# Smoky Canyon Mine
# Panels F & G Draft EIS

## EXECUTIVE SUMMARY

## PROPOSED ACTION

The J.R. Simplot Company (Simplot), Smoky Canyon Mine has proposed an extension of its current open pit phosphate mining operations south into two federal phosphate leases (Manning Creek No. I-27512 – referred to as the Panel F lease area and Deer Creek No. I-01441 – referred to as the Panel G lease area). The leases are administered by the Pocatello Field Office of the Bureau of Land Management (BLM), and the surface of the leases is managed by the United States Forest Service (USFS), Caribou-Targhee National Forest (CTNF) (**Figures 1.0-1** and **1.0-2**). These two federal agencies, plus the Idaho Department of Environmental Quality (IDEQ), have prepared this EIS to review the environmental impacts of the proposed operations and a range of reasonable alternatives. Public scoping for this Project occurred in 2003 and resulted in identification of the issues described in **Section 1.6** of this EIS.

If approved, mining would begin in Panel F in 2006-2007; at the same time mining is being completed in the existing Panel B. The proposed mining would commence in Panel F with mining being initiated in Panel G a few years later. All mining and reclamation activities would be completed in a period of about 16 years. Reclamation monitoring would follow for a period of a few years to ensure reclamation meets agency requirements.

The proposed mining activities are described in **Section 2.4** of this EIS and would first include construction of a new haul/access road that would extend south from the existing Panel E across South Fork Sage Creek to the Manning Lease. Open pit mining operations would commence within this lease and would generally proceed from north to south in the proposed mine Panel F. Overburden removed from the north end of Panel F would initially be hauled north to complete backfilling of 29 acres in Panel E; it would also be placed in a 38-acre external overburden fill. The rest of the overburden would be used as backfill in the Panel F open pit. A total of 138 acres of the southern-most part of Panel F would be located in a lease modification proposed to be added to Lease I-27512 and the northern-most 2 acres of this open pit would be located on another proposed lease modification to the same lease. Disturbance from the Panel F operations would total 592 acres including: 435 acres of pits, 67 acres of roads, 38 acres of external overburden fills, and 52 acres of other disturbance including settling ponds and ditches, topsoil stockpiles, and a power line.

After several years of mining in Panel F, a haul/access road and a power line would be built to connect Panel F and Panel G. A 100 gpm water supply well would be drilled at Panel G. Initial overburden from the open pit at Panel G would be placed in a 74-acre overburden fill southwest of the pit and a 64-acre external overburden fill located east of the pit. The rest of the overburden would be used as pit backfill. Disturbance from the Panel G operations would total 748 acres including: 328 acres of pits, 217 acres of roads, 138 acres of external overburden fills, and 65 acres of other disturbance including settling ponds and ditches, topsoil stockpiles, and power line. Approximately 18 acres of the Panel G East External Overburden Fill would extend off lease and would require the BLM and USFS to issue the appropriate land use authorizations for this disturbance.

Surface disturbance from the entire Proposed Action would total 1,340 acres. Of this total, 38 acres in Panel F, including an open pit and highwalls, and 8 acres of highwall in Panel G would not be reclaimed. Another 25 acres of haul/access road disturbance would not be reclaimed, including small areas of cut and fill in steep terrain that cannot reasonably be regraded, and a portion of the Panel G West Haul/Access road, which would be left for continued use as a new CNF road to replace parts of the existing Wells Canyon (FR 146) and Diamond Creek (FR 1102) roads that would be abandoned and reclaimed.

Measures that would be employed to reduce environmental impacts are described in detail in **Section 2.5** of this EIS and would generally include: topsoil salvage and conservation, implementation of BMPs for control of releases of selenium and other chemicals of potential concern (COPCs), implementation of project-specific road BMPs and storm water pollution prevention measures for runoff and sedimentation control, use of oil spill prevention control and countermeasures, mitigation of wetland impacts, capping all areas of seleniferous overburden with at least 4 feet of chert and 1 to 3 feet of topsoil, concurrent reclamation including revegetation, and various monitoring and reporting programs.

## MINING ALTERNATIVES

A total of seven mining alternatives were evaluated in the EIS and are described in **Section 2.6.1**, they include:

- Alternative A - No South and/or North Panel F Lease Modifications,
- Alternative B - No External Seleniferous Overburden Fills,
- Alternative C - No External Overburden Fills at All,
- Alternative D - Infiltration Barriers on Overburden Fills,
- Alternative E - Power Line from Panel F to Panel G Along Haul/Access Roads, and
- Alternative F - Electrical Generators at Panel G.

Three more mining alternatives were also considered and eliminated from further evaluation in this EIS (**Section 2.7.1**).

Alternative A identifies the separate environmental effects of the mining activities on the proposed lease modifications and shows how environmental effects of the Proposed Action would be reduced if the Agencies decide not to grant the lease modifications. The area impacted could be reduced by approximately 140 acres, and the area not reclaimed could be reduced by 29 acres under this alternative compared to the Proposed Action.

Alternative B evaluates the environmental effects that would occur if the Agencies required Simplot to rehandle all seleniferous overburden that would be placed in the external overburden fills and move it into the pits as backfill. This would reduce the potential for environmental effects from leaching of seleniferous overburden by infiltration of water in the external overburden fills. The unreclaimed area in this alternative would be reduced by 8 acres compared to the Proposed Action.

Alternative C is similar to Alternative B except that it would require Simplot to rehandle all overburden placed in external overburden fills and replace it into the open pits. All disturbed areas in the mine panels would be reclaimed under this alternative.

Alternative D evaluates the effects of incorporating an infiltration barrier made of material from the Dinwoody formation within the cap over all areas of seleniferous overburden. The intent of this alternative is to reduce environmental impacts of seepage of water through seleniferous overburden in external fills and pit backfills. The unreclaimed area under this alternative would be the same as the Proposed Action.

Alternative E looks at the differences in environmental effects that would occur if the proposed separate power line corridor would be replaced by routing the power line along the proposed haul/access road corridors.

Alternative F evaluates the differences in environmental effects if the proposed power line to Panel G was replaced by electrical generators at the panel.

## TRANSPORTATION ALTERNATIVES

An important component of the Proposed Action is transportation of ore over a number of miles from the proposed mine panels to the existing Smoky Canyon Mine mill. The proposed haul/access roads would also be used for transportation of personnel and materials from the current Smoky Canyon Mine south to the proposed mine panels. The environmental effects of the proposed Panel F and Panel G haul/access roads are evaluated separately in the EIS so they can be compared against a total of eight transportation alternatives that were also evaluated. Nine other transportation alternatives were also considered and eliminated from further evaluation; they are described in **Section 2.7.2**.

The transportation alternatives are described in detail in **Section 2.6.2** and include:

- Alternative 1 - Alternate Panel F Haul/Access Road,
- Alternative 2 - East Haul/Access Road,
- Alternative 3 - Modified East Haul/Access Road,
- Alternative 4 - Middle Haul/Access Road,
- Alternative 5 - Alternate Panel G West Haul/Access Road,
- Alternative 6 - Conveyor from Panel G to Mill,
- Alternative 7 - Crow Creek/Wells Canyon Access Road, and
- Alternative 8 - Middle Access Road.

Alternative 1 would follow an alignment from Panel E to Panel F that would avoid entering the Sage Creek IRA (**Figure 2.6-8a**). Alternative 2 would connect Panel G to the Panel F haul/access road on an alignment down (south) to the mouth of Deer Creek Canyon and then north along the east flank of the Webster Range. Alternative 3 would be similar to Alternative 2 but would avoid crossing private land near the mouth of Deer Creek Canyon. Alternative 4 would connect Panels F and G along an alignment on the east slope of Freeman Ridge. Alternative 5 would be similar to the Proposed Action but would exit the south end of Panel F rather than the middle west side. Alternative 6 would include a conveyor to transport ore from Panel G to the mill and would also require implementation of either Alternative 7 or 8 for access to Panel G. Alternative 7 consists of widening and improving the Crow Creek and Wells Canyon roads to serve as all-season personnel and vendor access to Panel G. Alternative 8 would be an access road only, connecting Panels F and G along the east flank of Freeman Ridge. Alternatives 1 through 5 would be haul/access roads for movement of ore, personnel, and supplies. Alternatives 7 and 8 would only be access roads as ore would be transported by a conveyor (Alternative 6) if either of these alternatives were selected.

