		Not validated
SW-DC-500	5/24/2006	200.7	Vanadium, Dissolved	0.0012	mg/L	0.00066	MDL	0.005	B		Not validated
SW-DC-500	5/24/2006	200.7	Zinc, Dissolved	0.0009	mg/L	0.0009	MDL	0.01	U		Not validated
SW-DC-500	5/24/2006	3114C	Selenium, Total	0.00083	mg/L	0.0002	MDL	0.002	B		Not validated
SW-DC-500	5/24/2006	200.7	Calcium, Total	50.2	mg/L	0.009	MDL	0.04			Not validated
SW-DC-500	5/24/2006	200.7	Magnesium, Total	9.77	mg/L	0.028	MDL	0.06			Not validated
SW-DC-500	5/24/2006		Conductivity at 25 C	220	umhos/cm						Not validated
SW-DC-500	5/24/2006	120.1	Conductivity at 25 C	308	umhos/cm	0.5	MDL	10			Not validated
SW-DC-500	5/24/2006	2340B	Hardness, as CaCO3	166	mg/L	0.06	MDL	0.347			Not validated
SW-DC-500	5/24/2006		Oxygen, Dissolved	8	mg/L						Not validated
SW-DC-500	5/24/2006	150.1	pH	8.41	SU	0.01	MDL	0.01			Not validated
SW-DC-500	5/24/2006		pH	8.33	SU						Not validated
SW-DC-500	5/24/2006	160.1	TDS	160	mg/L	4.4	MDL	10			Not validated
SW-DC-500	5/24/2006		Temperature	10.3	C						Not validated
SW-DC-500	5/24/2006	160.2	TSS	5	mg/L	4.2	MDL	5	U		Not validated
SW-DC-500	5/24/2006		Turbidity	7	NTU						Not validated
SW-DC-500	10/19/2006	300	Sulfate	13.8	mg/L	0.037	MDL				Not validated
SW-DC-500	10/19/2006	200.8	Cadmium, Dissolved	0.00006	mg/L	0.00004	MDL		B		Not validated
SW-DC-500	10/19/2006	200.7	Chromium, Dissolved	0.00046	mg/L	0.00069	MDL		B		Not validated
SW-DC-500	10/19/2006	200.7	Nickel, Dissolved	0.0026	mg/L	0.004	MDL		U		Not validated
SW-DC-500	10/19/2006	200.7	Vanadium, Dissolved	0.0005	mg/L	0.00066	MDL		B		Not validated
SW-DC-500	10/19/2006	200.7	Zinc, Dissolved	0.0021	mg/L	0.0021	MDL		U		Not validated
SW-DC-500	10/19/2006	3114C	Selenium, Total	0.0014	mg/L	0.0002	MDL		B		Not validated
SW-DC-500	10/19/2006		Conductivity at 25 C	265	umhos/cm						Not validated
SW-DC-500	10/19/2006	120.1	Conductivity at 25 C	422.9	umhos/cm	0.01	MDL				Not validated
SW-DC-500	10/19/2006	2340B	Hardness, as CaCO3	226	mg/L	0.06	MDL				Not validated
SW-DC-500	10/19/2006		Oxygen, Dissolved	9.4	mg/L						Not validated
SW-DC-500	10/19/2006		pH	8.53	SU						Not validated
SW-DC-500	10/19/2006	150.1	pH	7.83	SU	0.01	MDL				Not validated
SW-DC-500	10/19/2006	160.1	TDS	211	mg/L	4.4	MDL				Not validated
SW-DC-500	10/19/2006		Temperature	7.6	C						Not validated
SW-DC-500	10/19/2006	160.2	TSS	5	mg/L	4.2	MDL		U		Not validated
SW-DC-500	10/19/2006		Turbidity	1.9	NTU						Not validated
SW-DC-500	5/20/2007	Global Water Flow Prob	Flow	5.159	cfs						Not validated
SW-DC-500	5/20/2007	300.0	Sulfate	8.233	mg/L	0	MDL	0.3			Not validated
SW-DC-500	5/20/2007	200.8	Cadmium, Dissolved	0.00002	mg/L	0	MDL	0.0002	U		Not validated
SW-DC-500	5/20/2007	200.7	Chromium, Dissolved	0.0004	mg/L	0	MDL	0.006	U		Not validated
SW-DC-500	5/20/2007	200.7	Nickel, Dissolved	0.0013	mg/L	0	MDL	0.01	B		Not validated
SW-DC-500	5/20/2007	200.7	Vanadium, Dissolved	0.00096	mg/L	0	MDL	0.005	B		Not validated
SW-DC-500	5/20/2007	200.7	Zinc, Dissolved	0.0011	mg/L	0	MDL	0.01	B		Not validated
SW-DC-500	5/20/2007	3114C	Selenium, Total	0.00093	mg/L	0	MDL	0.0003	B		Not validated
SW-DC-500	5/20/2007		Conductivity at 25 C	239	umhos/cm						Not validated
SW-DC-500	5/20/2007	120.1	Conductivity at 25 C	348.2	umhos/cm	0	MDL	1			Not validated
SW-DC-500	5/20/2007	2340B	Hardness, as CaCO3	179	mg/L	0	MDL	0.35			Not validated
SW-DC-500	5/20/2007		Oxygen, Dissolved	7.73	mg/L						Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-500	5/20/2007		pH	8.33	SU						Not validated
SW-DC-500	5/20/2007	150.1	pH	8.38	SU	0	MDL	0.01			Not validated
SW-DC-500	5/20/2007	160.1	TDS	169	mg/L	0	MDL	10			Not validated
SW-DC-500	5/20/2007		Temperature	11.4	C						Not validated
SW-DC-500	5/20/2007	160.2	TSS	8	mg/L	0	MDL	5			Not validated
SW-DC-500	5/20/2007		Turbidity	2.14	NTU						Not validated
SW-DC-500	9/25/2007	4 inch Baski Cutthroat Fl	Flow	0.447	cfs						Not validated
SW-DC-500	9/25/2007	300	Sulfate	12.6	mg/L	0.037	MDL	0.3			Not validated
SW-DC-500	9/25/2007	200.8	Cadmium, Dissolved	0.00002	mg/L	0.00002	MDL	0.0002	B		Not validated
SW-DC-500	9/25/2007	200.7	Chromium, Dissolved	0.0003	mg/L	0.0003	MDL	0.006	U		Not validated
SW-DC-500	9/25/2007	200.7	Nickel, Dissolved	0.0027	mg/L	0.0012	MDL	0.01	B		Not validated
SW-DC-500	9/25/2007	200.7	Vanadium, Dissolved	0.00082	mg/L	0.0004	MDL	0.005	B		Not validated
SW-DC-500	9/25/2007	200.7	Zinc, Dissolved	0.0017	mg/L	0.0017	MDL	0.01	U		Not validated
SW-DC-500	9/25/2007	200.7	Calcium, Total	62.6	mg/L	0.0079	MDL	0.04			Not validated
SW-DC-500	9/25/2007	200.7	Magnesium, Total	18.5	mg/L	0.011	MDL	0.06			Not validated
SW-DC-500	9/25/2007	3114C	Selenium, Total	0.0015	mg/L	0.0002	MDL	0.002	B		Not validated
SW-DC-500	9/25/2007	120.1	Conductivity at 25 C	427	umhos/cm	1	MDL	1			Not validated
SW-DC-500	9/25/2007	HACH Sension 156	Conductivity at 25 C	251	umhos/cm						Not validated
SW-DC-500	9/25/2007	2340B	Hardness, as CaCO3	232	mg/L	0.06	MDL	0.35			Not validated
SW-DC-500	9/25/2007	HACH Sension 156	Oxygen, Dissolved	9.06	mg/L						Not validated
SW-DC-500	9/25/2007	HACH Sension 156	pH	8.74	SU						Not validated
SW-DC-500	9/25/2007	4500-H	pH	8.44	SU	0.01	MDL	0.01			Not validated
SW-DC-500	9/25/2007	2540C	TDS	201	mg/L	9.2	MDL	10			Not validated
SW-DC-500	9/25/2007	HACH Sension 156	Temperature	6.6	C						Not validated
SW-DC-500	9/25/2007	2540D	TSS	5	mg/L	4.2	MDL	5	U		Not validated
SW-DC-500	9/25/2007	Hach 2100P Turbidity M	Turbidity	0.7	NTU						Not validated
SW-DC-500	6/17/2008	FP201 Global Flow Prob	Flow	22.436	cfs						Not validated
SW-DC-500	6/17/2008	EPA 300.0	Sulfate	8.32	mg/L	0.05	MDL	0.3			Not validated
SW-DC-500	6/17/2008	EPA 200.8	Cadmium, Dissolved	0.000046	mg/L	0.000034	MDL	0.202	B		Not validated
SW-DC-500	6/17/2008	EPA 200.7	Chromium, Dissolved	0.001	mg/L	0.001	MDL	10.1	U		Not validated
SW-DC-500	6/17/2008	EPA 200.7	Nickel, Dissolved	0.0023	mg/L	0.0023	MDL	10.1	U		Not validated
SW-DC-500	6/17/2008	EPA 200.7	Vanadium, Dissolved	0.00059	mg/L	0.00042	MDL	10.1	B		Not validated
SW-DC-500	6/17/2008	EPA 200.7	Zinc, Dissolved	0.0019	mg/L	0.0019	MDL	10.1	U		Not validated
SW-DC-500	6/17/2008	EPA 200.7	Calcium, Total	50	mg/L	0.016	MDL	40			Not validated
SW-DC-500	6/17/2008	EPA 200.7	Magnesium, Total	10	mg/L	0.015	MDL	60			Not validated
SW-DC-500	6/17/2008	SM3114C	Selenium, Total	0.0011	mg/L	0.0002	MDL	2	B		Not validated
SW-DC-500	6/17/2008	EPA 120.1	Conductivity at 25 C	340	umhos/cm		MDL	1			Not validated
SW-DC-500	6/17/2008	Hach SensIon	Conductivity at 25 C	231	umhos/cm						Not validated
SW-DC-500	6/17/2008	SM 2340B	Hardness, as CaCO3	166	mg/L	0.102	MDL	350			Not validated
SW-DC-500	6/17/2008	Hach SensIon	Oxygen, Dissolved	9.11	mg/L						Not validated
SW-DC-500	6/17/2008	SM4500-H-B	pH	8.38	SU		MDL				Not validated
SW-DC-500	6/17/2008	SM 2540 C	TDS	170	mg/L	4.3	MDL	10			Not validated
SW-DC-500	6/17/2008	Hach SensIon	Temperature	11.2	C						Not validated
SW-DC-500	6/17/2008	SM 2540 D	TSS	5	mg/L	4.2	MDL	5			Not validated
SW-DC-500	6/17/2008	HF Scientific Handheld T	Turbidity	7.8	NTU						Not validated
SW-DC-500	11/19/2008	Marsh-McBirney, 0.6 tin	Flow	0.486	cfs						Not validated
SW-DC-500	11/19/2008	EPA 300.0	Sulfate	14.5	mg/L	0.04	MDL	0.3			Not validated
SW-DC-500	11/19/2008	EPA 200.8	Cadmium, Dissolved	0.000035	mg/L	0.000034	MDL	0.000202	B		Not validated
SW-DC-500	11/19/2008	EPA 200.7	Chromium, Dissolved	0.001	mg/L	0.001	MDL	0.0101	U		Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-500	11/19/2008	EPA 200.7	Nickel, Dissolved	0.0023	mg/L	0.0023	MDL	0.0101	U		Not validated
SW-DC-500	11/19/2008	EPA 200.7	Vanadium, Dissolved	0.0011	mg/L	0.00048	MDL	0.0101	B		Not validated
SW-DC-500	11/19/2008	EPA 200.7	Zinc, Dissolved	0.002	mg/L	0.0019	MDL	0.0101	B		Not validated
SW-DC-500	11/19/2008	EPA 200.7	Calcium, Total	58.3	mg/L	0.018	MDL	0.04			Not validated
SW-DC-500	11/19/2008	EPA 200.7	Magnesium, Total	17.8	mg/L	0.015	MDL	0.06			Not validated
SW-DC-500	11/19/2008	SM3114C	Selenium, Total	0.0022	mg/L	0.0002	MDL	0.002			Not validated
SW-DC-500	11/19/2008	SM 2340B	Hardness, as CaCO3	219	mg/L	0.107	MDL	0.35			Not validated
SW-DC-500	11/19/2008	Hach SensIon	Conductivity at 25 C	228	umhos/cm						Not validated
SW-DC-500	11/19/2008	EPA 120.1	Conductivity at 25 C	440	umhos/cm		MDL	1			Not validated
SW-DC-500	11/19/2008	Hach SensIon	Oxygen, Dissolved	6.66	mg/L						Not validated
SW-DC-500	11/19/2008	SM 4500 H B	pH	8.21	SU		MDL				Not validated
SW-DC-500	11/19/2008	Hach SensIon	pH	8.47	SU						Not validated
SW-DC-500	11/19/2008	SM 2540 C	TDS	230	mg/L	4.3	MDL	10			Not validated
SW-DC-500	11/19/2008	Hach SensIon	Temperature	2.9	C						Not validated
SW-DC-500	11/19/2008	SM 2540 D	TSS	5	mg/L	4.2	MDL	5	U		Not validated
SW-DC-500	11/19/2008	Hach	Turbidity	20.5	NTU						Not validated
SW-DC-500	6/3/2009	Marsh-McBirney, 0.6 tin	Flow	23.5005	cfs						Not validated
SW-DC-500	6/3/2009	EPA 300.0	Sulfate	6.02	mg/L	0.18	MDL	1.5		J+	Complete
SW-DC-500	6/3/2009	EPA 200.8	Cadmium, Dissolved	0.000056	mg/L	0.000024	MDL	0.000202	B	U	Complete
SW-DC-500	6/3/2009	Calculation	Chromium, +3, Dissolved	0.011	mg/L	0.00243	MDL	0.011	U	UJ	Complete
SW-DC-500	6/3/2009	SM 3500 Cr D	Chromium, +6, Dissolved	0.01	mg/L	0.002	MDL	0.01	U	UJ	Complete
SW-DC-500	6/3/2009	EPA 200.8	Chromium, Dissolved	0.0031	mg/L	0.00023	MDL	0.002			Complete
SW-DC-500	6/3/2009	EPA 200.7	Manganese, Dissolved	0.0031	mg/L	0.0013	MDL	0.0101	B		Complete
SW-DC-500	6/3/2009	EPA 200.8	Nickel, Dissolved	0.0013	mg/L	0.000111	MDL	0.001			Complete
SW-DC-500	6/3/2009	SM3114C	Selenium, Dissolved	0.00065	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	6/3/2009	EPA 200.7	Zinc, Dissolved	0.0019	mg/L	0.0019	MDL	0.0101	U		Complete
SW-DC-500	6/3/2009	EPA 200.7	Calcium, Total	54.4	mg/L	0.009	MDL	0.02			Complete
SW-DC-500	6/3/2009	EPA 200.7	Magnesium, Total	10.3	mg/L	0.0075	MDL	0.03			Complete
SW-DC-500	6/3/2009	SM3114C	Selenium, Total	0.00075	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	6/3/2009	YSI 556 Multiprobe	Conductivity at 25 C	323	umhos/cm						Not validated
SW-DC-500	6/3/2009	SM 2340B	Hardness, as CaCO3	178	mg/L	0.0535	MDL	0.175			Complete
SW-DC-500	6/3/2009	YSI 556 Multiprobe	ORP	205.8	mV						Not validated
SW-DC-500	6/3/2009	YSI 556 Multiprobe	Oxygen, Dissolved	8.35	mg/L						Not validated
SW-DC-500	6/3/2009	YSI 556 Multiprobe	pH	8.13	SU						Not validated
SW-DC-500	6/3/2009	SM 2540 C	TDS	175	mg/L	4	MDL	10		J	Complete
SW-DC-500	6/3/2009	YSI 556 Multiprobe	Temperature	11.74	C						Not validated
SW-DC-500	6/3/2009	SM 2540 D	TSS	5	mg/L	4	MDL	5	U	UJ	Complete
SW-DC-500	11/19/2009	Marsh-McBirney, 0.6 tin	Flow	0.629	cfs						Not validated
SW-DC-500	11/19/2009	EPA 300.0	Sulfate	15.6	mg/L	0.04	MDL	0.3			Complete
SW-DC-500	11/19/2009	EPA 200.8	Cadmium, Dissolved	0.000024	mg/L	0.000024	MDL	0.000202	U		Complete
SW-DC-500	11/19/2009	Calculation	Chromium, +3, Dissolved	0.0024	mg/L	0.0024	MDL	0.0115	U	UJ	Complete
SW-DC-500	11/19/2009	SM 3500 Cr D	Chromium, +6, Dissolved	0.002	mg/L	0.002	MDL	0.01	U	UJ	Complete
SW-DC-500	11/19/2009	EPA 200.8	Chromium, Dissolved	0.0021	mg/L	0.00023	MDL	0.002			Complete
SW-DC-500	11/19/2009	EPA 200.7	Manganese, Dissolved	0.0019	mg/L	0.0019	MDL	0.0101	U		Complete
SW-DC-500	11/19/2009	EPA 200.8	Nickel, Dissolved	0.0014	mg/L	0.000111	MDL	0.001			Complete
SW-DC-500	11/19/2009	SM3114C	Selenium, Dissolved	0.0017	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	11/19/2009	EPA 200.7	Zinc, Dissolved	0.0026	mg/L	0.0026	MDL	0.0101	U		Complete
SW-DC-500	11/19/2009	EPA 200.7	Calcium, Total	58	mg/L	0.006	MDL	0.02			Complete
SW-DC-500	11/19/2009	EPA 200.7	Magnesium, Total	18	mg/L	0.009	MDL	0.03			Complete