## AGENCY PREFERRED ALTERNATIVE

Following their review of the environmental impacts as discussed in EIS, the Agencies have selected the combination of the following Project components and alternatives as their preferred alternative at this time:

- The Proposed Action plan for mining, including the North and South Lease Modifications;
- Mining Alternative B: No permanent placement of seleniferous overburden external to the pit backfills;
- Mining Alternative D: Placement of an infiltration barrier cap over all areas of seleniferous overburden disposal;
- Mining Alternative E: Locating the power line for Panels F and G along the selected haul/access road corridors; and
- Transportation Alternative 2: Using the East Haul/Access road to transport personnel and materials into Panel G and for hauling phosphate ore from that panel to the existing Smoky Canyon mill.

## ENVIRONMENTAL IMPACTS

### Proposed Action and Alternatives

The environmental effects of the mining components of the Proposed Action were evaluated and compared to the mining alternatives in Chapter 4. A listing of the primary environmental impacts for the mining components of the Proposed Action and the mining alternatives is shown in **Table 2.9-1**. A similar listing and comparison for the transportation components of the Proposed Action and Alternatives 1 through 8 is shown in **Table 2.9-2**. The environmental impacts of these components and alternatives are summarized in the following narrative.

### Geology, Topography and Minerals

The Proposed Action and each mining alternative would commit phosphate resources to development. This mining activity would result in physical changes to topography; creation of man-made slopes and highwalls that are designed for stability; movement of overburden to pit backfills and external fills; and potential exposure of rocks containing selenium and other elements to weathering processes.

About 46 acres of the topographic disturbance for the mine panels would be permanent where highwalls and pits would not be reclaimed. Mining Alternatives A (No South and North Lease modifications), B, (No Seleniferous External Overburden Fills), and C (No External Overburden Fills) would have unreclaimed areas of 17, 38, and 0 acres, respectively, while Mining Alternatives D (Infiltration Barrier), E (Power Line Along Roads), and F (Generators) would have the same amount of unreclaimed area as the Proposed Action.

Under Mining Alternative A, not mining the South Lease Modification of Panel F would reduce the ore recovery for the entire project by about 11 percent and not mining the North Lease Modification would reduce ore recovery by another 3 percent. Simplot could respond to

increased costs inherent in the other mining alternatives by mining less overburden and ore. Double handling overburden in Mining Alternatives B and C could result in reduced ore recovery for the entire project by about 19 percent and 46 percent, respectively. Increased costs for Mining Alternatives D and F could result in reduced ore recovery for the entire project of about 22 percent and 38 percent, respectively.

Transportation Alternative 1 (Alternate Panel F Haul/Access Road) would disturb about 21 acres less than the Proposed Action Panel F Haul/Access Road with about the same unreclaimed area (**Figure 2.6-8b**). Transportation Alternative 2 (East Haul/Access Road) would disturb about the same area as the Proposed Action Panel G West Haul/Access Road but would have 14 acres less of unreclaimed areas. Alternative 3 (Modified East Haul/Access Road) would have 59 acres more disturbance than the Proposed Action Panel G haul/access road and the same amount of unreclaimed area. Transportation Alternatives 4 (Middle Haul/Access) and 5 (Alternate Panel G West Haul/Access) are similar to the Proposed Action Panel G haul/access road in initial disturbance but would result in larger unreclaimed areas. The conveyor (Transportation Alternative 6) would disturb 61 acres, which is 156 acres less than the Proposed Action Panel G haul/access road but this alternative would also need either the Crow Creek/Wells Canyon Access Road (Transportation Alternative 7, 114 acres) or the Middle Access Road (Transportation Alternative 8, 99 acres). All of the disturbance for the conveyor and Transportation Alternative 8 would be reclaimed, whereas 55 acres of Transportation Alternative 7 would remain after reclamation.

Impacts to paleontological resources would be negligible and approximately the same for all the mining and transportation alternatives.

## Air Resources and Noise

Mining operations would impact air resources primarily by emissions of dust and motorized equipment exhaust including particulates, nitrogen oxides, carbon monoxide, volatile organic compounds, and sulfur dioxide. Over the entire 16-year Project life, the total air emissions from mining are estimated to be 8,422 tons. These emissions would comply with the National Ambient Air Quality Standards and would not impact human health in nearby residential areas. There would be no noticeable impact to Class I airsheds. All Mining Alternatives have total air emissions similar to the Proposed Action except for Mining Alternatives A and F, which would have total Project emissions of 7,500 and 9,786 tons, respectively.

The total air emissions from the Proposed Action Panel F and G haul/access roads would be 1,207 and 1,504 tons, respectively. Total emissions for Transportation Alternative 1 (Alternate Panel F Haul/Access), assuming it was combined with the No North Lease Modification would be 960 tons. Transportation Alternatives 2 and 3 (East and Modified East Haul/Access) would be similar to the Proposed Action Panel G Haul/Access Road. Emissions for Transportation Alternative 4 (Middle Haul/Access) would be 1,358 tons. Transportation Alternative 6 (Conveyor) emissions would be 661 tons, which would need to be combined with the 824 tons or 632 tons for either Transportation Alternative 7 or 8 (Crow Creek/Wells Canyon Access and Middle Access).

Distance between the proposed mining operations and residences along Crow Creek in conjunction with intervening topographic and vegetation screening would result in negligible mining noise typically reaching the nearest residences.

Noise for the haul/access roads of the Proposed Action and Transportation Alternatives 1 (Alternate Panel F), 4 (Middle Haul/Access), and 5 (Alternate Panel G West) would typically be negligible at residences along Crow Creek. Transportation Alternatives 2 and 3 (East and Modified East Haul/Access) would present very noticeable noise increases to the nearest residence along Crow Creek. The conveyor (Transportation Alternative 6) would present negligible noise along Crow Creek, as would Transportation Alternative 8 (Middle Access). Transportation Alternative 7 (Crow Creek/Wells Canyon Access Roads) would produce noticeable noise to residences from increased traffic along the Crow Creek Road.

## Water Resources

Groundwater located below the proposed mine development in the Wells Formation flows eastward under the Webster Range to discharge at certain locations in lower Deer Creek and Crow Creek upstream of Deer Creek, Books Spring, and South Fork Sage Creek Spring (**Figure 3.3-9**). Removal of Phosphoria Formation rocks in the footprint areas of the proposed pits would remove the aquitard formed by these rocks. This would allow groundwater recharge of the Wells Formation to occur in the proposed open pit areas (763 acres) where recharge naturally did not occur. This would be a 7 percent increase in the local recharge area (10,536 acres) of the Wells Formation and Brazer Limestone. Recharge in these pit backfills and any external overburden disposal areas to the east of the pits would enter Wells Formation rocks and eventually enter the aquifer contained in the Wells Formation. Recharge water in contact with the overburden can dissolve small quantities of COPCs, which can potentially lead to water quality impacts to the groundwater. Geochemical testing of representative samples of the overburden that would be placed in these pit backfills and external overburden fills was done through assays of whole rock and leach column testing. Chromium, manganese, selenium, sulfate, and zinc were elevated in a number of samples above an applicable surface water and/or groundwater standard and were therefore selected for further impact analysis.

Groundwater flow and fate and transport modeling was conducted for the Project Area to estimate potential water quality impacts on the Wells Formation aquifer under and downgradient of the proposed pit backfills and external overburden fills. Solute concentrations in groundwater at specific locations within the model domain were calculated. They include four locations (Observation Points A – D) along the downgradient phosphate lease boundaries and the four locations where Wells Formation groundwater discharges to the surface (**Figure 4.3-2**). Results of the groundwater modeling for the Proposed Action and Mining Alternatives A (no North and South Lease Modifications), B (no external seleniferous overburden), and C (no external overburden) indicated that estimated peak concentrations of selenium in the groundwater at two of the downgradient lease boundaries (Observation Points A and D) would exceed the State groundwater quality standard (0.05 mg/L) in about 25 and 50 years, respectively, after mining began. The modeling results also showed that the estimated peak selenium concentrations at lower Deer Creek and South Fork Sage Creek Spring would exceed the State surface water quality standard (0.005 mg/L) in about 50 and 100 years, respectively, after mining began. For Mining Alternative D, selenium concentrations at all groundwater observation points and the surface discharge locations were less than applicable State groundwater or surface water standards.

The Rex Chert Member and the overlying Dinwoody formations also contain aquifers of local importance. The development of the proposed mining facilities would not impact water quality or quantity in the Dinwoody formation. Negligible impacts on recharge quantity to the Rex Chert would occur from the operations. Water quality impacts under the Panel G South Overburden

Fill are estimated to exceed the secondary groundwater standard for manganese and comply with standards for the other COPCs, including selenium.

Pumping the proposed Panel G water supply well would locally draw down the water table in the Wells Formation but projections of this draw down to existing surface discharges of the Wells Formation aquifer indicate changes in water levels, and flow at these locations would not be noticeable.

Development of the Proposed Action mining and transportation facilities would physically disrupt six small springs or seeps; potentially reduce flow of three springs; potentially cover with road fill or overburden four springs; and potentially affect the water quality of seven springs. All the mining alternatives would have the same effects on springs except Alternative A (no South Lease Modification), which would reduce the number of impacted springs by four.

The Proposed Action and all mining alternatives would increase the amount of hydrologically disturbed land by up to 11 percent in each of the affected HUC 6 watersheds, and by up to 1.3 percent in the HUC 5 Crow Creek watershed. None of the mining action alternatives would 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 mining facilities would be fitted with runoff and sediment control ponds that would be designed to contain runoff from the 100-yr storm plus snowmelt and thus would temporarily reduce the amount of runoff to local watersheds in the Project Area. The Proposed Action would reduce the watershed areas of South Fork Sage Creek and Deer Creek by 8 percent and 5 percent, respectively. All the mining alternatives would reduce the watershed areas of these drainages by about the same amount.

Application of BMPs to mine and transportation disturbances for the proposed mining operations would be designed to minimize the contribution of sediment to Project Area streams. Mining disturbance sediment controls would be designed to retain all sediment in ponds that the impact analysis estimated had a low (8 - 10 percent) chance of overflowing during the mine life. All the mining action alternatives were estimated to produce 0.17 tons/acre/year or less of sediment from reclaimed surfaces. The total sediment production from the mining areas would be proportional to total disturbed area. The total disturbed area, and therefore long-term sediment yield would be approximately the same for the Proposed Action and Mining Alternatives B (no external seleniferous overburden), C (no external overburden), E (power line on roads), and F (generators).

Mining Alternative A with no South Lease Modification would reduce the disturbed area by about 142 acres, and Mining Alternative D (infiltration barrier) would increase the disturbed area by about 136 acres.

Proposed roads would also have sediment controls, but their close proximity to area streams indicates some sediment would likely be contributed to these streams. Estimates of the annual sediment loading to Project Area streams from the transportation components of the Proposed Action and the transportation alternatives were prepared. The Proposed Action Panel F Haul/Access Road sediment loading was 0.5 tons/year, and 0.7 tons/year were estimated for Alternative 1 (Alternate F Haul/Access Road). These added sediment loads are less than 0.3 percent and 0.4 percent increases, respectively, over baseline sediment load (154.8 tons/year)

in the South Fork Sage Creek watershed. The Proposed Action Panel G West Haul/Access Road sediment loading was 8.5 tons/year, and the alternatives to this road, Transportation Alternatives 2 (East Haul/Access), 3 (Modified East Haul/Access), 4 (Middle Haul/Access), 5 (Alternate West Haul/Access), and 6 (conveyor), had sediment loads of 4.5, 5.1, 7.8, 10.7, and 0.4 tons/year, respectively. These added sediment loads range from 0.1 to 3.5 percent increases over baseline sediment load (307.8 tons/year) in the Deer Creek watershed.

The various transportation alternatives were also compared to the transportation components of the Proposed Action with regard to the numbers of culverts required in perennial streams, springs impacted, and acres of Meade Peak Shale disturbed. Alternative 7 (Crow Creek/Wells Canyon Access) would have the most culverts (4) in perennial streams (culverts are already in place in these locations). The Panel G West Haul/Access and Transportation Alternative 5 (Alternate West Haul/Access) would each have two such culverts. Transportation Alternatives 2 and 3 (East and Modified East) would each have one culvert in a perennial stream, and all the other alternatives would avoid any such culverts. The Panel G West Haul/Access Road and Transportation Alternatives 5 (Alt. West Haul/Access) and 8 (Middle Access) may each impact two springs. One spring may be impacted by each of Transportation Alternatives 2 (East Haul/Access), 3 (Mod. East Haul/Access), and 4 (Middle Haul/Access). All the other road alternatives would avoid impacting any springs. Road disturbance of Meade Peak Shale could increase selenium concentration of runoff from the roads. The Panel G West Haul/Access road and Transportation Alternatives 4 (Middle Haul/Access) and 5 (Alt. West Haul/Access) would each disturb 10 acres of Meade Peak Shale; 9 acres would be disturbed for Transportation Alternative 8 (Middle Access), 3 acres for Transportation Alternatives 2 and 3 (East and Mod. East Haul/Access), 2 acres for Transportation Alternative 6 (conveyor), 1 acre for Transportation Alternative 7 (Wells Canyon Access), and none for the Proposed Action Panel F and Transportation Alternative 1 Panel F Haul/Access roads.

Assuming that the environmental protection measures called for in Chapter 2 are effective in reducing overburden seeps and eliminating surface exposure of selenium-bearing materials that runoff can contact, related impacts from the proposed mining on surface water quality should be negligible. However, there remains the mechanism whereby infiltrated precipitation percolates through overburden, picks up selenium and other COPCs, and is eventually discharged as groundwater contributing to area streams. Using selenium concentrations calculated by the groundwater modeling, concentrations of selenium in Project Area streams downstream of the groundwater discharge locations were calculated. These indicated that the State surface water standard for selenium (0.005 mg/L) would be exceeded year-round in lower Deer Creek, lower South Fork Sage Creek, and lower Sage Creek (downstream of South Fork Sage Creek) for the Proposed Action and Mining Alternatives A, B, and C. Selenium concentrations in Crow Creek below Deer Creek and above Sage Creek would be below State standards at all times. Crow Creek downstream of Sage Creek would be at the standard in the winter and slightly above (0.006 mg/L) the surface water standard in the summer. For Mining Alternative D, selenium concentrations would be just below the State surface water standard in all streams except for lower Sage Creek, where selenium concentrations are currently elevated due to discharges attributed to the Smoky Canyon Mine. As indicated in the groundwater modeling results, the peak selenium concentration in South Fork Sage Creek would occur about 100 years or more after mining begins. It is assumed that current elevated concentrations of selenium in Hoopes Spring and lower Sage Creek would be mitigated by then so all reaches of stream affected by Mining Alternative D would have selenium concentrations less than 0.005 mg/L.

## Soils

Soil within the disturbance footprint of the Proposed Action would gradually be removed during project development, stockpiled as needed, and eventually re-applied to reclaimed areas. Some soil would be lost during salvage operations and through erosion of re-applied soil. Soil productivity would be affected by physical disturbance, compaction, and mixing of soil and slash. The calculated soil erosion rate from re-applied soil for initial reclamation conditions (first 3 years) is 0.78 tons/acre/year and 0.17 tons/acre/year or less thereafter.