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-500	11/19/2009	SM3114C	Selenium, Total	0.0019	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	11/19/2009	YSI 556 Multiprobe	Conductivity at 25 C	391	umhos/cm						Not validated
SW-DC-500	11/19/2009	SM 2340B	Hardness, as CaCO3	219	mg/L	0.052	MDL	0.175			Complete
SW-DC-500	11/19/2009	YSI 556 Multiprobe	ORP	152.8	mV						Not validated
SW-DC-500	11/19/2009	YSI 556 Multiprobe	Oxygen, Dissolved	10.95	mg/L						Not validated
SW-DC-500	11/19/2009	YSI 556 Multiprobe	pH	8.68	SU						Not validated
SW-DC-500	11/19/2009	SM 2540 C	TDS	242	mg/L	4	MDL	10			Complete
SW-DC-500	11/19/2009	YSI 556 Multiprobe	Temperature	1.71	C						Not validated
SW-DC-500	11/19/2009	SM 2540 D	TSS	5	mg/L	4.2	MDL	5	U		Complete
SW-DC-500	11/19/2009	HF Scientific MicroTPW	Turbidity	1.22	NTU						Not validated
SW-DC-500	6/5/2010	Marsh-McBirney, 0.6 tin	Flow	20.773	cfs						Not validated
SW-DC-500	6/5/2010	EPA 300.0	Sulfate	6.79	mg/L	0.08	MDL	1			Complete
SW-DC-500	6/5/2010	EPA 6020	Cadmium, Dissolved	0.000036	mg/L	0.000036	MDL	0.0002	U		Complete
SW-DC-500	6/5/2010	Calculation	Chromium, +3, Dissolved	0.00196	mg/L	0.00196	MDL	0.0115	U	UJ	Complete
SW-DC-500	6/5/2010	SW846 7196A	Chromium, +6, Dissolved	0.002	mg/L	0.002	MDL	0.01	B	J-	Complete
SW-DC-500	6/5/2010	EPA 6020	Chromium, Dissolved	0.00026	mg/L	0.00026	MDL	0.0015	U		Complete
SW-DC-500	6/5/2010	EPA 6020	Manganese, Dissolved	0.00251	mg/L	0.000015	MDL	0.001			Complete
SW-DC-500	6/5/2010	EPA 6020	Nickel, Dissolved	0.00245	mg/L	0.00013	MDL	0.001			Complete
SW-DC-500	6/5/2010	SM 3114 C	Selenium, Dissolved	0.0009	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	6/5/2010	EPA 6020	Zinc, Dissolved	0.00172	mg/L	0.00041	MDL	0.005	B	U	Complete
SW-DC-500	6/5/2010	EPA 6010B	Calcium, Total	49.4	mg/L	0.012	MDL	0.05			Complete
SW-DC-500	6/5/2010	EPA 6010B	Magnesium, Total	10	mg/L	0.011	MDL	0.1			Complete
SW-DC-500	6/5/2010	SM 3114 C	Selenium, Total	0.001	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	6/5/2010	YSI 556 Multiprobe	Conductivity at 25 C	303	umhos/cm						Not validated
SW-DC-500	6/5/2010	SM 2340B	Hardness, as CaCO3	165	mg/L	0.075	MDL	0.537			Complete
SW-DC-500	6/5/2010	YSI 556 Multiprobe	ORP	151.3	mV						Not validated
SW-DC-500	6/5/2010	YSI 556 Multiprobe	Oxygen, Dissolved	10.54	mg/L						Not validated
SW-DC-500	6/5/2010	YSI 556 Multiprobe	pH	8.43	SU						Not validated
SW-DC-500	6/5/2010	SM 2540 C	TDS	149	mg/L	0	MDL	10			Complete
SW-DC-500	6/5/2010	YSI 556 Multiprobe	Temperature	7.62	C						Not validated
SW-DC-500	6/5/2010	SM 2540 D	TSS	5	mg/L	0	MDL	5			Complete
SW-DC-500	6/5/2010	HF Scientific MicroTPW	Turbidity	9.11	NTU						Not validated
SW-DC-500	11/12/2010	Marsh-McBirney, 0.6 tin	Flow	0.363	cfs						Not validated
SW-DC-500	11/12/2010	EPA 300.0	Sulfate	13.9	mg/L	0.05	MDL	1			Complete
SW-DC-500	11/12/2010	EPA 6020	Cadmium, Dissolved	0.000036	mg/L	0.000036	MDL	0.0002	U	UJ	Complete
SW-DC-500	11/12/2010	Calculation	Chromium, +3, Dissolved	0.002	mg/L	0.002	MDL	0.01	U	R	Complete
SW-DC-500	11/12/2010	SW846 7196A	Chromium, +6, Dissolved	0.002	mg/L	0.002	MDL	0.01	U	R	Complete
SW-DC-500	11/12/2010	EPA 6020	Chromium, Dissolved	0.00028	mg/L	0.00026	MDL	0.0015	B		Complete
SW-DC-500	11/12/2010	EPA 6020	Manganese, Dissolved	0.0015	mg/L	0.000015	MDL	0.001			Complete
SW-DC-500	11/12/2010	EPA 6020	Nickel, Dissolved	0.003	mg/L	0.00013	MDL	0.001			Complete
SW-DC-500	11/12/2010	SM3114C	Selenium, Dissolved	0.0019	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	11/12/2010	EPA 6020	Zinc, Dissolved	0.0024	mg/L	0.00041	MDL	0.005	B	U	Complete
SW-DC-500	11/12/2010	EPA 6010B	Calcium, Total	57.7	mg/L	0.016	MDL	0.05			Complete
SW-DC-500	11/12/2010	EPA 6010B	Magnesium, Total	17.7	mg/L	0.024	MDL	0.1			Complete
SW-DC-500	11/12/2010	SM3114C	Selenium, Total	0.0019	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	11/12/2010	YSI 556 Multiprobe	Conductivity at 25 C	403	umhos/cm						Not validated
SW-DC-500	11/12/2010	SM2340B	Hardness, as CaCO3	217	mg/L	0.139	MDL	0.536			Complete
SW-DC-500	11/12/2010	YSI 556 Multiprobe	ORP	222.8	mV						Not validated
SW-DC-500	11/12/2010	YSI 556 Multiprobe	Oxygen, Dissolved	13.09	mg/L						Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-500	11/12/2010	YSI 556 Multiprobe	pH	8.36	SU						Not validated
SW-DC-500	11/12/2010	SM 2540 C	TDS	227	mg/L	0	MDL	10			Complete
SW-DC-500	11/12/2010	YSI 556 Multiprobe	Temperature	2.1	C						Not validated
SW-DC-500	11/12/2010	SM 2540 D	TSS	5	mg/L	0	MDL	5	B		Complete
SW-DC-500	11/12/2010	HF Scientific MicroTPW	Turbidity	1.38	NTU						Not validated
SW-DC-500	6/17/2011		Flow		cfs						Not validated
SW-DC-500	6/17/2011	EPA 300.0	Sulfate	5.69	mg/L	0.07	MDL/RpToMRL	1			Complete
SW-DC-500	6/17/2011	EPA 200.8	Cadmium, Dissolved	0.000032	mg/L	0.000026	MDL	0.0002	B		Complete
SW-DC-500	6/17/2011	Calculation	Chromium, +3, Dissolved	0.0017	mg/L	0.0017	MDL	0.01	U	UJ	Complete
SW-DC-500	6/17/2011	SM 3500 Cr D	Chromium, +6, Dissolved	0.0024	mg/L	0.0017	MDL	0.01	B	UJ	Complete
SW-DC-500	6/17/2011	EPA 200.8	Chromium, Dissolved	0.0015	mg/L	0.00023	MDL	0.002	B		Complete
SW-DC-500	6/17/2011	EPA 200.7	Manganese, Dissolved	0.0032	mg/L	0.0017	MDL	0.0051	B		Complete
SW-DC-500	6/17/2011	EPA 200.8	Nickel, Dissolved	0.0025	mg/L	0.00027	MDL	0.001			Complete
SW-DC-500	6/17/2011	SM 3114C	Selenium, Dissolved	0.00083	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	6/17/2011	EPA 200.7	Zinc, Dissolved	0.0019	mg/L	0.0019	MDL	0.0101	U		Complete
SW-DC-500	6/17/2011	EPA 200.7	Calcium, Total	47	mg/L	0.006	MDL	0.02			Complete
SW-DC-500	6/17/2011	EPA 200.7	Magnesium, Total	8.86	mg/L	0.0105	MDL	0.03			Complete
SW-DC-500	6/17/2011	SM 3114C	Selenium, Total	0.00097	mg/L	0.0002	MDL	0.002	B		Complete
SW-DC-500	6/17/2011	YSI 556 Multiprobe	Conductivity at 25 C	290	umhos/cm						Not validated
SW-DC-500	6/17/2011	SM 2340B	Hardness, as CaCO3	154	mg/L	0.058	MDL	0.175			Complete
SW-DC-500	6/17/2011	YSI 556 Multiprobe	ORP	179.1	mV						Not validated
SW-DC-500	6/17/2011	YSI 556 Multiprobe	Oxygen, Dissolved	9.7	mg/L						Not validated
SW-DC-500	6/17/2011	YSI 556 Multiprobe	pH	8.44	SU						Not validated
SW-DC-500	6/17/2011	SM 2540 C	TDS	164	mg/L	0	MDL/RpToMRL	10			Complete
SW-DC-500	6/17/2011	YSI 556 Multiprobe	Temperature	6.22	C						Not validated
SW-DC-500	6/17/2011	SM 2540 D	TSS	5	mg/L	0	MDL/RpToMRL	5			Complete
SW-DC-500	6/17/2011	HF Scientific MicroTPW	Turbidity	15.8	NTU						Not validated
SW-DC-500	11/11/2011		Flow		cfs						Not validated
SW-DC-500	11/11/2011	EPA 300.0	Sulfate	14	mg/L	0.2	MDL	1.5			Complete
SW-DC-500	11/11/2011	EPA 200.8	Cadmium, Dissolved	0.000046	mg/L	0.0000075	MDL	0.00025	B	U	Complete
SW-DC-500	11/11/2011	EPA 200.8	Chromium, Dissolved	0.0003	mg/L	0.000069	MDL	0.0025	B	U	Complete
SW-DC-500	11/11/2011	EPA 200.7	Manganese, Dissolved	0.0012	mg/L	0.0011	MDL	0.005	B		Complete
SW-DC-500	11/11/2011	EPA 200.8	Nickel, Dissolved	0.0021	mg/L	0.00018	MDL	0.0012		U	Complete
SW-DC-500	11/11/2011	SM 3114C	Selenium, Dissolved	0.0021	mg/L	0.0002	MDL	0.002			Complete
SW-DC-500	11/11/2011	EPA 200.7	Zinc, Dissolved	0.0021	mg/L	0.0021	MDL	0.0101	U		Complete
SW-DC-500	11/11/2011	EPA 200.7	Calcium, Total	37	mg/L	0.006	MDL	0.02			Complete
SW-DC-500	11/11/2011	EPA 200.7	Magnesium, Total	11.1	mg/L	0.0105	MDL	0.03			Complete
SW-DC-500	11/11/2011	SM 3114C	Selenium, Total	0.0022	mg/L	0.0002	MDL	0.002			Complete
SW-DC-500	11/11/2011	EPA 200.8	Selenium, Total	0.0021	mg/L	0.00014	MDL	0.0025	B		Complete
SW-DC-500	11/11/2011	YSI Pro Multiprobe	Conductivity at 25 C	448	umhos/cm						Not validated
SW-DC-500	11/11/2011	SM 2340B	Hardness, as CaCO3	138	mg/L	0.058	MDL	0.175			Complete
SW-DC-500	11/11/2011	YSI Pro Multiprobe	ORP	95.1	mV						Not validated
SW-DC-500	11/11/2011	YSI Pro Multiprobe	Oxygen, Dissolved	11.62	mg/L						Not validated
SW-DC-500	11/11/2011	YSI Pro Multiprobe	pH	8.47	SU						Not validated
SW-DC-500	11/11/2011	SM 2540 C	TDS	188	mg/L	0	MDL/RptTo0	10			Complete
SW-DC-500	11/11/2011	YSI Pro Multiprobe	Temperature	0.7	C						Not validated
SW-DC-500	11/11/2011	SM 2540 D	TSS	3	mg/L	0	MDL/RptTo0	5	B		Complete
SW-DC-500	11/11/2011	HF Scientific MicroTPW	Turbidity	0.53	NTU						Not validated
SW-DC-500	5/13/2012	Marsh-McBirney, 0.6 tin	Flow	9.253	cfs						Not validated