The mining components of the Proposed Action would result in physical disturbance of up to 1,056 acres of soil of which 46 acres would not be reclaimed. Mining Alternative A could reduce the disturbance area by up to 140 acres. The initial soil disturbance for Mining Alternatives B and C would be the same as the Proposed Action although the unreclaimed areas would be reduced to 38 and 0 acres for these alternatives, respectively. Mining Alternative D would disturb an additional 137 acres while Mining Alternatives E and F would reduce disturbance by up to 28 acres.

The transportation components of the Proposed Action would result in physical disturbance of up to 284 acres of soil (67 acres, Panel F Haul/Access Road and 217 acres, Panel G West Haul/Access Road). The unreclaimed area for these roads would be 25 acres. Transportation Alternative 1 would disturb 46 acres of soil compared to the 67 acres for the Panel F Haul/Access Road. Transportation Alternatives 2 and 3 would disturb 216 and 276 acres of soil, respectively, compared to 217 acres for the Proposed Action (Panel G West Haul/Access). Transportation Alternatives 4 and 5 would disturb 192 and 226 acres, respectively, and result in unreclaimed areas of 34 and 28 acres, respectively. Transportation Alternative 6 combined with either Transportation Alternative 7 or 8 would disturb 175 and 160 acres of soil, respectively, compared to 217 acres for the Proposed Action.

## Vegetation

All vegetation would be removed from the 1,340 acres disturbed by the Proposed Action. This would include 558 acres of aspen, 153 acres of aspen/conifer, 23 acres of Douglas-fir, 16 acres of Mt. Snowberry/sagebrush, 82 acres of sagebrush, 487 acres of subalpine fir, 18 acres of forbs, and 3 acres of riparian shrub/wet meadows. There would be no impacts to any Threatened, Endangered, Proposed, or Candidate plant species. All but 46 acres of this disturbed area would be reclaimed and revegetated with a grass and forb seed mix prescribed by the CNF (**Table 2.4-4**). Most species used for revegetation are 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. Native and short-lived introduced grasses and forbs would be planted throughout reclaimed areas initially, and then other native forbs, shrubs, and trees would be seeded or planted in clusters where they are most likely to establish. Over the long term, forest and mountain brush species may also encroach naturally into reclaimed areas from undisturbed sites adjacent to the mine.

Indirect impacts to vegetation may occur via competition with noxious weeds, particularly for invasive plants located on top of temporarily uncovered waste overburden sites. Environmental protection measures (**Section 2.5.4**) have been designed to minimize the potential for these impacts.

Capping all areas of seleniferous overburden with at least 4 feet of chert and 1 to 3 feet of topsoil would minimize the potential selenium accumulation for reclamation vegetation.

The mining components of the Proposed Action would result in removal of 1,056 acres of vegetation. Mining Alternative A would reduce this by up to 140 acres. The vegetation disturbance for Mining Alternatives B and C would be the same as the Proposed Action. Mining Alternative D would disturb an additional 137 acres, while Mining Alternatives E and F would reduce vegetation disturbance by up to 28 acres.

The transportation components of the Proposed Action would result in physical disturbance of up to 284 acres of vegetation (67 acres for Panel F Haul/Access Road and 217 acres for Panel G West Haul/Access Road). Transportation Alternative 1 would disturb 46 acres of vegetation compared to the 67 acres for the Panel F Haul/Access Road. Transportation Alternatives 2 and 3 would disturb 216 and 276 acres of vegetation, respectively, compared to 217 for the Proposed Action (Panel G West Haul/Access). Transportation Alternatives 4 and 5 would disturb 192 and 226 acres of vegetation, respectively. Transportation Alternative 6 combined with either Transportation Alternative 7 or Alternative 8 would disturb 175 and 160 acres of vegetation, respectively, compared to 217 acres for the Proposed Action.

## Wetlands

Disturbance to wetlands and stream channels considered to be Waters of the U.S. that occur as a result of mine panel development would be a permanent impact. Disturbance that results from road construction would be reclaimed at the completion of mining except for that part of the Panel G West Haul/Access Road that would be left in place at the request of the CNF. Jurisdictional channels and wetlands affected by temporary impacts that can be reclaimed would be restored to their approximate pre-construction conditions as mining or use of affected areas is completed. Any waters and wetlands that would be permanently impacted would be mitigated on- or off-site. The type and amount of mitigation required would be determined in consultation with the Corps of Engineers. Indirect impacts to wetlands could include increased metal and sediment loading in surface waters and/or changes in water quality/quantity in both surface waters and groundwater supporting Waters of the U.S.

The mining components of the Proposed Action would disturb 0.99 acres of wetlands and 11,600 linear feet of Waters of the U.S. Mining Alternative A would reduce this by 0.56 acres and 1,100 feet. The wetland and channels disturbance for Mining Alternatives B and C would be the same as the Proposed Action. Mining Alternative D would disturb an additional 0.41 acres of wetland and 870 feet more of Waters of the U.S. Mining Alternatives E and F would have the same impacts to wetlands and Waters of the U.S. as the Proposed Action.

The transportation components of the Proposed Action would disturb 1.57 acres of wetlands (0.14 acres for Panel F and 1.43 acres for Panel G haul/access roads) and 770 linear feet of Waters of the U.S (230 feet for Panel F and 540 feet for Panel G). Transportation Alternative 1 would have the same impacts as the Proposed Action Panel F Haul/Access Road. Transportation Alternatives 2 and 3 would disturb 0.62 and 0.67 acres of wetlands, respectively. They would also disturb 300 and 390 feet of Waters of the U.S., respectively. Transportation Alternative 4 would disturb 0.07 acres of wetlands and 1,200 feet of Waters of the U.S., while Transportation Alternative 5 would disturb 1.43 acres and 490 feet. Transportation Alternative 6 would not impact any wetlands or Waters of the U.S. but would need to be combined with either

Transportation Alternative 7 or 8, which would disturb 20 and 0.62 acres of wetland, and 162 feet and 940 feet of Waters of the U.S., respectively.

## Wildlife

The Proposed Action would disturb 1,340 acres in a variety of habitats that are currently utilized by wildlife. Acres of habitat lost would occur gradually as the mining progresses, and the remaining, undisturbed parts of the Study Area (20,462 total acres) would continue to provide habitat, cover, and movement routes for wildlife during the Project. In all, Proposed Action disturbances would remove 10 percent of the forest habitat (8 percent of the aspen, 10 percent of the aspen/conifer, 5 percent of the Douglas-fir, 16 percent of the subalpine fir), 1 percent of the sagebrush habitat, and less than 0.2 percent of the riparian/wet meadow habitat within the Study Area over the course of the Proposed Action. Disturbances in relatively mature habitats (i.e., conifer and aspen forest, mixed forest/brush, and shrub communities) would constitute long-term habitat losses, as forests in particular would not be expected to begin re-establishing for at least 50-100 years. Older stands would not return to their former state (mature, mid- to late-seral trees, snags, and downed dead wood) for at least 150-200 years.

In general, big game species (mule deer, elk, and moose) roam through most of the Study Area year-round. Direct impacts to big game and amphibian individuals may occur by collisions with mine traffic on Project roads. No critical winter range habitat for mule deer, elk, or moose occurs in the Study Area. The Proposed Action would remove 225 acres of vegetation within an 18,230-acre *non*-critical big game winter range area that intersects the Study Area. Corridors of undisturbed habitat within the Study Area would provide routes for big game individuals to circumvent Project disturbances. The Proposed Action would eliminate a maximum of 1,340 acres of habitat for predators over the course of the Project, leaving 93 percent of the habitat within the Study Area undisturbed. 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. Most raptor species found in the Study Area rely on undisturbed, mature forest stands for nesting. Ten percent of the forest habitat in the Study Area would be eliminated for the long-term; mature stands (containing snags suitable for nesting) may not regenerate for 150-200 years. The Proposed Action would affect amphibians by eliminating 2.8 acres of riparian/wetland habitat for the long-term. Ground clearing activities would cause direct impacts (injury, mortality, or displacement) to any amphibians or reptiles in these areas. Montane habitat for the only known population of boreal toads on the Montpelier Ranger District would be fragmented by the Proposed Action Panel G Haul/Access road, and Alternative 4.

The Proposed Action would affect migratory birds, including Neotropical land birds, by eliminating 644 acres within Priority A habitats identified in the Coordinated Implementation Plan for Bird Conservation in Idaho (IWJV 2005). The habitat area avoided by some migratory birds may be larger than the area of disturbance if Project-related noise makes adjacent areas unattractive for nesting.

Adverse impacts of selenium accumulation in vegetation on reclaimed Panels F and G would be unlikely, as the Proposed Action includes Project design features intended to reduce the potential for selenium uptake in reclamation vegetation on overburden disposal areas. Impacts to amphibians from selenium accumulation could occur from increased selenium concentrations in surface water, although limited information exists about the effects of selenium in amphibians.

Impacts to Threatened, Endangered, Proposed, Candidate, and Sensitive (TEPCS) wildlife species were evaluated. For federally listed species, impact determinations concluded that implementation of the Proposed Action would produce negligible to minor impacts to the gray wolf, Canada lynx, and the bald eagle. Regarding CNF sensitive wildlife species, impacts to suitable nesting, denning, and/or foraging habitat would occur for the wolverine, flammulated owl, three-toed woodpecker, great gray owl, greater sage-grouse, and northern goshawk under the Proposed Action. For all the sensitive species evaluated that potentially could be impacted by the proposed operations, it was concluded that the impacts of the Proposed Action and alternatives would generally be minor to moderate.

Mining Alternatives A, D, E, and F have different disturbance footprints than the Proposed Action, and therefore affect different amounts of wildlife habitat. The Alternative A south Lease Modification, Alternative A north Lease Modification, E, and F would create less disturbance (138, 2, 28, and 28 acres, respectively), while Alternative D would create more (137 acres). Most changes under the mining alternatives would result in increased or decreased disturbance in aspen habitat and, consequently, would disproportionately affect the wildlife associated with these areas (e.g., bats, raptors, woodpeckers, sharp-tailed grouse in winter, etc.). In general, impacts to wildlife would be fewer under the alternatives where less habitat disturbance occurs. However, no appreciable increases or decreases (over 5 percent) in habitat disturbance would occur under any mining alternative.

In general, Transportation Alternatives 1 through 8 would result in decreased disturbance in subalpine fir habitat and increased disturbance within aspen, sagebrush, and mountain shrub habitats. Except under Transportation Alternative 3 (mountain mahogany habitat), no changes in habitat disturbance under the transportation alternatives represent appreciable differences (>5 percent) relative to the undisturbed habitat in the Study Area. Compliance with RFP Standards and Guidelines would not change under any Transportation Alternative relative to the Proposed Action, with the possible exception of Transportation Alternative 7 (bald eagle). Fragmentation impacts to big game and amphibian populations would differ among transportation alternatives.

## Fisheries and Aquatics

The Proposed Action would directly disturb 475 feet of perennial stream channel, 21,030 feet of intermittent drainage channel, and 65 acres of aquatic influence zones (AIZs) in the Study Area. Aquatic habitat losses would occur gradually. The Proposed Action would directly disturb less than 0.5 percent of the perennial stream channels, 8 percent of the intermittent drainage channels, and 5 percent of the AIZs in the Study Area. The amount of indirect disturbance, by increased sediment levels in stream substrate, is likely to be greater.

Culvert construction across perennial streams would be designed to maintain natural flows for the passage of adult fish. The Project would not violate the RFP standard requiring the maintenance of instream flows. After mining, culverts and road fills would be removed, intermittent stream channels would be restored, and AIZs would be reshaped and reseeded. The displacement and erosion of sediment during culvert installation would create pulses of turbidity immediately downstream of the culvert and increase substrate sedimentation. Suspended sediment and substrate sedimentation would diminish the suitability of Study Area streams as habitat for Yellowstone cutthroat trout (YCT), other fish, and other aquatic organisms. However, major additional sedimentation into Project Area streams is not expected

due to environmental protection measures, BMPs, and Project design features. These measures are also designed to prevent the introduction of selenium in sediment and surface runoff from mining disturbances.

Aquatic habitat losses under Mining Alternative A would be reduced if both components (North and South Lease Modifications) of Alternative A were adopted. Approximately 17,860 feet of intermittent drainage channel and 40.4 acres of AIZs would be directly disturbed. Mining Alternatives B and C would directly disturb the same amount of stream channel and acres of AIZs as the Proposed Action. Mining Alternative D would directly disturb 22,919 feet of intermittent drainage channel and 55.6 acres of AIZs where Dinwoody borrow pits and stockpiles would be located. Mining Alternatives E and F would result in 18,311 feet of intermittent drainage channel disturbance and 45.3 acres of direct AIZ disturbance in the Deer Creek drainage, assuming the direct power line (under the Proposed Action) were to disturb the entire 50 foot by 4.5 mile-long corridor.

According to groundwater modeling, the Proposed Action and Mining Alternatives A through C would result in the IDEQ cold water aquatic criterion for selenium (0.005 mg/L) being exceeded in lower Deer Creek, South Fork Sage Creek, Sage Creek, and Crow Creek downstream of Sage Creek. Increases in selenium concentration in Study Area streams, due to discharges of groundwater carrying selenium from the mine areas, would increase the risk for selenium accumulation in native fishes. Mining Alternative D would lower selenium concentrations such that they would equal or be below the cold-water aquatic criterion for selenium (0.005 mg/L) at the mouth of Deer Creek, the mouth of South Fork Sage Creek, and Crow Creek downstream of Sage Creek. Even though these are lower than the Proposed Action and Mining Alternatives A through C, they would add some selenium burden to what now occurs in the lower reaches of Sage Creek.

New direct disturbances resulting from construction of the Panel F Haul/Access Road would total approximately 230 feet of intermittent drainage channel and 0.7 acre of AIZs in the South Fork Sage Creek drainage. New direct disturbances resulting from construction of the Panel G West Haul/Access Road would total approximately 475 feet of perennial stream channel, 450 feet of intermittent drainage channel, and 15 acres of AIZs in the Deer Creek and South Fork Deer Creek drainages.

Relative to Proposed Action haul/access roads, the transportation alternatives would result in additional disturbances within intermittent drainage channels, reductions in disturbances within perennial stream channels, and reductions in disturbances within AIZs in the Study Area. Compared to the Proposed Action, most transportation alternatives would reduce the risk of direct impacts to cutthroat trout and other native fishes. Most transportation alternatives would also decrease the risk of sedimentation into Study Area streams relative to the Proposed Action west haul roads. The direct effects that would occur to drainage channels in the Project Area from the various transportation alternatives are described as follows. Alternative 1 would result in disturbance of 672 feet of intermittent channel (two additional crossings) and 1.7 acres of AIZ disturbance in the South Fork Sage Creek drainage. Alternative 2 would require 2,684 feet of intermittent channel disturbance, 290 feet of perennial stream channel disturbance, and 4.7 acres of AIZ disturbance. Alternative 3 would require 2,851 feet of intermittent channel disturbance, 275 feet of perennial stream channel disturbance, and 10.1 acres of AIZ disturbance. Alternative 4 would result in 3,613 feet of intermittent channel disturbance and 9.2 acres of AIZ disturbance. Alternative 5 would result in similar impacts to stream channels and AIZs as the Proposed Action. Alternative 6 alone would result in 1,682 feet of intermittent channel disturbance, no perennial stream channel disturbance, and 6.2 acres of disturbance in

AIZs. Alternative 7 would result in 883 feet of disturbance in intermittent channels, 2,086 feet of disturbance in perennial stream channels, and 11 acres of disturbance in AIZs. Alternative 8 would result in 2,702 feet of intermittent channel disturbance and 9.7 acres of AIZ disturbance.