Station Name	Sample Date	Analytical Method	Analyte	Value	Unit	Limit	Limit Type	PQL	Lab Qualifier	Validation Qualifier	Validation Status
SW-DC-500	5/13/2012	EPA 300.0	Sulfate	7.9	mg/L	0.05	MDL/RpToMRL	0.3			Complete
SW-DC-500	5/13/2012	EPA 200.8	Cadmium, Dissolved	0.00004	mg/L	0.000018	MDL	0.00025	J		Complete
SW-DC-500	5/13/2012	EPA 200.8	Chromium, Dissolved	0.00039	mg/L	0.00021	MDL	0.0025	J		Complete
SW-DC-500	5/13/2012	EPA 200.7	Manganese, Dissolved	0.0021	mg/L	0.0014	MDL	0.005	J		Complete
SW-DC-500	5/13/2012	EPA 200.8	Nickel, Dissolved	0.00083	mg/L	0.00043	MDL	0.0012	J	U	Complete
SW-DC-500	5/13/2012	SM 3114C	Selenium, Dissolved	0.00099	mg/L	0.0002	MDL	0.002	J		Complete
SW-DC-500	5/13/2012	EPA 200.7	Zinc, Dissolved	0.0029	mg/L	0.0026	MDL	0.0101	J		Complete
SW-DC-500	5/13/2012	EPA 200.7	Calcium, Total	52.9	mg/L	0.0065	MDL	0.02			Complete
SW-DC-500	5/13/2012	EPA 200.7	Magnesium, Total	11	mg/L	0.013	MDL	0.03			Complete
SW-DC-500	5/13/2012	SM 3114C	Selenium, Total	0.0011	mg/L	0.0002	MDL	0.002	J		Complete
SW-DC-500	5/13/2012	YSI Pro Multiprobe	Conductivity at 25 C	303.1	umhos/cm						Not validated
SW-DC-500	5/13/2012	SM 2340B	Hardness, as CaCO3	177	mg/L	0.07	MDL	0.175			Complete
SW-DC-500	5/13/2012	YSI Pro Multiprobe	ORP	192.1	mV						Not validated
SW-DC-500	5/13/2012	YSI Pro Multiprobe	Oxygen, Dissolved	10.14	mg/L						Not validated
SW-DC-500	5/13/2012	YSI Pro Multiprobe	pH	8.37	SU						Not validated
SW-DC-500	5/13/2012	SM 2540 C	TDS	167	mg/L	0	MDL/RpToMRL	10			Complete
SW-DC-500	5/13/2012	YSI Pro Multiprobe	Temperature	6.6	C						Not validated
SW-DC-500	5/13/2012	SM 2540 D	TSS	5	mg/L	0	MDL/RpToMRL	5			Complete
SW-DC-500	5/13/2012	HF Scientific MicroTPW	Turbidity	2.62	NTU						Not validated
SW-DC-500	11/16/2012		Flow		cfs						Not validated
SW-DC-500	11/16/2012	EPA 300.0	Sulfate	14.4	mg/L	0.35	MDL/RpToMRL	1.5			Complete
SW-DC-500	11/16/2012	EPA 200.8	Cadmium, Dissolved	0.000034	mg/L	0.000018	MDL	0.00025	J		Complete
SW-DC-500	11/16/2012	EPA 200.8	Chromium, Dissolved	0.00021	mg/L	0.00021	MDL	0.0019	J		Complete
SW-DC-500	11/16/2012	EPA 200.7	Manganese, Dissolved	0.0014	mg/L	0.0014	MDL	0.0051	U		Complete
SW-DC-500	11/16/2012	EPA 200.8	Nickel, Dissolved	0.0019	mg/L	0.00043	MDL	0.0012		U	Complete
SW-DC-500	11/16/2012	SM 3114C	Selenium, Dissolved	0.0013	mg/L	0.0002	MDL	0.002	J		Complete
SW-DC-500	11/16/2012	EPA 200.7	Zinc, Dissolved	0.0026	mg/L	0.0026	MDL	0.0101	U		Complete
SW-DC-500	11/16/2012	EPA 200.7	Calcium, Total	55.6	mg/L	0.0065	MDL	0.02			Complete
SW-DC-500	11/16/2012	EPA 200.7	Magnesium, Total	17.2	mg/L	0.011	MDL	0.03			Complete
SW-DC-500	11/16/2012	SM 3114C	Selenium, Total	0.0013	mg/L	0.0002	MDL	0.002	J		Complete
SW-DC-500	11/16/2012	YSI 556 Multiprobe	Conductivity at 25 C	346.1	umhos/cm						Not validated
SW-DC-500	11/16/2012	SM 2340B	Hardness, as CaCO3	210	mg/L	0.0615	MDL	0.175			Complete
SW-DC-500	11/16/2012	YSI 556 Multiprobe	ORP	20	mV						Not validated
SW-DC-500	11/16/2012	YSI 556 Multiprobe	Oxygen, Dissolved	11.36	mg/L						Not validated
SW-DC-500	11/16/2012	YSI 556 Multiprobe	pH	8.59	SU						Not validated
SW-DC-500	11/16/2012	SM 2540 C	TDS	206	mg/L	0	MDL/RpToMRL	10			Complete
SW-DC-500	11/16/2012	YSI 556 Multiprobe	Temperature	1.1	C						Not validated
SW-DC-500	11/16/2012	SM 2540 D	TSS	5	mg/L	0	MDL/RpToMRL	5	U		Complete
SW-DC-500	11/16/2012	HF Scientific MicroTPW	Turbidity	0.62	NTU						Not validated

Lab Qualifiers

Qualifier	Definition
*	Duplicate was not within control limits (CAS)
<	Less than Detection Limit
	No qualifier
B	Detected at a value between MDL and PQL. Alternate definition: analyte found in method blank (NAL and Pace)
B,N	Detected at a value between MDL and PQL. Matrix spike recovery outside of control limit (CAS)
BE	Lab assigned, no definition provided
BH	Detected at a value between MDL and PQL, Sample analyzed after hold time expired
BN	Detected at a value between MDL and PQL, Matrix spike recovery outside of control limit (SVL)
BW	Lab assigned, no definition provided
E	Analytical spike recovery is less than 40% (Severn Trent Lab)
H	Sample analyzed after hold time expired
HU	Sample analyzed after hold time expired and not detected at detection limit
J	The result is an estimated quantity
N	Matrix spike recovery outside of control limit (SVL,CAS)
N*	Matrix spike recovery and duplicate outside of control limit (CAS)
ND	Not Detected
U	Not detected at Detection Limit
U,N	Not detected and duplicate was not within the control limits (CAS)
UH	Not detected at Detection Limit, Sample analyzed after hold time expired
UN	Not detected at IDL, matrix spike recovery outside control limits (Severn Trent Lab)
UW	Lab assigned, no definition provided

Validation Qualifiers

Qualifier	Definition
J	Estimated
J-	Estimated, Low Bias
J+	Estimated, High Bias
R	Rejected
U	Not detected at reported detection limit
UJ	Estimated, not detected

APPENDIX 4A

IRA WORKSHEETS

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WORKSHEET 1 – Wilderness Qualities or Attributes
Evaluating the Effects of Project Activities on Wilderness Attributes

Date:	November 20, 2014
Roadless Area:	Meade Peak

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) Under the Proposed Action and all Action Alternatives, Lease IDI-01441 would be expanded within the MPRA and the South Overburden Disposal Area (ODA) and stormwater control features would result in a total of 19.4 acres within the MPRA, all within Lease IDI-01441. All disturbances within the MPRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the MPRA would generally be reclaimed and revegetated, immediately following the completion of the operations phase of the Project, with the exception of 0.91-acre of the stormwater features that would be maintained for many years to ensure their purpose and functionality.

Effect to Wilderness Quality or Attributes			
Wilderness Quality or Attribute (Note: delete attribute descriptions after data is entered to save space if desired.)	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. May use GIS layers (ROS, SMS, Roads, etc…) to quantify effects.
Untrammeled This quality monitors modern human activities that directly control or manipulate the components or processes of ecological systems inside wilderness. In summary, *wilderness is essentially unhindered and free from modern human control or manipulation.* A measure of the actions taken to hinder, manipulate, or control the long-term natural ecological processes of the area. Address this attribute by describing the management actions included in ct your project activities that would alter the natural processes in the area.	Yes	Operations Phase – Degrading Reclamation - Stable	The function of ecological systems within the MPRA has been impacted by the following physical or human-caused impacts that have occurred in the recent past or are occurring: approved and unimproved roads, timber harvest activities, mining activities, grazing, and recreation. The Project would result in approximately 19.4 acres of new disturbance within the MPRA for expansion of the South ODA. Land clearing associated with this disturbance would increase the potential for erosion and potentially impact terrestrial wildlife through direct mortality (small, less-mobile species) or injury (during construction), habitat modification, fragmentation, and loss. Wildlife tends to avoid areas with noise and human presence if possible. As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by the Project. This disturbance is less than 0.01 percent of the MPRA, and the majority of disturbances would be reclaimed immediately after completion of the operations phase of the Project. The Project includes EPMs and BMPs designed to reduce the impact to wildlife, particularly sensitive species. As a result, the Project is not expected to substantially reduce the amount of wildlife habitat available or fragment habitat to a degree sufficient to reduce wildlife populations or alter other ecological functions in the MPRA.

Effect to Wilderness Quality or Attributes			
Natural This quality monitors both intended and unintended effects of modern people on ecological systems inside wilderness since the time the area was designated. In summary, *wilderness ecological systems are substantially free from the effects of modern civilization.* A measure of past and proposed activities on the natural conditions of the area. It describes the extent to which human influences alter natural processes and conditions away from what one would otherwise expect. This is a measure of the degree of environmental modification that will occur because of your project. Address this attribute by describing the extent of modification that will occur in the wilderness area Consider existing scenic integrity and ROS layers.	Yes	Operations Phase – Degrading Reclamation - Stable	The MPRA has been impacted by the construction of roads, timber harvests, mining activities, grazing, and recreation. These activities have altered or reduced the function of ecological systems within the MPRA. Disturbance from these activities is also visible to the casual observer in the form of roads and road cuts, areas of reduced timber cover, cattle presence, and the presence of recreation users and recreational vehicles. However, some of these disturbances (particularly roads, mining activities, and areas of timber harvest) are in various stages of reclamation and some of these areas are beginning to return to a more natural state. The Project would involve disturbance and habitat loss. During operations phase of the Project and reclamation, new disturbance would also be visible to the casual observer in the form of the South ODA consisting of large quantities of mined materials. During and immediately following completion of the operations phase of the Project, these disturbances would by highly visible and would contrast with the surrounding landscape. Disturbed areas would have a reduced appearance of naturalness relative to areas within the MPRA that have not been disturbed or that have been reclaimed. Once reclamation is complete, the disturbed areas would have an appearance similar to other areas within the MPRA that have been reclaimed; however, even reclaimed areas would be noticeably modified from the surrounding landscape as the South ODA cannot be exactly recontoured to match natural topography. Although the Project would degrade the natural condition of 19.4 acres in the short term; in the long term the condition of the disturbed lands would exhibit a degree of naturalness similar to other reclaimed areas of the MPRA.
Undeveloped This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation. In summary, w*ilderness is essentially without permanent improvements or modern human occupation.* A measure of the present day physical indicators such as the presence and development level of trails, campsites, structures and facilities as well as the use of motorized equipment, mechanical transport, landing of aircraft, etc. used for administrative purposes. It is an indicator of what the visitor will experience in a setting that is removed from the sights and sounds of civilization and mechanization located inside the wilderness. Address this attribute by describing the extent of modification (i.e. structures required, motorized equipment use, etc.) that will occur during the projects duration or resulting after the project is finished. Consider using ROS maps layers.	Yes	Operations Phase – Degrading Reclamation – Stable	During the operations phase and reclamation of the Project, people, vehicles, equipment, and associated noise and dust would be evident in the disturbance area associated with the Project. Disturbances associated with the expanded South ODA would be reclaimed and revegetated, and upon reclamation, devoid of evidence of human presence or occupation. Reclaimed areas would be noticeably modified from the surrounding landscape as the ODA cannot be recontoured exactly to match natural topography. These disturbed areas would be located within the Partial Retention VQO. Stormwater features and reclaimed areas may be identifiable as man-made rather than natural occurrences, and may be a noticeable contrast from the undeveloped appearances of the surroundings.