Indirect effects to fisheries from the Proposed Action and action alternatives include temporary changes in water flow downstream from the mine panels due to disturbed area controls on runoff and sediment, increases in selenium concentrations in streams down gradient of the mine panels through discharge of groundwater from under the mine panels, and changes to stream substrate sediment conditions downstream from the Project Area.

Selenium contamination of Hoopes Spring and Sage Creek downstream from this groundwater discharge would be cumulative with the selenium contributions from the Proposed Action and mining alternatives. Existing contamination conditions at Hoopes Spring are expected to be mitigated in the future through remedial activities taken in response to current AOC site investigations at the Smoky Canyon Mine under the supervision of the regulatory agencies.

Concerning special status species, impacts to YCT are expected from changes in stream conditions such as: culverts, increased suspended and substrate sediment, and selenium concentrations.

## Livestock Grazing

Where mining and associated disturbances are proposed on land that is currently considered suitable for livestock grazing, the land would be unsuitable for grazing during the time period associated with mining and a minimum of 3 years after reclamation is completed. The grazing allotments that would be impacted by the Proposed Action and Alternatives include: Sage Valley (136), Green Mountain (144), Manning Creek (148), Deer Creek (153), and Wells Canyon (165). The Proposed Action would eventually impact 1,340 acres of grazing allotments and up to 20 separate springs, which could be grazing water sources. The CNF Revised Forest Plan (RFP) (USFS 2003a) requires that operations replace any surface water sources that are lost due to their mining activities. Implemented selenium management strategies are expected to control selenium releases to vegetation so it will be suitable for unrestricted grazing after a minimum of 3 years. For these reasons, the predicted, temporary loss of suitable acres for grazing would be confined to the disturbed area footprints. Once disturbed areas associated with mining have been reclaimed and their rangeland capability restored, they would again be suitable for livestock grazing.

The mining components of the Proposed Action would result in removal of 1,056 acres of grazing area and impact up to 20 springs within the grazing allotments. Mining Alternative A would reduce this by 142 acres and reduce the number of impacted springs by 4. The surface disturbance for Mining Alternatives B and C would be the same as the Proposed Action. Mining Alternative D would disturb an additional 137 acres, while Mining Alternatives E and F would reduce allotment disturbance by up to 28 acres. Access across the mine panel disturbances for livestock would be limited during active mining operations and would gradually be restored as areas are reclaimed.

The transportation components of the Proposed Action would result in physical disturbance of up to 284 acres of allotments (67 acres for Panel F Haul/Access Road and 217 acres for Panel G West Haul/Access Road). Transportation Alternative 1 would disturb 46 acres compared to the 67 acres for the Panel F Haul/Access Road. Transportation Alternatives 2 and 3 would

disturb 216 and 276 acres of allotments, respectively, compared to 217 for the Proposed Action (Panel G West Haul/Access). Transportation Alternatives 4 and 5 would disturb 192 and 226 acres of allotments, respectively. Transportation Alternative 6 combined with either Transportation Alternatives 7 or 8 would disturb 175 and 159 acres, respectively, compared to 217 acres for the Proposed Action.

The transportation alternatives would each affect movement of livestock within the allotments differently (**Figure 3.9-1**). Simplot would not fence or restrict livestock from crossing haul/access roads, but livestock may be encumbered from free access throughout the allotments by the haul/access roads. The Panel F Haul/Access Road and Transportation Alternative 1 would reduce livestock access in the Manning Creek Allotment to the very northeast section of that allotment and restrict access in the Sage Valley Allotment to an area on its west side. The Proposed Action Panel G West Haul/Access Road and Transportation Alternative 5 would reduce access to the west side of the Manning Creek Allotment from the Diamond Creek Road (FR 1102) and reduce access approximately through the middle of the allotment. Transportation Alternatives 2 and 3 would reduce access into the Manning Creek Allotment and a State section from their east sides. Transportation Alternatives 4 and 8 would bisect the west part of the Deer Creek Allotment. Transportation Alternative 6 would be a greater barrier to east-west movement of livestock within the Deer Creek and Manning Creek allotments than the haul/access roads because it would physically block livestock from crossing, except in isolated locations where there was sufficient clearance between the bottom of the conveyor and the ground.

## Recreation and Land Use

The area disturbed in the proposed mine development would be temporarily lost to recreation access. Non-motorized access across mine panels and roads would be allowed unless mining operations present a safety risk for public access at the specific access site. No developed campgrounds or recreation areas would be affected by the Proposed Action or Alternatives. Impacts to dispersed recreation from the Proposed Action would be localized and last for the duration of mining and reclamation activities, after which recreational access would be restored.

The management of the CNF in the area would be affected by the conversion of the Project Area to mining. The big game, range, and timber management practices currently in place for the areas to be mined would generally no longer apply, at least for the duration of mining and reclamation. The CNF area utilized for phosphate mining would increase. Visitors to the CNF would locally see and hear increased activity including vehicles, mining equipment, and buildings. Pits and overburden disposal sites would be noticeable from nearby forest roads or trails during mining.

The areas of temporary restriction for recreation and changed land use for the Proposed Action and Alternatives are the same as described above for the total disturbed areas (see Geology above). In addition to the acres of disturbance, the proposed mining and transportation disturbances would cut or disturb existing Forest Trails including numbers: 092, 093, 102, 402, 403, and 404 (**Figure 3.10-1**). Forest Routes 117 and 740 would be shortened by haul/access roads for the duration of mining and reclamation. Access along Forest Route 146 (Wells Canyon Road) would be controlled at intersections with haul/access roads but not cut off. Eventual relocation of parts of Forest Routes 146 and 1102 (Diamond Creek Road) onto the reclaimed Panel G West Haul/Access Road would change access to adjacent forest areas compared to the existing roads.

Except for where the conveyor crosses Deer Creek and South Fork Sage Creek, Transportation Alternative 6 would impact recreation and grazing land uses along the conveyor corridor by blocking pedestrian, equestrian, and livestock access from the east side of the CNF toward the west in this area. On a larger geographic scale, the conveyor would produce a moderate impact to recreation and grazing land use in the area west of the conveyor, which could still be accessed from other existing trails west of the mine panels. The duration of these effects would be for the length of operation of the conveyor.

## Inventoried Roadless Areas (IRAs)

The mining activities and associated haul/access road construction from the Proposed Action would disturb approximately 1,040 acres in the Sage Creek Roadless Area (SCRA) and approximately 60 acres in the Meade Peak Roadless Area (MPRA). On May 13, 2005, a Notice of Final Rule was published, which released the current roadless area management regulations for inventoried National Forest System Lands. IRAs are managed according to the provisions identified in the RFP (USFS 2003b). The majority of proposed disturbance would be reclaimed following mining activities. However, approximately 71 acres of the Proposed Action disturbance (mining and haul/access road areas) would not be reclaimed, leaving permanent indications of past mining activities in the IRAs.

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: soil, air, water, plant diversity, animal communities, wildlife and fish, TES, recreation, traditional cultural properties, and special use authorizations. For the SCRA, the Deer Creek watershed has not been impacted by mining and could be used as a unique aquatic reference (i.e. control comparison watershed at landscape level) (USFS 2003a). The Proposed Action would result in impacts to the aquatic areas within the Deer Creek watershed as described and addressed in **Sections 4.3 and 4.8**; thus, impacts to a potential "Reference Landscape" within the SCRA would occur. These impacts would add to the impacts from roads, timber harvest, and grazing and could potentially eliminate the desire to use the Deer Creek watershed as a unique aquatic reference site if the Proposed Action was implemented. The SCRA has a low scenic integrity rating due to the level of developments such as timber harvest units, roads, and electronic sites (USFS 2003a). The scenic integrity rating for the SCRA would remain low following mining activities. In regards to the MPRA, mining activities should not be visible within identified high scenic integrity areas (i.e. adjacent to Highway 30, the City of Georgetown, and Crow Creek Road); thus, this roadless attribute for this IRA should not be affected by the Proposed Action. The Proposed Action disturbances would be visible to Forest visitors on the Wells Canyon Road and high-elevation viewpoints from Meade Peak and the Snowdrift Mountain Trail.

In regard to the wilderness attributes for the SCRA and the MPRA, mining activities associated with the Proposed Action could change the current wilderness attribute ratings. The SCRA and the MPRA have been rated as low and moderate, respectively, for Natural Integrity/Apparent Naturalness. The rating for the SCRA would remain low following any mining activities. The rating for the MPRA would remain moderate because the Project would affect less than 1 percent of the area and is confined to the northern edge. The current opportunities for Solitude within the SCRA and the MPRA are not anticipated to change as a result of the Proposed Action. The opportunity for primitive recreation in the SCRA is rated as moderate because of the small area size, road corridors projecting into the area, moderate topographic and vegetative screening, and because limited facilities are present (USFS 2003a). The current rating for this attribute within the SCRA could remain unchanged or be reduced to low as

additional mining activities would impact approximately 8 percent of the IRA's small size. The MPRA is rated as moderate; however, the approximately 60 acres that would be disturbed occur at the extreme northern portion of the MPRA. Thus, the proposed disturbance acreage and the specific location of the proposed disturbance are not expected to change the current rating for this attribute within the MPRA. The Proposed Action is not expected to change the current rating for Challenging Experience within the IRAs. No impacts to any Special Features/Special Places/Special Values from the Project within the SCRA and the MPRA are anticipated. No issues or impacts related to the Wilderness Manageability/Boundaries from implementation of the Proposed Action are anticipated.

Although the overall impacts to the current roadless and wilderness attributes from each transportation alternative are unlikely to change from what was described for the Proposed Action, the amount of proposed disturbance to IRAs does differ by transportation alternative and is displayed in **Table 4.11-2**. An increase or decrease in the acres of actual new surface disturbance within the IRAs would occur under each alternative. This change in disturbance acreage has been addressed for each transportation alternative throughout this EIS in the various resource sections, and many of the resultant impacts would be applicable as they relate to the roadless and wilderness attributes previously addressed under the Proposed Action.

## Visual and Aesthetic Resources

The landscape in the Project Area would be permanently altered by the development of lands for mining and transportation under any of the action alternatives. The initial mining-related developments would cause major and dramatic changes to the local landscape; however, this landscape is generally not within view of property owners along Crow Creek Road. Users of the Wells Canyon Road (FR 146) would have close-up views of the Panel G mine operations. Forest visitors on the Diamond Creek Road (FR 1102) would also have views from numerous observation points of the Panel G West Haul/Access Road. Recreational visitors using Forest Trails 092, 093, 102, 402, 403, and 404 and Forest Routes 179 and 740 would also have views of different parts of the proposed mine development.

According to Seen/Unseen representations provided in **Section 3.12**, certain portions of the Proposed Action and Alternatives have been determined to be visible from view points to the east of the Project. These include views of the top of Panel G and portions of the Wells Canyon Access Road (Transportation Alternative 7) and Transportation Alternatives 2 and 3 from south of Stewart Ranch (**Figure 3.12-2**). None of the elements of the Proposed Action or Alternatives would be visible from the Stewart Ranch buildings. Portions of Transportation Alternatives 2 and 3 in Nate Canyon would be visible from the Crow Creek Road between Stewart Ranch and the Mouth of Deer Creek (**Figures 3.12-4, 3.12-6,** and **3.12-7**). A small portion of Transportation Alternatives 2 and 3 would be visible from the Osprey Ranch (**Figure 3.12-5**). Views of almost all components of the Proposed Action and Alternatives would be possible from a remote, high elevation point east of Crow Creek Valley (**Figure 3.12-8**). The Project would also be visible from high elevation viewpoints on Meade Peak and the Snow Drift Mountain Trail.

The acres of initial and unreclaimed disturbance for the Proposed Action and Alternatives for visual impacts are the same as were described above (see Geology).

VQO's of Modification and Partial Retention would not be met in the Project Area. Scenic integrity would be low in those areas developed for mining, as deviations begin to dominate the

landscape view. The mine operation and reclamation plan would mitigate visual changes to the degree that reclamation methods and economics allow. Although VQO's would not be met, the efforts made to mitigate landscape impacts and reclaim mined areas provide compliance with the CNF RFP (USFS 2003b:Vol.II p. 4-9 Final EIS for the CNF RFP).

## Cultural Resources

The area proposed for development under the Proposed Action and all alternatives was inventoried for cultural resources. The Proposed Action and alternatives would disturb two inventoried arborglyph sites that have not been evaluated for eligibility for the National Register of Historic Places (NRHP). One of these NRHP unevaluated sites (CB-317) is located within the area of the Proposed Action Panel G West Haul/Access Road and Transportation Alternative 5. The other site (CB-342) is located within the corridor of Transportation Alternatives 2 and 3 and the Wells Canyon access road portion of Transportation Alternative 7. These two unevaluated ("insufficient information to evaluate") cultural resource sites would require additional study/testing prior to implementation of the Project if the chosen alternatives would impact them. These mitigation measures would not only provide the needed data to evaluate the sites for the NRHP, but would also mitigate the adverse impacts if the sites were deemed eligible.

There is a NRHP eligible historic cabin (10CU213 or Forest # CB-222) near the Proposed Action Panel G West Haul/Access Road corridor (also part of Transportation Alternative 5). This portion of the road would not be fully reclaimed after mining; rather it would become a public access road, replacing the current segment of FR 146. An improved public access road could encourage additional casual visitation to the general area, increasing the potential for secondary impacts (such as vandalism) to the cabin site that would be visible from the road.

These cultural resource sites contribute to the heritage values of livestock ranching in the Project Area. The Proposed Action would disturb 1,340 acres within grazing allotments and restrict livestock trailing corridors during mining and reclamation of the Project. In addition, it would remove ½ mile of Trail 402 utilized for trailing livestock onto the Deer and Manning Creek Allotments.

## Native American Concerns and Treaty Rights Resources

The Proposed Action and Alternatives would affect certain environmental resources within the Project Area that are the subject of Shoshone-Bannock tribal treaty rights. There would be temporary impacts to the access of those resources. None of the action alternatives would change the status of federal lands on the CNF. There would be no impacts to tribal sacred or historic/archaeological sites from the Proposed Action and Alternatives. The Tribes have stated that there are traditional use sites in the Project Area. Those that may occur within an area of proposed disturbance would be affected.

The initial mining disturbance area would constitute a temporary and minor impact to Tribal access of vegetation, wildlife, and other traditional surface resources in the Project Area. As mining progresses and reclamation is maintained concurrent with mining, areas of limited access would always be less than 1,340 acres. The areas of initial disturbance for the Proposed Action and Alternatives (see Geology above) would also be the areas of Tribal access that are affected. After reclamation, Tribal access would be restored as vegetation would be replanted, wildlife would return, and water should be usable. Unreclaimed areas for the

Proposed Action and Alternatives as described above (see Geology) would constitute a local, long-term impact to Tribal access of traditional surface resources in this part of the Project Area.

## Transportation

Public motorized access across or along the haul/access roads would not be allowed in the Proposed Action and transportation alternatives, except for the proposed crossings of the Wells Canyon Road (FR 146) as part of the proposed Panel G West Haul/Access Road. Non-motorized (pedestrian, bike, or horseback) public access across the mine access/haul roads would be allowed for the proposed haul/access roads of the Proposed Action and transportation alternatives. Non-motorized (pedestrian, bike, or horseback), public access along the mine access/haul roads would be discouraged for any future haul/access roads due to public safety concerns.