Effect to Wilderness Quality or Attributes				
Outstanding opportunities for solitude or a primitive and unconfined type of recreation This quality monitors conditions that affect the opportunity for people to experience solitude or primitive, unconfined recreation in a wilderness setting, rather than monitoring visitor experiences *per se*. In summary, *wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge*	**Solitude -** Described as opportunities to experience solitude, or the isolation from the sights and sounds of management activities inside wilderness, the presence of others. Solitude is measured by considering the presence of screening, distance from impacts to the rest of the area, mitigation measures such as the timing of disturbances. Address solitude by discussing how the project activities affect the ability of a visitor to escape project impacts on solitude within the area. Consider linking to ROS mapping for size and remoteness criteria for Primitive and SPMN.	Yes	Operations – Degrading Reclamation – Stable	The noise and human activity associated with the operations phase and reclamation of the Project would impact the sense of solitude of the immediate area; that effect would dissipate with distance, but the effects may be noticeable from several miles away. Activities may be noticeable in other portions of the MPRA through distant noises, lights, glow, or dust columns in areas where the Project is not directly visible. The immediate Project Area is managed as RM; therefore expectations of solitude are reduced. Upon completion of reclamation, the area would generally return to previous conditions, with the exception of the stormwater features.
	Opportunities for Primitive Recreation -A measure of the experiences available without the developments and to feel a part of nature, with a high degree of challenge and reliance on outdoor skills rather than facilities. Address this attribute by describing how the project activities might affect, the number and type of opportunities available, the challenge of the opportunities, and the addition or absence of facilities.	Yes	Stable	The 19.4 acres of proposed disturbance, situated immediately adjacent to previously approved mining, would not be available for primitive recreation during the operations phase of the Project. Terrain within the MPRA is very typical of the other mountain ranges in southeast Idaho; however, due to the presence of existing roads, timber harvest remains, and other developments, it does not provide much opportunity for primitive recreation. As a result, the disturbance of an additional 19.4 acres would minimally affect this quality. Upon completion of reclamation of the Project Area there would not be remaining facilities that would degrade the opportunity for primitive recreation. However, topographic changes may make the area more or less challenging to access or traverse.
Special Features (Ecological, Geologic, Scientific, Educational, Scenic or Historical Values) An attribute that recognizes that wilderness may contain other values of ecological, geologic, scientific, educational, scenic or historical or cultural significance. Unique fish and wildlife species, unique plants or plant communities, potential or existing research natural areas, outstanding landscape features, and significant cultural resource sites should all be considered as types of values that might exist. Identify any of these values that exist within the project area. Address this attribute by describing the effect proposed activities would have on these values.		No	N/A	The portion of the Project Area within the MPRA does not contain special features that would be impacted by the Project.

Effect to Wilderness Quality or Attributes			
Manageability (as Wilderness) A measure of the ability to manage an area to meet the size criteria (5,000 + acres), the resulting configuration of the potential wilderness, and the interaction of the other elements above. Changes in the shape of the Inventoried Roadless Area may have significant consequences to its wilderness potential. Consider also boundary management impacts such as changing wilderness boundaries to different terrain features or for how access would be provided if project activities cause adjustments in the Inventoried Roadless Area. Address this attribute by discussing how the proposed activities may affect the boundary location, the size, the shape, and the access to the area. Consider ROS mapping.	No	NA	The proposed disturbance associated with the South ODA would occur in two separate but adjacent areas along or just inside the MPRA boundary. These would nearly bisect one small area from the main body of the MPRA, the size of which would not meet the size criteria (5,000 acres or more). However, this area would be contained within the Panel G mine disturbance approved by the 2008 RODs. The Project would not reduce access to the MPRA. Consequently, there would be no impacts to manageability.

Summary	Will the proposed project affect the areas suitability for wilderness designation?	No	Yes	If Yes, Explain how the project would affect wilderness suitability
			X	The portions of the MPRA that would be disturbed by this Project may not be suitable for future wilderness designation due to the noticeably modified nature of the areas after reclamation.

WORKSHEET 2 – Roadless Area Characteristics
Evaluating the Effects of Project Activities on Roadless Area Characteristics

Date:	November 20, 2014
Roadless Area:	Meade Peak

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) Under the Proposed Action and all Action Alternatives, Lease IDI-01441 would be expanded within the MPRA and the South Overburden Disposal Area (ODA) and stormwater control features would result in a total of 19.4 acres within the MPRA, all within Lease IDI-01441. All disturbances within the MPRA would occur within the General Forest, Rangeland and Grassland theme. Project disturbances within the MPRA would generally be reclaimed and revegetated, immediately following the operations phase of the Project, with the exception of 0.91-acre of the stormwater features that would be maintained for many years to ensure their purpose and functionality.

Effect to Roadless Characteristics			
Roadless Characteristics	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. Explain if the proposal would Alter or Modify the landscape.
Soil, water and Air resources Identify any unique or critical watershed resources. Describe how the project will affect these key resources areas and the habitats that depend on them.	Yes	**Soil and Air** Operations Phase – Degrading Reclamation – Stable **Water** – Stable to Improving	**Soils**: Approximately 19.4 acres, or less than 0.01 percent of the soils within the MPRA, would be impacted by the Project; therefore no changes to the overall rating of the soils within the MPRA are anticipated. Impacts to soils in the overall Project Area are discussed in Section 4.5 of the EIS. **Air**: Air emissions resulting from the Project would consist of emissions from mobile sources and the disturbance of soil. All Project vehicles would have legally mandated on-board emission controls. Therefore, impacts to air quality during the operations phase of the Project would be site-specific and minor; and negligible locally and in the region, and would not be expected to change the overall air quality within the MPRA. **Water**: Because the disturbance within the IRA would be only 19.4 acres, impacts to water resources of the IRA would be negligible, resulting from altered infiltration and runoff.

Effect to Roadless Characteristics			
Sources of public drinking water Identify any public drinking water systems or sources within the project area or that would be affected by the project. Describe how the project would affect water quality and quantity of the public drinking water source.	No	N/A	There are no official Sources of Public Drinking Water within the Project Area, but potential impacts to surface water and groundwater within the Project Area and areas extending outside the Project Area have been thoroughly described in **Section 4.4**. The potential impacts from the portion of the Project within the MPRA would be negligible.
Diversity of plant and animal communities Discuss the diversity of plant and animal communities. Identify any unique plant and animal communities within the area. Describe effects to the diversity of plant and animal communities.	Yes	Stable	Approximately 19.4 acres of vegetation (less than 0.01 percent of the MPRA), including trees, shrubs, and ground cover habitats, would be removed. The ODA expansion area should be successfully reclaimed and revegetated. Approximately 0.91-acre of stormwater control features would not be revegetated, and would remain after reclamation. The short-term loss of 19.4 acres of vegetation is not expected to impact the diversity of plant communities within the MPRA. The removal of vegetation would impact terrestrial wildlife through direct mortality or injury (during construction), habitat modification, fragmentation, and loss. In addition, wildlife tends to avoid areas with noise and human presence if possible. As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by the Project. However, given the availability of similar habitat in adjacent areas and EPMs and BMPs designed to lessen impacts to wildlife, the Project is not expected to impact the diversity of animal communities in the MPRA.
Habitat for TES and species dependent on large undisturbed areas of land Identify any TES or sensitive species within the Roadless area. Describe how the project would affect the habitats or populations and whether this effect is significant across the normal range and distribution of these habitats and populations.	Yes	Stable	Preliminary determinations for threatened, endangered, proposed, candidate, or sensitive species and specific impacts to other wildlife species include the following: • The Project May Affect, but is Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor. • If the species is listed, the Project May Affect, but is Not Likely to Adversely Affect greater sage-grouse as a Candidate species. • The Project would have No Impact on spotted bat, Townsend's big-eared bat, peregrine falcon, or boreal toad. • Impacts to bald eagles would be site-specific, short-term, and negligible. • Indirect impacts to boreal owls would be site-specific, long-term, and negligible to minor. • Impacts to Columbian sharp-tailed grouse would be site-specific, short- to long-term, and negligible to minor. • Impacts to flammulated owls would be site-specific, long-term, and negligible to minor. • Impacts to great gray owls and northern three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor. • Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate. • Impacts to gray wolves would be site-specific, short-term, and negligible to minor.

Effect to Roadless Characteristics			
Primitive and semi-primitive classes of recreation Describe current recreation opportunities within the Roadless area. Identify the effects of your project of the area and these activities. Describe the effect in terms of availability for similar experiences in surrounding areas or within the region of use. Consider link to ROS mapping.	Yes	Stable	There are no developed recreation amenities, such as campgrounds or guard stations within the Project Area. The dominant type of dispersed recreation in the vicinity of the Smoky Canyon Mine is big game hunting for elk, moose, and deer. Other dispersed recreation activities occurring in the area include snowmobiling, cross-country skiing, horseback riding, upland bird hunting, camping, picnicking, driving for pleasure/sight-seeing, and off-road vehicle use. The ODA expansion would eliminate approximately 19.4 acres designated ROS class RM from the recreation land base for the life of the Project; however, the disturbance areas would be within existing mining leases and contiguous with previously approved mining activities. The disturbed acreage would mostly be reclaimed and returned to the recreation land base at the end of the Project.
Reference landscapes for research study or interpretation Describe the landscape that is present. Describe any unique reference landscapes that exist within the Roadless area. Describe how the project activities might affect the reference landscape values of the Roadless area. Consider how the landscapes within the Inventoried Roadless area fits within the broader landscape and if the project creates any overall change. Consider landscape character descriptions in SMS.	No	Stable	The Project would not result in any impacts to the aquatic areas within any reference landscapes that could occur within the MPRA. Impacts within the Deer Creek watershed from roads, timber harvest, grazing, and mining activities authorized by the 2008 RODs have likely already eliminated the use of the Deer Creek watershed as a unique aquatic reference site.
Landscape character and integrity Describe the current scenic quality and character of the area. Describe project effects to the scenic integrity of the area and changes to the character of the area. Consider existing scenic integrity.	Yes	Stable	The proposed Project components would be within an area designated Partial Retention VQO, with low scenic integrity due to other approved mining activities. The visibility of the Project, and its impact on visual resources would depend on the proximity of the observer to the Project. The portion of the Project within the MPRA would not be visible from analyzed KOPs; however, it would be visible from points on foot in closer proximity to the Project. When visible, the Project would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. In general, the Project components would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the approved mining disturbance.
Traditional cultural properties and sacred sites Identify generically any significant cultural resources within the Roadless area and describe the effect of the project on these resources. Typically mitigation will be designed to prevent significant effects to these resources.	No	N/A	No Traditional Cultural Properties have been nominated or designated in the Project Area.
Other locally unique characteristics Identify any locally unique characteristics and describe how the project would affect these values.	N/A	N/A	

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WORKSHEET 1 – Wilderness Qualities or Attributes
Evaluating the Effects of Project Activities on Wilderness Attributes

Date:	November 20, 2014
Roadless Area:	Sage Creek

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) **PROPOSED ACTION**: Under the Proposed Action, Lease IDI-01441 would be expanded within the SCRA; the Panel F ore conveyor system would result in 1.3 acres of new disturbance within the SCRA; and the East Overburden Disposal Area (ODA) and stormwater control features would result in a total of 75.2 acres of new Project-related disturbance within the SCRA - 52.4 acres within the lease modification area and 22.7 acres within the existing leases. All disturbances within the SCRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the SCRA would generally be reclaimed and revegetated, immediately following the cessation of mining, with the exception of approximately 4 acres of the stormwater features that would be maintained for many years to ensure their purpose and functionality. Under the Proposed Action, a geo-synthetic clay laminate liner (GCLL) would cover approximately 320 acres of new and previously approved disturbed areas containing seleniferous overburden within the mined out pit and the East ODA within the SCRA. The area covered by the GCLL would be reclaimed and revegetated with shallow rooted species such as grasses and forbs, but would never be allowed to reforest to ensure the integrity of the liner.

Effect to Wilderness Quality or Attributes			
Wilderness Quality or Attribute (Note: delete attribute descriptions after data is entered to save space if desired.)	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. May use GIS layers (ROS, SMS, Roads, etc…) to quantify effects.
Untrammeled This quality monitors modern human activities that directly control or manipulate the components or processes of ecological systems inside wilderness. In summary, *wilderness is essentially unhindered and free from modern human control or manipulation.* A measure of the actions taken to hinder, manipulate, or control the long-term natural ecological processes of the area. Address this attribute by describing the management actions included in ct your project activities that would alter the natural processes in the area.	Yes	Operations Phase – Degrading Reclamation - Stable	The function of ecological systems within the SCRA has been impacted by the following physical or human-caused impacts that have occurred in the recent past or are occurring: approved and unimproved roads, timber harvest activities, mining activities, grazing, and recreation. The Project would result in approximately 75 acres of new disturbance within the SCRA for the Panel F ore conveyor system, expansion of the East ODA, and associated stormwater control features. Land clearing associated with this disturbance would increase the potential for erosion and potentially impact terrestrial wildlife through direct mortality (small, less-mobile species) or injury (during construction), habitat modification, fragmentation, and loss. Wildlife tends to avoid areas with noise and human presence if possible. As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by Project activities.

Effect to Wilderness Quality or Attributes			
Untrammeled (continued)	Yes	Operations Phase – Degrading Reclamation - Stable	This disturbance is only approximately 0.06-percent of the SCRA and the majority of the disturbances would be reclaimed immediately after conclusion of the operations phase of the Project, with the exception of the stormwater features. However, the GCLL would never be allowed to become reforested. While the area covered by the GCLL would be reclaimed and revegetated, the ecological community of the 320-acre area of the SCRA covered by the GCLL may be permanently altered. The Project includes EPMs and BMPs designed to reduce the impact to wildlife, particularly sensitive species. As a result, the Project is not expected to substantially reduce the amount of wildlife habitat available or fragment habitat to a degree sufficient to reduce wildlife populations or alter other ecological functions in the SCRA.
Natural This quality monitors both intended and unintended effects of modern people on ecological systems inside wilderness since the time the area was designated. In summary, *wilderness ecological systems are substantially free from the effects of modern civilization.* A measure of past and proposed activities on the natural conditions of the area. It describes the extent to which human influences alter natural processes and conditions away from what one would otherwise expect. This is a measure of the degree of environmental modification that will occur because of your project. Address this attribute by describing the extent of modification that will occur in the wilderness area Consider existing scenic integrity and ROS layers.	Yes	Operations Phase – Degrading Reclamation - Stable	The SCRA has been impacted by the construction of roads, timber harvests, mining activities, grazing, and recreation. These activities have altered or reduced the function of ecological systems within the SCRA. Disturbance from these activities is also visible to the casual observer in the form of roads and road cuts, areas of reduced timber cover, cattle presence, and the presence of recreation users and recreational vehicles. However, some of these disturbances (particularly roads, mining activities, and areas of timber harvest) are in various stages of reclamation and some of these areas are beginning to return to a more natural state. The Project would involve disturbance and habitat loss. During the construction, operations, and reclamation phases of the Project new disturbance would also be visible to the casual observer in the form of the East ODA consisting of large quantities of mined materials; stormwater drainages, and ponds. During and immediately following completion of the operations phase of the Project, these disturbances would by highly visible and would contrast with the surrounding landscape. Disturbed areas would have a reduced appearance of naturalness relative to areas within the SCRA that have not been disturbed or that have been reclaimed. Once reclamation is complete, the disturbed areas would have an appearance similar to other areas within the SCRA that have been reclaimed; however, even reclaimed areas would be noticeably modified from the surrounding landscape as the East ODA cannot be recontoured exactly to match natural topography. Although the Project would degrade the natural condition of approximately 75 acres in the short term; in the long term the condition of the disturbed lands would exhibit a degree of naturalness similar to other reclaimed areas of the SCRA. The approximately 320 acres of the SCRA that would be covered by the GCLL would never be allowed to become reforested. Active management of the vegetation of this area to prevent reforestation may result in a somewhat unnatural appearance if surrounded by forested areas.

Effect to Wilderness Quality or Attributes				
Undeveloped This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation. In summary, w*ilderness is essentially without permanent improvements or modern human occupation.* A measure of the present day physical indicators such as the presence and development level of trails, campsites, structures and facilities as well as the use of motorized equipment, mechanical transport, landing of aircraft, etc. used for administrative purposes. It is an indicator of what the visitor will experience in a setting that is removed from the sights and sounds of civilization and mechanization located inside the wilderness. Address this attribute by describing the extent of modification (i.e. structures required, motorized equipment use, etc.) that will occur during the projects duration or resulting after the project is finished. Consider using ROS maps layers.		Yes	Operations Phase – Degrading Reclamation – Stable	During the construction, operations, and reclamation phases of the Project, people, vehicles, equipment, and associated noise and dust would be evident in the disturbance area associated with the Project. Disturbances associated with both the Panel F ore conveyor system and the expanded East ODA would be reclaimed and revegetated, and upon reclamation, devoid of evidence of human presence or occupation. However, stormwater control features including drainages and ponds would remain on the Panel G portion of the Project for the life of the GCLL, and periodic maintenance would be required to maintain the GCLL free of trees. In addition, reclaimed areas would be noticeably modified from the surrounding landscape as the ODA cannot be recontoured exactly to match natural topography. Portions of these disturbed areas would be located within the Partial Retention VQO. Stormwater features and reclaimed areas may be identifiable as man-made rather than natural occurrences, and may be a noticeable contrast from the undeveloped appearances of the surroundings.
Outstanding opportunities for solitude or a primitive and unconfined type of recreation This quality monitors conditions that affect the opportunity for people to experience solitude or primitive, unconfined recreation in a wilderness setting, rather than monitoring visitor experiences *per se*. In summary, *wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge*	**Solitude -** Described as opportunities to experience solitude, or the isolation from the sights and sounds of management activities inside wilderness, the presence of others. Solitude is measured by considering the presence of screening, distance from impacts to the rest of the area, mitigation measures such as the timing of disturbances. Address solitude by discussing how the project activities affect the ability of a visitor to escape project impacts on solitude within the area. Consider linking to ROS mapping for size and remoteness criteria for Primitive and SPMN.	Yes	Operations Phase – Degrading Reclamation – Stable	The noise and human activity associated with the construction, operations, and reclamation phases of the Project would impact the sense of solitude of the immediate area; that effect would dissipate with distance, but the effects may be noticeable from several miles away. Activities may be noticeable in other portions of the SCRA through distant noises, lights, glow, or dust columns in areas where the Project is not directly visible. The immediate Project Area is managed as RM or SPM; therefore expectations of solitude are reduced. Upon completion of reclamation, the area would generally return to previous conditions, with the exception of the stormwater features.
	Opportunities for Primitive Recreation -A measure of the experiences available without the developments and to feel a part of nature, with a high degree of challenge and reliance on outdoor skills rather than facilities.	Yes	Stable	The 75 acres of proposed disturbance, situated immediately adjacent to previously approved mining, would not be available for primitive recreation during the operations phase of the Project. Terrain within the SCRA is very typical of the other mountain ranges in southeast Idaho; however, due to the presence of existing roads, timber harvest remains, and other developments, it does not provide much opportunity for primitive recreation. As a result, the disturbance of an additional 75 acres would minimally affect this quality.

Effect to Wilderness Quality or Attributes				
Outstanding opportunities for solitude or a primitive and unconfined type of recreation (continued)	Address this attribute by describing how the project activities might affect, the number and type of opportunities available, the challenge of the opportunities, and the addition or absence of facilities.	Yes	Stable	Upon completion of reclamation of the Project Area there would not be remaining facilities that would degrade the opportunity for primitive recreation. However, topographic changes may make the area more or less challenging to access or traverse.
Special Features (Ecological, Geologic, Scientific, Educational, Scenic or Historical Values) An attribute that recognizes that wilderness may contain other values of ecological, geologic, scientific, educational, scenic or historical or cultural significance. Unique fish and wildlife species, unique plants or plant communities, potential or existing research natural areas, outstanding landscape features, and significant cultural resource sites should all be considered as types of values that might exist. Identify any of these values that exist within the project area. Address this attribute by describing the effect proposed activities would have on these values.		No	N/A	The portion of the Project Area within the SCRA does not contain special features that would be impacted by the Project.
Manageability (as Wilderness) A measure of the ability to manage an area to meet the size criteria (5,000 + acres), the resulting configuration of the potential wilderness, and the interaction of the other elements above. Changes in the shape of the Inventoried Roadless Area may have significant consequences to its wilderness potential. Consider also boundary management impacts such as changing wilderness boundaries to different terrain features or for how access would be provided if project activities cause adjustments in the Inventoried Roadless Area. Address this attribute by discussing how the proposed activities may affect the boundary location, the size, the shape, and the access to the area. Consider ROS mapping.		No	NA	The proposed disturbance associated with the Panel F ore conveyor system, East ODA, and stormwater features would occur in five separate areas along, near, or just inside the SCRA boundary. The GCLL would cover a larger area in the same vicinity as the Panel G stormwater features, along or near the SCRA boundary. These areas do not bisect the SCRA or otherwise fragment the SCRA into smaller pieces that would not meet the size criteria (5,000 acres or more), nor would they reduce access to the SCRA. Consequently, there would be no impacts to manageability.

Summary	Will the proposed project affect the areas suitability for wilderness designation?	No	Yes	If Yes, Explain how the project would affect wilderness suitability
			X	The portions of the SCRA that would be disturbed by this Project may not be suitable for future wilderness designation due to the noticeably modified nature of the areas after reclamation, and the requirement to maintain the area covered by the GCLL free of trees.

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WORKSHEET 2 – Roadless Area Characteristics
Evaluating the Effects of Project Activities on Roadless Area Characteristics

Date:	November 20, 2014
Roadless Area:	Sage Creek

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…)
PROPOSED ACTION: Under the Proposed Action, Lease IDI-01441 would be expanded within the SCRA; the Panel F ore conveyor system would result in 1.3 acres of new disturbance within the SCRA; and the East Overburden Disposal Area (ODA) and stormwater control features would result in a total of 75.2 acres of new Project-related disturbance within the SCRA - 52.4 acres within the lease modification area and 22.7 acres within the existing leases. All disturbances within the SCRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the SCRA would generally be reclaimed and revegetated, immediately following the cessation of mining, with the exception of approximately 4 acres of the stormwater features that would be maintained for many years to ensure their purpose and functionality. Under the Proposed Action, a geo-synthetic clay laminate liner (GCLL) would cover approximately 320 acres of new and previously approved disturbed areas containing seleniferous overburden within the mined out pit and the East ODA within the SCRA. The area covered by the GCLL would be reclaimed and revegetated with shallow rooted species such as grasses and forbs, but would never be allowed to reforest to ensure the integrity of the liner.

Effect to Roadless Characteristics			
Roadless Characteristics	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. Explain if the proposal would Alter or Modify the landscape.
Soil, water and Air resources Identify any unique or critical watershed resources. Describe how the project will affect these key resources areas and the habitats that depend on them.	Yes	**Soil and Air** Operations Phase – Degrading Reclamation – Stable	**Soils**: Approximately 75 acres, or 0.06-percent of the soils within the SCRA, would be impacted by the Project; therefore no changes to the overall rating of the soils within the SCRA are anticipated. Impacts to soils in the overall Project Area are discussed in Section 4.5 of the EIS. **Air**: Air emissions resulting from the Project would consist of emissions from mobile sources and the disturbance of soil. All Project vehicles would have legally mandated on-board emission controls. Therefore, impacts to air quality during the operations phase of the Project would be site-specific and minor; and negligible locally and in the region, and would not be expected to change the overall air quality within the SCRA.

Effect to Roadless Characteristics			
Soil, water and Air resources (continued)	Yes	**Water** Stable to Improving	**Water**: The Project would: • Have a net negligible effect on groundwater storage and subsequent discharge in the long term; • Have a negligible effect to the relevant HUC watersheds; • Result in a minor to moderate change in stormwater runoff flows in the Deer Creek stream channel; • Have a negligible proportional net change to base flows of Deer Creek; • Have a measurable (improved) effect on selenium concentrations in Deer Creek, Books Spring, and Crow Creek near Deer Creek over the store and release cover analyzed in the 2007 FEIS.
Sources of public drinking water Identify any public drinking water systems or sources within the project area or that would be affected by the project. Describe how the project would affect water quality and quantity of the public drinking water source.	No	N/A	There are no official Sources of Public Drinking Water within the Project Area, but potential impacts to surface water and groundwater within the Project Area and areas extending outside the Project Area have been thoroughly described in **Section 4.4**. The potential impacts could be long-term and range from negligible to moderate depending upon the surface water and/or groundwater source being evaluated.
Diversity of plant and animal communities Discuss the diversity of plant and animal communities. Identify any unique plant and animal communities within the area. Describe effects to the diversity of plant and animal communities.	Yes	Stable	Approximately 75 acres of vegetation (approximately 0.06-percent of the SCRA), including trees, shrubs, and ground cover habitats, would be removed. The ODA expansion areas would be successfully reclaimed and revegetated. Approximately 4 acres of stormwater control features would not be revegetated, and would remain after reclamation. The 320 acres covered by the GCLL within the SCRA would be reclaimed and revegetated; however, the area would never be allowed to become reforested. The loss of 75 acres of vegetation is not expected to impact the diversity of plant communities within the SCRA. The removal of vegetation would impact terrestrial wildlife through direct mortality or injury (during construction), habitat modification, fragmentation, and loss. Portions of the Project Area that were previously forested and would be covered by the GCLL would have permanent habitat modifications. In addition, wildlife tends to avoid areas with noise and human presence, if possible. As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by the Project. However, given the availability of similar habitat in adjacent areas, and EPMs and BMPs designed to lessen impacts to wildlife, the Project is not expected to impact the diversity of animal communities in the SCRA.
Habitat for TES and species dependent on large undisturbed areas of land Identify any TES or sensitive species within the Roadless area. Describe how the project would affect the habitats or populations and whether this effect is significant across the normal range and distribution of these habitats and populations.	Yes	Stable	Preliminary determinations for threatened, endangered, proposed, candidate, or sensitive species and specific impacts to other wildlife species include the following: • The Project May Affect, but is Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor.

Effect to Roadless Characteristics			
Habitat for TES and species dependent on large undisturbed areas of land (continued)	Yes	Stable	• If the species is listed, the Project May Affect, but is Not Likely to Adversely Affect greater sage-grouse as a Candidate species. • The Project would have No Impact on spotted bat, Townsend's big-eared bat, peregrine falcon, or boreal toad. • Impacts to bald eagles would be site-specific, short-term, and negligible. • Indirect impacts to boreal owls would be site-specific, long-term, and negligible to minor. • Impacts to Columbian sharp-tailed grouse would be site-specific, short- to long-term, and negligible to minor. • Impacts to flammulated owls would be site-specific, long-term, and negligible to minor. • Impacts to great gray owls and northern three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor. • Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate. • Impacts to gray wolves would be site-specific, short-term, and negligible to minor.
Primitive and semi-primitive classes of recreation Describe current recreation opportunities within the Roadless area. Identify the effects of your project of the area and these activities. Describe the effect in terms of availability for similar experiences in surrounding areas or within the region of use. Consider link to ROS mapping.	Yes	Stable	There are no developed recreation amenities, such as campgrounds or guard stations within the Project Area. The dominant type of dispersed recreation in the vicinity of the Smoky Canyon Mine is big game hunting for elk, moose, and deer. Other dispersed recreation activities occurring in the area include snowmobiling, cross-country skiing, horseback riding, upland bird hunting, camping, picnicking, driving for pleasure/sight-seeing, and off-road vehicle use. The Panel F ore conveyor system portion of the Project would eliminate approximately 1 acre of designated ROS class SPM from the recreation land base within the SCRA for the life of the Project. The new disturbance associated with the ODA expansion and stormwater control features would eliminate approximately 75 acres from the recreation land base within the SCRA for the life of the Project. Most of the area that would be newly disturbed in the SCRA is designated ROS class SPM; a small portion in the southern part of Panel G is designated RM. This area would be contiguous with previously approved mining activities. With exception of the stormwater control features, the disturbed acreage would be reclaimed and returned to the recreation land base at the end of the Project.

Effect to Roadless Characteristics			
Reference landscapes for research study or interpretation Describe the landscape that is present. Describe any unique reference landscapes that exist within the Roadless area. Describe how the project activities might affect the reference landscape values of the Roadless area. Consider how the landscapes within the Inventoried Roadless area fits within the broader landscape and if the project creates any overall change. Consider landscape character descriptions in SMS.	No	Stable	The Proposed Action would not result in any impacts to the aquatic areas within any reference landscapes that could occur within the SCRA. Impacts within the Deer Creek watershed from roads, timber harvest, grazing, and mining activities authorized by the 2008 RODs have likely already eliminated the use of the Deer Creek watershed as a unique aquatic reference site.
Landscape character and integrity Describe the current scenic quality and character of the area. Describe project effects to the scenic integrity of the area and changes to the character of the area. Consider existing scenic integrity.	Yes	Stable	The proposed Project components would be within areas designated Partial Retention VQO and Modification VQO, with low scenic integrity due to other approved mining activities. The visibility of the Project, and its impact on visual resources would depend on the proximity of the observer to the Project. The Project 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 Project would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. In general, the Project components would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the approved mining disturbance.
Traditional cultural properties and sacred sites Identify generically any significant cultural resources within the Roadless area and describe the effect of the project on these resources. Typically mitigation will be designed to prevent significant effects to these resources.	No	N/A	No Traditional Cultural Properties have been nominated or designated in the Project Area.
Other locally unique characteristics Identify any locally unique characteristics and describe how the project would affect these values.	N/A	N/A	

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WORKSHEET 1 – Wilderness Qualities or Attributes
Evaluating the Effects of Project Activities on Wilderness Attributes

Date:	November 20, 2014
Roadless Area:	Sage Creek

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) **ALTERNATIVE 1**: Under the Alternative 1, Lease IDI-01441 would be expanded within the SCRA; the Panel F ore conveyor system would result in 1.3 acres of new disturbance within the SCRA; and the East Overburden Disposal Area (ODA) and stormwater control features would result in a total of 75.2 acres of new Project-related disturbance within the SCRA - 52.4 acres within the lease modification area and 22.7 acres within the existing lease. All disturbances within the SCRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the SCRA would generally be reclaimed and revegetated, immediately following the cessation of mining, with the exception of approximately 4 acres of the stormwater features that would be maintained for many years to ensure their purpose and functionality. Under Alternative 1, the proposed geo-synthetic clay laminate liner (GCLL) would cover approximately 70 acres of seleniferous overburden within the East ODA within the SCRA. The GCLL would be reclaimed and revegetated with shallow rooted species such as grasses and forbs, but would never be allowed to reforest to ensure the integrity of the liner. In addition, approximately 250 acres within The SCRA would receive a geologic store and release cover, which would be revegetated with grasses and forbs, along with "islands of diversity" of deeper rooted species.

Effect to Wilderness Quality or Attributes			
Wilderness Quality or Attribute (Note: delete attribute descriptions after data is entered to save space if desired.)	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. May use GIS layers (ROS, SMS, Roads, etc…) to quantify effects.
Untrammeled This quality monitors modern human activities that directly control or manipulate the components or processes of ecological systems inside wilderness. In summary, *wilderness is essentially unhindered and free from modern human control or manipulation.* A measure of the actions taken to hinder, manipulate, or control the long-term natural ecological processes of the area. Address this attribute by describing the management actions included in ct your project activities that would alter the natural processes in the area.	Yes	Operations Phase – Degrading Reclamation - Stable	The function of ecological systems within the SCRA has been impacted by the following physical or human-caused impacts that have occurred in the recent past or are occurring: approved and unimproved roads, timber harvest activities, mining activities, grazing, and recreation. The Project would result in approximately 75 acres of new disturbance within the SCRA for the Panel F ore conveyor system, expansion of the East ODA, and associated stormwater control features. Land clearing associated with this disturbance would increase the potential for erosion and potentially impact terrestrial wildlife through direct mortality (small, less-mobile species) or injury (during construction), habitat modification, fragmentation, and loss. Wildlife tends to avoid areas with noise and human presence if possible.

Effect to Wilderness Quality or Attributes			
Untrammeled (continued)	Yes	Operations Phase – Degrading Reclamation - Stable	As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by Project activities. This disturbance is only approximately 0.06-percent of the SCRA and the majority of the disturbances would be reclaimed immediately after conclusion of the operations phase of the Project, with the exception of the stormwater features. However, the GCLL would never be allowed to become reforested. While the area covered by the GCLL would be reclaimed and revegetated, the ecological community of the 70-acre area of the SCRA covered by the GCLL would be permanently altered. The approximately 250 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to resemble the surrounding landscape. The Project includes EPMs and BMPs designed to reduce the impact to wildlife, particularly sensitive species. As a result, the Project is not expected to substantially reduce the amount of wildlife habitat available or fragment habitat to a degree sufficient to reduce wildlife populations or alter other ecological functions in the SCRA.
Natural This quality monitors both intended and unintended effects of modern people on ecological systems inside wilderness since the time the area was designated. In summary, *wilderness ecological systems are substantially free from the effects of modern civilization.* A measure of past and proposed activities on the natural conditions of the area. It describes the extent to which human influences alter natural processes and conditions away from what one would otherwise expect. This is a measure of the degree of environmental modification that will occur because of your project. Address this attribute by describing the extent of modification that will occur in the wilderness area Consider existing scenic integrity and ROS layers.	Yes	Operations Phase – Degrading Reclamation - Stable	The SCRA has been impacted by the construction of roads, timber harvests, mining activities, grazing, and recreation. These activities have altered or reduced the function of ecological systems within the SCRA. Disturbance from these activities is also visible to the casual observer in the form of roads and road cuts, areas of reduced timber cover, cattle presence, and the presence of recreation users and recreational vehicles. However, some of these disturbances (particularly roads, mining activities, and areas of timber harvest) are in various stages of reclamation and some of these areas are beginning to return to a more natural state. The Project would involve disturbance and habitat loss. During the construction, operations, and reclamation phases of the Project new disturbance would also be visible to the casual observer in the form of the East ODA consisting of large quantities of mined materials; stormwater drainages, and ponds. During and immediately following completion of the operations phase of the Project, these disturbances would by highly visible and would contrast with the surrounding landscape. Disturbed areas would have a reduced appearance of naturalness relative to areas within the SCRA that have not been disturbed or that have been reclaimed. Once reclamation is complete, the disturbed areas would have an appearance similar to other areas within the SCRA that have been reclaimed; however, even reclaimed areas would be noticeably modified from the surrounding landscape as the East ODA cannot be recontoured exactly to match natural topography. Although the Project would degrade the natural condition of approximately 75 acres in the short term; in the long term the condition of the disturbed lands would exhibit a degree of naturalness similar to other reclaimed areas of the SCRA.

Effect to Wilderness Quality or Attributes				
Natural (continued)		Yes	Operations Phase – Degrading Reclamation - Stable	The approximately 70 acres of the SCRA that would be covered by the GCLL would never be allowed to become reforested. Active management of the vegetation of this area to prevent reforestation may result in a somewhat unnatural appearance if surrounded by forested areas. The approximately 250 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to resemble the surrounding landscape.
Undeveloped This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation. In summary, w*ilderness is essentially without permanent improvements or modern human occupation.* A measure of the present day physical indicators such as the presence and development level of trails, campsites, structures and facilities as well as the use of motorized equipment, mechanical transport, landing of aircraft, etc. used for administrative purposes. It is an indicator of what the visitor will experience in a setting that is removed from the sights and sounds of civilization and mechanization located inside the wilderness. Address this attribute by describing the extent of modification (i.e. structures required, motorized equipment use, etc.) that will occur during the projects duration or resulting after the project is finished. Consider using ROS maps layers.		Yes	Operations Phase – Degrading Reclamation – Stable	During the construction, operations, and reclamation phases of the Project, people, vehicles, equipment, and associated noise and dust would be evident in the disturbance area associated with the Project. Disturbances associated with both the Panel F ore conveyor system and the expanded East ODA would be reclaimed and revegetated, and upon reclamation, devoid of evidence of human presence or occupation. However, stormwater control features including drainages and ponds would remain on the Panel G portion of the Project for the life of the GCLL, and periodic maintenance would be required to maintain the GCLL free of trees. In addition, reclaimed areas would be noticeably modified from the surrounding landscape as the ODA cannot be recontoured exactly to match natural topography. Portions of these disturbed areas would be located within the Partial Retention VQO. Stormwater features and reclaimed areas may be identifiable as man-made rather than natural occurrences, and may be a noticeable contrast from the undeveloped appearances of the surroundings.
Outstanding opportunities for solitude or a primitive and unconfined type of recreation This quality monitors conditions that affect the opportunity for people to experience solitude or primitive, unconfined recreation in a wilderness setting, rather than monitoring visitor experiences *per se*.	**Solitude -** Described as opportunities to experience solitude, or the isolation from the sights and sounds of management activities inside wilderness, the presence of others. Solitude is measured by considering the presence of screening, distance from impacts to the rest of the area, mitigation measures such as the timing of disturbances. Address solitude by discussing how the project activities affect the ability of a visitor to escape project impacts on solitude within the area. Consider linking to ROS mapping for size and remoteness criteria for Primitive and SPMN.	Yes	Operations Phase – Degrading Reclamation – Stable	The noise and human activity associated with the construction, operations, and reclamation phases of the Project would impact the sense of solitude of the immediate area; that effect would dissipate with distance, but the effects may be noticeable from several miles away. Activities may be noticeable in other portions of the SCRA through distant noises, lights, glow, or dust columns in areas where the Project is not directly visible. The immediate Project Area is managed as RM or SPM; therefore expectations of solitude are reduced. Upon completion of reclamation, the area would generally return to previous conditions, with the exception of the stormwater features.

Effect to Wilderness Quality or Attributes				
Outstanding opportunities for solitude or a primitive and unconfined type of recreation (continued) In summary, *wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge*	**Opportunities for Primitive Recreation -**A measure of the experiences available without the developments and to feel a part of nature, with a high degree of challenge and reliance on outdoor skills rather than facilities. Address this attribute by describing how the project activities might affect, the number and type of opportunities available, the challenge of the opportunities, and the addition or absence of facilities.	Yes	Stable	The approximately 75 acres of proposed disturbance, situated immediately adjacent to previously approved mining, would not be available for primitive recreation during the operations phase of the Project. Terrain within the SCRA is very typical of the other mountain ranges in southeast Idaho; however, due to the presence of existing roads, timber harvest remains, and other developments, it does not provide much opportunity for primitive recreation. As a result, the disturbance of an additional 75 acres would minimally affect this quality. Upon completion of reclamation of the Project Area there would not be remaining facilities that would degrade the opportunity for primitive recreation. However, topographic changes may make the area more or less challenging to access or traverse.
Special Features (Ecological, Geologic, Scientific, Educational, Scenic or Historical Values) An attribute that recognizes that wilderness may contain other values of ecological, geologic, scientific, educational, scenic or historical or cultural significance. Unique fish and wildlife species, unique plants or plant communities, potential or existing research natural areas, outstanding landscape features, and significant cultural resource sites should all be considered as types of values that might exist. Identify any of these values that exist within the project area. Address this attribute by describing the effect proposed activities would have on these values.		No	N/A	The portion of the Project Area within the SCRA does not contain special features that would be impacted by the Project.
Manageability (as Wilderness) A measure of the ability to manage an area to meet the size criteria (5,000 + acres), the resulting configuration of the potential wilderness, and the interaction of the other elements above. Changes in the shape of the Inventoried Roadless Area may have significant consequences to its wilderness potential. Consider also boundary management impacts such as changing wilderness boundaries to different terrain features or for how access would be provided if project activities cause adjustments in the Inventoried Roadless Area. Address this attribute by discussing how the proposed activities may affect the boundary location, the size, the shape, and the access to the area. Consider ROS mapping.		No	NA	The proposed disturbance associated with the Panel F ore conveyor system, East ODA, and stormwater features would occur in five separate areas along, near, or just inside the SCRA boundary. The GCLL would cover a larger area in the same vicinity as the Panel G stormwater features, along or near the SCRA boundary. These areas do not bisect the SCRA or otherwise fragment the SCRA into smaller pieces that would not meet the size criteria (5,000 acres or more), nor would they reduce access to the SCRA. Consequently, there would be no impacts to manageability.

Summary	Will the proposed project affect the areas suitability for wilderness designation?	No	Yes	If Yes, Explain how the project would affect wilderness suitability
			X	The portions of the SCRA that would be disturbed by this Project may not be suitable for future wilderness designation due to the noticeably modified nature of the areas after reclamation, and the requirement to maintain the area covered by the GCLL free of trees.

WORKSHEET 2 – Roadless Area Characteristics
Evaluating the Effects of Project Activities on Roadless Area Characteristics

Date:	November 20, 2014
Roadless Area:	Sage Creek

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) **ALTERNATIVE 1**: Under the Alternative 1, Lease IDI-01441 would be expanded within the SCRA; the Panel F ore conveyor system would result in 1.3 acres of new disturbance within the SCRA; and the East Overburden Disposal Area (ODA) and stormwater control features would result in a total of 75.2 acres of new Project-related disturbance within the SCRA - 52.4 acres within the lease modification area and 22.7 acres within the existing lease. All disturbances within the SCRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the SCRA would generally be reclaimed and revegetated, immediately following the cessation of mining, with the exception of approximately 4 acres of the stormwater features that would be maintained for many years to ensure their purpose and functionality. Under Alternative 1, the proposed geo-synthetic clay laminate liner (GCLL) would cover approximately 70 acres of seleniferous overburden within the East ODA within the SCRA. The GCLL would be reclaimed and revegetated with shallow rooted species such as grasses and forbs, but would never be allowed to reforest to ensure the integrity of the liner. In addition, approximately 250 acres within The SCRA would receive a geologic store and release cover, which would be revegetated with grasses and forbs, along with "islands of diversity" of deeper rooted species.

Effect to Roadless Characteristics			
Roadless Characteristics	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. Explain if the proposal would Alter or Modify the landscape.
Soil, water and Air resources Identify any unique or critical watershed resources. Describe how the project will affect these key resources areas and the habitats that depend on them.	Yes	**Soil and Air** Operations Phase – Degrading Reclamation – Stable	**Soils**: Approximately 75 acres, or 0.06-percent of the soils within the SCRA, would be impacted by the Project; therefore no changes to the overall rating of the soils within the SCRA are anticipated. Impacts to soils in the overall Project Area are discussed in Section 4.5 of the EIS. **Air**: Air emissions resulting from the Project would consist of emissions from mobile sources and the disturbance of soil. All Project vehicles would have legally mandated on-board emission controls. Therefore, impacts to air quality during the operations phase of the Project would be site-specific and minor; and negligible locally and in the region, and would not be expected to change the overall air quality within the SCRA.

Effect to Roadless Characteristics			
Soil, water and Air resources (continued)	Yes	**Water** Stable to Improving	**Water**: Under Alternative 1, the Project would: • Result in almost double the recharge through the cover, compared to the Proposed Action condition, which would result in more groundwater flow to lower Deer Creek, compared to the Proposed Action; • Result in a long-term, moderate decrease in groundwater quality, compared to the Proposed Action, beneath and down gradient of Panel G, including Deer Creek; • Result in essentially the same impacts to surface water quantity under this alternative as they would be under the Proposed Action; Result in slightly greater selenium concentrations than they would be under the Proposed Action; however, the selenium criterion would continue to be met in Deer Creek under this alternative.
Sources of public drinking water Identify any public drinking water systems or sources within the project area or that would be affected by the project. Describe how the project would affect water quality and quantity of the public drinking water source.	No	N/A	There are no official Sources of Public Drinking Water within the Project Area, but potential impacts to surface water and groundwater within the Project Area and areas extending outside the Project Area have been thoroughly described in **Section 4.4**. The potential impacts could be long-term and range from negligible to moderate depending upon the surface water and/or groundwater source being evaluated.
Diversity of plant and animal communities Discuss the diversity of plant and animal communities. Identify any unique plant and animal communities within the area. Describe effects to the diversity of plant and animal communities.	Yes	Stable	Approximately 75 acres of vegetation (approximately 0.06- percent of the SCRA), including trees, shrubs, and ground cover habitats, would be removed. The ODA expansion areas should be successfully reclaimed and revegetated. Approximately 4 acres of stormwater control features would not be revegetated, and would remain after reclamation. The approximately 70 acres covered by the GCLL within the SCRA would be reclaimed and revegetated; however, the area would never be allowed to become reforested. Portions of the Project Area that were previously forested and would be covered by the GCLL would have permanent habitat modifications. The approximately 250 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to provide wildlife habitat similar to the surrounding areas. The short-term loss of approximately 75 acres of vegetation is not expected to impact the diversity of plant communities within the SCRA. The removal of vegetation would impact terrestrial wildlife through direct mortality or injury (during construction), habitat modification, fragmentation, and loss. In addition, wildlife tends to avoid areas with noise and human presence, if possible. As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by the Project. However, given the availability of similar habitat in adjacent areas, and EPMs and BMPs designed to lessen impacts to wildlife, the Project is not expected to impact the diversity of animal communities in the SCRA.

Effect to Roadless Characteristics			
Habitat for TES and species dependent on large undisturbed areas of land Identify any TES or sensitive species within the Roadless area. Describe how the project would affect the habitats or populations and whether this effect is significant across the normal range and distribution of these habitats and populations.	Yes	Stable	Under Alternative 1, impacts to habitat for TES and species dependent on large undisturbed areas of land would be the same as described for the Proposed Action. • The Project May Affect, but is Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor. • If the species is listed, the Project May Affect, but is Not Likely to Adversely Affect greater sage-grouse as a Candidate species. • The Project would have No Impact on spotted bat, Townsend's big-eared bat, peregrine falcon, or boreal toad. • Impacts to bald eagles would be site-specific, short-term, and negligible. • Indirect impacts to boreal owls would be site-specific, long-term, and negligible to minor. • Impacts to Columbian sharp-tailed grouse would be site-specific, short- to long-term, and negligible to minor. • Impacts to flammulated owls would be site-specific, long-term, and negligible to minor. • Impacts to great gray owls and northern three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor. • Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate. • Impacts to gray wolves would be site-specific, short-term, and negligible to minor.
Primitive and semi-primitive classes of recreation Describe current recreation opportunities within the Roadless area. Identify the effects of your project of the area and these activities. Describe the effect in terms of availability for similar experiences in surrounding areas or within the region of use. Consider link to ROS mapping.	Yes	Stable	There are no developed recreation amenities, such as campgrounds or guard stations within the Project Area. The dominant type of dispersed recreation in the vicinity of the Smoky Canyon Mine is big game hunting for elk, moose, and deer. Other dispersed recreation activities occurring in the area include snowmobiling, cross-country skiing, horseback riding, upland bird hunting, camping, picnicking, driving for pleasure/sight-seeing, and off-road vehicle use. The Panel F ore conveyor system portion of the Project would eliminate approximately 1 acre of designated ROS class SPM from the recreation land base within the SCRA for the life of the Project.
Primitive and semi-primitive classes of recreation (continued)	Yes	Stable	The new disturbance associated with the ODA expansions and stormwater control features would eliminate approximately 75 acres from the recreation land base within the SCRA for the life of the Project. Most of the area that would be newly disturbed in the SCRA is designated ROS class SPM; a small portion in the southern part of Panel G is designated RM. This area would be contiguous with previously approved mining activities. With exception of the stormwater control features, the disturbed acreage would be reclaimed and returned to the recreation land base at the end of the Project.

Effect to Roadless Characteristics			
Reference landscapes for research study or interpretation Describe the landscape that is present. Describe any unique reference landscapes that exist within the Roadless area. Describe how the project activities might affect the reference landscape values of the Roadless area. Consider how the landscapes within the Inventoried Roadless area fits within the broader landscape and if the project creates any overall change. Consider landscape character descriptions in SMS.	No	Stable	Alternative 1 would not result in any impacts to the aquatic areas within any reference landscapes that could occur within the SCRA. Impacts within the Deer Creek watershed from roads, timber harvest, grazing, and mining activities authorized by the 2008 RODs have likely already eliminated the use of the Deer Creek watershed as a unique aquatic reference site.
Landscape character and integrity Describe the current scenic quality and character of the area. Describe project effects to the scenic integrity of the area and changes to the character of the area. Consider existing scenic integrity.	Yes	Stable	Under Alternative 1, impacts to landscape character and integrity would be similar to those described for the Proposed Action. The proposed Project components would be within an area designated Partial Retention VQO and Modification VQO, with low scenic integrity due to other approved mining activities. The visibility of the Project, and its impact on visual resources would depend on the proximity of the observer to the Project. The Project 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 Project would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. In general, the Project components would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the approved mining disturbance. The approximately 250 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to appear similar to the surrounding areas, whereas areas receiving a GCLL would not.
Traditional cultural properties and sacred sites Identify generically any significant cultural resources within the Roadless area and describe the effect of the project on these resources. Typically mitigation will be designed to prevent significant effects to these resources.	No	N/A	No Traditional Cultural Properties have been nominated or designated in the Project Area.
Other locally unique characteristics Identify any locally unique characteristics and describe how the project would affect these values.	N/A	N/A	

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WORKSHEET 1 – Wilderness Qualities or Attributes
Evaluating the Effects of Project Activities on Wilderness Attributes

Date:	November 20, 2014
Roadless Area:	Sage Creek

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) **ALTERNATIVE 2**: Under Alternative 2, Lease IDI-01441 would be expanded within the SCRA; however the expansion disturbance area would be approximately 46 fewer acres than the Proposed Action. The Panel F conveyor system would result in 1.3 acres of new disturbance in the SCRA; and the East Overburden Disposal Area (ODA) and stormwater control features would result in a total of 27.9 acres of new Project-related disturbance within the SCRA - approximately 5.3 acres within the lease modification area and 22.5 acres within the existing lease. All disturbances within the SCRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the SCRA would generally be reclaimed and revegetated, immediately following the cessation of mining, with the exception of approximately 1.6 acres of the stormwater features that would be maintained for many years to ensure their purpose and functionality. Under Alternative 2, the proposed geo-synthetic clay laminate liner (GCLL) would cover approximately 26.3 acres of seleniferous overburden within the East ODA within the SCRA. The GCLL would be reclaimed and revegetated with shallow rooted species such as grasses and forbs, but would never be allowed to reforest. In addition, approximately 257 acres within The SCRA would receive a geologic store and release cover, which would be revegetated with grasses and forbs, along with "islands of diversity" of deeper rooted species.

Effect to Wilderness Quality or Attributes			
Wilderness Quality or Attribute (Note: delete attribute descriptions after data is entered to save space if desired.)	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. May use GIS layers (ROS, SMS, Roads, etc…) to quantify effects.
Untrammeled This quality monitors modern human activities that directly control or manipulate the components or processes of ecological systems inside wilderness. In summary, *wilderness is essentially unhindered and free from modern human control or manipulation.* A measure of the actions taken to hinder, manipulate, or control the long-term natural ecological processes of the area. Address this attribute by describing the management actions included in ct your project activities that would alter the natural processes in the area.	Yes	Operations Phase – Degrading Reclamation - Stable	The function of ecological systems within the SCRA has been impacted by the following physical or human-caused impacts that have occurred in the recent past or are occurring: approved and unimproved roads, timber harvest activities, mining activities, grazing, and recreation. The Project would result in approximately 28 acres of new disturbance within the SCRA for the Panel F conveyor system, expansion of the East ODA, and associated stormwater control features. Land clearing associated with this disturbance would increase the potential for erosion and potentially impact terrestrial wildlife through direct mortality (small, less-mobile species) or injury (during construction), habitat modification, fragmentation, and loss. Wildlife tends to avoid areas with noise and human presence if possible.

Effect to Wilderness Quality or Attributes			
Untrammeled (continued)			As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by Project activities. This disturbance is less than 0.1-percent of the SCRA and the majority of the disturbances would be reclaimed immediately after conclusion of the operations phase of the Project, with the exception of the stormwater features. However, the GCLL would never be allowed to become reforested. While the area covered by the GCLL would be reclaimed and revegetated, the ecological community of the approximately 26-acre area of the SCRA covered by the GCLL would be permanently altered. The approximately 257 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to resemble the surrounding landscape. The Project includes environmental protection measures and best management practices designed to reduce the impact to wildlife, particularly sensitive species. As a result, the Project is not expected to substantially reduce the amount of wildlife habitat available or fragment habitat to a degree sufficient to reduce wildlife populations or alter other ecological functions in the SCRA.
Natural This quality monitors both intended and unintended effects of modern people on ecological systems inside wilderness since the time the area was designated. In summary, *wilderness ecological systems are substantially free from the effects of modern civilization.* A measure of past and proposed activities on the natural conditions of the area. It describes the extent to which human influences alter natural processes and conditions away from what one would otherwise expect. This is a measure of the degree of environmental modification that will occur because of your project. Address this attribute by describing the extent of modification that will occur in the wilderness area Consider existing scenic integrity and ROS layers.	Yes	Operations Phase – Degrading Reclamation - Stable	The SCRA has been impacted by the construction of roads, timber harvests, mining activities, grazing, and recreation. These activities have altered or reduced the function of ecological systems within the SCRA. Disturbance from these activities is also visible to the casual observer in the form of roads and road cuts, areas of reduced timber cover, cattle presence, and the presence of recreation users and recreational vehicles. However, some of these disturbances (particularly roads, mining activities, and areas of timber harvest) are in various stages of reclamation and some of these areas are beginning to return to a more natural state. The Project would involve disturbance and habitat loss. During the construction, operations, and reclamation phases of the Project new disturbance would also be visible to the casual observer in the form of the East ODA consisting of large quantities of mined materials; stormwater drainages, and ponds. During and immediately following completion of the operations phase of the Project, these disturbances would by highly visible and would contrast with the surrounding landscape. Disturbed areas would have a reduced appearance of naturalness relative to areas within the SCRA that have not been disturbed or that have been reclaimed. Once reclamation is complete, the disturbed areas would have an appearance similar to other areas within the SCRA that have been reclaimed; however, even reclaimed areas would be noticeably modified from the surrounding landscape as the East ODA cannot be recontoured exactly to match natural topography. Although the Project would degrade the natural condition of approximately 28 acres in the short term; in the long term the condition of the disturbed lands would exhibit a degree of naturalness similar to other reclaimed areas of the SCRA.

Effect to Wilderness Quality or Attributes				
Natural (continued)		Yes	Operations Phase – Degrading Reclamation - Stable	The approximately 26 acres of the SCRA that would be covered by the GCLL would never be allowed to become reforested. Active management of the vegetation of this area to prevent reforestation may result in a somewhat unnatural appearance if surrounded by forested areas. The approximately 257 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to resemble the surrounding landscape.
Undeveloped This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation. In summary, w*ilderness is essentially without permanent improvements or modern human occupation.* A measure of the present day physical indicators such as the presence and development level of trails, campsites, structures and facilities as well as the use of motorized equipment, mechanical transport, landing of aircraft, etc. used for administrative purposes. It is an indicator of what the visitor will experience in a setting that is removed from the sights and sounds of civilization and mechanization located inside the wilderness. Address this attribute by describing the extent of modification (i.e. structures required, motorized equipment use, etc.) that will occur during the projects duration or resulting after the project is finished. Consider using ROS maps layers.		Yes	Operations Phase – Degrading Reclamation – Stable	During the construction, operations, and reclamation phases of the Project, people, vehicles, equipment, and associated noise and dust would be evident in the disturbance area associated with the Project. Disturbances associated with both the Panel F ore conveyor system and the expanded East ODA would be reclaimed and revegetated, and upon reclamation, devoid of evidence of human presence or occupation. However, stormwater control features including drainages and ponds would remain on the Panel G portion of the Project for the life of the GCLL, and periodic maintenance would be required to maintain the GCLL free of trees. In addition, reclaimed areas would be noticeably modified from the surrounding landscape as the ODA cannot be recontoured exactly to match natural topography. Portions of these disturbed areas would be located within the Partial Retention VQO. Stormwater features and reclaimed areas may be identifiable as man-made rather than natural occurrences, and may be a noticeable contrast from the undeveloped appearances of the surroundings.
Outstanding opportunities for solitude or a primitive and unconfined type of recreation This quality monitors conditions that affect the opportunity for people to experience solitude or primitive, unconfined recreation in a wilderness setting, rather than monitoring visitor experiences *per se*.	**Solitude -** Described as opportunities to experience solitude, or the isolation from the sights and sounds of management activities inside wilderness, the presence of others. Solitude is measured by considering the presence of screening, distance from impacts to the rest of the area, mitigation measures such as the timing of disturbances. Address solitude by discussing how the project activities affect the ability of a visitor to escape project impacts on solitude within the area. Consider linking to ROS mapping for size and remoteness criteria for Primitive and SPMN.	Yes	Operations Phase – Degrading Reclamation – Stable	The noise and human activity associated with the construction, operations, and reclamation phases of the Project would impact the sense of solitude of the immediate area; that effect would dissipate with distance, but the effects may be noticeable from several miles away. Activities may be noticeable in other portions of the SCRA through distant noises, lights, glow, or dust columns in areas where the Project is not directly visible. The immediate Project Area is managed as RM or SPM; therefore expectations of solitude are reduced. Upon completion of reclamation, the area would generally return to previous conditions, with the exception of the stormwater features.

Effect to Wilderness Quality or Attributes				
Outstanding opportunities for solitude or a primitive and unconfined type of recreation (continued) In summary, *wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge*	**Opportunities for Primitive Recreation -**A measure of the experiences available without the developments and to feel a part of nature, with a high degree of challenge and reliance on outdoor skills rather than facilities. Address this attribute by describing how the project activities might affect, the number and type of opportunities available, the challenge of the opportunities, and the addition or absence of facilities.	Yes	Stable	The approximately 28 acres of proposed disturbance, situated immediately adjacent to previously approved mining, would not be available for primitive recreation during the operations phase of the Project. Terrain within the SCRA is very typical of the other mountain ranges in southeast Idaho; however, due to the presence of existing roads, timber harvest remains, and other developments, it does not provide much opportunity for primitive recreation. As a result, the disturbance of an additional 28 acres would minimally affect this quality. Upon completion of reclamation of the Project Area there would not be remaining facilities that would degrade the opportunity for primitive recreation. However, topographic changes may make the area more or less challenging to access or traverse.
Special Features (Ecological, Geologic, Scientific, Educational, Scenic or Historical Values) An attribute that recognizes that wilderness may contain other values of ecological, geologic, scientific, educational, scenic or historical or cultural significance. Unique fish and wildlife species, unique plants or plant communities, potential or existing research natural areas, outstanding landscape features, and significant cultural resource sites should all be considered as types of values that might exist. Identify any of these values that exist within the project area. Address this attribute by describing the effect proposed activities would have on these values.		No	N/A	The portion of the Project Area within the SCRA does not contain special features that would be impacted by the Project.
Manageability (as Wilderness) A measure of the ability to manage an area to meet the size criteria (5,000 + acres), the resulting configuration of the potential wilderness, and the interaction of the other elements above. Changes in the shape of the Inventoried Roadless Area may have significant consequences to its wilderness potential. Consider also boundary management impacts such as changing wilderness boundaries to different terrain features or for how access would be provided if project activities cause adjustments in the Inventoried Roadless Area. Address this attribute by discussing how the proposed activities may affect the boundary location, the size, the shape, and the access to the area. Consider ROS mapping.		No	NA	The proposed disturbance associated with the Panel F ore conveyor system, East ODA, and stormwater features would occur in five separate areas along, near, or just inside the SCRA boundary. The GCLL would cover a larger area in the same vicinity as the Panel G stormwater features, along or near the SCRA boundary. These areas do not bisect the SCRA or otherwise fragment the SCRA into smaller pieces that would not meet the size criteria (5,000 acres or more), nor would they reduce access to the SCRA. Consequently, there would be no impacts to manageability.

Summary	Will the proposed project affect the areas suitability for wilderness designation?	No	Yes	If Yes, Explain how the project would affect wilderness suitability
			X	The portions of the SCRA that would be disturbed by this Project may not be suitable for future wilderness designation due to the noticeably modified nature of the areas after reclamation, and the requirement to maintain the area covered by the GCLL free of trees.

WORKSHEET 2 – Roadless Area Characteristics
Evaluating the Effects of Project Activities on Roadless Area Characteristics

Date:	November 20, 2014
Roadless Area:	Sage Creek

Description of Project Activity or Impact to Roadless Area:
(Note – describe the activity that is affecting the roadless area, i.e. miles of road construction, timber acres harvested, acres treated by fire, etc…) **ALTERNATIVE 2**: Under Alternative 2, Lease IDI-01441 would be expanded within the SCRA; however the expansion disturbance area would be approximately 46 fewer acres than the Proposed Action. The Panel F conveyor system would result in 1.3 acres of new disturbance in the SCRA; and the East Overburden Disposal Area (ODA) and stormwater control features would result in a total of 27.9 acres of new Project-related disturbance within the SCRA - approximately 5.3 acres within the lease modification area and 22.5 acres within the existing lease. All disturbances within the SCRA would occur within the General Forest, Rangeland and Grassland theme. The Project disturbances within the SCRA would generally be reclaimed and revegetated, immediately following the cessation of mining, with the exception of approximately 1.6 acres of the stormwater features that would be maintained for many years to ensure their purpose and functionality. Under Alternative 2, the proposed geo-synthetic clay laminate liner (GCLL) would cover approximately 26.3 acres of seleniferous overburden within the East ODA within the SCRA. The GCLL would be reclaimed and revegetated with shallow rooted species such as grasses and forbs, but would never be allowed to reforest. In addition, approximately 257 acres within The SCRA would receive a geologic store and release cover, which would be revegetated with grasses and forbs, along with "islands of diversity" of deeper rooted species.

Effect to Roadless Characteristics			
Roadless Characteristics	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity. Explain if the proposal would Alter or Modify the landscape.
Soil, water and Air resources Identify any unique or critical watershed resources. Describe how the project will affect these key resources areas and the habitats that depend on them.	Yes	**Soil and Air** Operations Phase – Degrading Reclamation – Stable	**Soils**: Approximately 28 acres, or less than 0.01-percent of the soils within the SCRA, would be impacted by the Project; therefore no changes to the overall rating of the soils within the SCRA are anticipated. Impacts to soils in the overall Project Area are discussed in Section 4.5 of the EIS. **Air**: Air emissions resulting from the Project would consist of emissions from mobile sources and the disturbance of soil. All Project vehicles would have legally mandated on-board emission controls. Therefore, impacts to air quality during the operations phase of the Project would be site-specific and minor; and negligible locally and in the region, and would not be expected to change the overall air quality within the SCRA.

Effect to Roadless Characteristics			
Soil, water and Air resources (continued)		**Water** Stable to Improving	**Water**: The Project would: • Result in almost double the recharge through the cover, compared to the Proposed Action condition, which would result in more groundwater flow to lower Deer Creek, compared to the Proposed Action; • Result in a long-term, moderate decrease in groundwater quality, compared to the Proposed Action, beneath and down gradient of Panel G, including Deer Creek; • Result in essentially the same impacts to surface water quantity under this alternative as they would be under the Proposed Action; • Result in somewhat greater selenium concentrations than they would be under the Proposed Action; however, the selenium criterion would continue to be met in Deer Creek under this alternative.
Sources of public drinking water Identify any public drinking water systems or sources within the project area or that would be affected by the project. Describe how the project would affect water quality and quantity of the public drinking water source.	No	N/A	There are no official Sources of Public Drinking Water within the Project Area, but potential impacts to surface water and groundwater within the Project Area and areas extending outside the Project Area have been thoroughly described in **Section 4.4**. The potential impacts could be long-term and range from negligible to moderate depending upon the surface water and/or groundwater source being evaluated.
Diversity of plant and animal communities Discuss the diversity of plant and animal communities. Identify any unique plant and animal communities within the area. Describe effects to the diversity of plant and animal communities.	Yes	Stable	Approximately 28 acres of vegetation (less than 0.01-percent of the SCRA), including trees, shrubs, and ground cover habitats, would be removed. The ODA expansion areas should be successfully reclaimed and revegetated. Approximately 1.6 acres of stormwater control features would not be revegetated, and would remain after reclamation. The approximately 26 acres covered by the GCLL within the SCRA would be reclaimed and revegetated; however, the area would never be allowed to become reforested. The approximately 257 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to provide wildlife habitat similar to the surrounding areas. The short-term loss of approximately 28 acres of vegetation is not expected to impact the diversity of plant communities within the SCRA. The removal of vegetation would impact terrestrial wildlife through direct mortality or injury (during construction), habitat modification, fragmentation, and loss. Portions of the Project Area that were previously forested and would be covered by the GCLL would have permanent habitat modifications. In addition, wildlife tends to avoid areas with noise and human presence, if possible. As a result, the areas of affected wildlife habitat may be larger than the area directly occupied by the Project. However, given the availability of similar habitat in adjacent areas, and EPMs and BMPs designed to lessen impacts to wildlife, the Project is not expected to impact the diversity of animal communities in the SCRA.

Effect to Roadless Characteristics			
Habitat for TES and species dependent on large undisturbed areas of land Identify any TES or sensitive species within the Roadless area. Describe how the project would affect the habitats or populations and whether this effect is significant across the normal range and distribution of these habitats and populations.	Yes	Stable	Under Alternative 2, impacts to habitat for TES and species dependent on large undisturbed areas of land would be the similar to that described for the Proposed Action; however, there would be approximately 46 fewer acres of disturbance to habitat. Preliminary determinations for threatened, endangered, proposed, candidate, or sensitive species and specific impacts to other wildlife species include the following: • The Project May Affect, but is Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor. • If the species is listed, the Project May Affect, but is Not Likely to Adversely Affect greater sage-grouse as a Candidate species. • The Project would have No Impact on spotted bat, Townsend's big-eared bat, peregrine falcon, or boreal toad. • Impacts to bald eagles would be site-specific, short-term, and negligible. • Indirect impacts to boreal owls would be site-specific, long-term, and negligible to minor. • Impacts to Columbian sharp-tailed grouse would be site-specific, short- to long-term, and negligible to minor. • Impacts to flammulated owls would be site-specific, long-term, and negligible to minor. • Impacts to great gray owls and northern three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor. • Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate. • Impacts to gray wolves would be site-specific, short-term, and negligible to minor.
Primitive and semi-primitive classes of recreation Describe current recreation opportunities within the Roadless area. Identify the effects of your project of the area and these activities. Describe the effect in terms of availability for similar experiences in surrounding areas or within the region of use. Consider link to ROS mapping.	Yes	Stable	There are no developed recreation amenities, such as campgrounds or guard stations within the Project Area. The dominant type of dispersed recreation in the vicinity of the Smoky Canyon Mine is big game hunting for elk, moose, and deer. Other dispersed recreation activities occurring in the area include snowmobiling, cross-country skiing, horseback riding, upland bird hunting, camping, picnicking, driving for pleasure/sight-seeing, and off-road vehicle use. The Panel F ore conveyor system portion of the Project would eliminate approximately 1 acre of designated ROS class SPM from the recreation land base within the SCRA for the life of the Project. The East ODA expansion and stormwater control features would eliminate approximately 28 acres from the recreation land base within the SCRA for the life of the Project, the majority of which is designated ROS class SPM and would be contained within an lease modification area, and contiguous with previously approved mining activities. A small portion in the southern part of Panel G is designated RM. With exception of the stormwater control features, the disturbed acreage would be reclaimed and returned to the recreation land base at the end of the Project.

Effect to Roadless Characteristics			
Reference landscapes for research study or interpretation Describe the landscape that is present. Describe any unique reference landscapes that exist within the Roadless area. Describe how the project activities might affect the reference landscape values of the Roadless area. Consider how the landscapes within the Inventoried Roadless area fits within the broader landscape and if the project creates any overall change. Consider landscape character descriptions in SMS.	No	Stable	Alternative 2 would not result in any impacts to the aquatic areas within any reference landscapes that could occur within the SCRA. Impacts within the Deer Creek watershed from roads, timber harvest, grazing, and mining activities authorized by the 2008 RODs have likely already eliminated the use of the Deer Creek watershed as a unique aquatic reference site.
Landscape character and integrity Describe the current scenic quality and character of the area. Describe project effects to the scenic integrity of the area and changes to the character of the area. Consider existing scenic integrity.	Yes	Stable	The proposed Project components would be within an area designated Partial Retention VQO and Modification VQO, with low scenic integrity due to other approved mining activities. The visibility of the Project, and its impact on visual resources would depend on the proximity of the observer to the Project. The Project 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 Project would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. In general, the Project components would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the approved mining disturbance. The approximately 257 acres that would receive the geologic store and release cover would be revegetated with grasses and forbs along with islands of diversity of deeper rooted species; as a result, this area may eventually naturalize to appear similar to the surrounding areas, whereas areas receiving a GCLL would not.
Traditional cultural properties and sacred sites Identify generically any significant cultural resources within the Roadless area and describe the effect of the project on these resources. Typically mitigation will be designed to prevent significant effects to these resources.	No	N/A	No Traditional Cultural Properties have been nominated or designated in the Project Area.
Other locally unique characteristics Identify any locally unique characteristics and describe how the project would affect these values.	N/A	N/A	

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