Impacts to public transportation routes would be localized to where existing roads would be physically affected by the proposed mining and transportation facilities. Most of these impacts would have durations equal to the mining operations themselves because reclamation of the mining and transportation facilities would restore the previous public access conditions. In some cases, permanent changes or improvements in the existing public access routes would be made during the proposed mining operations.

There would be no increase in the total volume of traffic to the Smoky Canyon Mine from offsite due to the Proposed Action and all alternatives except Mining Alternative F (generators). If Mining Alternative F were selected, the additional fuel consumption would require an additional 50 fuel deliveries per year along the selected access route to Panel G.

For the Proposed Action and Transportation Alternatives 1 through 5 and 8, all offsite traffic access to the Smoky Canyon Mine would continue to be via existing routes to the mine entrance off the Smoky Canyon Road (FR 110). For Transportation Alternative 7 (Crow Creek/Wells Canyon Access Road), approximately 115 vehicle round trips per day for mine personnel, visitors, and vendors would be shifted from the Smoky Canyon Road and added to the existing traffic volume on these roads. Improving the access up Wells Canyon could indirectly increase traffic on the Georgetown Canyon and Diamond Creek roads (FR 1102).

The Proposed Action Panel F Haul/Access Road and Transportation Alternative 1 would cut off motorized access along the existing FR 179 about ¾ mile from its terminus. Non-motorized access across the haul/access road along FR 179 would be allowed to continue. The Proposed Action Panel G West Haul/Access Road and Transportation Alternative 5 would cross the existing Wells Canyon Road (FR 146) in two places with intersection crossings that would allow controlled, public motorized access across the haul/access road.

Transportation Alternatives 2 and 3 would cut across the upper end of FR 740 (Manning Creek Road), which is open to the public, about ¼ mile east from where an unnumbered spur road off of FR 740 ends and non-motorized Forest Trail 402 begins. Transportation Alternatives 4, 6, and 8 would not cutoff or restrict existing motorized access routes.

## Social and Economic Resources

The Proposed Action, mining alternatives, and transportation alternatives would each result in continued operation of the Smoky Canyon Mine and the Don Plant. Some of the mining alternatives could shorten the mine life of the proposed mining operations and reduce royalty income to the government. The No Action Alternative would result in a cessation of mining on the two proposed leases and have socioeconomic impacts that influence Star Valley, southeast Idaho and adjacent Wyoming, and the phosphate industry.

As a result of the Proposed Action, there is no anticipated change in population or in-migration to Bannock, Caribou, or Power Counties, Idaho or Lincoln County, Wyoming. Therefore, the Proposed Action would not result in changes to the current status of community resources such as schools, housing, police and fire protection, and water and sewage services.

Property values along Crow Creek Road may be affected by the development of the mine panels 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 Project would affect some of the areas' characteristics/amenities that subjectively affect property value (i.e. noise, visual, traffic); these impacts may be positive or negative and may change over time as desired property characteristics change. Under the Proposed Action, most of the expected disturbance would be two miles or more from the Crow Creek Valley area.

Under Mining Alternative A, up to about 13.7 percent less ore would be mined than the Proposed Action (both Panels F and G), thereby reducing the life of the mine by 2.3 years from the Proposed Action. This would shorten employment at the Smoky Canyon Mine by 2.3 years, reducing local personal income by $17.5 million and reducing federal lease royalties paid by up to 13.7 percent or $0.5 to $0.63 million.

Under Mining Alternative B, up to about 19.3 percent less ore would be mined than the Proposed Action (both Panels F and G), thereby reducing the life of the mine by 3.2 years from the Proposed Action. This would shorten employment at the Smoky Canyon Mine by 3.2 years which would reduce local personal income by $24.3 million and reduce federal lease royalties paid by up to 19.3 percent or $0.98 to $1.2 million.

Under Mining Alternative C, up to about 46 percent less ore would be mined than the Proposed Action (both Panels F and G), thereby reducing the life of the mine by 7.7 years from the Proposed Action. This would mean a loss of about $59.8 million in salaries to the Star Valley economy and would reduce federal lease royalties paid by up to 46 percent or $5.7 to $7.0 million.

Under Mining Alternative D, up to about 22 percent less ore would be mined than the Proposed Action (both Panels F and G), thereby reducing the life of the mine by 3.7 years from the Proposed Action. This would mean a loss of about $28.1 million in salaries to the Star Valley economy and reduce federal lease royalties paid by up to 22 percent or $1.3 to $1.6 million.

Under Mining Alternative E, the impacts would be similar to the Proposed Action.

Under Mining Alternative F, up to about 38 percent less ore would be mined than the Proposed Action (both Panels F and G), thereby reducing the life of the mine by 6.5 years from the

Proposed Action. This would mean a loss of about $49.4 million in salaries to the Star Valley economy and reduce federal lease royalties paid by up to 38 percent or $3.9 to $4.9 million.

Transportation Alternatives 2 and 3 would produce noise and visual impacts noticeable by land owners and visitors along the Crow Creek Road compared to the Proposed Action and the other transportation alternatives. These alternatives would also present a noticeable effect on non-motorized access into the CNF in the Project Area, although non-motorized access across these haul/access road would be allowed. All these impacts would affect the current, rural quality of life for property owners and perceived, adjacent, aesthetic qualities that are some of the resources that may subjectively affect property values along Crow Creek.

Transportation Alternative 6 would have much lower direct disturbance impacts on the surface environmental resources of the local area compared to any of the haul/access road alternatives. The conveyor would be built with low ground clearance over most of its length except where it crosses existing FS trails in Deer Creek and South Fork Sage Creek canyons. In between these trails, hikers and persons on horseback would not be able to cross the conveyor in most locations.

Transportation Alternative 7 would increase traffic on the Crow Creek Road, which could affect the development of property along that road. Road improvements and year-round access along Crow Creek Road and the Wells Canyon Road may eventually make the area more desirable to development of permanent rather than seasonal homes, and this increased access may benefit property values. Increased noise, dust, visual disturbance, and traffic would impact characteristics/amenities that may subjectively affect property values along Crow Creek Road.

Under the No Action Alternative, operations at the Smoky Canyon Mine would cease when the current mine plans are exhausted. Upon closure of the mine, employment would cease for the 214 mine employees with potential decreases in employment for vendors supplying the mine. Once any stockpiled ore or concentrate is consumed, the Don Plant could also cease operation, resulting in an additional 331 persons becoming unemployed and also cause potential effects on business and employment for vendors supplying the plant. The No Action Alternative would result in the loss of up to 545 Simplot jobs with an annual payroll of $31,863,000. In addition, Simplot employees not directly associated with the mine or Don Plant could be impacted.

The No Action Alternative would also result in reductions in the property tax paid to Caribou County and to other local taxing entities such as school districts. In addition to the 545 Simplot employees, an estimated additional 1,452 persons across a 27-county area in northeast Colorado, northern Utah, southwestern Wyoming, and southeastern Idaho could become unemployed. Estimated annual wages for these 1,452 persons are $76,792,365. The change in employment and wages in the 27-county area may not be directly observable since other fluctuations in the economy may mask the effect. The Don Plant ceasing operations would result in closure of about 30 percent of the ammonium phosphate manufacturing capacity in the western United States. While the Don Plant represents a major portion of the ammonium phosphate manufacturing capacity in the western United States, it represents 2.4 percent of nationwide capacity.

The No Action Alternative is not expected to impact land ownership patterns (private vs. public, etc.), agriculture, or agricultural economics. There would be no additional noise, traffic, or visual impacts from mining to affect characteristics that subjectively influence property values along Crow Creek. Royalty payments would cease upon mine closure under the No Action Alternative.

## Environmental Justice

It has been determined that the Proposed Action and Alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice.