

**DRY RIDGE PHOSPHATE EXPLORATION PROJECT
ENVIRONMENTAL ASSESSMENT
DOI-BLM-ID-I020-2014-0051-EA**



United States Department of the Interior
Bureau of Land Management
Idaho Falls District
1405 Hollipark Drive
Idaho Falls, Idaho 83403

and

United States Department of Agriculture
United States Forest Service
Caribou-Targhee National Forest
1405 Hollipark Drive
Idaho Falls, Idaho 83403



MAY 2015

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1.0 INTRODUCTION

Fertoz USA LLC (Fertoz), an operator designated by Solvay USA Inc. (Solvay), has proposed to exercise existing contractual rights that exist between Solvay and the United States to conduct exploration drilling and trenching (Proposed Action) within the existing Dry Ridge federal phosphate lease (I-07238). All of the proposed disturbance would occur within the Caribou portion of the Caribou-Targhee National Forest (CTNF), on land administered by the Soda Springs and Montpelier Ranger Districts of the U.S. Department of Agriculture Forest Service (USFS). Leasable minerals on the lease are administered by the U.S. Department of the Interior Bureau of Land Management (BLM), Pocatello Field Office. Since the proposal involves exploration of leased phosphate minerals, the BLM is the lead agency for the project with assistance provided by the surface management agency, the USFS. Any on-lease activities would be authorized by the BLM considering recommendations provided by the USFS. Off-lease activities for temporary road construction would be authorized by the USFS through the issuance of a Special Use Permit.

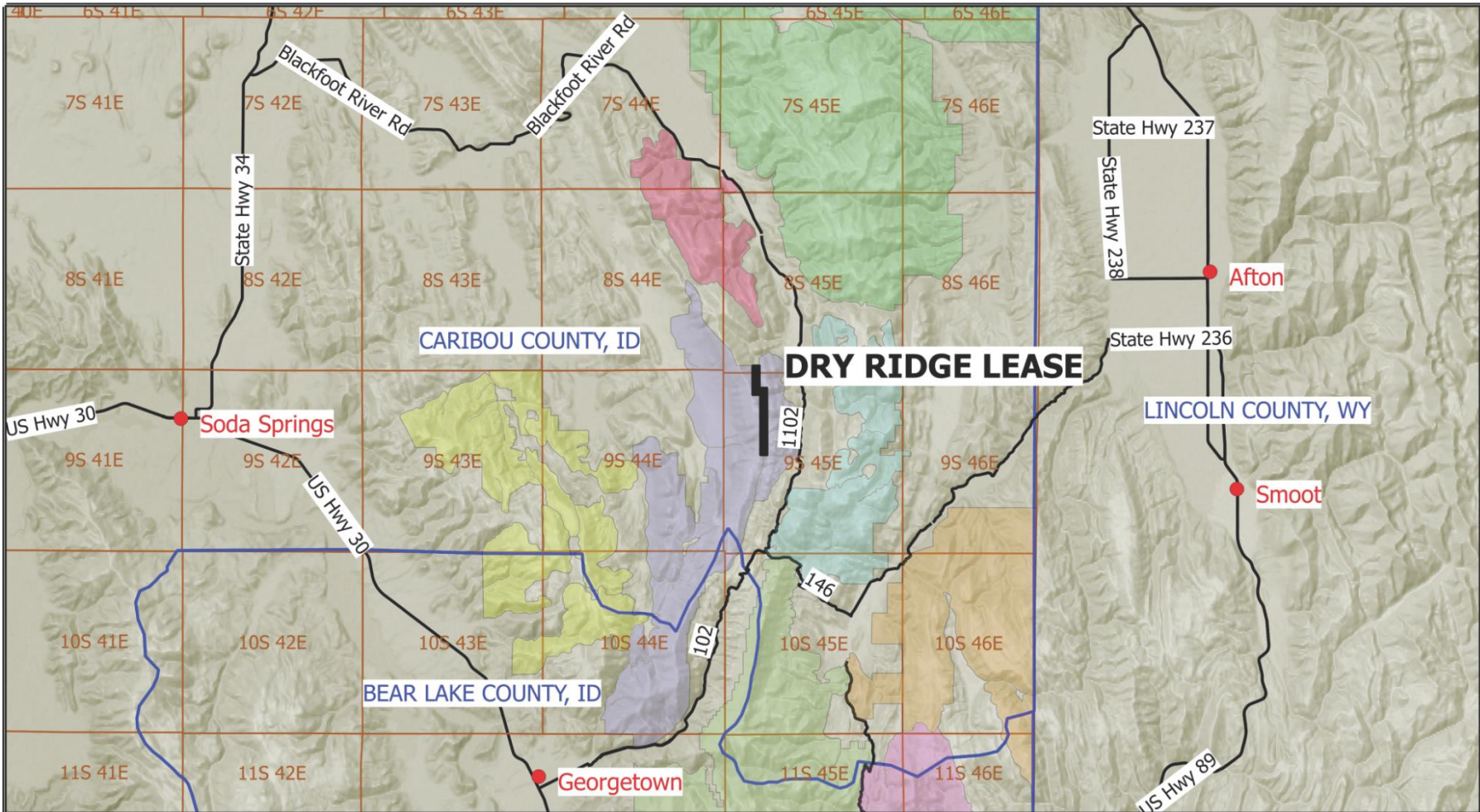
1.1 Summary of Proposal

Fertoz submitted the Dry Ridge Exploration Plan of Operations (exploration plan) in April 2014. Exploration on the Dry Ridge Lease would provide delineation and understanding of the phosphatic shales to determine if the deposit is amenable to mining, and collection of environmental data. There has been no historic drilling on the lease, but the San Francisco Chemical Company excavated and sampled one trench on the lease in 1958. The exploration plan was refined in October 2014 after geologic mapping and engineering designs of access roads were completed. The exploration plan proposes drilling up to 96 core holes at 48 locations and excavating up to 22 trenches perpendicular to the strike of the Meade Peak Member of the Phosphoria Formation. A total of approximately 32 acres of disturbance are anticipated. Minor adjustments to the exact number/location of drill sites, trenches, and access roads may be needed as the subsurface information is acquired. If additional drill holes, trenches, or locations are identified in the future, the BLM and USFS will review and determine if any changes in the current conditions (e.g., regulations or protected species lists) would need to be addressed. Any changes to the exploration plan would be approved by the BLM prior to implementation.

Exploration would commence in 2015 for completion within 2-3 years. The majority of site preparation (timber harvest and road/pad/trench construction) would be completed in 2015. Site preparation and exploration would begin no earlier than June 15, and will cease by mid-October in order to minimize damage to access roads. Weather related issues and road conditions will control actual initiation and cessation dates each year, but these dates are reasonable considering conditions. The exploration plan identifies published best management practices (BMPs) and proposes various environmental protection measures (EPMs) to minimize impacts to the environment (IDL, 1992; USFS, 2012; UI, 2000; UI, 2015). The project will also adopt mitigation measures identified by federal agencies to minimize environmental impacts.

1.2 Location and Access

The proposed exploration activities would occur in Caribou County, Idaho, approximately 19 miles east of Soda Springs, Idaho (**Figure 1-1**). The Dry Ridge Lease is 518.12 acres with dimensions of approximately 3 miles long, north to south, and 0.25 to 0.5-miles wide. The lease



0 10 20 miles

Figure 1-1 Project Location

- Idaho Roadless Areas**
- Dry Ridge
 - Gannett-Spring Creek
 - Huckleberry Basin
 - Meade Peak
 - Red Mountain
 - Sage Creek
 - Schmid Peak
 - Stump Creek

Coordinates: NAD83
 Sources: Google 2014 base map, US Census Bureau 2011 TIGER/line shp, USFS 2000 mineral leases

PROJECT NUMBER:	2014220003
DATE:	11/7/2014
FILE:	Dry Ridge Phosphate.egg
PREP BY:	DJB
REVIEWED BY:	RKB
REVISIONS:	

**Dry Ridge Phosphate Exploration EA
 Caribou-Targhee National Forest**

**Fertoz USA LLC
 Brisbane, Queensland, AUS**



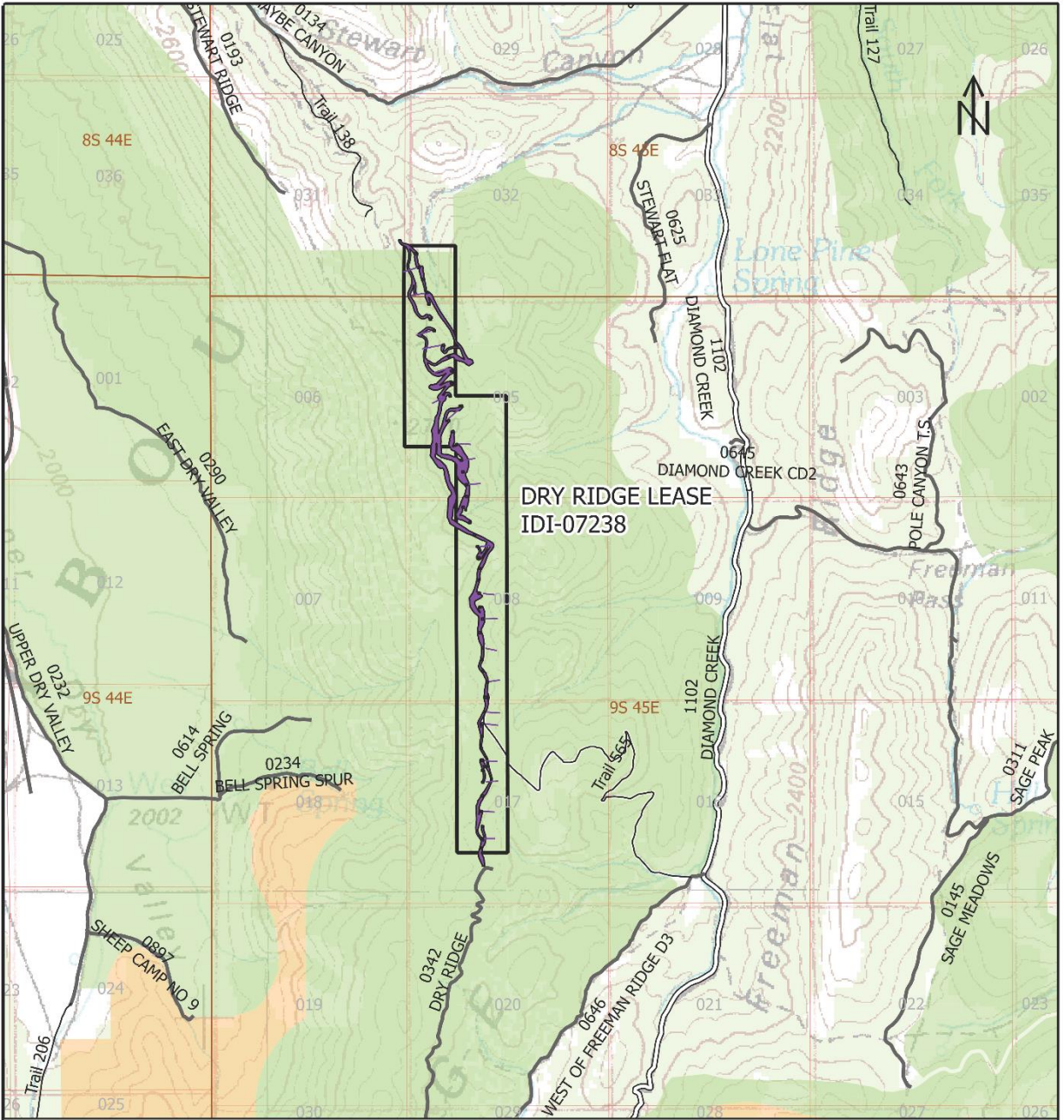
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is located in Section 34 of Township 8 South (T8S), Range 45 East of the Boise Meridian (R45EBM), and in Sections 5, 8 and 17 of T9S, R45EBM.

The project disturbance includes proposed temporary roads, drill pads, and trenches on the lease and proposed temporary roads on adjacent, off-lease property in the southwest quarter of Section 5, a portion of Section 8, and in the southwest quarter of Section 17 of T9S, R45EBM (**Figure 1-2**). The Dry Ridge Lease lies within the Webster Range-Dry Ridge Known Phosphate Leasing Area (KPLA) and within the Dry Ridge Inventoried Roadless Area (IRA) (**Figure 1-1**). Under the Idaho Roadless Rule, the Dry Ridge Lease and a 0.5-mile buffer around the KPLA are designated as the General Forest, Rangeland, and Grassland (GFRG) theme of the IRA (**Figure 1-2**). The GFRG theme allows construction of roads to access both existing and new phosphate leases.

Primary access to the proposed disturbance area is by way of Diamond Creek Road (NF-1102). Diamond Creek Road connects USFS roads in the vicinity of the proposed disturbance area with USFS, county, state, and federal roadways. The existing proposed disturbance area roadways, as depicted on the Soda Springs Ranger District Motor Vehicle Use Map (USFS, 2013a) and the Montpelier Ranger District Motor Vehicle Use Map (USFS, 2013b), include main roads, two-track roads, and reclaimed roads from previous drilling programs. Primary roads include roads maintained by the USFS, mining companies, or the county. These include Diamond Creek Road, which passes along the valley east of the Dry Ridge Lease, and Stewart Canyon Road (NF-134), which passes over Dry Ridge near the north end of the Dry Ridge Lease. These roads are surfaced with well-maintained dirt or gravel and do not require a high-clearance vehicle.

There are no roads within the project lease boundary. The lease may be accessed from the east via an all-terrain vehicle (ATV) trail (NF-565). The lease can also be accessed on foot from the north end of Green Canyon Road (NF-342), which is a two-track road that terminates approximately 250 feet south of the Dry Ridge Lease boundary. This road varies in condition and may include large rocks or boulders, downed logs, small shrubs, erosion features, narrow passages, or steep inclines. The exploration plan proposes to construct an access road from the end of this road and make minor improvements to the existing road surface, which would require a Special Use Permit to be granted by the USFS. No culverts are proposed for installation or replacement at this time. The proposed disturbance area would also likely be accessed from the north via reclaimed mineral exploration access roads on the adjacent Husky 1 Lease; however, these are not designated by the USFS Travel Management Plan as public roads and are not useable by the public without authorization by the BLM and the lease operator (Agrum CPO). Reclaimed roadways are re-vegetated with a variety of upland grasses, mountain shrubs, and coniferous tree species. Generally, access to closed roads is restricted by boulders, berms or other barriers, and the road surface may have been scarified to encourage revegetation. Reclaimed roadbeds may contain many large rocks or boulders, dead and downed timber ranging in size from small limbs to large trees, and live standing trees ranging from 1 to 4 inches in diameter at breast height (dbh).



Legend

Proposed Disturbance

Existing Roads and Trails

Arterial Road, 1102 Diamond Creek

Local Road, 0342

Trail, 565

Roadless Area Themes

Backcountry Restoration

General Forest

Coordinates: NAD83
 Sources: USFS Travel Plan, 2011 USFS FEIS Selected Roadless Alternative, 2003 USFS RFP with 2012 amendments, USGS 1978 Soda Springs 30x60 Sheet (1997 DRG), USFS 2000 Mineral Leases



Figure 1-2 Proposed Disturbance, Existing Roads and Trails

PROJECT NUMBER: 2014220003	Dry Ridge Phosphate Exploration EA Caribou-Targhee National Forest
DATE: 11/7/2014	
FILE: 201422003 F 1-2 Port.qgs	Fertoz USA LLC Brisbane, Queensland, AUS
PREP BY: DJB REVIEWED BY: RKB	
REVISIONS:	CASCADE EARTH SCIENCES A Valmont Industries Company

1.3 Purpose and Need

The purpose of this action is to evaluate and respond to the exploration plan submitted by Fertoz in April 2014, according to the Mineral Leasing Act, 1920, as amended.

The exploration plan includes exploration on an established federal lease, as well as access roads on adjacent National Forest System lands. The BLM and Forest Service will evaluate conformance of the Proposed Action and alternatives relative to applicable laws, regulations, and Land Use Plans. The Environmental Assessment (EA) will also develop any mitigation measures that may be necessary to achieve conformance or minimize undue impacts. Based on this EA, the BLM and USFS will issue decisions related to the proposed on-lease and off-lease exploration activities.

The exploration plan proposed by Fertoz is needed to define the nature and extent of the phosphate resource within this lease. It would provide geologic data and chemical information necessary to determine the extent, geometry, and quality of the phosphate resource, as well as provide other environmental information such as the thickness and chemical nature of the overburden. The acquired information would be used to evaluate the economic feasibility of recovering the phosphate resource in the future.

1.4 Land Use Plan Conformance Statement

The project is subject to the Revised Forest Plan (RFP) for the CTNF (USFS, 2003a) and the Pocatello Field Office Approved Resource Management Plan (RMP) (BLM, 2012). Objective ME-1.2 of the RMP and Action 1.2.4 indicate the BLM will coordinate with agencies with surface management responsibilities and that leasable minerals on the CTNF will be managed consistently with the CTNF RFP.

Project conformance with forest-wide goals, objectives, standards, and guidelines stated in the RFP for specific resources carried forward for analysis is discussed by resource in Chapter 3. Other applicable management direction related to this project is discussed further below. The Proposed Action with mitigation complies with the provisions of both the RFP and the RMP.

The RFP specifically addresses the requirements of the National Forest Management Act. CTNF planning and implementation actions must also comply with other applicable state and federal requirements, including (but not limited to) the Federal Land Policy and Management Act, the Multiple Use and Sustained Yield Act, the National Environmental Policy Act, the Endangered Species Act, the Clean Water Act, the Clean Air Act, Executive Order 11988 (Floodplain Management), Executive Order 11990 (Protection of Wetlands), and Idaho Air and Water Quality Rules. In addition, as part of its responsibility in the management of unoccupied public lands in Idaho, the CTNF must comply with the conditions and responsibilities of the Fort Bridger Treaty of 1868.

1.5 Decisions to be Made

Because of separate agency authorities, the BLM and USFS will make separate decisions. The BLM, as the lead minerals management agency, in cooperation with the USFS as the surface management agency, must ensure that public lands are managed according to the principles of

multiple uses identified in the Federal Land Policy and Management Act of 1976, the RMP, and the RFP.

The USFS will make decisions related to whether or not to issue a Special Use Authorization to permit Fertoz to extend an existing road (FS 342) to the lease boundary, and for other off-lease road construction. In addition, the USFS will identify mitigation measures necessary to comply with the RFP or other measures necessary to minimize effects on surface resources. These actions will be incorporated into the USFS decision for off-lease activities and formally recommended to the BLM for activities within the lease boundaries.

The BLM will make decisions related to the proposed exploration drilling and mitigation measures related to the on-lease exploration activities. The BLM decisions will consider the USFS recommendations, public scoping comments, anticipated environmental consequences disclosed in the EA, and applicable laws, regulations, and policies. The BLM will decide whether the proposed exploration plan within the lease boundaries would be approved, along with any specific conditions and mitigation measures required. The USFS will ensure that both agencies' decisions comply with the Idaho Roadless Rule.

As appropriate, the BLM and USFS would issue Findings of No Significant Impact for the project, or they could require an Environmental Impact Statement to evaluate potential significant impacts in greater detail.

1.6 Scoping

On September 10, 2014, the BLM and USFS sent 82 Notice of Scoping letters to potentially interested and affected individuals, groups, and agencies, requesting comments and input for the project. An advertisement regarding scoping for the project was published in the Idaho State Journal on September 10, 2014. An Interdisciplinary Team field visit to the proposed disturbance area was conducted in July 2014 to provide additional understanding of the proposed exploration activities to be addressed in this EA.

Six responses were received during the 30-day public comment period and two additional responses were received afterwards. All responses were considered in preparing this EA. A scoping summary table was prepared to summarize the comments by topic and summarize how the comments would be addressed in the EA. The scoping summary table was placed in the project record.

The BLM has coordinated with the Shoshone-Bannock Tribal staff regarding the Proposed Action. The goal of this coordination was to assure the tribal government, Native American community, and those individuals whose interests might be affected have a sufficient opportunity for productive participation in BLM resource management decision making as set forth in BLM Manual Section 8160. In addition to sending a notification letter to the Business Council and Staff of the Shoshone- Bannock Tribes on September 10, 2014 to coordinate the project, the project was discussed during the November 2014 coordination meeting with the tribal environmental program manager and other tribal staff at the Pocatello Field Office. After discussing the Proposed Action, tribal staff did not identify specific concerns but expressed interest in being involved with the project as it moves forward.

1.7 Issues Tracked Through Analysis

Public comments and agency direction concerning the scope of this EA are grouped according to issues and summarized in **Table 1-1**. Some of these issues are critical elements that the agencies must address and some were raised in comment letters from the public. This table also provides references to the sections of this EA that respond to each issue raised in the comments.

Table 1-1 Issues Identified by Section of this EA

3.2 Water Resources and Aquatic Areas
The project may adversely affect surface water quality with sediment and selenium from erosion of disturbance areas.
The project may adversely affect ground water quality through drilling operations or with selenium from drilling.
3.3 Soils
The project may affect soil productivity through topsoil disturbance, reclamation, and compaction.
The project may increase erosion potential through the removal of ground cover and road construction on steep slopes.
3.4 Vegetation
The project may have an adverse impact on vegetation by ground clearing for roads, trenches, and drill pads.
Trees meeting the definition of old growth may be removed during exploration.
3.5 Wildlife, Including Threatened, Endangered, and Sensitive Species
The project may cause losses of wildlife species habitat or individuals.
The project may cause wildlife to be exposed to selenium.
3.6 Roadless Areas
Construction of temporary exploration roads, while authorized by the Idaho Roadless Rule for phosphate mineral exploration, may affect Roadless Area characteristics.
3.7 Transportation Facilities and Public Access
The project may affect public access and travel.
3.8 Tribal Treaty Rights and Interests
The project may affect tribal treaty rights and interests or impair access to those rights and interests.

1.8 Scoping Concerns and Resources for Which Issues Were Not Identified

Analyses of the following critical elements or natural resources are not carried forward in Section 3.0 of this document because either (1) they are not present or do not occur within or near the proposed disturbance area, or (2) they would not be impacted by the project.

Table 1-2 Scoping Concerns and Resources for Which Issues Were Not Identified

Concern	Explanation
Geological and Mineral Resources	Geological and mineral resources could be affected by bedrock disturbance while constructing new, temporary facilities (access roads, exploration trenches, drill pads, and fluid retention sumps), upgrading existing access roads, and drilling. The volume of ore that could be made unavailable for production is negligible in comparison to the amount that would remain accessible to standard mining operations. No impacts to geological and mineral resources are anticipated and, therefore, are not evaluated further within this Environmental Assessment (EA).
Paleontological Resources	Paleontological resources in the form of marine invertebrates are likely to be present in the project disturbance area, as in many areas throughout the CTNF. However, since they are not unique to the project disturbance area and potential impacts from exploration activities are anticipated to be negligible, paleontological resources are not evaluated further within this EA.
Air Quality	Air quality near work areas would be temporarily affected by vehicle emissions and dust. Vehicle emissions would comply with state and federal air standards. Fugitive dust emissions would be controlled by means described in Section 2.2.6. Implementation of the Proposed Action would not result in the production of vehicle or equipment emission or particulate matter above Idaho or National Ambient Air Quality Standards. Air quality is not evaluated further in this EA.
Noise	Noise generated during exploration activities may result in temporary displacement of terrestrial wildlife species. Long-term impacts are not anticipated due to the relatively small footprint and temporary nature of the exploration. Noise suppression apparatus on equipment will be maintained to manufacturer specifications. Lighting will be setup to meet safety requirements with conscious placement and/or shielding to minimize stray lighting. Additional mitigation is not warranted because impacts on migratory birds will be mitigated through nesting surveys and buffers, wildlife will tend to avoid active work areas, and noise and light would not affect the other aspects of wildlife impacts (disturbance to vegetation and habitat and change of seral stage). Therefore, potential impacts from noise would be negligible and are not evaluated further within this EA.
Noxious Weeds	Implementation of the environmental protection measures (EPMs) described in Section 2.2.10 and 2.3 (e.g., steam clean equipment prior to entering National Forest System (NFS) lands, minimize disturbance, weed-free seed for reclamation, visually monitor and control noxious weeds) would minimize the potential for adverse impacts related to the spread of noxious weeds. Therefore, potential impacts would be negligible and are not evaluated further within this EA.

Concern	Explanation
Visual Resources	Project-related activities would occur within visual quality objectives of modification and partial retention. Short-term impacts would include visibility of exposed soils until disturbed areas are successfully revegetated. These impacts would be viewed by a limited number of people because public use of the project disturbance area and the surrounding viewshed is low. There are no public roads into the disturbance area. The reclaimed landscape would appear natural to most observers, which would meet the general goals for scenic resources (RFP 3-40). Since the project would not conflict with partial retention and modification visual quality objectives, visual resources are not evaluated further in this EA.
Ownership and Use of Land	There would be no change in land tenure. The lands involved would not be sold or exchanged. No new leases will be authorized. The project could cause temporary inconvenience with regard to public use and access such as hunting and other dispersed recreation. The lease and off-lease areas include portions of two grazing allotments (42 and 53) that are suitable for grazing by sheep and goats. The project may temporarily be an inconvenience by displacing livestock around active drill pad sites, but would not create a change in grazing practices. The disturbance would be minimal and dispersed. Except for the active drilling areas, the lands would remain available for current and future land uses. Therefore, ownership and use of the land, including grazing, are not evaluated further within this EA.
Recreation	The project disturbance area was classified in the RFP as semi-primitive, including both motorized and non-motorized travel areas. All existing open roads and trails would be accessible during exploration activities. There are no developed recreational facilities or campgrounds in the project disturbance area. Project activity is not expected to detract from the overall recreational experience in the area. Some minor, temporary impacts to hunters may occur during exploration activity. There may be minor, temporary impacts to individuals during grading and equipment transport on Green Mountain Road. Once the noise and visual intrusions of construction and drilling activities have ended and construction disturbance is reclaimed, semi-primitive recreation opportunities would be fully restored. Therefore, recreation is not evaluated further within this EA.

Concern	Explanation
Cultural Resources	Project-specific inventories (Sundance, 2014) did not identify any cultural resource sites or historic properties within the area of potential disturbance of the project, except for a phosphate mineral exploration trench that was excavated in 1958. The inventory reports concluded that the project has a low potential for unknown cultural resources and the Idaho State Historical Preservation Office concurred with these findings (SHPO, 2014). If previously unidentified cultural resources are discovered during project implementation, the BLM and CTNF shall be notified and work in the area shall halt until inspection by a professionally trained archeologist is conducted and a mitigation plan developed, if necessary. Therefore, cultural and historic resources are not evaluated further within this EA.
Socioeconomics	The exploration activities of the project would require hiring contractors for timber harvest and construction of roads, pads, and trenches. Supplies such as fuel would be purchased locally. However, exploration will not create a significant benefit or impact on the regional socioeconomic environment. Therefore, socioeconomics are not evaluated further within this EA.
Environmental Justice	The project would not cause human health risks. In addition, the project disturbance area is not located close to any residential areas. No specific or disproportionate health risks or other impacts to minority and low-income groups would be associated with the project. Therefore, Environmental Justice is not evaluated further within this EA.
Hazardous Materials and Wastes	The proposed exploration activities will not generate hazardous waste but will require transportation and use of fuel, lubricants, and drilling fluids. The EPMs described in Section 2.2.5 will be implemented to protect the environment. Fertoz's contractors will comply with all laws and regulations associated with transportation and use of hazardous materials to ensure safety and protection of the environment. Therefore, hazardous materials and wastes are not evaluated further within this EA.
Areas of Critical Environmental Concern	There are no Areas of Critical Environmental Concern designated by the BLM or Research Natural Areas designated by the USFS in the vicinity of the project. As such, Areas of Critical Environmental Concern and Research Natural Areas are not evaluated further within this EA.
Wilderness	There are no designated Wilderness Areas or Recommended Wilderness Areas near the project disturbance area. Therefore, Wilderness Areas are not evaluated further within this EA.
Floodplains	There are no floodplains in the project disturbance area (FEMA, 2014) that would affect human health, life, or property. No permanent structures will be constructed in floodplains. Therefore, floodplains are not evaluated further within this EA.
Wild and Scenic Rivers	There are no designated Wild and Scenic Rivers that would be affected by the project. Therefore, Wild and Scenic Rivers are not evaluated further within this EA.

Concern	Explanation
Farmlands, Prime and Unique	There are no Prime or Unique Farmlands identified in the project disturbance area, because it is contained within the Caribou National Forest. Therefore, Prime or Unique Farmlands are not evaluated further within this EA.
Road Densities	The project would not affect existing road densities, since temporary exploration roads would not be open to the public.
Wild Horses and Burros	No wild horses or burros occur within the project disturbance area; therefore, no further evaluation is included within this EA.
Fish, Including Threatened, Endangered, and Sensitive Species	There are no federally listed threatened or endangered fish species in Caribou County. The areas proposed for exploration do not contain any fish bearing streams. A Biological Assessment and Biological Evaluation (BA/BE) completed for the Proposed Action documented that the Proposed Action will have no effect on sensitive species (Yellowstone cutthroat trout or Northern leatherside chub) which have suitable habitat and their occurrence is known, expected, probable, or possible in the Diamond Creek watershed.
Threatened, Endangered, and Sensitive Plant Species	There are no federally listed threatened or endangered plant species in the project vicinity. There are not any occurrences of Forest Service Sensitive species known or observed during surveys in the project disturbance area.

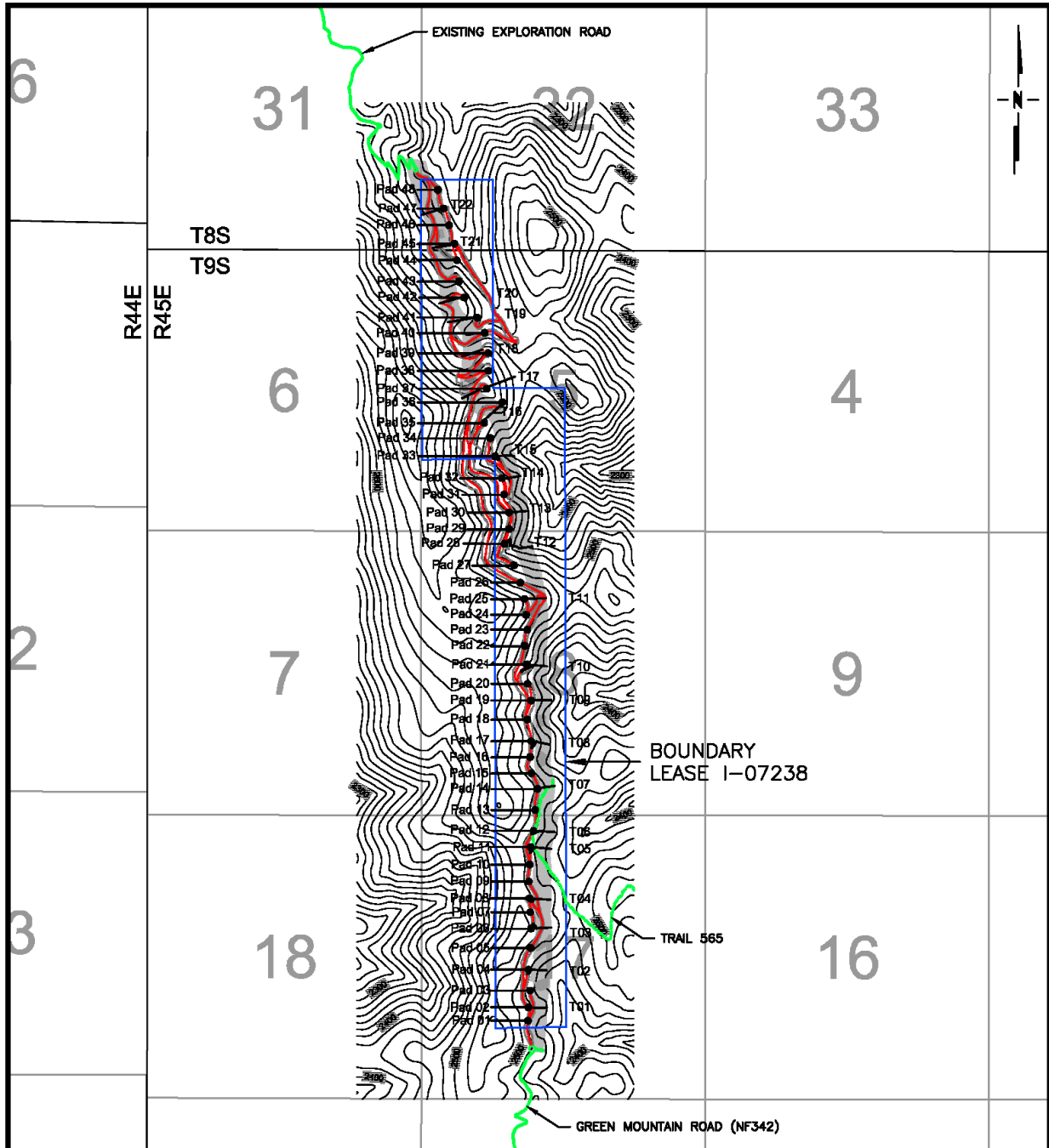
2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action, No Action, and several alternatives that were considered but not carried through full analysis, and compares the Proposed Action with the no action alternative. Only reasonable alternatives need be considered in detail, as specified in 40 CFR 1502.14(a). Reasonable alternatives must be those that are feasible, and such feasibility must focus on the accomplishment of the purpose and need (of the applicant or the public) that would be satisfied by the proposed federal action.

2.1 Alternative 1 – Proposed Action

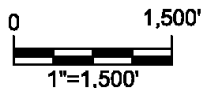
Under the Proposed Action, FertoZ would be authorized to exercise contractual mineral exploration rights from the United States on the Dry Ridge federal phosphate lease and to construct off-lease roads as authorized by a Special Use Permit by the USFS. Phosphate mineral exploration activities would consist of drilling approximately 96 holes at 48 locations and excavating 22 shallow trenches on the Dry Ridge Lease within the CTNF (**Figure 2-1**).

Existing roads would be used to the greatest extent possible, while minimizing the number of access points from public roads. An existing road, Green Mountain Road (NF-342), would be utilized to access the south end of the lease from Diamond Creek Road (NF-1102). It is anticipated that some minor improvements and maintenance to the existing road, such as localized grading to remove holes or ruts, downed tree removal, etc., will be necessary to provide safe access to the lease. Existing roads would not be re-routed, widened, or changed in any other substantial way. This road (NF-342) would be extended approximately 100 yards north to reach



EXPLANATION:

- Pad 01 → PROPOSED DRILL SITE
- T12 PROPOSED TRENCH
- ↔ EXTENT OF DISTURBANCE
- CL PROPOSED TRAIL



(SCALE AND LOCATIONS APPROXIMATE)

(SOURCE: FERTOZ USA, LLC)

Figure 2-1. Proposed Disturbance Area

PROJECT NUMBER: 2014220003	Dry Ridge Phosphate Exploration EA Caribou-Targhee National Forest
DATE: 4/30/2015	Fertoz USA, LLC Brisbane, Queensland, AUS
DWG NO: 2014220003 F2-1.dwg	CASCADE EARTH SCIENCES A Valmont Industries Company
DWG BY: PROJECT MANAGER: GRKB	
REVISED:	

the lease under a USFS special use permit. The north end of the lease would be accessed via existing temporary exploration roads through the Husky 1 phosphate lease (I-05549). No new permanent roads would be constructed for this purpose, and Fertoz would need approval from BLM and/or Agrium CPO, the currently approved operator of the exploration roads on the Husky 1 Lease.

Table 2-1 outlines the acreage of disturbance needed to complete the planned drilling and trenching on the Dry Ridge Lease. Temporary roads would typically be constructed with a total disturbance width of 30 feet (14-foot wide running surface with 8-foot shoulders). The total length of temporary drill roads would be approximately 7.4 miles. The estimated disturbance for drill roads is 26.8 acres, including 23.9 acres on the lease and 2.9 acres off the lease (**Table 2-1**). The total estimated amount of new disturbance for 48 drill pads is 3.3 acres. The disturbance area for the drill pads was calculated using an average size of 50 feet by 60 feet; however, pads will vary in size based on conditions at each location. The estimated disturbance of the 22 surface trenches is 1.9 acres. The trenches are anticipated to be approximately 15 feet by 290 feet and about 4 feet deep. The estimated total area of disturbance for the proposed exploration program is 32 acres.

Table 2-1 Proposed Exploration Disturbance Acreages

Drill Pads	Access Roads	Surface Trenches	Total
3.3	26.8	1.9	32.0

Land would be cleared and timber would be removed during construction of the access roads, trenches, and drill pads in 2015. Merchantable timber will be purchased from the USFS by Fertoz based upon a timber cruise. All temporary access roads would be closed from about mid-October through mid-June, or when not in use for six weeks or more (Section 2.2.9).

The temporary access roads would be closed using restrictive barriers and made inaccessible to vehicles. Water bars would be placed at intervals necessary to stabilize roads during spring runoff (Section 2.2.9). Once exploration activities are completed in a given area, all temporary roads, trenches, and drill pads would be reclaimed to pre-existing contours (Section 2.2.10). All of the trenches would be reclaimed in the same year they are constructed and samples are collected. All temporarily closed disturbed areas would be stabilized using BMPs (IDL, 1992; USFS, 2012).

Drill holes would be advanced using core drilling, which would not generate cuttings. Other drilling methods may also be used, but are not planned or likely. One or more drill rigs would be utilized to accomplish the required work. Drills and drill support equipment would be skid-mounted and/or track-mounted units depending on equipment availability.

Vehicle traffic would include seasonal mobilization and demobilization of equipment and daily crew travel to nearby towns. Travel distance to the proposed disturbance area is about the same from Soda Springs, Montpelier, or Afton, Wyoming (**Figure 1-1**). The most intense travel would occur during the first year due to logging, construction of roads, drill pads, and trenches. Construction and reclamation would likely occur throughout the first year, with only reclamation at the end of the season in subsequent years. Construction equipment and vehicles would likely

include a dozer, excavator, log skidder, two logging trucks, and two pickup trucks. Construction and log hauling would likely occur during daylight hours, with one trip per day by the pickup trucks and up to three trips per day by the logging trucks.

Drilling would commence after the bulk of construction is complete and would take approximately 30 days each year, but may occur at any time or duration between June 15 and October 15. Drilling equipment and vehicles would likely include one drilling rig, one water truck, one support truck, and two pickup trucks. Drilling would be conducted continuously in two, 12-hour shifts, which would require two trips per day with both pickup trucks. The most intensive vehicle traffic would occur in the first year if drilling commences before construction and log hauling is complete, so that all four of the pickup trucks and both logging trucks would be traveling on the same days for part of the season. Under this scenario, there would be approximately 12 round trips to the site per day, potentially from the same town. All travel would generally occur during daylight hours, although the drilling crews could be traveling in dark or low light periods near dawn or dusk.

The drilling program proposes 48 drill pads that would be completed on sections approximately 300 feet apart. At each location, two angled core drill holes would be completed for 96 angle drill holes. The angles of the holes would vary depending upon the local dip at the drill site. The cumulative footage for the drilling is estimated to be 40,800 feet, with drill hole depths ranging between 350 and 500 feet. The number, location, and angle of the drill holes may be adjusted as sub-surface geologic information is collected.

Drilling fluids would consist primarily of water with foam, bentonite muds, and/or polymers as additives, if needed, to maintain drill hole stability and circulation. Water would be hauled to the drill sites with a water truck from several water collection locations depending on drill locations, water availability, and water use approval. Water may be stored in mobile water storage tanks (approximately 3,000-6,000 gallons) stationed near drilling areas.

Water necessary for drilling, estimated at 700 to 1,500 gallons per hole, would be obtained from off-lease stream crossings, beaver ponds, stock water ponds and/or purchased sources. Water could be obtained from several locations along Diamond Creek Road, near the south and a north end of the lease, depending upon which direction the project is accessed. The mobile tank or water truck would be parked temporarily on a flat area along the edge of the road during filling. Temporary surface water rights and their associated point of diversion locations would be permitted by the Idaho Department of Water Resources. All equipment that contacts surface water bodies would be cleaned to remove aquatic invasive species before it is deployed. Water would be pumped through a flexible hose with a screen-covered intake (3/32-inch openings) using a transfer pump (or trash pump) powered by a low-noise, fuel-powered motor. The pumping rate will be much less than the flow rate of the stream, such that it will not cause a noticeable drawdown or reduction in stream flow.

Surface trenches would be constructed using a dozer to scrape off surface soils and alluvium/colluvium to expose the underlying phosphate shale beds of the Meade Peak Formation. Trenches would be oriented perpendicular to strike between outcrops of the Rex Chert and the Grandeur Tongue of the Park City Formation. Detailed data that would be recorded for each

trench include bedding strike, dip, and surveyed locations. Additionally, bedding samples would be taken from each trench for chemical analysis.

2.2 Environmental Protection Measures

Under the Proposed Action, Fertoz would implement EPMs to prevent unnecessary and undue degradation of the environment to the greatest extent possible. The EPMs and agency-developed mitigation measures would be outlined in the Conditions of Approval/Agency Developed Mitigation Measures prepared by the BLM and the USFS.

2.2.1 Fire

Vehicles would be equipped with fire extinguishers, bladder bags (collapsible backpack sprayers), and shovels at all times. Operators would be trained in basic fire suppression procedures. Additionally, any welding would take place on areas that have been cleared of vegetation. Since the drilling process requires water, 700 to 1,500 gallons of water would be on a drill site at any particular time and available to extinguish fires.

2.2.2 Hazards to Public Safety

Signs would be used to warn the public of hazards with respect to active truck traffic. Locations for such signs would be at the public access entry points to the proposed disturbance area (e.g., the end of Green Canyon Road and ATV trailhead). Additionally, a portable sign warning the public of active drilling would be placed at spur roads leading to the active drilling sites. Signs warning of log truck traffic would be placed along the travel route. Unauthorized personnel would not be allowed within the active drilling areas and trenching sites. This is likely to require gates, or other approved positive barrier on access roads to the property. Pedestrian access to the project disturbance area for recreation/hunting would not be obstructed. All drilling equipment would be shut down, secured, and locked out during off-shift or non-operating times.

2.2.3 Surface Water/Stormwater Management/Erosion/Sedimentation

All proposed roads and drilling areas would be located outside aquatic influence zones (AIZs), to the extent possible. AIZs are defined as buffer zones by Prescription 2.8.3 of the RFP to protect aquatic resources in the CTNF. AIZs are 50 feet slope distance from ephemeral or intermittent streams and wetlands less than 1-acre, 300 feet slope distance from fish-bearing streams, and 150 feet slope distance from non-fish bearing perennial streams, wetlands, and surface water bodies larger than 1-acre. No culvert installations are proposed at this time; however, prior to the onset of drilling activities, a field examination of drainage crossings would be conducted by Fertoz and the appropriate agency personnel to determine if any temporary culvert installations are needed.

Surface water runoff would be managed site wide under a Storm Water Pollution Prevention Plan, which is regulated by the U.S. Environmental Protection Agency (EPA). Road layout and construction would incorporate applicable BMPs to minimize erosion and sediment transportation. Roadway erosion controls, including outsloping of roads, waterbars, rolling dips, slash windrows and ditches, would be installed as recommended by the USFS and as requested by the BLM.

Surface water runoff from drill pads and trenches would be managed by utilizing BMPs such as silt fencing, straw waddles, water bars, rolling dips, and sumps. These BMPs would be utilized on new construction areas and field fit based on topography, landscape, and the vicinity to surface water, as deemed necessary by the USFS and as requested by the BLM.

Exploration activities would be conducted in such a manner (e.g., the use of natural vegetation, buffers, and berms) that sediments or drilling additives would not enter any dry or flowing drainage channels. Project activities may be curtailed during or immediately following heavy precipitation events. Any unstable, landslide-prone areas would be avoided if encountered during road construction and drilling activities.

None of the road grades are planned to exceed 10%. If the grade of any road section does exceed 10%, site specific conditions at these locations would be considered and evaluated for implementation of BMPs and would be submitted for approval by appropriate agency personnel. BMPs would be employed at these road sections, as applicable, to minimize run-off and sediment transport. These BMPs may include, but are not limited to, vegetated buffer strips between the road and the stream, blending with natural contours, rolling dips or vegetated rolling dips, road sloping, slash filter windrows, waterbars, or silt fences.

Only non-polluting lubricating foam, bentonite, and/or polymer will be utilized by the drilling contractor. All drilling sites would be constructed with a sump to control drilling fluids. The size and specific location of the sumps would be determined in the field in order to make the best use of the existing landscape and topography to minimize environmental and stability risks.

In areas where there is a risk of contact with surface water, silt fence, straw waddles, and/or other storm water BMPs would be utilized as approved by appropriate agency personnel in order to ensure drilling fluids do not impact environmental resources.

2.2.4 Groundwater

No drinking water wells are located within or in the near vicinity of the proposed disturbance areas. The two potential risks to groundwater include infiltration of drilling fluids to groundwater and drill holes, which could create a preferential pathway of surface water flow to groundwater.

The drilling fluids at the site are of insufficient volume and material to carry a significant threat to groundwater. The foreign materials within these fluids are non-toxic, and drill holes would be plugged according to State of Idaho regulations “Well Construction Standard Rules” (IDAPA 37.03.09) as soon as possible and within the same season of the drilling.

2.2.5 Wastes/Hazardous Materials

Potential contaminants from the exploration drilling sites include diesel, oil, grease, lubricants, and solvents. Diesel, oil, and lubricants would be transported to the site in portable containers (e.g., tanks in fueling truck) but would not be stored on site. Maximum quantities of fuel hauled for refueling of equipment would not exceed 250 gallons per truck. Fertoz’s contractors would be required to follow any other local, state, or federal regulations related to the use, handling, storing, transporting, and disposing of hazardous materials.

In order to facilitate immediate reaction to any spill of regulated materials on site, work crews would be trained on spill response procedures according to a site-specific spill control plan, which would be maintained onsite. Training would be documented on a training log that would be initialed by each worker. A spill containment kit would be on each active drill and/or trench site during operating hours. Any material spills of a reportable quantity would be reported to the appropriate agencies, which include the Idaho Department of Environmental Quality (IDEQ), the BLM, and the USFS. Other agencies would be notified as appropriate. The spill clean-up response may include the removal of contaminated soils to a certified disposal facility depending on the severity of the spill.

All potentially hazardous or deleterious chemicals and agents would be secured to prevent accidental spillage or sabotage during periods when contractors or company employees are absent from the site (i.e., daily shut downs, weekends, vacations, etc.). Materials that cannot be secured would be removed from the site daily during the duration of exploration activities. FertoZ may desire to utilize a movable security storage shed, such as a cargo container, to secure tools, materials and/or samples while absent from the site.

All solid wastes generated by the project would be removed and disposed of in accordance with applicable state and federal regulations.

2.2.6 Air Quality

Significant air quality concerns or impacts are not anticipated from the exploration project. Potential air contaminants may include dust from the roads and drilling pads and exhaust from vehicles and equipment. If the USFS or the BLM determine that the suppression of dust created by exploration activity is necessary, FertoZ's contractors would initiate dust abatement methods (e.g., watering roads or applying magnesium chloride).

2.2.7 Wildlife

Snags will be retained, to the extent practicable, as part of the proposed exploration. Any down, woody debris disturbed during exploration activities (i.e. road building activities) would be side-casted. During reclamation activities, most of this material would be restored to its approximate, original locations. Vegetation species that contribute to wildlife habitat needs, as specified by the USFS, would be used for reclamation plans. Wildlife structures (slash piles, logs, rock piles) using native vegetation and materials would be created to provide habitat diversity.

In order to avoid impacts to migratory birds and their nesting, construction would be scheduled outside of the nesting season, where possible. The nesting period generally occurs from approximately May 15 to August 15. In the case where ground clearing during this period cannot be avoided, FertoZ would request an exception. Following this request, and with the BLM's concurrence, a bird survey would be initiated. The bird survey would be conducted by a BLM-approved biologist to identify whether or not there are any active migratory bird nests within the disturbance area and specified buffer distances. If no active migratory bird nests are found within the proposed clearing areas, construction activities will proceed. If active migratory bird nests are found within the specified buffer zones during the nesting period, the work schedule and/or locations of the clearings will be adjusted in order to avoid impacts to the nests. Adjustments to the work schedule and/or clearing locations would be made, to the extent practicable, with respect to

standard buffer distances, safety, impacts on other resources, and other factors as determined by an authorized officer within the BLM.

Measures will be taken to minimize wildlife disturbance from noise and light from drilling activities. Noise suppression apparatus on equipment would be maintained to manufacturer specifications. Lighting would be setup to meet safety requirements with conscious placement and/or shielding to minimize stray lighting.

Pumps used in fish-bearing streams (e.g., Diamond Creek) to accommodate water needs associated with drilling activities will meet all current state and federal design criteria for intake screens (NMFS, 1995). Screen mesh size on pump intakes will not exceed 3/32 inches to prevent entrainment of fry-sized juvenile salmonids. Screens will be maintained regularly to prevent injury or entrapment to juvenile fish. Screens will remain in place on pump intakes whenever water is withdrawn from fish-bearing streams.

2.2.8 Cultural and Paleontological Resources

A cultural survey report was prepared in 2014 by a qualified archeologist operating under a permit issued by the USFS. The trench excavated and sampled by the San Francisco Chemical Company in the 1958 was the only historical site noted during the survey. The Idaho State Historical Preservation Office concurred with the determination that the project will have no effect on any known historic properties (SHPO, 2014). If unidentified cultural resources are discovered during exploration activities, the BLM and the USFS would be notified and work in the immediate area would halt until inspection by a professionally trained archeologist is conducted and a mitigation plan developed, if necessary.

If a fossil of a vertebrate animal is uncovered or a concentration of vertebrate fossils are found, the USFS and the BLM would be notified prior to further surface disturbance in that immediate area.

2.2.9 Abandonment/Seasonal Closure Measures

The drilling operations are expected to take place over 2-3 drilling seasons within the months of June through October, leaving November through May as periods of temporary closure.

Seasonal work cessation would include a variety of tasks prior to the winter months, including closure of the roads, removal of equipment and materials from the project disturbance area, and a final comprehensive inspection of the BMPs and any repair, if necessary, and as approved by appropriate agency personnel. All drill holes created during the season would be plugged prior to seasonal closure. Roads would be temporarily closed and water bars would be installed at intervals necessary for stabilization during the spring run-off, as approved by appropriate agency personnel. During periods of seasonal closure, all equipment and supplies, including regulated materials such as fuel, oil, grease, lubricants, solvents, bentonite, and cement, would be removed from the project disturbance area. If a temporary structure, such as a portable storage container, is moved to the site for storage of drilling materials, this structure may be left in place during seasonal closure. No permanent structures are planned.

If an unexpected temporary closure occurs that is anticipated to last greater than six weeks, the same procedures would be followed as if the site would be closed for the season. This includes the removal of equipment, a final comprehensive inspection of BMPs, and closure of the roads.

2.2.10 Reclamation/Vegetation

To mitigate the potential for introducing noxious weeds into the project disturbance area, off-road equipment would be pressure washed at the point of origin, or other convenient off-site location, prior to deployment at the project disturbance area each year. Light vehicles that make routine trips on and off site during the project on established roads would not need to be pressure washed prior to returning to the site.

Drilling, trenching and constructing access roads would require the removal of vegetation. Any merchantable timber to be removed would be purchased prior to removal.

Reclamation would consist of earthwork and revegetation of all surface disturbances to stabilize the reclaimed areas and to achieve post-exploration land use. Fertoz would perform concurrent reclamation to the maximum extent practical. However, to avoid the potential for redundancy, the main road would not be reclaimed until the exploration program has concluded. Segments of temporary road used to access exploration drill holes will be reclaimed when they are no longer functional for further drilling activities. Similarly, surface trench excavations would be reclaimed after all needed measurements and samples are taken on a given trench (with possible exception of any trench used for temporary laydown of equipment).

The exploration work would be designed to minimize erosion and increase the likelihood of seedling success. After reshaping is complete, the disturbed areas would be seeded and covered with slash to establish ground cover and stabilize soils. Stormwater BMPs would be utilized, where necessary, to stabilize areas until the seedlings have taken hold. This work would be conducted utilizing a trackhoe and/or dozers depending upon specific site conditions.

Reclamation earthwork would consist of re-contouring, back-filling road cuts, and re-grading of drilling areas to approximate the form of the land before disturbance (i.e. original surface topography). These activities would not be conducted if the USFS soil scientist determines current soil moisture in the area is excessive. As part of the reclamation earthwork, drill pad sumps (including drill cuttings) would be covered and/or folded into the backfill, eliminating cuttings exposure. Surface trench excavations would be backfilled with the soils and alluvium/colluvium removed from the trenches during excavation. Topsoil from the trenches would be salvaged and replaced back on the surface of the trenches, if possible. Natural drainage patterns would be re-established. Backfilled and re-shaped areas would be left rough-graded to ensure adequate seedbed preparation.

Upon completion, all disturbed areas would be broadcast seeded using the following weed-free, locally adapted native seed mix: 40% Mountain Brome, 35% Slender Wheatgrass, 14% Idaho Fescue, 10% Bluebunch Wheatgrass, 1% White Yarrow. Based on local conditions, effectiveness, and seed availability, the seed mix may be further refined or updated – with approval from the CTNF.

Logs and slash would be placed across reclaimed roads to render them impassable to off-road and passenger vehicles during reclamation activities. This practice would aid revegetation efforts by providing protection for seeds and seedlings and by providing erosion control.

2.3 Effectiveness/Compliance Monitoring

Effectiveness monitoring would determine how well BMPs, EPMs, and mitigation measures work in protecting natural resources and their beneficial uses. The BLM and USFS would inspect the project disturbance area with appropriate FertoZ personnel both during and after exploration to assess effectiveness and to ensure compliance with BMPs, EPMs, and other requirements. FertoZ would be responsible for monitoring their activities and making any adjustments necessary to ensure compliance with established requirements. The BLM and USFS would inspect the site periodically and review monitoring data for compliance with agency requirements.

A comprehensive annual inspection of all BMPs would be conducted by FertoZ at the close of the drilling season. This inspection would determine whether the BMPs are functioning and adequately maintained to serve through the winter months and spring runoff. The roads would then be decommissioned with water bars prior to closing the site for the winter. The winter closure of the site would render it inaccessible. A follow-up inspection would occur prior to reopening the site and following spring run-off. Early spring access to the site is not anticipated due to the muddy conditions and the likelihood it would cause excessive disturbance.

2.4 Alternative 2 - No Action

Under the no action alternative, the project would be postponed or deferred, and FertoZ's exploration plan would not be approved by the BLM. The USFS would not issue a special use permit to approve the off-lease road construction. The current land management practices by the CTNF would continue. Under this alternative, exploration would not be approved at this time.

2.5 Alternatives Considered but Eliminated

During development of the exploration plan, FertoZ evaluated the locations and densities of drill pads and trenches needed to accomplish its exploration objectives, while minimizing disturbance. The locations of the trenches were dictated by the exposures of the phosphate beds, allowing some adjustments along the outcrop. The locations of the drill pads were also constrained by the orientation of the phosphate beds, with the objective of drilling holes through the beds to collect samples. The phosphate beds dip steeply towards the east and, in some areas, towards the west (overturned), so that drill holes would need to be advanced at an angle to the ground surface to penetrate through the phosphate beds. Judgment was applied for selecting drill pad locations in relatively flat, accessible areas of the lease along the beds and offset at various distances to advance holes that would penetrate the beds at steep angles. The number and average spacing of trenches and drill pads was established to meet exploration objectives for characterizing the phosphate resource. As such, no alternatives to the number or locations of the drill holes were developed.

Alternatives for accessing the lease were considered. Improvements to the ATV trail (NF-565) were considered as a shorter route to the lease from Diamond Creek Road than Green Canyon

Road (NF-342). However, this access route was rejected because it is designated as a trail and is steeper and more susceptible to erosion than Green Canyon Road. Moreover, use of NF-565 would require crossing a fish-bearing perennial stream at the headwaters of Diamond Creek. Fertoiz plans to access the south end of the lease from Green Canyon Road and the north end of the lease from Stewart Canyon Road (NF-134) via existing exploration roads on the adjacent Husky 1 Lease (pending BLM approval and agreement with the mineral lease holder).

Another alternative suggested in a public scoping comment included replacement of drilling fluid sumps with containers to reduce disturbance. This suggestion would not be feasible due to the steep, forested terrain at the site. Moreover, use of containers would require the same, or possibly more disturbance, to create safe, level areas for placement and handling.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

As listed in Section 1.7, the Proposed Action could affect certain environmental resources including water, soils, vegetation, wildlife, public access and tribal treaty rights and interests. The existing environment for these resources and the anticipated affects and consequences of the Proposed Action with respect to the RFP are described below. The RFP describes USFS goals, and standards and guidelines (S&Gs), for achieving desired future conditions (DFCs) of the forest with respect to specific environmental resources. The DFCs, goals, and S&Gs are specified on a forest-wide scale with respect to forested and non-forested ecosystems by ecological subsection and by local management prescription areas.

Evaluation of the effects of mining on this lease is outside the scope of this analysis. It is not a foregone or foreseeable result of exploration. Numerous factors are considered when determining whether a deposit is economically minable. If the lease is determined to be economically minable, a new Mine and Reclamation Plan could be submitted at that time. Additional analysis and public comment would be required if any proposed mining or further leasing are proposed.

3.1 Introduction

The Dry Ridge project is located near the top of the eastern flank of Dry Ridge within the Preuss Range of the Peale Mountains (USGS, 1967). Elevations in the project disturbance area range from about 7,750 to about 8,500 feet above mean sea level (amsl). The topography slopes toward Diamond Creek, which is about one mile east of the project disturbance area and flows north about 11 miles to the confluence with the Blackfoot River. Per the RFP, the project disturbance area lies within the Webster Ridges and Valleys ecological subsection within a management area prescribed for semi-primitive recreation (Prescription 3.2b). Vegetation communities in the project disturbance area primarily consist of mixed coniferous forest, aspen, sagebrush/steppe, riparian, and subalpine meadows. Wooded areas are dominated by Douglas fir, lodgepole pine, subalpine fir, Engelmann spruce, and quaking aspen. Non-forest vegetation includes sagebrush, maple, snowberry, huckleberry, and thimbleberry. Wildlife includes terrestrial mammals and birds, including game species such as elk, deer, moose, grouse, and hares.

3.2 Analysis Areas

The Proposed Action will disturb 32 acres; of that, 26.8 acres will be disturbed by temporary access road construction, 3.3 acres will be disturbed by drill pads, and 1.9 acres will be disturbed by trenching. Potentially impacted resources by the project include soils, water resources, vegetation, fish and wildlife, transportation and public access, inventoried roadless areas, and tribal treaty rights and interests.

The project will affect soil productivity and erodibility. As such, the analysis area for soil impacts was the proposed disturbance area. Potential impacts from soil erosion to water resources are analyzed separately.

The potential impacts of the project on water resources would generally be confined to AIZs within the proposed disturbance area. As such, the analysis area includes the AIZs that intersect with the 32 acres of disturbance from the Proposed Action.

Impacts to terrestrial wildlife would generally include the proposed disturbance area and adjacent areas. Therefore, the analysis area for terrestrial wildlife includes the project lease and a 0.5-mile buffer surrounding the lease. The analysis area comprises 3,085 acres.

The analysis area for vegetation is the area of disturbance by the Proposed Action. The analysis area for vegetation is the same as for soils.

The analysis area for potential impacts of the Proposed Action on transportation facilities and public access was limited to the proposed disturbance area. The Proposed Action does not propose construction of roads or other transportation facilities for public use; about 7.4 miles of temporary roads will be constructed within the proposed disturbance area for exploration where motorized travel by the public will be prevented. Similarly, potential impacts of the Proposed Action on Inventoried Roadless Areas and on tribal treaty rights and interests were analyzed for the proposed disturbance area.

3.3 Soils

The RFP provides the USFS with forest wide and forested ecosystem management direction for achieving DFCs for soils. The RFP does not provide more specific management direction for soils in the Webster Ridges and Valleys ecological subsection, nor in areas prescribed for semi-primitive recreation. The effects of the Proposed Action on soils are defined with respect to the forest-wide DFCs.

3.3.1 Management Plan Direction

Management actions occurring on the National Forest lands, involving the soil resource are guided by the following regulatory frameworks: FSM 2500-2010-1 (National Soil Management Manual), FSM-2500-2011-1 (R4 Supplement), and the Caribou National Forest Plan – 2003 (RFP).

In areas where proposed activities (Section 2.0) occur on existing system road templates, activities are not governed by FSM 2500-2010-1 or FSM-2500-2011-1. These activity areas are

considered administrative sites not primarily managed for soil productivity and function, and are therefore excluded from soil analysis (FSM 2500-2011-1/2550.5). However, the activities occurring to areas previously undisturbed (i.e. outside of existing road prisms) are subject to analysis.

For the purpose of this effects analysis, activity areas described are those areas (with associated acreages) impacted from temporary road construction, drill pad construction, trenches, etc. Riparian and other environmentally sensitive areas may be monitored and evaluated as individual activity areas within larger management areas. Activities occurring on existing road templates were not analyzed for effects analysis as directed by FSM 2500-2010-1 and FSM-2500-2011-1.

The RFP DFCs for soils include:

- Soil quality, productivity, and hydrologic function are maintained and restored where needed. Long-term soil productivity is sustained and meets future land needs.
- Soils have adequate protective cover, adequate levels of soil organic matter (litter), and coarse woody material. Physical, chemical, and biological processes in most soils function to sustain the site.
- Microbiotic crusts and their importance to soil stability are recognized. Management practices are designed to retain these soils components.

The RFP goals for soils applicable to the project are:

- Long-term soil productivity is sustained by limiting detrimental soil disturbances and by retaining ground cover, microbiotic crusts, fine organic matter and, where applicable, woody residue on activity areas.
- Soil productivity is maintained or improved through application of land capabilities as identified in the Caribou National Forest Soil Resource Inventory (USFS, 1990) and by completion of soil and water resource improvements as identified in the Soil and Water Resource Improvement Action Plan. (Note: This plan has not been prepared for the project disturbance area.)
- Erosion from management caused disturbances is within soil loss tolerance limits.
- Soil resource management is consistent with maintaining or improving long-term soil productivity and hydrologic function.

The RFP S&Gs for soils applicable to the project are:

- All Ecosystems Standards
 - Landtypes identified as being unstable or marginally unstable in the Caribou National Forest Soil Resource Inventory shall be ground verified prior to soil disturbing activities to determine the capability of the land to sustain resource development activities, including road construction.
 - Suitability for resource management activities shall be disclosed in the site-specific analysis.

- For ground-disturbing activities where detrimental soil disturbances (defined in Forest Service Handbook [FSH] 2509.18) occur on areas of 10 acres or greater, plan and implement rehabilitation to meet DFCs.
- On landtypes where landslides or landslide prone areas have been identified, a site-specific analysis shall be conducted to ensure project implementation is compatible with DFCs.
- All Ecosystems Guidelines
 - Resource developments and utilization should be restricted to lands identified in the Soil Resource Inventory as being capable of sustaining such impacts.
 - Maintain ground cover, microbiotic crusts, and fine organic matter that would protect the soil from erosion in excess of soil loss tolerance limits and provide nutrient cycling.
 - Detrimental soil disturbances such as compaction, erosion, puddling, displacement, and severely burned soils caused by management practices should be limited or mitigated to meet long-term soil productivity goals.
- Forested Ecosystem Guidelines
 - Soil resource management is consistent with maintaining or improving long-term soil productivity and hydrologic function.
 - Erosion from management caused disturbances is within soil loss tolerance limits.
 - Reduce soil erosion to less than the soil loss tolerance limits on lands disturbed by management activities within on growing season after disturbance.
 - Sustain site productivity by providing the following minimum amounts of woody residue: 3 inches in diameter dispersed on the site as outlined in **Table 3-1**, below.

Table 3-1 Minimum Woody Residue by Forest Habitat Type

Woody Residue (tons/acre)	Forest Habitat Type	
3-5	Limber pine/curleaf mountain mahogany (Pifl/Cele) Douglas fir /mountain snowberry (Psme/Syor)	Douglas fir/common juniper (Psme/Juco) Lodgepole pine/heartleaf arnica (Pico/Arco)
5-10	Douglas fir/ninebark (Psme/Phma) Subalpine fir/pine grass (Abla/Caru) Douglas fir/mountain maple (Psme/Acgl) Subalpine fir/heartleaf arnica (Abla/Arco) Subalpine fir/Ross sedge (Abla/Caro) Douglas fir/blue huckleberry (Psme/Vagl) Lodgepole pine/blue huckleberry (Pico/Vagl)	Douglas fir/Oregon grape (Psme/Bere) Lodgepole pine/grouse whortleberry (Pico/Vasc) Douglas fir/white spirea (Psme/Spbe) Lodgepole pine/pine grass (Pico/Caru) Douglas fir/pine grass (Psme/Caru) Lodgepole pine/elk sedge (Pico/Cage) Subalpine fir/white spirea (Abla/Spbe)

Woody Residue (tons/acre)	Forest Habitat Type	
10-15	Douglas fir/mountain sweetroot (Psme/Osch) Subalpine fir/mountain arnica (Abla/Arla) Subalpine fir/mountain maple (Abla/Acgl) Subalpine fir/common snowberry (Abla/Syal) Subalpine fir/grouse whortleberry (Abla/Vasc)	Subalpine fir/ninebark (Abla/Phma) Subalpine fir/western meadow -rue (Abla/Thoc) Subalpine fir/blue huckleberry (Abla/Vagl) Subalpine fir/Oregon grape (Abla/Bere)
15-20	Engelmann spruce/sweetscented bedstraw(Pien/Gatr)	Subalpine fir/mountain sweetroot (Abla/Osch)

USFS Region 4 criteria for monitoring and assessing detrimental soil disturbances are provided in Forest Service Manual 2550, which incorporates direction previously contained in FSH 2509.18 as described in the RFP. Forest Service Handbook 2509.18 was removed from the directive system.

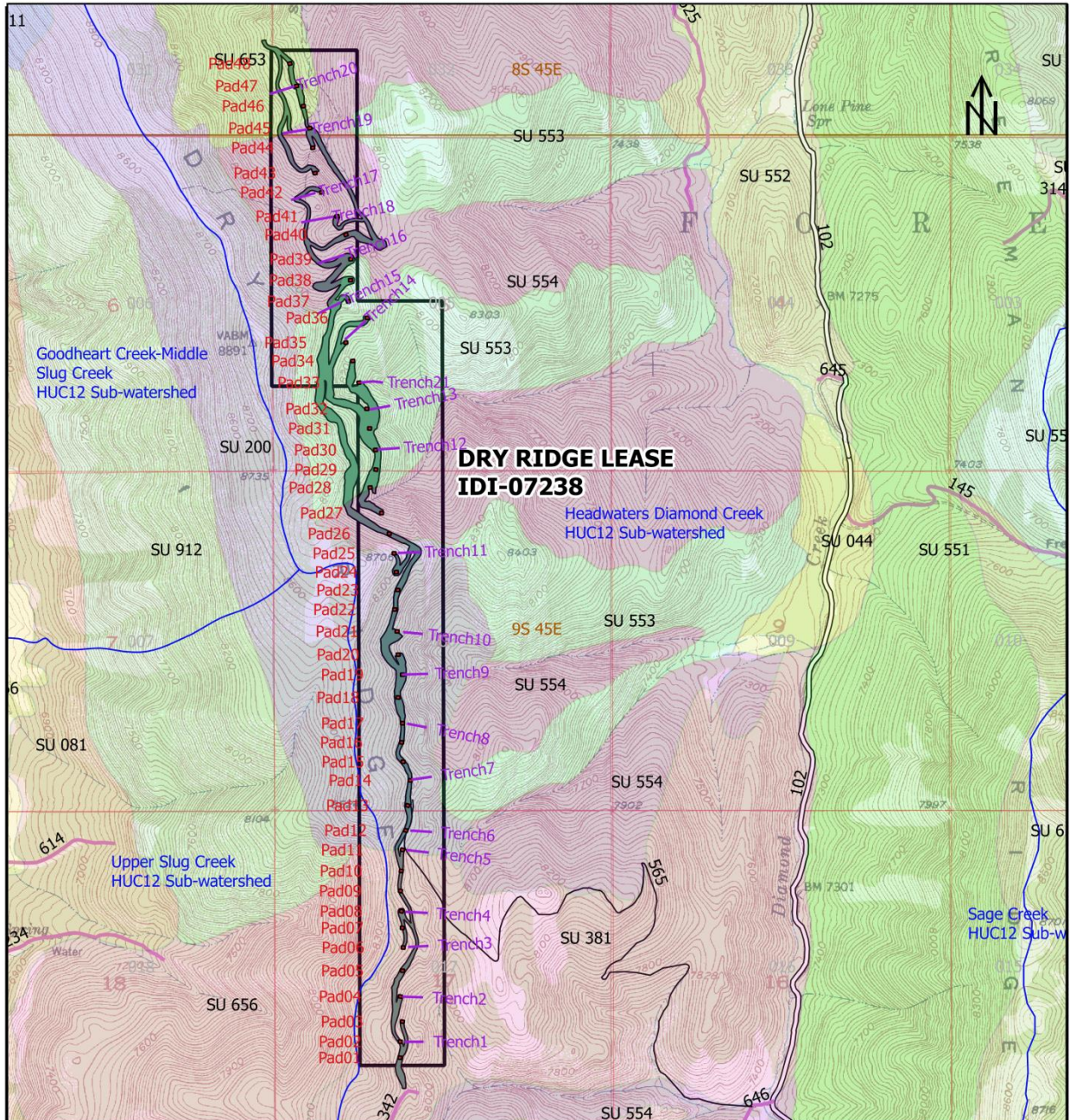
3.3.2 Affected Environment

The total surface disturbance associated with the construction of temporary roads, trenching, and construction of drill pads would be approximately 32 acres. Soil disturbance has the potential to affect soil productivity and soil erosion; effects will depend on soil properties (erodibility, etc.) and the nature of disturbance. Soil types for the project disturbance area were compiled from the Soil Survey of the Caribou National Forest (USFS, 1990). Five soil map units would be disturbed by the project: 200, 381, 553, 554, and 653 (**Figure 3-1**). **Table 3-2** summarizes the disturbance areas by soil map unit for the project. Soils in the project disturbance area are moderately deep to deep, well to somewhat excessively drained, have moderately slow to moderately rapid permeabilities, and have formed on steep slopes (30 to 65 percent). The soils formed in limestone, sandstone, chert, shale, and siltstone parent material derived from the Triassic Thaynes and Dinwoody Formations, the Permian Phosphoria Formation, and the Pennsylvanian-Permian Wells Formation.

Table 3-2 Soils and Acreages of Disturbance

Soil Map Unit	Map Unit Name and Slope	Acres of Disturbance
200	Blaine-Nisula-Swede Families complex (30-60% slope)	6.6
381	Parkay-Judkins-Farlow Families complex (30-55% slope)	5.6
553	Blaine-Nisula Families – Calcic Cryoborolls complex (40-65% slope)	7.1
554	Ketchum- Swede Families association (30-60% slope)	9.5
653	Judkins-Nisula-Farlow Families complex (40-60% slope)	3.0
All		32.0

Source: USFS 1990



Legend

- Proposed Disturbance
- HUC12 Subwatersheds
- Soil Units**
- 044
- 066
- 070
- 081
- 200
- 301
- 317
- 404
- 551
- 552
- 553
- 554
- 554
- 653
- 656
- 911
- 912

0 0.25 0.5 mile



Figure 3-1 Sub-Watersheds and Soil Units

Coordinates: NAD83
 Sources: 2014 USDA Geospatial Center HUC Boundaries, 2003 USFS Caribou-Targhee RFP AIZs, 2012 IDEQ 305b Integrated Report, USGS 1978 Soda Springs 30x60 Sheet (1997 DRG), USFS 2000 Mineral Leases

PROJECT NUMBER: 2014220003 DATE: 11/7/2014	Dry Ridge Phosphate Exploration EA Caribou-Targhee National Forest
FILE: 201422003 F 3-2.qgs PREP BY: DJB REVIEWED BY: RKB	Fertoz USA LLC Brisbane, Queensland, AUS
REVISIONS:	CASCADE EARTH SCIENCES A Valmont Industries Company

Table 3-3 shows the erodibility and suitability ratings for each soil map unit within the proposed disturbance area. Ratings are expressed from the most abundant to least abundant soil family within each map unit (USFS, 1990). The soil erosion factor (K) indicates the susceptibility of a soil to sheet and rill erosion by water. The K value is used in the Universal Soil Loss Equation to predict the annual rates of soil loss due to erosion (NRCS, 1978). Values of K for all soils range from 0.02 to 0.69, with higher values indicating greater erosion susceptibility. The soil erosion factors within the projected disturbance area of the exploration project range from 0.24 to 0.43 (**Table 3-3**). However, project disturbance will alter the soils so that soil erosion factors are not useful to predict the success or effectiveness of reclamation; rather, they provide perspective to understand the existing soils and to identify areas where additional care may be needed.

Table 3-3 Erosion and Suitability Ratings of Affected Soil Units

Soil Map Unit	Erosion Factor (K)	Erosion Hazard	Cut and Fill Erosion Hazard	Cut and Fill Revegetation Limitation	Cut Slope Stability Hazard	Unsurfaced Road Trafficability	Compaction Hazard	Acres Affected
200	0.24 to 0.43	Moderate	Moderate	Low to Moderate	Low to Moderate	Good to Poor	Moderate	6.6
381	0.32 to 0.37	Moderate	Low to Moderate	Slight to Severe	Low	Good to Fair	Moderate to High	5.6
553	0.32 to 0.43	Moderate to High	Moderate to High	Moderate to Severe	Low to Moderate	Good to Poor	Moderate	7.1
554	0.32 to 0.37	Moderate	Moderate to Low	Severe to Moderate	Low to Moderate	Good to Poor	Low to Moderate	9.5
653	0.29 to 0.32	Moderate	High to Moderate	Severe to Moderate	Low to Moderate	Fair to Poor	Moderate to High	3.0

Source: USFS 1990

Erosion hazard ratings developed by the U.S. Department of Agriculture assume bare ground with the vegetative cover and litter removed, although soil horizons remain intact. The erosion hazard rating is influenced by slope, infiltration rate, subsoil permeability, and other factors. The erosion hazard is moderate for all soils, with the exception of a high rating for 15 percent of map unit 553.

Cut and fill erosion hazard considers a soil's resistance to erosion when bare. This ranges from low to high, but is moderate to high on soil units 553 and 653. Best management practices have been prescribed to mitigate erosion from areas with moderate to high cut and fill erosion hazards in the project disturbance area. Cut and fill revegetation limitations range from slight to severe, or moderate to severe, on all soil units except 200 (low to moderate) due to shallow, rocky, unstable and/or steep slopes. Similar to areas with moderate to high erosion hazards, reclamation of areas with severe limitations for revegetation would require special attention to erosion control, vegetation selection, planting practices and, possibly, more time to re-establish vegetation. Cut slope stability hazards are ratings based on soil properties, which impart stability to soils on disturbed slopes (likelihood of mass failure), assuming a one to one final grade. The project-disturbed soils rate as low to moderate for mass failure on cut and fill slopes.

The unsurfaced road trafficability rates the suitability of soils for building unsurfaced roads such as the temporary access roads for the project. The trafficability ratings of the majority of project-disturbed soils range from good to poor. However, unit 653 rates as fair to poor. Areas with poor ratings for trafficability would yield higher volumes of sediment than areas with good trafficability, and require more erosion control BMPs and maintenance. The short-term usage of proposed temporary roads would also mitigate trafficability and erosion hazards. Compaction hazards of soils listed in **Table 3-3** are typically associated with compaction from grazing, but provide an overall general susceptibility for compaction in the surface soil layer. Soil compaction can increase surface runoff and soil erosion. The compaction hazards of the disturbed soils are mostly low to moderate, although one soil component representing 20 percent of map unit 381 and 20 percent of map unit 653 has a high rating.

Forest habitats listed in **Table 3-1** are grouped by affected soil map unit (unit) in **Table 3-4**. This table provides the basis for analyzing soil productivity effects according to woody residue metrics listed in **Table 3-1** as per the RFP soil productivity guideline.

Table 3-4 Forest Habitat Types of Affected Soil Units

Habitat Type	Unit 200	Unit 381	Unit 553	Unit 554	Unit 653
Abla/Acgl				X	
Abla/Bere				X	
Abla/Caru	X		X	X	
Abla/Vagl				X	
Abla/Vasc					X
Psme/Bere				X	
Psme/Caru				X	
Psme/Syor	X	X	X		

Notes: Habitat Type codes are Subalpine fir/mountain maple (Abla/Acgl), Subalpine fir/oregon grape (Abla/Bere), Subalpine fir/pine grass (Abla/Caru), Subalpine fir/blue huckleberry (Abla/Vagl), Subalpine fir/grouse whortleberry (Abla/Vasc), Douglas fir/Oregon grape (Psme/Bere), Douglas fir/pine grass (Psme/Caru), and Douglas fir/mountain snowberry (Psme/Syor).

The forest types consist of subalpine fir or Douglas fir, with various understory brush and/or grasses (mountain maple, Oregon grape, pinegrass, blue huckleberry, grouse whortleberry, mountain snowberry). Map unit 554 has the most habitat diversity because it occupies a wide range of elevations along mesic, north-facing slopes draining toward into Diamond Creek. By comparison, other map units occupy drier, south-facing slopes (553), more limited elevation ranges (381 and 653), or higher and colder areas near the ridgeline (200).

3.3.3 Environmental Consequences

Issue: The Proposed Action may directly impact soil productivity through topsoil disturbance and compaction.

Issue: The Proposed Action may indirectly increase erosion potential through the removal of ground cover or road construction on steep slopes.

Alternative 1 - Proposed Action

Indicator – Acres of New Disturbance: An estimated 32 acres of new surface disturbance would be created by the Proposed Action. Construction of temporary access roads with an average total width of 30 feet (14-foot running surface with 8-foot shoulders) would create 26.8 acres of disturbance, 48 drill pads (2 holes per drill pad - 96 holes) would result in 3.3 acres of disturbance, and 22 surface trench pads would create 1.9 acres of disturbance. Timber harvest would also occur due to the Proposed Action but would be within the 32 acres of disturbance. Approximately 26.2 acres of disturbance would occur on soil units dominated by soil families with moderate to high cut and fill erosion hazards.

Existing exploration roads constructed and/or reclaimed under federally approved plans by Agrium CPO on the north end of the project will also be used or re-opened by Fertoz. Where possible, and as coordinated with Agrium CPO, Fertoz would operate on existing to minimize re-disturbance of previously reclaimed roads.

Indicator – Duration Between Disturbance and Initiation of Reclamation: Site preparation and exploration activities would occur as early as June 15, and would end by October 15 of any given year. It is anticipated the exploration activities would be completed over a 2-3 year period; however, all exploration disturbance would be reclaimed concurrently to the greatest extent practical. Segments of temporary road used to access exploration drill holes will be reclaimed when they are no longer functional for further drilling activities. Similarly, surface trench excavations would be reclaimed after all needed measurements and samples are taken on a given trench (with possible exception of any trench used for temporary laydown of equipment), unless otherwise approved by appropriate agency personnel.

Indicator – Acres Reclaimed to Full or Partial Potential: All Proposed Action surface disturbances would be reclaimed and reseeded. Soil productivity on all re-disturbed and newly disturbed acreage will be reclaimed to the greatest potential achievable. Approximately 12.5 acres of exploration disturbance would occur on soil units dominated by soil families with severe revegetation limitations. A slow response to reseeded in these areas is expected and several years may be required to establish acceptable vegetative cover.

Direct and Indirect Impacts: Direct impacts to soils would be created during construction of new temporary facilities (access roads, drill pads, and trenches) and upgrading existing access roads. Primary impacts to soils would result from the removal of the topsoil layer during the construction of access roads, drill pads, and trenches. Generally this, topsoil would be mixed together with subsoil. Soil resources would be disturbed from blading, compaction, and excavating activities on approximately 32 acres.

Traffic on the temporary spur roads could result in compaction during the exploration season. However, because all disturbed soils would be re-spread, re-contoured, reclaimed, and placed back into production, any soil compaction that did occur during use would be reversed. Re-shaped areas would be left rough-graded. Thus, compaction would be negligible.

The Proposed Action would affect soil productivity by disturbing topsoil and mixing it with other cut material during construction and reclamation. Although topsoil would be re-used for

reclamation, the established soil horizons would be lost. While soil productivity may be affected for an extended period, impacts of lower soil productivity would be minimal and likely short-term. Observations of previous exploration reclamation on adjacent leases indicate roads would successfully re-vegetate and provide habitat/stability. Thus, impacts of the loss of soil productivity are expected to be short-term and minimal. BMPs to minimize soil loss during construction and operation are prescribed below.

A short-term increase in soil erosion is expected on disturbed areas, but the re-establishment of vegetative cover should provide adequate protection against long-term erosion. During construction and operation, BMPs will be installed to minimize soil loss. Based on the observation of successful initial recovery of soil productivity and vegetative cover in previous reclaimed portions of the adjacent exploration project (BLM and USFS, 2010), increased soil erosion rates are not anticipated to exceed soil loss tolerance limits.

Mitigation: In order to maximize soil resource protection, Fertoz will salvage existing topsoil from the trench areas and then replace it during final reclamation. Special reseeded and erosion control methods may be necessary to reestablish vegetation in areas with severe limitations. Any special reseeded and erosion control measures would be developed on a case-by-case basis in consultation with the USFS.

Alternative 2 - No Action

Indicator – Acres of Disturbance and Re-disturbance: None.

Indicator – Duration Between Disturbance and Initiation of Reclamation: Not Applicable.

Indicator – Acres Reclaimed to Full or Partial Potential: Not Applicable.

Direct and Indirect Impacts: Existing resource trends would continue. No surface disturbing activities or increased vehicular traffic would occur.

3.4 Water Resources

The RFP provides the USFS with management direction for achieving DFCs of water resources. The effects of the Proposed Action on water resources are disclosed with respect to the DFCs.

3.4.1 Management Plan Direction

The RFP provides general management direction pertaining to water resources, as well as specific guidance for managing AIZs. Aquatic influence zones were delineated on a forest-wide basis to conduct the analysis for RFP but are reviewed and refined on a project-level scale.

Watersheds and Riparian Resources

The RFP DFCs for watersheds and riparian resources are as follows:

- Watersheds provide infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform.

- Watersheds provide a well-distributed pattern of nutrients and energy, as well as diverse age-classes of vegetation that contribute to watershed health.
- Restoration strategies promote recovery of watershed, riparian, water quality and aquatic conditions characteristic of the geoclimatic setting.
- Riparian areas have a range of vegetative structural stages that are at, or moving toward, a properly functioning condition, have features necessary to promote stable stream channels, provide diverse habitat conditions for both aquatic and terrestrial wildlife species, and deliver clean water in support of the Clean Water Act and Safe Drinking Water Act.

Applicable RFP goals for watersheds and riparian resources are as follows:

- Design and implement watershed management programs and plans that protect and restore water quality and watershed function to support beneficial uses.
- Protect waters meeting or surpassing state water quality standards by planning and designing land management activities that protect water quality.
- Maintain or restore water quality to a degree that provides for stable and productive riparian and aquatic ecosystems within the capability of the system.
- Aquatic habitat provides for species viability of all native and desired nonnative vertebrate species on the forest.

Applicable RFP guidelines (standards are not listed in the RFP) for watersheds and riparian resources are as follows:

- Not more than 30 percent of any of the principal watershed and/or their subwatersheds (sixth hydrologic unit code [HUC]) should be in a hydrologically disturbed condition at any one time.
- Proposed actions analyzed under the National Environmental Policy Act (NEPA) should adhere to the State Source Water Assessment Plan to achieve consistency with the Safe Drinking Water Act, and amendments, to emphasize the protection of surface and ground water sources used for public drinking water.
- Projects in watersheds with 303(d) listed waterbodies and/or delineated source water protection areas should be supported by scale and level of analysis sufficient to permit an understanding of the implications of the project within the larger watershed context.
- Proposed actions analyzed under NEPA should adhere to the State Nonpoint Source Management Plan to achieve consistency with both Sections 313 and 319 of the Federal Water Pollution Control Act.

Aquatic Influence Zone, Prescription

This specific management prescription applies to the AIZ associated with lakes, reservoirs, ponds, perennial and intermittent streams, and wetlands. Management emphasis is to restore and maintain the health of these areas, and AIZ management direction overrides direction from other overlapping management areas (such as phosphate lease areas).

As defined in the RFP, the AIZ for non-fish bearing, permanently flowing streams is the stream channel 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).

The AIZ for intermittently flowing streams is defined in the RFP as the intermittent stream channel plus whichever of the following parameters is greatest:

- Top of the inner gorge;
- Outer edges of riparian vegetation;
- From the edges of the stream channel to a distance equal to the height of one-half site potential tree; or
- 50 feet slope distance (100 feet including both sides of the stream channel).

The RFP DFCs for the AIZ prescription area are as follows:

- Riparian areas filter sediments, protect stream banks, improve water quality, reduce flooding, recharge groundwater, and maintain stream flow. Riparian areas are covered by deep-rooted and other desirable, protective vegetation, which provide adequate summer and winter thermal regulation. Generally, riparian areas are connected with aquatic and upland components. They provide food, water, cover, nesting areas, and protected pathways for aquatic and wildlife species.
- Stream channels and floodplains are functioning properly relative to the landform (gradient, size, shape, roughness, confinement, and sinuosity) and climate. Aquatic ecosystems are within the capability of the channel types and landform.
- Riparian areas identified as being in properly functioning condition are managed to maintain at least that condition with no downward trends. Areas identified as functioning-at-risk or nonfunctioning show an upward trend toward proper functioning condition.
- Public waters are restored where water quality does not support beneficial uses and otherwise are maintained or improved.
- Roads in riparian areas are few and stable. Roads exist in riparian areas only where there are no practical alternatives. Some road corridors are apparent, but roads in sensitive landscapes are few and stable.
- Properly functioning riparian systems contain a mosaic of well-connected habitats that support diverse populations of native and desired non-native species. All life phases are fully supported.

- Native aquatic and riparian-dependent species population strongholds are increasing and well distributed within historic ranges. Improved aquatic and riparian habitat conditions contribute to the recovery of federally listed aquatic and riparian-dependent species, and keep species-at-risk from becoming listed, allowing them to expand into previously occupied habitat. Fragmentation is reduced as connectivity between streams and rivers improves.

Applicable RFP goals for the AIZ prescription areas are as follows:

- Riparian and aquatic ecosystems provide water quality suitable for supporting designated beneficial uses.
- Instream flows support healthy riparian and aquatic habitats, the stability and effective function of stream channels and the ability to route flood discharges.
- Natural timing and variability of the water table elevation in meadows and wetlands is maintained or restored.
- Native and desired non-native communities in riparian zones are productive and diverse.
- Federal water rights for consumptive and non-consumptive in-stream water uses are quantified and asserted in collaboration with state and local governments and other interested parties. State law and the interests of holders of existing water rights are appropriately considered while developing strategies to achieve desired conditions for aquatic and stream-based resources.
- Large woody debris is sufficient to maintain the function of natural aquatic and riparian ecosystems.
- Aquatic and riparian habitat supports populations of well-distributed native and desired non-native plant, vertebrate, and invertebrate populations that contribute to the viability of riparian and aquatic-dependent communities, including unique genetic fish stocks.

Applicable RFP S&Gs for the AIZ prescription area are as follows:

- Locate new structures, support facilities, and roads outside AIZs. Where no alternative to siting facilities in AIZs exists, locate, and construct the facilities in ways that avoid or reduce impacts to desired AIZs attributes. Where no alternative to road construction exists, keep roads to the minimum necessary for the approved mineral activity.
- Do not locate debris, mine overburden, excess material, leaching pads, and other facilities within AIZs, unless no alternatives are available. If no other alternative exists, ensure that safeguards are in place to prevent release or drainage of toxic or other hazardous materials onto these lands (Minerals/Geology Guideline).
- Within legal authorities, ensure that new proposed management activities within watersheds containing 303(d) listed waterbodies improve or maintain overall progress toward beneficial use attainment for pollutants, which led to listing (General Riparian Area Management Standard).

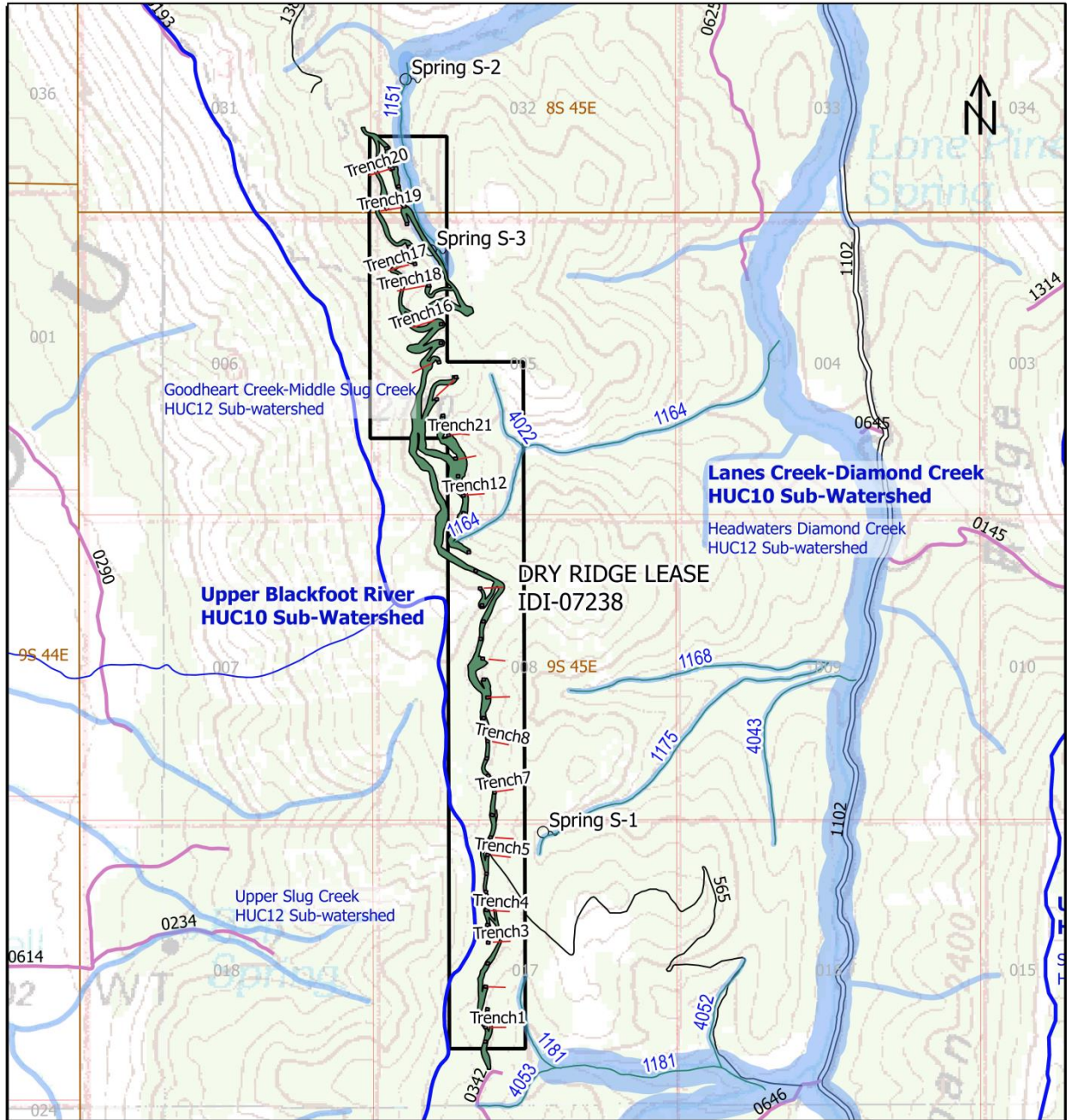
- Avoid storage of fuels and other toxicants or refueling within AIZs unless there are no other alternatives. Any refueling sites within an AIZ should have an approved spill containment plan (General Riparian Area Management Guideline).

3.4.2 Affected Environment

The disturbance lies on the east side of Dry Ridge within the Headwaters Diamond Creek Subwatershed (HUC 170402070103) of the Diamond Creek Watershed (HUC 1704020701) (**Figure 3-2**). The Idaho Water Quality Standards, under Idaho Administrative Procedures Act (IDAPA) 58.01.02, list water body unit US-16 “Diamond Creek – source to mouth” as all the streams near the project disturbance area. Since the Idaho Water Quality Standards do not identify any specific beneficial uses for this water body unit, it is presumed to support cold water aquatic life, primary or secondary recreation beneficial uses, so applicable water quality standards for those uses shall apply.

Assessment units are waters of the state with similar land use cover, ownership, or land management that is expected to possess similar water quality. The Diamond Creek water body unit is divided into two assessment units: 17040207SK016_02 for Diamond Creek-unnamed tributaries and 17040207SK016_02a for upper Diamond Creek. The Diamond Creek assessment units have been identified by the IDEQ as having beneficial use impairments due to sedimentation and siltation. Due to these impairments, a water quality improvement plan, or total maximum daily load (TMDL), and TMDL Implementation Plan have been prepared by the IDEQ for the Upper Blackfoot River Subbasin and approved by the EPA (IDEQ, 2001 and 2006). The TMDL identified a target of 80% streambank stability for all waterbodies in the Blackfoot River Subbasin because streambanks are a substantial source of sediment contribution into streams. Since the TMDL was completed, beneficial use impairments have also been identified due to *Escherichia coli* (E. coli) contamination of both assessment units, as well as water temperatures exceeding criteria in the upper Diamond Creek assessment unit (IDEQ, 2014). As required by Section 303(d) of the federal Clean Water Act, these water bodies have been listed as water-quality impaired waters, which would require an amendment of the TMDL to address E. coli contamination of both water bodies and water temperature for the upper Diamond Creek assessment unit.

In consultation with the CTNF and BLM, a reconnaissance of hydrologic features in the proposed disturbance area was conducted in mid-July 2014 (CES, 2014). The scope of the reconnaissance was to locate and describe hydrologic features near marked disturbance areas. The reconnaissance identified three perennial springs in the project vicinity. All three springs appear to contribute to flow at the headwaters of tributaries to Diamond Creek. Spring S-1 is located at the headwaters of a perennial stream that flows east (HUC 17040207001175). This spring will not be encroached upon by the project disturbance. Spring S-2 is located on a north-facing slope just above a perennial stream that flows north (HUC 17040207001151) through South Stewart Canyon. Spring S-3 is located at the headwaters of the same perennial stream that flows north past Spring S-2.



Legend

- Proposed Disturbance
- HUC10 Subwatersheds
- HUC12 Subwatersheds
- HUC14 Reach Codes (Last 4 digits)
- Aquatic Influence Zones
- Arterial Road
- Local Road
- Trail

0 0.5 1 mile



Figure 3-2 Surface Water Resources

PROJECT NUMBER: 2014220003	Dry Ridge Phosphate Exploration EA Caribou-Targhee National Forest
DATE: 2/13/2015	
FILE: 201422003 F 3-2.qgs	Fertoz USA LLC Brisbane, Queensland, AUS
PREP BY: DJB REVIEWED BY: RKB	
REVISIONS:	CES CASCADE EARTH SCIENCES A Valmont Industries Company

Coordinates: NAD83
Sources: 2014 USDA Geospatial Center HUC Boundaries, 2003 USFS Caribou-Targhee RFP AIZs, 2012 IDEQ 305b Integrated Report, USGS 1978 Soda Springs 30x60 Sheet (1997 DRG), USFS 2000 Mineral Leases

The project disturbance will encroach upon the AIZ for the perennial stream (HUC 17040207001151) that flows north past two of the springs identified in the 2014 field survey. Based on the stream flow past these springs, the AIZ buffer prescription for this stream segment was reclassified from 50 feet for an intermittent stream to 150 feet for a perennial stream. The 30-foot wide temporary access road would be constructed about 50 feet above the stream for about 1400 feet, for a disturbance of about 1.0 acres.

The project will also encroach upon the AIZ for an intermittent stream (HUC 17040207001164) that flows east into Diamond Creek. The access road to drill pad 27 would cross the uppermost reach of this AIZ. Trench 12 would be excavated across this AIZ to evaluate a fault trace that appears to create an offset in the Phosphoria Formation. Based on an AIZ width of 100 feet across both sides of this drainage, an assumed access road width of 30 feet, and an assumed trench width of 15 feet, the access road and trench would affect 0.10 acres, bringing the total project disturbance of water resources to 1.1 acres.

Unpublished groundwater monitoring data collected at the adjacent Husky 1 and the North Dry Ridge Leases were reviewed to evaluate groundwater conditions in the proposed disturbance area (BLM, 2014). Groundwater is expected to be found in the Rex Chert and Cherty Shale Members of the Phosphoria Formation, perched on top of the Meade Peak Shale Member of the Phosphoria Formation. Groundwater in the Phosphoria Formation is isolated from the regional aquifer that is hosted by the Wells Formation (mainly limestone). The elevation of groundwater in the regional aquifer is between 6,374 and 6,394 feet amsl. As planned, two drill holes would be drilled at each pad: one would be 350 feet long at a 30 degree angle (from horizontal) and total depth of 175 feet, and the other would be 500 feet long at a 60 degree angle and total depth of 433 feet. The lowest pad in the disturbance area is number 48 (**Figure 2-1**), at approximately 7,743 feet amsl, and the depth of the deepest drill hole from this pad would be 7,300 feet amsl. As such, the deepest proposed drill hole would terminate at least 300 feet higher than the regional aquifer.

3.4.3 Environmental Consequences

Issue: The project may adversely affect water resources by increasing sediment transport to surface waters during, and immediately following, a precipitation event.

Alternative 1 - Proposed Action

Indicator – Acres of Disturbance and Re-disturbance: An estimated 32 acres of new surface disturbance would be created with the Proposed Action. As shown in **Table 3-4**, the project would disturb 14.9 acres soil units dominated by soil families with moderate to high cut and fill erosion hazards. However, 1.1 acres would be disturbed within AIZs.

The north end of the lease may also be accessed through Agrium's exploration roads on the Husky 1 Lease. It is not known what roads would be open or used at that time, if at all, or whether they would be in any AIZs. Any road used would be subject to the same direction and protections of AIZs in the RFP and if an Agrium road is used it would be subject to similar environmental protection measures.

Direct and Indirect Impacts: The total area of disturbance within the AIZ will be about 1.1 acres. There are no planned crossings of perennial streams but a road segment will be constructed within the AIZ of a perennial stream. Part of one access road and one trench would be constructed in an intermittent drainage designated as an AIZ. There is potential for indirect impacts by construction in AIZs, sedimentation, and possible chemical leaching.

Best management practices would keep project activities in compliance with RFP S&Gs for AIZs and support water quality protection goals outlined in the TMDL Implementation Plan. Because all disturbances would be temporary, no long-term impacts are expected to occur within AIZs, and project activities are expected to comply with RFP AIZ DFCs, goals, and S&Gs. Best Management Practices described in Section 2.2 would mitigate impacts to surface water quality.

In general, surface disturbing activities have the potential to decrease water quality by increased sediment transport to surface waters through increased erosion rates and potential for mass soil movements. Impacts to all streams, including the 303(d) listed streams, and the unnamed tributaries of both the Diamond Creek assessment unit and the upper Diamond Creek assessment unit are possible. However, sedimentation is unlikely due to the width of undisturbed vegetated buffers between disturbance and drainages and by the application of the sediment control BMPs identified for the project.

Selenium release from exploration activities is not anticipated for several reasons. Most construction would take place on one side or the other of the Phosphoria Formation. The road construction that does coincide with the Phosphoria Formation would be shallow and would generate very little cut material. The cut material would be highly weathered and would generally have low concentrations of contaminants. Core drilling does not produce drill cuttings. Other forms of drilling do create cuttings, but the volume of seleniferous material, as a sediment source or leaching source would be very minor. Adherence to the BMPs specified in Section 2.3 for erosion control would minimize the migration of any seleniferous sediment generated.

Impacts to surface water are expected to be minimal. The project is anticipated to comply with the Clean Water Act, Safe Drinking Water Act, and Idaho Ground Water Quality Rule.

Drilling fluids and water would be used to cool the drilling bit. Most of this fluid would be dissipated down the core hole and some would infiltrate into the ground in the sumps. The sumps will eliminate impacts to drainages such that none of the drilling fluids would be discharged or disposed in waterways or on the ground where runoff could transport fluids into waterways. As with soil resources, mitigation success depends on the ability of project BMPs to minimize off-site transport of sediments, especially during storm events and spring snowmelt, and reestablishment of vegetation.

The impact of water withdrawal at temporary diversion points on water quality would be temporary and negligible. Project activities would not directly affect water troughs, beaver ponds, stock ponds, seeps, or springs.

Drilling is not expected to intersect the regional aquifer but could intersect shallow perched groundwater in the Rex Chert and Cherty Shale Members of the Phosphoria Formation. Each

drill hole would take about 1-2 days to complete. It is possible that some drilling fluid could migrate out of the hole into the formation, but this would be minimal. Efforts would be made during drilling to recover as much fluid as possible. Additives are typically used to limit fluid migration out of the hole. After each hole is drilled and core samples have been collected, each drill hole would be properly abandoned by plugging it with bentonite, according to Idaho well drilling rules. The short timeframe that the holes would be open before plugging would minimize the potential for mixing groundwater from different depths with different water quality, including selenium.

Mitigation: Part of an access road and one trench would be located in an intermittent drainage. In order to minimize the possibility of impacts, construction will be scheduled at this location when there is no surface water present, typically late summer or fall.

Alternative 2 - No Action

Indicator – Acres of Disturbance and Re-disturbance: None.

Direct and Indirect Impacts: Existing resource trends would continue. No surface disturbing activities or increased vehicular traffic would occur.

3.5 Vegetation

The RFP establishes direction for DFCs with respect to non-forested and forested vegetation management.

3.5.1 Management Plan Direction

The DFC for forested vegetation is that forested habitats would display a diversity of structure and composition. Productive and diverse populations of plants are maintained or restored.

The RFP S&Gs for forested vegetation applicable to the project are as follows:

- In each fifth code HUC that has the ecological capability to produce forested vegetation, the combination of mature and old age classes shall be at least 20 percent of the forested acres. At least 15 percent of all the forested acres in the HUC are to meet or be actively managed to attain old-growth characteristics.
- The definition of old growth characteristics by forest type found in “Characteristics of Old-Growth Forests in the Intermountain Region” (Hamilton, 1993) shall be used, unless a more current direction is developed.

The RFP DFCs for plant species diversity applicable to the project include:

- Management activities contribute to the recovery and/or conservation of federally listed and proposed plant species and provide for conditions that help preclude sensitive species from being proposed for federal listing.
- Native plants are generally used for revegetation projects.

The RFP goal for plant species diversity that applies to the project is that rare and unique plant communities are maintained or restored.

The RFP standard for plant species diversity that applies to the project is that projects and activities shall be managed to avoid adverse impacts to sensitive plant species that would result in a trend toward federal listing or loss of viability.

3.5.2 Affected Environment

Vegetation resource data were compiled from onsite reconnaissance conducted by CES (2014) and a desktop review of the CTNF GIS data (USFS, 2003a). The USFS geospatial data identify five vegetation types within the project disturbance area (**Table 3-5**).

Table 3-5 Vegetation Communities Mapped within the Proposed Disturbance Area

Vegetation Community	Total Acres	Percent of Disturbance
Mixed conifer	6.9	22
Douglas fir	7.9	25
Lodgepole pine	7.4	23
Aspen	3.9	12
Sagebrush/mountain brush complex	5.9	18
Total	32.0	100

Source: USFS, 2003a

Field reconnaissance generally identified a composition of various successional stages of the abovementioned vegetation types (CES, 2014). Boundaries of the mapped polygons were not verified in the field, although general stand characteristics and understory vegetation were documented, as described below.

Mixed Conifer

Mixed conifer stands comprise approximately 22% of the land cover proposed for disturbance. Varying intermixed overstory components of Douglas fir (*Pseudotsuga menziesii*), subalpine fir (*Abies lasiocarpa*), lodgepole pine (*Pinus cortorta*), and Engelmann spruce (*Picea engelmannii*) were identified on north-facing slopes, drainages, and draws of the east flank of Dry Ridge. Coniferous canopy species were primarily found in mid to late seral stages throughout the proposed disturbance area. Principal understory species included thimbleberry (*Rubus parviflorus*), blue elderberry (*Sambucus nigra cerulean*), blueberry/huckleberry (*Vaccinium spp.*), Oregon grape (*Mahonia repens*), mountain sweet cicely (*Osmorhiza berteroi*), Idaho fescue (*Festuca idahoensis*), and elk sedge (*Carex geyeri*).

Mixed conifer communities at higher elevations to 8,500 feet contained climax stands dominated by subalpine fir. Subalpine meadows are common along the ridgetops and are scattered among the subalpine fir stands. Stands generally graded to spruce/fir/pine with a decrease in elevation and change in aspect. South-facing xeric slopes to 7,750 feet amsl contained dispersed pockets of limber pine (*Pinus flexilis*) intermixed with Rocky Mountain juniper (*Juniperus scopulorum*) and a mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*) understory.

Douglas Fir

The Douglas fir vegetative stands are chiefly situated within east-facing drainages of perennial tributaries to Diamond Creek in the proposed disturbance area. These stands comprise about 25% of the disturbed land cover. While Douglas fir is the primary overstory species, minor inclusions of lodgepole pine, subalpine fir, and Engelmann spruce are interspersed in the canopy and understory. The understory includes the abovementioned shrub species. Riparian areas in these stands contained black currant (*Ribes lacustre*), Richardson's geranium (*Geranium richardsonii*), and brook saxifrage (*Saxifraga odontoloma*).

Lodgepole Pine

The lodgepole pine vegetative stands are present along the east-facing slopes of Dry Ridge. These stands encompass about 23% of the disturbed land cover. Mid-seral stages of these stands were intermixed with mid to late-seral stage canopy species that included Douglas fir and Engelmann spruce. Common understory species described for the mixed conifer and Douglas fir stands were present throughout the lodgepole pine stands.

Aspen

Aspen (*Populus tremuloides*) stands are located primarily on ridgetops and east/northeast-facing mesic slopes of Dry Ridge. Some stands are also located within intermittent drainages on the west flank of Dry Ridge. These are often closed canopy stands, intermixed with conifer species. Aspen stands comprise approximately 12% of the disturbed acreage. Occasional conifers, typically Douglas fir, subalpine fir, or lodgepole pine, are present within the overstory and understory. The understory includes a mix of blue elderberry, Saskatoon serviceberry (*Amelanchier alnifolia*), and snowberry (*Symphoricarpos albus*).

Sagebrush/Mountain Brush Complex

The Sagebrush/Mountain Brush Complex land cover type is common on south and west-facing xeric slopes of Dry Ridge. This land type comprises about 18% of the disturbed cover. Dominant species include big mountain sagebrush, chokecherry (*Prunus sp.*), western serviceberry, snowbrush ceanothus (*Ceanothus velutinus*), and bitterbrush (*Purshia tridentata*), with a minor overstory component of limber pine and Rocky Mountain juniper. Primary ground cover species within this vegetative type include parsnip-flowered buckwheat (*Eriogonum heracleoides*), yarrow (*Achillea millefolium*), wild dandelion (*Agoseris glauca*), paintbrush (*Castilleja sp.*), Idaho fescue, and pearly everlasting (*Anaphalis margaritacea*).

Threatened, Endangered, and Sensitive (Special Status) Plants

A review of the February 2013 Intermountain Region (R4) Threatened, Endangered, Proposed, and Sensitive Species did not identify any known federally Threatened or Endangered species or habitat on the Caribou National Forest (USFS, 2013). Ute ladies' tresses orchid (*Spiranthes diluvialis*) is a federally listed Threatened species with suspected/potential habitat on the forest. No Ute ladies' tresses orchids were observed during field reconnaissance conducted in 2014.

Whitebark pine (*Pinus albicaulis*) is listed as a Candidate suspected, but with no known occurrences on the CTNF. No whitebark pine, a federal candidate species, was identified during the August 2014 field survey.

A total of three R4 sensitive plant species are listed on the CTNF portion of the forest in the list of Proposed, Endangered, Threatened, and Sensitive Species. These include Starveling milkvetch (*Astragalus jejunus* var. *jejunus*), cache beardtongue (*Penstemon compactus*), and Payson's bladderpod (*Lesquerella paysonii*). None of the R4 Sensitive species, or suitable habitats for these species, was encountered during the field reconnaissance in July 2014.

None of the species identified on the Idaho State Department of Agriculture list of 65 noxious weeds (ISDA, 2014) were observed.

3.5.3 Environmental Consequences

Issue: The project may have an adverse impact on vegetation.

Alternative 1 - Proposed Action

Indicator – Acres of Disturbance: Total surface disturbance by construction of temporary access roads, trenches, and drill pads would be 32 acres.

Direct and Indirect Impacts: Total surface disturbance associated with the construction of temporary roads, improvement of existing roads and trails, trenching, and construction of drill pads would be approximately 32 acres. With the exception of the mixed conifer/aspen community, a consequence of the Proposed Action would be direct impacts to each of the aforementioned land cover classifications.

The 32 acres of forest impacted by the Proposed Action are dominated by mature to old age classes. The quadratic mean diameter of the affected trees is 11.9 inches dbh. The landscape is well above 20% mature and old age classes and the project does not affect any stands that meet old-growth characteristics (Beck, 2014). These impacted stands are similar to those that dominate the landscape in size and age. The impacted forested stands do not meet the RFP old-growth criteria. In this alternative, all merchantable timber will be purchased, cut, and removed. The above-described impacts would not affect the CTNF ability to meet vegetation standard 2 of the Revised Forest Plan (RFP3-19) (Beck, 2014).

Impacted herbaceous groundcover and shrubs will be reclaimed and revegetated. Early seral vegetation recovery is anticipated to be approximately 3-5 years. Impacts to canopy vegetation would be long-term, as replacement of mature trees would likely be at least 100 years.

The highest percent of disturbance would be to the Douglas fir community (25% of the project disturbance area), followed by the lodgepole pine community (23% of the project disturbance area). Impacts to mixed conifer stands represent about 22% of the disturbance area. Implementation of the Proposed Action is anticipated to result in long-term impacts to approximately 22.2 acres of coniferous forest (Douglas fir, lodgepole pine, and mixed conifer). Depending on productivity of the site, Douglas fir may require up to 200 years to establish seral or climax dominance in stands. Dominant seral stands of lodgepole pine may require 100 to 200

years. Mixed conifer stands with Engelmann spruce and subalpine fir in alpine transition environments may require 150 years to reach dominance (Hamilton, 1993). The average tree age within the in the cruised area in the proposed disturbance area was 131 years at dbh (Beck, 2014). Based on this, it is expected replacement of mature trees would likely be at least 100 years.

Approximately 18% of the project disturbance consists of sagebrush/mountain brush. Temporary loss of herbaceous vegetation is expected, with reestablishment of early seral communities probable within 2 years following reclamation. Shrub seedlings are anticipated to emerge within 5 years of reclamation, although recovery of stands of mountain big sagebrush can take from 35-100 years (Baker, 2006). As such, long-term, impacts to 5.9 acres of the sagebrush/mountain brush community are expected from the Proposed Action.

Disturbance to the aspen community represents 12% of the total project disturbance. Suckers would likely colonize following reclamation. However, Intermountain Region aspen stands typically mature in about 80 years (Stevens and Monson, 2004). Thus, long-term impacts are expected to 3.9 acres within aspen stands following implementation of the Proposed Action.

Mitigation: No mitigation measures are required.

Alternative 2 - No Action

Indicator – Acres of Disturbance: None.

Direct and Indirect Impacts: Conditions of the resource currently existing in the proposed disturbance area would not change. Current vegetation communities would not be impacted and ecological trends would likely continue at the current rate.

3.6 Fish and Wildlife, Including Threatened, Endangered, and Sensitive Species

The RFP establishes direction for DFCs with respect to fish and wildlife.

3.6.1 Management Plan Direction

As described on page 3-24 of the RFP, the DFCs for wildlife are:

- The Forest provides habitat that contributes to state wildlife management plans.
- Forest management contributes to the recovery of federally listed threatened, endangered, and proposed species and provides for conditions, which help preclude sensitive species from being proposed for federal listing.

3.6.2 Existing Conditions/Affected Environment

The proposed disturbance is situated within the Idaho Overthrust Mountains Ecological Section, which is characterized by minor mountain ranges and broad valleys. Habitat types include northern mesic coniferous forest, subalpine forest, and subalpine grassland (IDFG, 2005). Ecological conditions in the proposed disturbance area are representative of those encountered in

the general vicinity of Dry Ridge and surrounding Webster Range ridges. Terrestrial wildlife species utilizing habitat types within the proposed disturbance area include a variety of mammals, birds, reptiles, and amphibians. The highest diversity and abundance of wildlife species likely occurs in the spring and summer during avian migration and nesting seasons.

Data from the Idaho Department of Fish and Game, the USFS GIS database, scientific literature, U.S. Fish and Wildlife Service (USFWS), onsite reconnaissance, and a review of other resource reports (e.g., silviculture and hydrology) were compiled to describe the existing condition of the analysis area (Project Lease and ½-mile buffer surrounding the lease).

Endangered Species Act Listed Wildlife

CES obtained an Endangered Species Act (ESA) species list from the USFWS Information, Planning, and Conservation (IPaC) System for the analysis area (April 23, 2015 – Consultation Tracking Number: 01EIFW00-2015-SLI-0256; USFWS, 2015). According to the IPaC Species List, the following ESA listed wildlife species may occur in the analysis area: Canada Lynx (*Lynx canadensis*), Bliss Rapids snail (*Taylorconcha serpenticola*) (Threatened), and Snake River Physa snail (*Physa natricina*) (Endangered).

Critical Habitat – As described in the IPaC species lists, there is no USFWS designated Critical Habitat for a species near the proposed disturbance area.

A brief discussion of these special status terrestrial wildlife species potentially occurring in or near the proposed disturbance area is provided below.

Canada Lynx

The action area is not situated within the Northern Rockies Lynx Planning Area and is not located in areas mapped as occupied habitat or unoccupied habitat (USFS, 2007). However, the action area is situated within or near habitat that may provide linkage habitat (suitable forage and cover, and low human activity levels and road density) for lynx providing connectivity, movement, and dispersal. Moreover, a lynx has been reported approximately 1.15 miles east of the Project Lease boundary (IFWIS, 2014). On July 19, 2013, the USFS and BLM met with the USFWS to confirm the existing determination of No Effect for a previous project in this vicinity. It was discussed that the observed female lynx was likely part of a program for reintroducing lynx into Colorado that began circa 2000. Several lynx associated with the reintroduction returned northward, occasionally passing through the CTNF. Since then, no other lynx observations have been reported in the Soda Springs or Montpelier Ranger Districts (BLM, 2013). Based on this, lynx observations near the disturbance area are likely transient or incidental in nature (see Section 3.6.3).

Bliss Rapids Snail

The Bliss Rapids snail (*Taylorconcha serpenticola*) is an aquatic mollusk endemic to the Snake River drainage in Idaho (Bean, 2011). Survey data indicate the species is distributed discontinuously over 22 miles in the Snake River and 14 springs or tributaries to the Snake River (USFWS, 2014a). Based on this, the Bliss Rapids snail is not expected to occur within or near the proposed disturbance area. Thus, there will be no effect to Bliss Rapids snails under the Proposed Action.

Snake River Physa Snail

The Snake River Physa snail (*Physa natricina*) is an aquatic mollusk believed to be confined to the Snake River as far upstream as the Minidoka Dam at RM 675 (USFWS, 2012). Based on this, the Snake River Physa snail is not expected to occur within or near the proposed disturbance area. Thus, there will be no effect to Snake River Physa snails under the Proposed Action.

Sensitive Species and Management Indicator Species (MIS)

The Regional Forester identifies Sensitive Species when population viability is a concern (USFS, 2013). In addition, the Northern Goshawk (*Accipiter gentilis*), Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*), and Greater sage grouse are the MIS species for the CTNF (USFS, 2003a). The tables in Appendix B disclose the presence of R4 sensitive species, MIS species, and other protected species or species of local concern within the analysis area.

Occurrence within the analysis area is described as “known,” “probable,” “not expected,” or “no presence” based on the amount, distribution, and quality of suitable habitat in and around the disturbance area; reviewing file information of suitable habitat, sightings; survey data; site visits; and/or personal knowledge of species and habitat. The occurrences of sensitive species and MIS species are summarized in **Table 3-6**.

3.6.3 Environmental Consequences

Issue: The project may cause loss of wildlife species habitat or individuals.

Issue: The project may cause wildlife to be exposed to selenium

Alternative 1 - Proposed Action

Under the Proposed Action, phosphate mineral exploration activities would disturb 32 acres through development of the roads, drill pads, and trenches. Project activities may affect wildlife or their habitats due to the direct and indirect impacts of displacement from human disturbance and removal of vegetation and associated habitats. As such, the analysis area was established as a 0.5-mile buffer around the disturbance for a total of 3,085 acres. Although some of the impacts may occur across the analysis area, others are limited to localized, site-specific areas. In addition, impacts to vegetation are considered due to the potential for indirect effects to special status species. For example, project impacts to vegetation that provides habitat for prey species could indirectly affect raptors if populations of prey species are reduced.

Indicator – Acres of disturbance: Total surface disturbance from new temporary road construction, trenching, and constructing drill pads would be approximately 32 acres.

Table 3-6: US Forest Service Region 4 Sensitive Species and Management Indicator Species

Species	Presence	Rationale
Terrestrial, Avian and Amphibian		
Spotted bat (<i>Euderma maculatum</i>)	Not Expected	Spotted bats (<i>Euderma maculatum</i>) occur primarily in southwest and central Idaho. They are not generally expected to occur in southeast Idaho (Miller et al. 2005, page 45; WBWG, 2005; USDA-FS, 2003b p. 3-214; IDF&G, 2005). While this species characteristically occurs in association with xeric and riparian habitats in deep, narrow canyons where massive cliffs predominate (IDFG 2005), they typically utilize a variety of habitats (USFS 2003). Dominant vegetation at occurrence sites within Idaho includes sagebrush, juniper (<i>Juniperus</i> sp.), mountain mahogany (<i>Cercocarpus ledifolius</i>), cottonwood (<i>Populus</i> sp.) and ponderosa pine Forests (IDFG, 2005). While no observations of spotted bats have occurred within or adjacent to the analysis area, the CTNF lies between known populations in southwest Idaho and the northeastern portion of the Greater Yellowstone Area in Montana and Wyoming (USFS, 2003). Overall, distribution of spotted bats is patchy and limited geomorphically by roosting habitats and their close association with prominent rock features (Miller et. al. 2005). These habitat types are lacking in the analysis area. While they may be intermittently present in appropriate habitats (which would be expected to be limited to foraging movements), overall presence of spotted bats within the analysis area is not expected. Since presence within the disturbance area is not expected, there will be no impact to this species under any alternative. Since there will be no impacts to spotted bats, there will be no Cumulative effects. This species will not be discussed further.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Probable	Townsend's big-eared bats (<i>Corynorhinus townsendii</i>) occupy moist forests and arid savannah/shrub steppe. They have been found foraging over sagebrush-grasslands, riparian areas, and open pine forests within the Greater Yellowstone Ecosystem (USFS 2003). These bats primarily forage on Lepidopteran's (moths and butterflies) (IDFG, 2005b), as well as flies and beetles (USFS, 2003). Known maternity colonies occur well to the northwest of the analysis area on the Craters of the Moon National Monument (IDFG, 2005b). Hibernation habitat is present in the southern extent of the Bear River Range. Townsend's big-eared bats use a variety day roosting habitats, including caves, cliffs, buildings, bridges, and tree cavities. (USFS, 2003; Groves et al, 1997). There are no documented occurrences of Townsend's big-eared bats within the analysis area. In addition, caves and mine tunnels typical of hibernacula sites are not present in the analysis area. While there are no documented occurrences within the analysis area, habitat for Townsend's big-eared bats and their prey exists within the analysis area. Moreover, tree cavities in snags may be used for day roosts. Based on this, the presence of Townsend's big-eared bats within the analysis area is probable.
Pygmy rabbit (<i>Brachylagus idahoensis</i>)	Not Expected	Pygmy rabbits (<i>Brachylagus idahoensis</i>) generally occur in in sagebrush habitats with dense structure, high canopy cover and deep soils. Sagebrush is the primary food source, but grasses and forbs are consumed in mid-late summer (USFS, 2003). The vast majority of Pygmy rabbit observations in southeast Idaho have occurred outside the CTNF, and habitat within the analysis is inherently limited due to the steep topographies in most areas. While mountain big sagebrush is present in the analysis area, the majority of this vegetative type occurs on steep slopes with rocky outcrops underlain by talus and shallow soils. Since presence within the disturbance area is not expected, there will be no impact to this species under any alternative. Thus, there will be no cumulative effects and this species will not be discussed further.
Gray Wolf (<i>Canis lupus</i>)	Probable	The gray wolf (<i>Canis lupus</i>) is an R4 Sensitive species within the CTNF. The gray wolf has a large home range and typically travels and hunts in packs of 2-12 animals. As of 2013, there were no documented or suspected wolf packs or wolf activity in the phosphate mining areas of the CTNF (USFWS, 2014c). The closest known packs are the Tex Creek (#302) pack, east of Idaho Springs and Horse Creek (#165) pack in Wyoming. However, due to the large home range of the gray wolf in Idaho and numbers of ungulate species in and around Dry Ridge, it is possible wolves could utilize habitats within and proximate to the analysis area. Therefore, the presence of wolves within the analysis area is probable.
North American wolverine (<i>Gulo gulo(luscus)</i>)	Probable	Wolverines (<i>Gulo gulo (luscus)</i>) occupy varied habitats, including boreal forests, tundra, and western mountains throughout their range. Persistent, deep snow around tree roots, log jams, boulders, and rocks are a requirement for natal denning due to the security and insulating properties of the snow. They are carrion scavengers, but also prey on small mammals and birds, insects, and fruits (USFS, 2003; USFWS, 2014b). In general, wolverine habitat is described in terms of adequate year-round food supplies in large, sparsely inhabited areas. Denning habitat, characterized as rocky sites, such as north-facing boulder talus or subalpine cirques in forest openings (USFWS, 2010; USFWS, 2014b), does not exist within the analysis area. Furthermore, the analysis area lacks persistent stable snow cover greater than five feet required for denning. Although, a small portion of the analysis area reaches the minimum 8,200-foot denning elevation for wolverines in Idaho (USFS, 2010), the majority of the area is well below this threshold. Although denning activities are not expected, transient wolverine presence is anticipated in the analysis area. Wolverines have been observed at Timber Creek (tributary of Diamond Creek) in 2005, Montpelier Reservoir in 2014, and at Henry's Cutoff in 2013. Based on this, the presence of wolverines within the analysis area is probable during foraging or movement through the area.
Trumpeter swan (<i>Cygnus buccinators</i>)	No Presence	Suitable nesting habitat for trumpeter swans (<i>Cygnus buccinators</i>) includes marshes, lakes, beaver ponds, and oxbows and backwaters of rivers. They prefer quiet, shallow water with dense aquatic plant and invertebrate growth, with tall emergent vegetation to provide cover for both adults and broods (USFS, 2003). Known nesting habitat in southeast Idaho includes Palisades Reservoir, Salt River, Grays Lake, and Bear Lake National Wildlife Refuge, along the length of the Bear River, (including Alexander Reservoir), and along the Snake River (Groves et al., 1997; USFWS, 2012). In southeast Idaho, the majority of documented trumpeter swan observations have occurred adjacent to these larger rivers and reservoirs. There are no documented occurrences within or adjacent to the analysis area. Trumpeter swans are not present in the analysis area. No suitable habitat for trumpeter swans is expected to occur within the analysis area, which consists of relatively steep terrain with small, high gradient streams. Since there is no suitable habitat, no impacts will occur under any alternative. Since there will be no impacts to trumpeter swans, there will be no cumulative effects. This species will not be discussed further.

Species	Presence	Rationale
Harlequin duck (<i>Histrionicus histrionicus</i>)	No Presence	In Idaho, harlequin ducks (<i>Histrionicus histrionicus</i>) breed along streams from the Canadian border to the Selway River and in southeastern Idaho near the Wyoming border (IDFG, 2005b). Successful nesting habitat occurs north of Palisades Reservoir and north of the CTNF (Groves et al., 1997). The only potential habitat on the CTNF is on McCoy Creek (USFS, 2003). Harlequin ducks are sea ducks that migrate inland to breed. Wintering areas include shallow intertidal zones along rocky coastlines. Breeding occurs along clear, swiftly-flowing streams. Harlequin ducks dive or dabble to feed on freshwater and marine invertebrates and use fish roe when available (IDFG, 2005b). Considering the lack of habitat and streams with enough flow to allow diving or dabbling in the analysis area, no impacts will occur under any alternative. Since there will be no impacts to harlequin ducks, there will be no Cumulative effects. This species will not be discussed further.
Peregrine falcon (<i>Falco peregrinus anatum</i>)	No Presence	In Idaho, peregrine falcons (<i>Falco peregrinus anatum</i>) occupy the Rocky Mountain region along the eastern border of the state. Forest types include Douglas fir, Engelmann spruce-subalpine fir, and quaking aspen habitats. They occupy sagebrush and antelope bitterbrush (<i>Purshia tridentata</i>) steppes and mountain meadows at lower elevations (Luensmann, 2010). Known peregrine falcon (<i>Falco peregrinus anatum</i>) eyries occur at Grays Lake, Grays Ridge, Soda Springs, and Last Chance Canal. Peregrine falcons prefer cliffs and tall, manmade structures surrounded by open landscapes. They rarely occur in alpine habitats or dense, closed forests (Luensmann, 2010). Considering the lack of cliffs and open landscape, along with the dense forest cover and subalpine nature of the analysis area, no suitable habitat for peregrine falcon is likely present. In addition, no disturbance or decrease of available prey at known eyries is anticipated to result from the Proposed Action. Since there will be no impacts to peregrine falcons, there will be no Cumulative effects. This species will not be discussed further.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Not Expected	Bald eagles (<i>Haliaeetus leucocephalus</i>) may be found in a variety of habitats, but they primarily include larger bodies of water (e.g., rivers, reservoirs, lakes) (Groves et al, 1997). Nesting habitat in and around the CTNF is associated with rivers, lakes, and reservoirs, while wintering habitat is comprised mainly of major rivers and large lakes (USFS, 2003). None of these habitat types are present within or adjacent to the analysis area. In addition, there are no known bald eagle nests located in the analysis area. In the winter, it is acknowledged that temporary presence of high quality food may entice bald eagles to areas far removed from aquatic zones associated with rivers, lakes, and reservoirs (USFS, 2003b). Thus, if big game carrion or other similar food sources become available within the analysis area, incidental use may occur while the high quality food source is available. This activity would be expected to transpire for one or two days until coyotes and other scavengers consume or disperse the food source. The nearest nest locations are situated at Beavertail Point, Thayne, Peagram, Lucia, Alexander Reservoir, Lower Valley, Freedom, and King Creek, Salt River, and Palisades Reservoir. As such, the management direction, as described on page 3-27 and 3-28 of the RFP for Zones I, II, and III, do not apply to this project. Habitat for bald eagles within the analysis area is lacking and there have been no documented observations. Potential presence within the analysis would be short term, occurring primarily during the winter, and only occurring if high quality food sources are available. Therefore, presence of bald eagles within the analysis area is not expected. Since presence within the disturbance area is not expected, there will be no impact to this species under any alternative. Since there will be no impacts to bald eagles, there will be no Cumulative effects. This species will not be discussed further.
Northern goshawk (<i>Accipiter gentilis</i>)	Probable	Northern goshawks are a R4 Sensitive species with a high priority for nest protection (USFS, 2014b). Northern goshawk nesting habitat typically consists of large, undisturbed, remote tracts of mature forest with intermediate to highly closed canopies near open flight corridors. Since suitable northern goshawk habitat is present near the proposed disturbance area, CES completed a survey of the proposed disturbance area and 0.5-mile buffer (CES, 2014) using the Broadcast Acoustical Survey method described by Woodbridge and Hargis (2006). Goshawk calling stations were established at 102 locations within the study area (Figure 3-3). No goshawks were observed or detected during broadcast surveys completed at the calling stations. Moreover, no apparent goshawk nests were identified during the surveys. Suitable habitat (mature forested habitat with high canopy closure and open understories) occurs in forested areas throughout the analysis area. Although nesting within the analysis area is not expected, the presence of goshawks within the allotments is probable, and is expected to occur incidentally during foraging activities.
Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)	Not Expected	Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>) occupy grasslands with scattered woodlands, arid sagebrush, brushy hills, oak savannas, and edges of riparian areas. They are also found in upland winter wheat fields. In west-central Idaho, grouse prefer big sagebrush to other summer cover types. Mountain shrub and riparian cover types are considered critical components of winter habitat (Marks and Marks, 1987). They prefer moderate terrain, except in winter when they may use vegetation types on steeper slopes (Hoffman and Thomas, 2007). The RFP (USFS, 2003) identified sharp-tailed grouse hen movement up to one mile from the lek to nest, and mean winter movements from lek to winter habitat of two miles. Typical winter movements were 2.1 miles for females and 1.2 miles for males. Therefore, a two-mile area from known leks was used for analysis in the RFP. Presence of Columbian sharp-tailed grouse is not expected in or near the analysis area due to distance from known leks (greater than two miles). The nearest leks in Idaho are near the Blackfoot Reservoir. Since presence within the disturbance area is not expected, there will be no impact to this species under any alternative. Since there will be no impacts to Columbian sharp-tailed grouse, there will be no Cumulative effects. This species will not be discussed further.
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	Not Expected	Greater sage grouse is a candidate species for listing under ESA and an R4 Sensitive species. They are a sagebrush-obligate species and are entirely dependent upon healthy sagebrush communities for all stages of their life cycle. Sage grouse show high lek fidelity, returning to the same courtship display grounds each year. Efforts to ensure the conservation of sage grouse and their habitats are currently underway. As part of these conservation efforts, mapping of sage grouse habitats has been completed across the state; these mapping efforts have been completed by and in coordination with several federal and state agencies. The analysis area is not included in any Sage Grouse Planning Areas. Moreover, no Key Habitat, Preliminary Priority Habitat (PPH) or Preliminary General Habitat (PGH) exists within or adjacent to the analysis area. A pair of sage grouse leks are mapped about five to six miles west of the analysis area. A lek is also mapped about seven miles to the east, and another is mapped about eight miles northeast of the analysis area (IDFG, 2014). No other leks are mapped within 10 miles of the analysis area. As described above, there is no PPH or PGH mapped within or adjacent to the analysis area (BLM, 2012). The USFS Interim direction for the management of sage grouse habitat (USFS, 2012) applies specifically to areas designated as PPH and PGH habitat and, therefore, is not applicable to this project. The proposed disturbance area was surveyed and found to lack suitable habitat due to the high elevation, steep slopes, and large amounts of forested habitat. The small areas of isolated sagebrush within the proposed disturbance area are not suitable sage grouse habitat. Thus, sage grouse utilization of habitats within the analysis area is not expected. Since presence within the disturbance area is not expected, there will be no impact to this species under any alternative. Since there will be no impacts to sage grouse, there will be no Cumulative effects. This species will not be discussed further.

Species	Presence	Rationale
Great gray owl (<i>Strix nebulosa</i>)	Probable	The great gray owl (<i>Strix nebulosa</i>) is a R4 Sensitive species and is the largest owl in North America. These owls occupy mid to high elevation coniferous forests interspersed with natural meadows or clear-cuts and nest in mature and older forest stands using existing raptor nests or tops of broken trees and snags (Hayward and Verner, 1994; WDFG, 2010). Great gray owls have been detected east of the proposed disturbance area along Diamond Creek (IFWIS, 2014) and north of the proposed disturbance area in the Husky 1 North Dry Ridge Lease (Tetra Tech, 2014). Based on these detections and the presence of subalpine meadows within the lease, great gray owl use is probable in the disturbance area.
Flammulated owl (<i>Otus flammeolus</i>)	Probable	Flammulated owls (<i>Otus flammeolus</i>) are a R4 Sensitive species with a high priority for nest protection (USFS, 2014b). They are almost exclusively insectivorous and are found in a variety of forest types (USFS, 2003). Habitat generally includes open pine forests or montane deciduous forests dominated by aspen (Marti, 1997; McCallum et. al, 1995). Aspen stands within the proposed disturbance area are considered potential habitat, and accessible stands were surveyed in July 2014 (CES, 2014). This included establishment of seven flammulated owl calling stations near the proposed disturbance area (Figure 3-3). No flammulated owls were observed or detected during the broadcast vocalization survey. Although no flammulated owls were detected during the survey, suitable habitat is present in the analysis area. Thus, their presence is considered probable.
Boreal owl (<i>Aegolius funereus</i>)	Probable	Boreal owls (R4 Sensitive) occupy high elevation mixed conifer forests in the north, central, and southeast portions of Idaho. This species is a year-round resident within their home ranges. They prefer mature, mixed stands of subalpine fir and Engelmann spruce, with nesting associated with deciduous (primarily aspen) and mixed deciduous-conifer habitats (IDFG, 2005b). A boreal owl was detected on the Husky 1 Dry Ridge North Lease on June 13, 2013 (Tetra Tech, 2014). Moreover, subalpine fir and Engelmann spruce stands are present in the lease area. Thus, boreal owl presence is considered probable in the analysis area.
Three-toed woodpecker (<i>Picoides tridactylus</i>)	Known	The three-toed woodpecker is a R4 Sensitive species. In southern Idaho, three-toed woodpeckers primarily nest in mature old-growth lodgepole pine and in wet areas near standing water (Wiggens, 2004). Occupancy is also anticipated in areas with recently killed trees (USFS, 2014b). CES completed surveys for three-toed woodpeckers concurrent with the goshawk calling in July 2014. Three-toed woodpecker calling stations were established at 32 locations within the study area (Figure 3-3). During the survey, a female three-toed woodpecker was observed along the northern boundary of the project boundary lease. As such, presence is known in the analysis area for this species.
Boreal toad (<i>Bufo boreas</i>)	Not Expected	Boreal toads (R4 Sensitive) occupy relatively high elevation habitats compared to other western amphibians, ranging from 5,000 to 10,000 feet amsl. This species occupies wetland areas surrounded by sagebrush and grasslands, pinyon-juniper, mountain shrubs, and coniferous forest. In addition, boreal toads may occupy upland montane forests and rocky areas near spring seeps (Hogrefe et al., 2005). No standing water was observed during the July 2014 survey (CES, 2014), although habitat could be available in perennial seeps near the proposed disturbance area. Due to the infrequent nature of these perennial tributaries, habitat utilization is likely minimal. Therefore, boreal toads are not expected within the analysis area. Since presence within the disturbance area is not expected, there will be no impact to this species under any alternative. Since there will be no impacts to boreal toads, there will be no Cumulative effects. This species will not be discussed further.
Fish		
Yellowstone cutthroat trout (<i>Oncorhynchus clarki bouvieri</i>)	Probable	The Yellowstone cutthroat trout (<i>Oncorhynchus clarki bouvieri</i>) are found in diverse habitats. Riverine populations were historically common in large rivers such as the Snake River above Shoshone Falls, Idaho. Current distribution includes cold-water environments in headwaters basins (Gresswell, 2009). Yellowstone cutthroat trout have been documented in Diamond Creek, presence is mapped as strong (USFS, 2009); therefore, they are considered likely to inhabit the headwaters and tributaries of the stream within the ½-mile analysis area. Based on this, presence in the analysis area is considered probable. Idaho Fish and Wildlife Information System (2014) data indicate fish presence in Diamond Creek to the headwaters south of the project lease and in the mainstream east of the proposed disturbance area. No fish presence is mapped in tributaries within the project lease boundary. Therefore, presence is possible within the analysis area but is not likely within the project lease boundary.
Northern leatherside chub (<i>Snyderichthys copei</i>)	Not Expected	The northern leatherside chub (<i>Snyderichthys copei</i>) inhabit small desert streams between elevations of approximately 4,100-9,000 feet in the Bear, Snake, and Green River subregions. Northern leatherside chub prefer low water velocities, and their probability of occurrence decreases at higher velocities (USFWS, 2011). Presence in the upper Diamond Creek watershed is unknown. Based on the habitat requirements of the species, presence is not likely in the analysis area. However, the species could occupy lower gradient areas downstream from the Proposed Action. Based on this, presence in the analysis area is unlikely, although presence in the lower sections of Diamond Creek is considered possible.

Indicator – Timing of Disturbance and Initiation of Reclamation: Exploration activities are anticipated to begin after June 15, 2015, and would be completed within 2-3 years. Timing may overlap with the bird-nesting season in the analysis area. The exploration plan proposes drilling up to 96 holes at 48 locations and excavating up to 22 trenches. All pads and spur roads would be reclaimed incrementally in the fall of each year of use. All trenches will be excavated and reclaimed during the first year.

Direct and Indirect Impacts: Impacts of the Proposed Action are described below with respect to effects to habitat, effects from selenium, and effects on species.

Effects to Habitat

In general, project implementation is not expected to inhibit the Forest's ability to provide habitat to contribute to wildlife management plans developed by the Idaho Department of Fish and Game. Moreover, the Proposed Action is not expected to affect populations or habitats of sensitive species to the extent it would lead to federal listing of these species under the ESA. Reclamation efforts following exploration will contribute to habitat restoration in impacted areas.

Approximately 32 acres of forested and non-forested habitat would be disturbed or directly affected. The total area of disturbance, including any mid and late-seral class trees removed, would be reclaimed to an early seral habitat. Therefore, impacts to wildlife habitat would be temporary to long-term. Duration would correlate with the time needed for vegetation to re-establish in reclaimed areas.

Temporary habitat loss could affect wildlife both directly (through mortality of smaller, relatively immobile species) and indirectly (through the effects of displacement and loss of habitat or prey). However, loss of population viability would be negligible due to the following:

- Narrow configuration of exploration roads, pad, and trenches.
- Relatively short duration of human disturbance in localized locations, and incremental disturbance over three years of the exploration project.
- None of the affected habitats are unique within the analysis area or elsewhere on the CTNF.
- Very limited disturbance in riparian areas or AIZs.
- Terrestrial wildlife mobility, especially ones with larger home ranges, and the likelihood these species would relocate to suitable habitat during the incremental disturbance.

Snags near the proposed disturbance area may provide suitable habitat for cavity nesters, insectivorous birds, and mammals. The CTNF RFP has specified the number of snags per acre desired for aspen, Douglas fir, and lodgepole pine forests. Where possible, avoidance measures would be applied to preserve snags during exploration. However, by virtue of the exploration plan submittal, the management prescription changes to 8.2.2 and snags are not a management consideration.

Effects from Selenium

Outcrop and subcrops of the Meade Peak Member may contain soils with selenium or other leachable elements. Road construction/trenching and subsequent soil disturbance could result in temporary exposure of wildlife to selenium-bearing rock or soils. The highest risk from selenium exposure would be to terrestrial plants and terrestrial invertebrates inhabiting the immediate vicinity of the proposed excavations. The area of exposure is very small compared to the extent of the phosphate outcrop and compared to the amount of habitat not underlain by the phosphate outcrop. Populations of more mobile, wide-ranging terrestrial wildlife species are unlikely to spend large amounts of time in these areas, especially during disturbance activities. As such, these species, which includes the federally-listed Canada lynx, and special status species are less likely to be impacted by acute direct selenium exposure or through uptake by vegetation.

In addition, neither surface water nor groundwater wildlife drinking water sources are likely to be impacted by selenium, or other leachates (Section 3.3.3).

Effects on Species

The analysis of potential effects tiers to current conditions, previous project related mining analysis documents, and other literature where cited. The wildlife species of concern for this project are divided into six groups and are further documented in the Biological Assessment/Biological Evaluation (BA/BE) (CES, 2015):

- Threatened and Endangered (T&E) Species identified by USFWS
- Sensitive Species identified by the Regional Forester
- Management Indicator Species (MIS) identified in the CTNF RFP
- Amphibians in the CTNF RFP
- Migratory Landbirds as required by Executive Order #13186
- Big Game (mule deer and elk)

The following narratives summarize the effects to T&E, USFS sensitive, MIS, and other species of interest or local concern expected to occur in the analysis area, by alternative. Only those species with possible, probable, or known presence within the analysis area are addressed in the effects analysis.

Threatened and Endangered Species

Canada lynx is the only T&E wildlife species with probable presence in the analysis area. Lynx are a federally-listed Threatened species with possibility of transient individuals. Lynx typically require large tracts of boreal forest with high quality prey habitat. Primary overstory vegetation in lynx habitat includes lodgepole pine, subalpine fir, and Engelmann spruce. Dry forests such as ponderosa pine, climax lodgepole pine, and dry Douglas fir do not provide habitat for lynx (Aubrey et. al., 2000; BLM, 2005; USFS, 2013b). In general, north and west-facing slopes in the proposed disturbance area support mixed conifer, aspen, and lodgepole pine forests. However, south and west-facing slopes typically contain open vegetation communities dominated by limber pine and mountain big sagebrush. Lower elevation habitats in the Diamond Creek subwatershed include a patchwork of grass/shrubland and mixed coniferous and aspen forests.

Lynx maintain variable and large home ranges, generally between 12 to 83 square miles in size (IFWIS, 2014b). Moreover, lynx may display exploratory movements miles from their home range (Aubrey et. al., 2000). Considering the fragmented habitat present in the disturbance area and Diamond Creek subwatershed, along with the large home ranges and exploratory movements exhibited by this species, habitat utilization is probably incidental or transient in nature. The non-contiguous forested habitat in the disturbance area is not expected to support denning activities.

The Proposed Action represents a small area of disturbance (32 acres [0.05 square miles]) compared to the relatively large home ranges of lynx (12-83 square miles). This disturbance will generally accommodate 30-foot wide roads over a total distance of 7.38 miles. Forest roads generally do not pose a barrier to lynx movement (Hickenbottom et. al., 1999) and they typically do not avoid gravel forest roads (Forest Service, 2013b). Due to the narrow linear disturbance associated with the Proposed Action, the temporary forest roads needed to access proposed exploration drill pads and trenches (26.8 acres [0.04 square miles]) are not expected to restrict lynx movement and use patterns. Therefore, effects to transient individuals or populations of lynx, as well as lynx linkage habitat are considered discountable. Based on these considerations, *No Effect* is anticipated to lynx as a result of the Proposed Action. On February 9, 2015, the USFWS provided agreement with this determination (Fisher, 2015).

Forest Service Sensitive, MIS, and Species of Interest or Local Concern

The Regional Forester identifies Sensitive Species when population viability is a concern. Impact determinations for species not protected under the ESA may include the following:

- *No Impact* – No direct, indirect, or cumulative effects would occur because there is no suitable habitat in the disturbance area, the proposed disturbance area is outside the range of species, or the species is not expected to be adversely effected by the action.
- *Beneficial Impact* – The project is likely to benefit the species due to expected improvement in habitat quality.
- *May Impact Individuals, but is not Likely to Result in a Trend Toward Federal Listing or Loss of Viability* – The project is not likely to adversely impact a species due to direct effects to species or indirect effects to habitat important to their prey.
- *Will Impact Individuals and is Likely to Result in a Trend Toward Federal Listing or Loss of Viability* – The project is likely to adversely impact a species due to direct effects to species or indirect effects to habitat important to their prey.

Forest Service Sensitive species and other species of interest or local concern expected to occur in the analysis area are summarized in the table below. Impacts analysis for each species under the alternatives is also provided. The Proposed Action will have no impact on some species but may impact individuals or habitat of other species, and will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species due to direct effects to species or indirect effects to habitat important to their prey.

Table 3-7: USFS Region 4 Sensitive Species Habitat, Presence, and Effects Summary

Sensitive Species ¹	Habitat ²	Presence ³	Impacts ⁴	
			No Action	Proposed Action
Terrestrial, Avian and Amphibian				
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Suitable	Possible	NI	MIIH
North American wolverine (<i>Gulo gulo[luscus]</i>)	Suitable	Probable	NI	NI
Gray Wolf (<i>Canis lupus</i>)	Suitable	Possible	NI	NI
Northern goshawk ⁵ (<i>Accipiter gentilis</i>)	Suitable	Probable	NI	MIIH
Great gray owl (<i>Strix nebulosa</i>)	Suitable	Expected	NI	MIIH
Flammulated owl (<i>Otus flammeolus</i>)	Suitable	Expected	NI	MIIH
Boreal owl (<i>Aegolius funereus</i>)	Suitable	Expected	NI	MIIH
Three-toed woodpecker (<i>Picoides tridactylus</i>)	Suitable	Known	NI	MIIH
Aquatic Species				
Yellowstone cutthroat trout (<i>Oncorhynchus clarki bouvieri</i>)	Suitable	Probable	NI	NI
Northern leatherside chub (<i>Snyderichthys copei</i>)	Suitable	Possible	NI	NI
Other Special Status Species/Species of Local Concern⁶				
Northern Leopard Frog and other amphibians	Suitable	Probable	NI	NI

¹Sensitive species identified by the Regional Forester are known or suspected to occur on the Caribou NF (USDA-FS 2013). Population viability is a concern for these species as evidenced by current or expected downward trends in population numbers and/or habitat.

²Suitable habitat for species (for foraging and/or reproduction) occurs in the project or analysis area.

³Occurrence is known, expected, probable, or possible in the analysis area as determined by the amount, distribution, and quality of suitable habitat.

⁴Determination of effects of Proposed Action: **NI**: “No Impact” No direct, indirect, or cumulative effects would occur because there is no suitable habitat in the analysis area, analysis area is outside the range of species, or species presence is not expected in the area due to a lack of suitable habitat, and lack of documented observations. **MIIH**: “May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species” due to direct effects to species or indirect effects to habitat important to their prey. **BI**: “Beneficial impact” due to expected improvement in habitat quality. **WIFV**: “Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species.” A Conservation Strategy is required.

⁵Management Indicator Species – Caribou National Forest FEIS (USDA-FS 2003b D-40) and Revised Forest Plan (USDA-FS 2003a 3-25)

⁶Note that these are not Forest Service Sensitive Species, and therefore, no effects determination is required.

Townsend’s Big-Eared Bats: The project would not be expected to impact bat hibernacula. However, it could directly impact roosting habitat (tree cavities, bridges, snags) or bat specimens. Indirect effects to bats are likely minimal since the riparian habitat will not be disturbed as part of the Proposed Action. Furthermore, Townsend’s big-eared bats may utilize forest edge habitat for commuting and foraging (Gruver and Keinath, 2003). In the long term, reclamation efforts will minimize impacts to prey species.

The EPMs have been included in this document, which would be expected to leave adequate shrubs, trees, flowering plants, and other vegetation in riparian and upland areas to provide habitat for Townsend's big-eared bat prey species. In addition, the wide variety of moth habitat should provide adequate shrubs, trees, flowering plants, and riparian vegetation for insects available for prey.

Minor impacts to potential roosting habitat will occur. The Proposed Action could remove about 614 hard snags (19 snags per acre). While this may affect individual or small numbers of bats, overall this impact is expected minor and no impacts the population viability would occur. The EPMs included in the Proposed Action, include, where possible, avoiding the removal of snags. As such, the Proposed Action *May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.*

North American Wolverine: The wolverine occurs on the CTNF but no negative increase of threat or downward trend is expected with the Proposed Action. Disturbance of den sites is considered the most detrimental impact to wolverines. However, no denning is expected in the analysis area. In addition, no increase of winter disturbance expected. Prey would remain available and no deleterious impacts to food availability are expected to result from project implementation. Habitat disturbance and exploration activities would likely be negligible and would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. Based on this *No Impact* is anticipated to wolverines.

Gray Wolf: Available habitat and prey sources may contribute to use of the disturbance area by gray wolves. However, mobility and large home ranges of gray wolves would likely preclude sustained utilization of the disturbance area. As a result, habitat disturbance during exploration activities is not expected to affect individuals or populations. Therefore, habitat disturbance and exploration activities would likely be negligible and would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. Based on this *No Impact* is anticipated to wolves.

Northern Goshawk: Although no goshawks were detected during the July 2014 surveys, the disturbance area could support nesting and/or foraging activities for this species. Total disturbance to forested habitat is expected to encompass about 0.8% (26.1 acres) of the analysis area. The proposed exploration will not affect the Forest's ability to meet the criterion for Northern Goshawk management of at least 20% of the forested acres in mature and old age classes (including old growth) in vegetation Standard 2 (RFP 3-19). Mature forest stands would remain in the landscape at levels meeting S&Gs. Prey species forage would remain available. Considering a minor amount of suitable habitat will be removed by the Proposed Action, this alternative *may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.*

Great Gray Owl, Boreal Owl, Flammulated Owl: Great gray owl, boreal owl, and flammulated owl use is expected in the analysis area. While stands of coniferous forest and aspen would be impacted during the Proposed Action, minimal disturbance is anticipated to ridgeline subalpine meadows west of the outcrops and subcrops. Disturbance of 6.9 acres of mixed coniferous forest, which could include subalpine fir, Engelmann spruce and aspen, comprises

about 0.2% of the analysis area. Impacts to aspen stands would comprise 3.9 acres, or 0.1% of the analysis area.

The narrow and linear trend of disturbance along the eastern flank of Dry Ridge is not expected to pose long-term impacts to populations of these species. In addition, flammulated owls can be very tolerant of human disturbance (Hayward and Verner, 1994). Site-specific impacts are expected from the Proposed Action, potentially impacting individuals, but having little or no impact at the population level. Pre-project migratory bird surveys will occur, and if any nests of these species are located, they will be protected as described above. Therefore, the Proposed Action *May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.*

Three-Toed Woodpecker: The July 2014 surveys identified one female three-toed woodpecker along the northern boundary of the project lease. Occupancy is anticipated in other areas with of the project with recently killed trees/snags. As discussed, the Proposed Action could remove about 614 hard snags (19 snags per acre). Thus, without any additional protection measures, 11% of the trees that would be removed are considered hard snags. Project design features will protect any active/apparent cavity nesting in snags. Where practicable, snags will also be retained in clusters where dbh is greater than 12-inches and height is greater than 15 feet.

In general, site-specific impacts are expected from the Proposed Action, potentially affecting individuals, but having little or no impact at the population level. Pre-project migratory bird surveys will occur, and if any nests of these species are located, they will be protected as described above. Therefore, the Proposed Action *May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.*

Yellowstone Cutthroat Trout and Northern Leatherside Chub: Due to the habitat requirements and life history of the Yellowstone cutthroat trout, along with documented residence in the watershed, presence in the headwaters tributaries of Diamond Creek in the analysis area is considered probable. Northern leatherside chub are not likely present in headwaters tributaries, but may inhabit lower reaches of Diamond Creek. None of the perennial seeps/springs or streams identified within the analysis area will be crossed or disturbed, but a road will pass through the AIZ for a perennial stream at the north end of the lease. Roadway erosion controls, including outsloping, waterbars, rolling dips, and ditches, will be installed as recommended by the Forest Service. BMPs will be employed to divert ditches from slopes that may erode into streams.

In addition, drill spoils will not be placed in AIZs and selenium would not be released from exploration activities due to the shallow nature of disturbance and adherence to EPMs. Based on the lack of impacts to headwaters tributaries of Diamond Creek and proposed BMPs/EPMs, *No Impact* to Yellowstone cutthroat trout or northern leatherside chub is anticipated.

Northern Leopard Frog and other Amphibians: As discussed, no perennial seeps/springs or streams will be crossed or disturbed. BMPs will be employed to avoid impacts from a road that

passes through the AIZ of a perennial stream on the north end of the lease. Based on this, *No Impact* is anticipated to amphibians in the analysis area.

Migratory Landbirds: Species protected by the Migratory Bird Treaty Act (MBTA) were documented during the survey completed in July 2014. Habitat removal associated with the Proposed Action is expected to impact 22.2 acres of coniferous forest habitat, 3.9 acres of aspen habitat, and 5.9 acres of sagebrush/shrub habitat, comprising 1% of the analysis area.

Exploration could affect two months of the nesting season, which runs from approximately May 15 to August 15. As such, vegetation removal in support of construction may result in short-term habitat loss for species protected under the MBTA. Bird mortality could occur if vegetation with nests with eggs or juveniles were harvested or damaged during the nesting season. Regardless, migratory birds are generally mobile, and can move to adjacent unaltered habitats during exploration. Many of the species identified during the 2014 surveys are tolerant of human disturbance, although nest abandonment or reduced nesting success could result from the Proposed Action. Nonetheless, the narrow, linear nature of the disturbance is not expected to restrict migration activities.

Mule Deer and Elk: The analysis area includes high quality ungulate habitat and elk winter range. The Proposed Action is scheduled to commence after June 15, 2015, which would minimize impacts during the calving and fawning season for elk and mule deer. In addition, big game hunting vulnerability would likely decrease during the exploration, since proposed drilling activities would occur through October and access will be prohibited.

Site-specific impacts are expected from the Proposed Action, potentially affecting individuals, but having little or no impact at the population level. Temporary displacement may occur during exploration, but mule deer and elk are expected to utilize the immediate area immediately following human disturbance.

Mitigation – To comply with the wildlife RFP guideline for sensitive species and the MBTA, if exploration activities are scheduled to start prior to August 15, additional surveys for boreal owls, great gray owls, and flammulated owls will be required prior to project implementation. The surveys will be conducted in general accordance with the USFS Sensitive Species and Survey Methods (2014b). Given the required timing of the Surveys (March-June) and that the surveys occur after sunset, survey transects will follow established trails and/or occur in areas safely accessed. If any nests and/or territories are found that could be impacted by construction, the district wildlife biologist will work with the project leader to determine the appropriate mitigation necessary to avoid impacts to the nest. Mitigation measures could include delayed project implementation, road reroutes, etc.

In addition, in the exploration plan, FertoZ has recognized the necessity of protection of migratory birds and in order to avoid impacts to migratory birds and their nesting as much as possible, construction would be scheduled outside of the nesting season, where possible. The nesting period generally occurs from approximately May 15 to August 15, and as such, ground disturbing activities would be scheduled to occur after August 15. If ground clearing activities needed to occur prior to August 15, FertoZ would request an exception. Following this request,

and with the BLM's concurrence, a bird survey would be initiated. The bird survey would be conducted by a BLM-approved biologist to identify whether or not there are any active migratory bird nests within the disturbance area and specified buffer distances. If no active migratory bird nests are found within the proposed clearing areas, then construction activities would proceed. If active migratory bird nests are found within the specified buffer zones during the nesting period, the work schedule and/or locations of the clearings would be adjusted in order to avoid impacts to the nests. Adjustments to the work schedule and/or clearing locations would be made to the extent practicable with respect to standard buffer distances, safety, impacts on other resources, and other factors as determined by an authorized officer within the BLM.

Alternative 2 - No Action

Indicator – Acres of Disturbance and Re-disturbance: There would be no additional disturbance to wildlife species.

Indicator – Timing of Disturbance and Initiation of Reclamation: None.

Direct and Indirect Impacts: There would be no impacts to snags and forested habitat within the areas proposed for disturbance. Hunting access would remain as it currently is within the analysis area. There would be no potential for take of migratory bird nests associated with the proposed activities. Current habitat conditions, including nesting, linkage, and foraging habitat would be maintained. Foraging habitat for raptor species, cavity nesters, migratory birds, big game, and bats would not be impacted.

3.7 Transportation Facilities and Public Access

The RFP provides the USFS with management direction for achieving DFCs for transportation facilities and public access for the forest and for the Semi-Primitive Recreation Prescription (3.2b). The effects of the Proposed Action on transportation facilities and public access are defined with respect to the DFCs.

3.7.1 RFP Management Direction – Roads and Trails

The RFP DFCs for National Forest System roads and trails applicable to the project include the following (RFP 3-36):

- Transportation system provides access to the forest to meet planning and management goals including recreation, special uses, timber management, range management, minerals development, and fire protection.
- The transportation system is safe, environmentally sound, and is responsive to public needs and affordable to manage and maintain.
- The forest provides a variety of road and trail opportunities, including motorized and non-motorized experiences.

This project does not include construction of any roads or trails that would be part of the National Forest System; however, the project could affect access or use of system roads and trails.

The following standards and guidelines described for access under Prescription 8.2.2(g) Phosphate Mine Areas of the RFP would apply to the construction and use of temporary exploration roads and use of existing roads for the project:

- Public access is restricted at all times, except as provided in site-specific circumstances and as superceded by travel plan maps.
- Road construction and reconstruction shall be allowed to provide for mine development.
- Road construction shall be the minimum amount necessary to allow mine development.
- Open motorized route density standards may be exceeded if necessary to allow development of phosphate reserves.
- Roads should be obliterated following mining activities unless site-specific analysis determines that the road is needed for forest management or public access.

The RFP also specifies, for any disturbance in AIZs (1.10 acres per Section 3.3 above), a standard that all new and replaced culverts, permanent or temporary, shall be designed and installed to meet desired conditions for riparian and aquatic species. All proposed new roads and upgrades to existing roads would be reviewed and approved by appropriate agency personnel. The following guidelines also apply for road construction in AIZs:

- Avoid constructing roads within the AIZ unless there is no practical alternative.
- Size culverts (permanent and temporary) so that the probability of flow exceedance is fifty percent or less during the time the culvert is expected to be in place.
- Consider bedload and debris when sizing culverts.
- Use bridges, arches, and open-bottom culverts, when feasible, in fish-bearing streams.
- Avoid placing ditch relief culverts where they may discharge onto erodible slopes or directly into streams.
- Install, where feasible, cross-drainage above stream crossings to prevent ditch sediments from entering streams.
- Install new or reconstructed roads and trails so they cross the AIZ riparian areas as perpendicular as possible.
- Avoid making channel changes on streams or drainages.
- Design and install drainage crossings to reduce the chances of turning stream flows down the road prism in case of a blocked or overflowing culvert.
- Avoid disruption of natural hydrologic flow paths from road drainage patterns.

The RFP specifies travel restrictions for Semi-Primitive Recreation areas as follows:

- Motorized travel is allowed only on designated roads and trails during the snow free season.
- Cross-country travel is allowed during the snow season.

3.7.2 Affected Environment

The proposed disturbance area would be accessed through the southern part of the lease using the existing National Forest Road 342 from Diamond Creek Road (NF-1102) (**Figure 1-2**).

Construction crews and drilling crews would likely travel on existing roads to the project from Afton, Wyoming (approximately 28 miles). An alternative route may include accessing the site through Soda Springs, Idaho via Georgetown, Idaho (approximately 35 miles). Existing roads would be used to the greatest extent possible while minimizing the number of access points from public roads. The northern end of the lease would be accessed using existing roads through the Husky 1 phosphate lease, through coordination with Agrium CPO and/or BLM. A new segment of road would be constructed off-lease to connect the NF 342 to the southern part of the lease. Off-lease construction of new roads would also occur to access drill pads and trenches within the northern portion of the lease. New road construction across the lease would be utilized to access drill pads within the lease boundaries.

In the first year, exploration would include trench sampling and drilling about 20 holes over a 30-day period, which would commence after the majority of the roads, drill pads and trenches have been constructed. Construction and logging equipment would include a dozer, an excavator, and a log skidder. The drilling rig and a water truck would be mobilized and demobilized each year.

Logs would be decked during construction so that they can be loaded onto trucks and hauled to a sawmill afterwards. Based on the timber cruise, an estimated 500 thousand board feet of timber (4,000 tons, assuming 8 tons per thousand board feet) would need to be harvested in the disturbance area. Using a gross maximum weight limit of 40 tons and a net truck load capacity of 27.5 tons of logs, there would be 145 truckloads of logs hauled to the sawmill. Trucking would generally be limited to daylight hours. Assuming two trucks running three loads per day each, the logs can be hauled out within 24 days.

It is estimated that construction and exploration crews would make two trips per day assuming a continuous work schedule with 12-hour shifts. Since each trip would take about 70 minutes each way, about half of the travel would occur in dark or low light conditions (early morning or evening). Four pickup trucks would likely be used for crew and supply transportation, with two trucks for construction and two trucks for drilling. Although most of the road and drill pad construction would need to be constructed prior to commencement of drilling, there could be some overlap. In that case, if both crews make two trips per day with four trucks, there would be eight crew trips per day.

The maximum vehicle density on roadways would occur for a short period near the end of construction, while logs are being hauled and drilling commences. If this occurs, there could be 14 vehicle roundtrips per day between the two log trucks and four pickup trucks. Appropriate temporary construction signs would be implemented to enhance public safety during construction activities.

All newly constructed roads and any use of existing roads would be temporary. All proposed new roads and upgrades to existing roads would be reviewed and approved by appropriate agency personnel. Potentially impacted resources (soils – Section 3.2, water – Section 3.3, vegetation –

Section 3.4, wildlife – Section 3.5, and tribal treaty – Section 3.7) from road construction are discussed in their respective subsections of Section 3.0. The on-lease portion of the disturbance area is designated under the RFP as Prescription 8.2.2g Phosphate Mine Areas. On the lease, roads would be allowed to provide for mine development, would be restricted to public access, and would be constructed to the minimum degree necessary. The off-lease portion of the disturbance area is designated under the RFP as Prescription 3.2b Semi-Primitive Recreation (**Figure 1-2**). This management area places emphasis on semi-primitive, backcountry recreation experience, associated with some motorized vehicle use. Motorized use is allowable only on designated roads and trails during the snow free season. Cross-country motorized access is allowable during the snow season.

3.7.3 Environmental Consequences

Issue: The project may affect existing and newly constructed road densities.

Issue: The project may affect public access and travel.

Issue: The project may affect public safety and resources.

Alternative 1 - Proposed Action

Indicator – Exceedance of Assigned Open Motorized Route Density: The Open Motorized Route Density of the Semi-Primitive Recreation management prescription that surrounds the lease would not be affected, because currently, no open motorized routes would be closed and no new miles of designated open motorized route would be created during or after the project.

Indicator – Change in Public Access: Existing USFS roads and trails currently open to all vehicles would remain open to the public. Any closure would be related to maintaining the existing roads, would be temporary, and would be signed accordingly.

Direct and Indirect Impacts: Permanent new roads are not proposed for the project. An existing forest road (NF 342) to the south of the lease and an existing road to the north of the lease would be used for access to the project. New temporary roads would be constructed to accommodate a drill rig and associated equipment at up to an estimated 30-foot disturbance width per linear foot of road (14-foot lane width plus 8-foot side slopes+/-). The total length of new roads would be 38,981 feet or 7.38 miles. Approximately 26.8 acres of total disturbance is estimated for new drill roads: 23.9 acres of on-lease disturbance and 2.9 acres of off-lease disturbance. The Proposed Action is expected to have only a minor and temporary direct impact on public access to the disturbance area due to the temporary nature of the work.

Exploration activities would utilize existing access where present, minimizing new road construction. Temporary road construction would follow the standards and guidelines found in RFP 3-36 and 3-37.

None of the new temporary access roads would be designated open motorized routes. Signs would be used to warn the public of hazards with respect to active truck traffic. Locations for such signs would be at the public access entry points to the proposed disturbance area (e.g. Diamond Creek Road and/or Stewart Canyon Road). Unauthorized personnel would not be

allowed to travel on temporary roads with motor vehicles within the active drilling area. This is likely to require gates on access roads to the property. Existing USFS roads currently open to all vehicles would remain open to the public during construction and exploration activities, which would not alter current patterns of access for passenger vehicles, off highway vehicles, or non-motorized forms of recreation.

New access roads would be reclaimed concurrently with exploration activities to the maximum extent practical. However, to avoid the potential for redundancy, the main road would not be reclaimed until after the exploration program has been completed. Segments of temporary road used to access exploration drill holes will be reclaimed when they are no longer functional for further drilling activities unless otherwise approved by appropriate agency personnel. To improve future watershed conditions and promote the goals of the RFP, reclamation of existing roads and trails used during the exploration would return those routes to the condition identified in the RFP. Upon completion, disturbed areas, including roads, would be re-contoured and re-shaped to the approximate form of the land before disturbance, road cuts would be back-filled, and the area would be broadcast seeded using weed-free seed mix. Plant species would reflect the surrounding ecosystem and post-remedial land use.

Off-lease activities and facilities, including roads, would require Special Use Authorizations issued by the USFS.

Mitigation: Project design features, BMPs, and the EPMs (Section 2.2) are designed to reduce environmental impacts to transportation facilities and public access. It is anticipated that some minor improvements and maintenance to the existing road NF 342, such as localized grading to remove holes or ruts, downed tree removal, etc., will be necessary to provide safe access to the lease. Existing roads will not be re-routed, widened or changed in any other substantial way. Additional mitigation measures, beyond the EPMs, are not deemed necessary.

Alternative 2 – No Action

Indicator – Exceedance of Assigned Open Motorized Route Density: The Open Motorized Route Density of the Semi-Primitive Recreation management prescription that surrounds the lease would not be affected.

Indicator – Change in Public Access: Existing USFS roads and trails currently open to all vehicles would remain open to the public.

Direct and Indirect Impacts: There would not be any impacts on transportation facilities or public access if no action were taken.

3.8 Inventoried Roadless Areas

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 (IRA) Conservation were published in the Federal Register on October 16, 2008. The Final Rule defines five management themes: Wild Land Recreation,

Primitive, Special Areas of Historic and Tribal Significance, Backcountry/Restoration, and GFRG. Direction in the Idaho Roadless Rule supersedes direction in the RFP.

3.8.1 Management Direction

The roadless management themes provide direction for permitted or prohibited activities in roadless areas, such as road construction, timber cutting, and discretionary mineral activities. The Wild Land Recreation theme is the most restrictive; whereas, the GFRG theme is the least restrictive. Roadless characteristics generally include high quality soil, water (including drinking water), and air; plant and animal diversity; habitat for sensitive species; reference landscapes and high scenic quality; primitive and semi-primitive recreation; cultural resources; and other locally identifiable unique characteristics.

3.8.2 Affected Environment

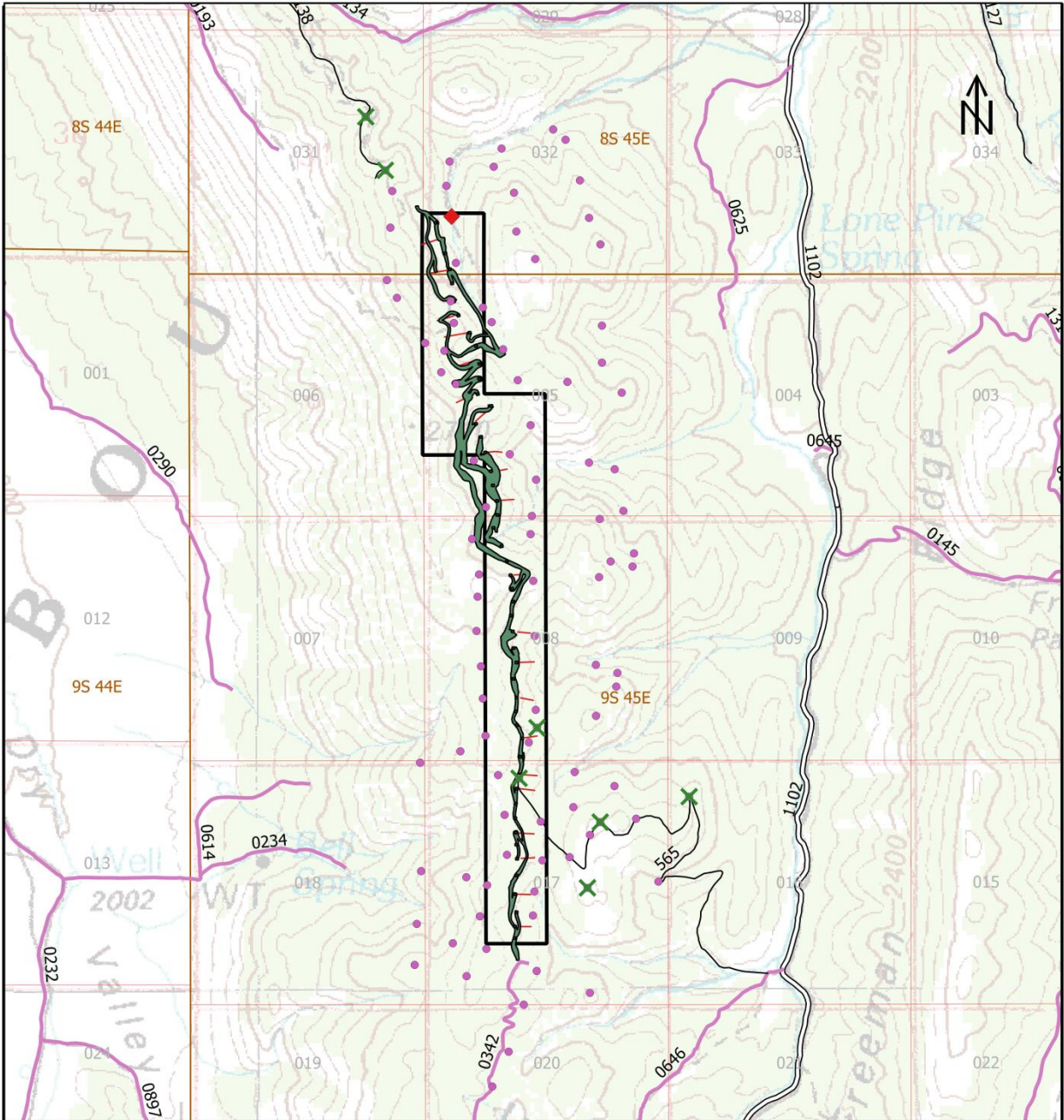
The proposed project lies entirely within the Dry Ridge IRA (#164) within Caribou County, Idaho. This roadless area lies approximately fourteen miles east of Soda Springs, Idaho and encompasses 23,500 acres. Under the Idaho Roadless Area Final Rule, 8,600 acres in the Dry Ridge IRA are part of the Backcountry theme and 14,900 acres are considered part of the GFRG theme.

The Dry Ridge Roadless Area contains around 1,400 acres of known phosphate deposits under lease and around 780 acres not under lease. Under the Idaho Roadless Area Final Rule, all 2,180 acres would be under the GFRG theme (**Figure 3-3**). Figure 3-20 in Section 3.15 Minerals and Energy in the Roadless Area Conservation of the Final Environmental Impact Statement (USFS, 2008), includes KPLAs such as the Dry Ridge Phosphate Lease. Most existing leases and KPLAs have a designated one-half mile buffer of GFRG, in which road construction or reconstruction may occur to allow for any uncertainties about where the ore body is located. The entire project, both on-lease and off-lease operations, is within the GFRG theme and is available for development since road construction for accessing both existing and new phosphate leases is allowable in the GFRG theme.

The GFRG theme generally allows permitting of roads and timber harvest to occur for both restoration and commodity production purposes, as long as these activities are consistent with applicable forest plan components. The GFRG theme generally does not allow for mineral related road construction; however, there are allowances for phosphate-related road construction and timber removal within the buffers of GFRG. Timber harvest and associated road building could alter roadless characteristics over the short and long-term. Specific roadless characteristics for the proposed disturbance area are described in the Roadless Area Worksheets provided in Appendix A.

3.8.3 Environmental Consequences

Issue: The project may affect roadless area characteristics.



Legend		0 0.5 1 mile													
	Proposed Disturbance														
	Northern Goshawk / 3-Toed Woodpecker Stations														
	Flammulated Owl Station	Figure 3-3 Bird Vocalization Survey Locations													
	3-toed Woodpecker Sighting														
	Arterial Road														
	Local Road	Dry Ridge Phosphate Exploration EA Caribou-Targhee National Forest													
	Trails														
Coordinates: NAD83		Fertoz USA LLC Brisbane, Queensland, AUS													
Sources: 2014 CES Bird Vocalization Survey (Project Record), USGS 1978 Soda Springs 30x60 Sheet (1997 DRG)															
<table border="1" style="width: 100%;"> <tr> <td>PROJECT NUMBER:</td> <td>2014220003</td> </tr> <tr> <td>DATE:</td> <td>11/7/2014</td> </tr> <tr> <td>FILE:</td> <td>201422003 F 3-3.ggs</td> </tr> <tr> <td>PREP BY:</td> <td>DJB</td> </tr> <tr> <td>REVIEWED BY:</td> <td>RKB</td> </tr> <tr> <td>REVISIONS:</td> <td></td> </tr> </table>		PROJECT NUMBER:	2014220003	DATE:	11/7/2014	FILE:	201422003 F 3-3.ggs	PREP BY:	DJB	REVIEWED BY:	RKB	REVISIONS:		CASCADE EARTH SCIENCES A Valmont Industries Company	
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DATE:	11/7/2014														
FILE:	201422003 F 3-3.ggs														
PREP BY:	DJB														
REVIEWED BY:	RKB														
REVISIONS:															

Alternative 1 - Proposed Action

Indicator – Acres and footage of road construction and timber removal: New temporary roads would be constructed within the Dry Ridge IRA to accommodate a drill rig and associated equipment at an estimated 30-foot disturbance width per linear foot of road. The total length of new roads would be 38,981 feet or 7.38 miles. Approximately 26.8 acres of total disturbance is estimated for new drill roads: 23.9 acres of on-lease disturbance and 2.9 acres of off-lease disturbance. Timber and other vegetation would be cleared from most or all 32 acres of proposed disturbance. All of the temporary activities would occur within the GFRG theme, where construction of temporary roads within the phosphate lease would be permitted.

Direct and Indirect Impacts: Timber clearing, road construction, drilling, and trenching activities would impact minimal acreage (32 acres) in the disturbance area and would only have minor and temporary impacts to the majority of the roadless characteristics (Appendix A). All 32 acres of total project disturbance occurs within the Dry Ridge IRA, with 29.1 acres on-lease and 2.9 acres off lease within the 0.5-mile KPLA buffer. All exploration activities would occur within the GFRG theme, which are permitted activities within this theme (as described above). Temporary and minor direct and indirect impacts would occur to the following roadless characteristics: soil, air, diversity of plant and animal communities, semi-primitive recreation, landscape character and integrity, and habitat for Threatened, Endangered, and Sensitive species (Appendix A). There would be no impacts to the remaining roadless characteristics. After exploration activities are complete, the disturbed areas would be reclaimed, and these areas would no longer be accessible roads and would begin to return to pre-disturbance conditions. However, negligible to minor, long-term impacts to several of the characteristics would still occur and be evident. The Idaho Roadless Rule and the exceptions in the rule were developed with the understanding that there would be some minor impacts from timber and phosphate development in the GFRG theme.

The long-term reclamation goal for the project is to create a safe, stable, and productive post-exploration land use. The post-exploration land use of the project disturbance area would be similar to the pre-exploration land use: mineral exploration and mining, timber and vegetation management, wildlife habitat, recreation, and livestock grazing. Concurrent reclamation would commence upon the deactivation of specific exploration activities. Establishment of self-sustaining vegetation communities on reclaimed sites would reduce the potential for soil erosion and provide forage for livestock and wildlife utilization. This post-exploration land use is consistent with the Pocatello Resource Management Plan (BLM, 2012) and the RFP for the Caribou National Forest (USFS, 2003a). Performance bonding would be covered under Ferto's lease bond held by the BLM.

Mitigation: The EPMs described in Section 2.2 would help prevent unnecessary and undue degradation of the roadless characteristics to the greatest extent possible. Additional mitigation for individual resources, if applicable, is described in the subsections of Section 3.0 (soils – 3.3, water – 3.4, vegetation – 3.5, wildlife – 3.6, transportation – 3.7). No additional mitigation measures are proposed.

Alternative 2 - No Action

Issue: The project may affect roadless area characteristics.

Indicator – Acres and footage of road construction and timber removal: Roadless area characteristics would not change from their currently managed condition. There would be no disturbance and no timber removal at this time.

Direct and Indirect Impacts of the No Action Alternative: Under the no action alternative, no new access roads would be temporarily constructed, and no drilling or trenching activities would occur; therefore, there would be no effect to roadless characteristics.

3.9 Tribal Treaty Rights and Interests

The RFP provides the USFS with management direction for achieving DFCs for tribal treaty rights and interests. The Proposed Action is evaluated with respect to the DFCs.

3.9.1 Management Plan Direction

The RFP DFC for tribal treaty rights and interests states is to manage lands within the CTNF to help sustain and provide opportunities for to help sustain the American Indians' way of life, cultural integrity, social cohesion, and economic well-being.

The RFP goals for tribal treaty rights and interests are:

- Tribal treaty rights and other federal trust responsibilities are met, and tribal governments are involved in planning and implementation of programs of mutual interest.
- The USFS recognizes the tribes' right to self-determination and control of their resources and their relationship both among themselves and with non-Indian governments, organizations, and persons.
- Culturally significant items and sites are identified, protected, and treated within the context of the culture that identifies and values them.
- Relationships with American Indian populations are improved to better understand and integrate tribal needs and desires with forest management activities.

The RFP standard for tribal treaty rights and interests is to comply with the protocols set forth in the National Resource Book on American Indian and Alaska Native relations Working Draft 1995, or its successor, for USFS consultation procedures and inter-governmental agreements with the tribes.

3.9.2 Affected Environment

The Fort Bridger Treaty of 1868 between the United States and the Shoshone and Bannock Tribes reserves the Tribes' rights to hunt, fish, gather, and exercise other traditional cultural uses on unoccupied federal lands. In addition, the Shoshone and Bannock Tribes have the right to graze tribal livestock on previously ceded Fort Hall Reservation lands under the Agreement of February 5, 1898, ratified by the Act of June 6, 1900.

The federal government has a trust relationship with federally recognized American Indian Tribes, including the Shoshone-Bannock Tribes. The BLM has a responsibility and obligation to consider and consult on potential impacts to natural resources related to the Tribes' treaty rights

or cultural use. Resources or issues of interest to the Tribes that could have a bearing on their traditional use and/or treaty rights include the following:

- Tribal historic and archaeological sites;
- Sacred sites and traditional cultural properties;
- Traditional use sites;
- Fisheries;
- Traditional use plant and animal species;
- Vegetation (including noxious and non-native, invasive species);
- Air and water quality;
- Wildlife;
- Access to lands and continued availability of traditional resources;
- Land status; and
- Visual quality of the environment.

The Proposed Action would occur on unoccupied federal lands outside of the ceded boundary. Therefore, Tribal treaty rights, as defined, are applicable to the project.

3.9.3 Environmental Consequences

Issue: Proposed activities may affect tribal treaty rights and interests or impair access to those rights and interests.

Alternative 1 - Proposed Action

Indicator – Change in the Condition of Resources Related to Tribal Treaty Rights and Interests: No specific traditional resources have been identified for this project or for past projects in the area. The Tribes have traditional interests in the use of natural resources and grazing rights on unoccupied federal land. Potential changes in the condition of natural resources are discussed in their respective sections.

Indicator – Change in Access to Resources Related to Tribal Treaty Rights and Interests: Changes in access to unoccupied public lands that may contain resources related to Tribal treaty rights and interests would be localized and temporary during specific exploration activities. See *Change in Public Access* under 3.7 Transportation Facilities and Public Access.

Direct and Indirect Impacts: The proposed project would have no effect on historic properties. Four previously recorded sites are known within one mile of the lease boundary; however, none of these sites are located within the proposed disturbance area and would not be affected. No archaeological resources were recorded by the survey conducted as part of this project. Archaeological resources noted but not formally recorded within the proposed disturbance area include a phosphate exploration trench and access trail.

The Proposed Action would disrupt and displace resources during the exploration activities. The increased traffic and exploration activities could also slightly impair, but not preclude, access to resources during exploration. Under the Proposed Action, there would be no change in land tenure and no new leasing is involved. The proposed disturbance area is currently on public land and will remain as such.

There would be short to long-term disturbance to vegetation (Section 3.5) and wildlife (Section 3.6), and there could be local impacts on water quality (Section 3.4). Access to public land and traditional resources would be limited in certain locations while exploration occurs, but access to resources would be restored and land status would not change as a result of the exploration.

Mitigation: Implementation of the EPMs described in Section 2.2 would avoid or minimize impacts to natural and cultural resources. No additional mitigation is proposed. As described in Section 2.2.8, in the instance that unidentified cultural resources are discovered during project implementation, although unlikely, the BLM and CTNF shall be notified and work in the area shall halt until inspection by a professionally trained archeologist is conducted and a mitigation plan is developed, if necessary.

Alternative 2 - No Action

Indicator – Change in the Condition of Resources Related to Tribal Treaty Rights and Interests: None.

Indicator – Change in Access to Resources Related to Tribal Treaty Rights and Interests: None.

Direct and Indirect Impacts: Under the no action alternative, there would be no change to current conditions of resources that have a bearing on Tribal treaty rights or traditional uses. In addition, access to resources on unoccupied federal land would not be limited. Current Tribal use of the resources and tribal access to the area would continue. Therefore, the Shoshone-Bannock Tribe's right to access the lands to exercise treaty rights and traditional uses would be unaffected.

3.10 Irretrievable and Irreversible Commitment of Resources

Irretrievable commitments are those values that are lost through the activities of a project. If the proposed exploration operations take place, as described in the Proposed Action, the productivity of soils over the 32 acres of disturbance would be diminished for a long time. As roads and pads are constructed and reclaimed, the soil will be mixed with the subsoil cut material below and the soil will lose productivity. It may take hundreds or thousands of years for soil horizons and productivity to completely return to the pre-disturbed conditions. Consequently, the lost productivity, until recovery occurs, primarily as it applies to vegetation growth and diversity, is the irretrievable commitment.

In addition, under the Proposed Action, the existing vegetation would be removed from the surfaces where the roads, pads, and trenches are constructed. Through reclamation, vegetation would be re-established using an approved seed mix. Although the reclamation vegetation would stabilize the reclaimed surfaces and trees and shrubs would re-establish on those surfaces, the

reclamation vegetation would be at a very early seral stage. The current forest functions and habitat values would be lost for a long time. The lost habitat and forest functions, until recovery occurs, are the irretrievable commitments.

Irreversible commitments are those functions that cannot be reversed or ever recovered. Because the soil and vegetation will eventually recover, given sufficient time, there are no irreversible commitments.

4.0 CUMULATIVE IMPACT ASSESSMENT

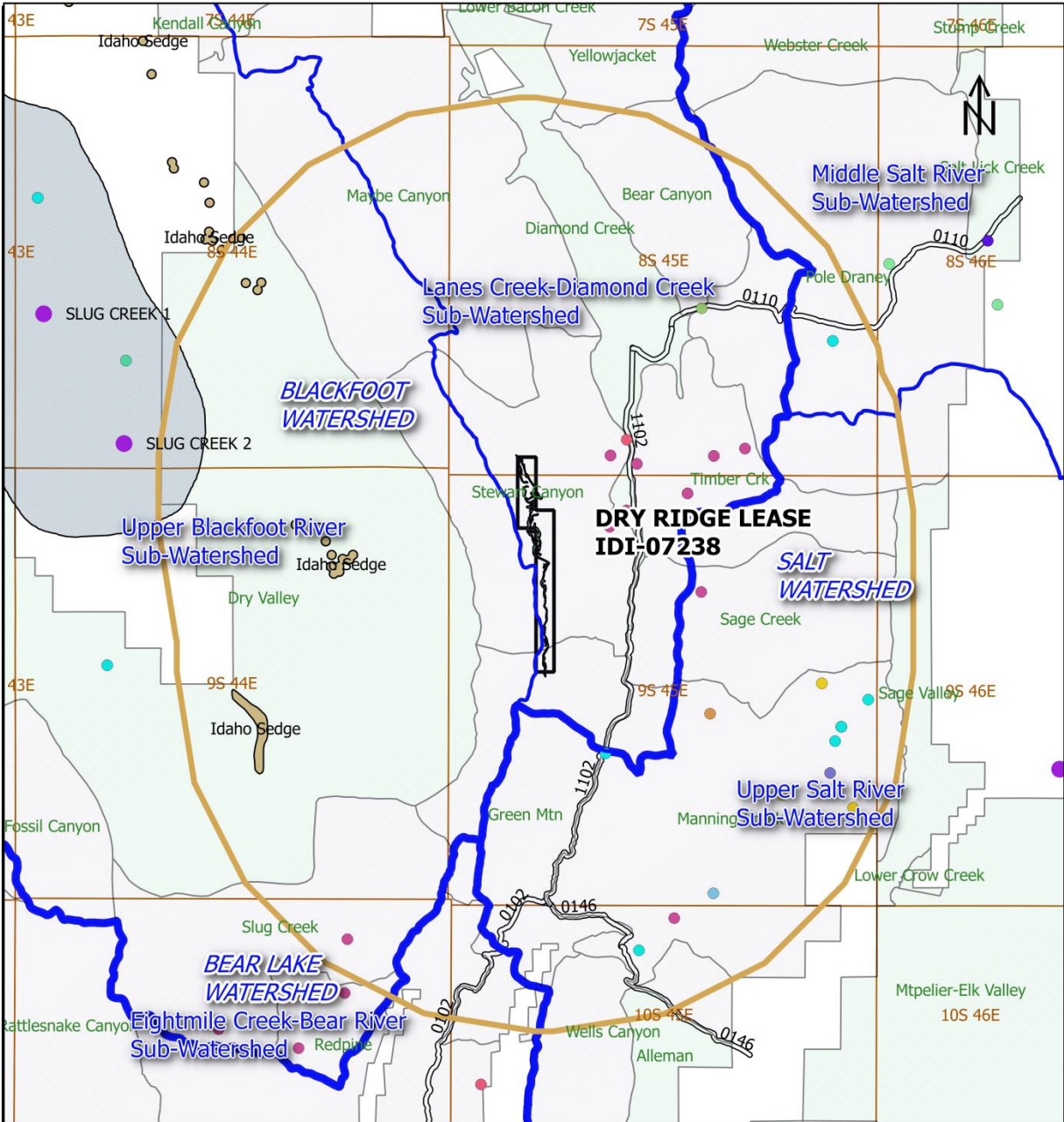
Cumulative impacts are impacts to the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions (see 40 CFR 1508.7). The intent of cumulative impacts analysis is to identify potential impacts to the resources within the cumulative impacts area (CIA) that might not otherwise be identified when activities are considered exclusive of each other. The CIA is defined by the action for which the EA is being prepared, while considering what impacts other actions have had, are having, or would have on those same resources. Cumulative impacts can result from individually minor but collectively major actions taken over time.

Cumulative impacts are evaluated in terms of the specific resource, ecosystem, and human community being impacted. The CIA boundary is reasonably sized to prevent dilution of the cumulative impacts over large areas. Guidance from the federal Council on Environmental Quality (CEQ), *Considering Cumulative Effects – January 1997*, was used in identifying geographic boundaries.

The CIA for most of the resources is different. All of the direct and indirect impacts take place within the Headwaters Diamond Creek Subwatershed (**Figure 3-2**). The subwatershed area is 13,485 acres (21.07 square miles), all of which is managed by the USFS. This area is particularly appropriate for impacts to water resources because localized impacts become more dispersed from the source area until they eventually become immeasurable downstream. The watershed was also used to assess cumulative impacts to vegetation. The watershed provides a discrete boundary within which cumulative impacts can be quantified and analyzed.

The CIA for soil resources was based on the impact to soil productivity and consists of the disturbance area only; however, this is with the understanding that soils impact other resources, such as water quality and habitat, and those cumulative effects are addressed under those resources.

The CIA for wildlife includes suitable habitat within a 5-mile radius around the disturbance area. This area was chosen because direct and indirect impacts to wildlife would primarily occur immediately within the analysis area (habitat loss and human disturbance) and would not be transported offsite (like soil or vegetation disturbance impacts to water resources). A 5-mile radius would be likely to encompass the daily movements of the most mobile wildlife species that could be affected by the Proposed Action. The CIA for wildlife incorporates 100.5 square miles and 64,320 acres (**Figure 4-1**).



- Legend**
- Cumul Impact Area
 - Sage Grouse Leks
 - Wildlife Obs**
 - A Stonefly
 - Bald Eagle
 - Blue Grouse
 - Flammulated Owl
 - Great Gray Owl
 - Green-tailed Towhee
 - Long-eared Myotis
 - Long-legged Myotis
 - Lynx
 - Northern Goshawk
 - Northern Leopard Frog
 - Peregrine Falcon
 - Three-toed Woodpecker
 - Virginia's Warbler
 - Western Toad
 - Wolverine
 - Plant Obs
 - Sage Grouse Habitat
 - Range Mgmt Units**
 - C&H
 - S&G



Figure 4-1 Wildlife Cumulative Impact Area, Biota Observations, Grazing Units, and Watersheds

PROJECT NUMBER: 2014220003 DATE: 2/13/2015 FILE: 201422003_F 4-1.qgs PREP BY: DJB REVIEWED BY: RKB REVISIONS:	Dry Ridge Phosphate Exploration EA Caribou-Targhee National Forest Fertoz USA LLC Brisbane, Queensland, AUS <div style="font-size: 1.5em; font-weight: bold; display: inline-block;">CES</div> CASCADE EARTH SCIENCES A Valmont Industries Company
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Coordinates: NAD83
 Sources: 2014 USDA Geospatial HUC Boundaries, 2014 ID Fish&Game TES Files, 2014 USFS Range Mgmt Files

In order to address cumulative effects to Transportation and Public Access, the CIA includes the management prescription areas designated in the RFP for phosphate mining (Prescription 8.2.2g) and semi-primitive recreation (Prescription 3.2b).

The CIA for IRAs includes the extent of the Dry Ridge IRA (**Figure 1-1**). The proposed disturbance area lies completely within the Dry Ridge IRA.

The CIA for tribal treaty rights impacts is southeastern Idaho. This CIA is used because it encompasses the majority of the area currently used by tribal members.

4.1 Past, Present and Reasonably Foreseeable Actions

Past, present, and reasonably foreseeable actions in the CIAs include timber harvest, including firewood collection; development of temporary roads associated with temporary exploration drill roads that have been reclaimed; recreation (dispersed camping, motorized recreation, and hunting); livestock grazing; and mineral exploration and mining operations.

A Mine and Reclamation Plan has been submitted by Agrium CPO for developing the Husky 1-North Dry Ridge Mine, part of which is within the project CIAs. Previous exploration activities within the Husky 1 Lease have resulted in the construction of access roads, exploration drill holes and reclamation activities to restore most of the access roads and drill pads. Drilling on the Husky 1 Lease is currently ongoing and is expected for about two more years. An exploration plan has also been submitted by Agrium for the Freeman Ridge and Husky 2 Leases, which are east of the proposed disturbance area and Diamond Creek (Agrium, 2013). This plan includes drilling for about 10 years and includes five off-lease drilling sites within the Dry Ridge IRA.

During the preparation of this EA, Agrium CPO has indicated to the BLM and USFS that they would like the BLM and USFS to temporarily cease process of two of their applications: one for the Husky 1-North Dry Ridge Mine and the other for exploration on Freeman Ridge. Because they did not withdraw their applications, these actions and potential impacts remain foreseeable.

The results of the Fertoz exploration drilling program may provide information for the possible development of a mine and reclamation plan. Potential future disturbance necessary to develop a mine and reclamation plan cannot be defined until exploration drilling is complete and the resulting data are analyzed. A mine resulting from this exploration plan is not yet a foreseeable outcome. A separate Environmental Impact Statement will be prepared, if, or when, a Mine and Reclamation Plan is developed, in order to consider the potential impacts of that action.

4.2 Soils

The total proposed disturbance is 32 acres. The appropriate geographic scale of an activity area is based on the proposed activity. For purpose of analyzing the effects of the proposed activity on the soil resource, the CIA is refined down to the project disturbance area. Although minor, the primary direct impact to the soil resource is loss of soil productivity. Soil productivity is site specific. Because productivity effects are spatially static and productivity in one location does not influence productivity in another location, it is appropriate to limit the geographic boundary to the activity area. Activity areas may be stratified into smaller units to create reasonable

analysis areas. FSM 2500-2011-1 defines an activity area as an area impacted by a land management activity.

For the purpose of this analysis, activity areas described are those areas (with associated acreages) affected by temporary road construction, drill pad construction, trenches, etc. Riparian and other environmentally sensitive areas may be monitored and evaluated as individual activity areas within larger management areas. Activities occurring on existing road templates were not analyzed for effects analysis as directed by FSM 2500-2010-1 & FSM-2500-2011-1.

In addition, it is recognized that there may be effects to other resources that are caused by impacts to the soil resource. Impacts to the soil resource may also affect water quality, vegetation, habitat, and subsequently wildlife. Cumulative effects to those resources are discussed in Sections 4.3, 4.4, and 4.5.

4.2.1 Alternative 1 – Proposed Action

Soils would be temporarily disturbed due to the Proposed Action, because of temporary road construction, exploration drilling, and surface trenching. Soil productivity would be reduced by the Proposed Action, but the soils would still be stable and support revegetation. Past, present and foreseeable activities, including incidental grazing, would affect the soil in a negligible way. Anticipated effects resulting from grazing would be minor trampling of some areas while foraging and loafing. Through reclamation and application of BMPs, the affected soils would remain stable and support vegetation, so that habitat in the area would remain functional. The cumulative impacts are expected to be minimal. Once the roads are reclaimed and new vegetation cover has become established, minor cumulative impacts to soil resources are expected from the Proposed Action alternative when considering reasonably foreseeable future actions, such as those impacts associated with incidental grazing.

4.2.2 Alternative 2 – No Action

Under the no action alternative, no additional surface disturbance would occur within the CIA. The CIA currently supports diverse activities (e.g., timber harvest, mining, grazing, recreation), each of which contribute to varying degrees of soil disturbance. Most of these activities are likely to continue at rates similar to present, with no contribution from the project under the no action alternative.

4.3 Water Resources

The CIA for water resources is the Headwaters Diamond Creek Subwatershed. The CIA contains 41.88 miles of streams, including upper Diamond Creek (4.43 miles), middle Diamond Creek (4.65 miles in CIA), several unnamed tributaries of Diamond Creek (27.25 miles in CIA), and Timber Creek (5.55 miles). All of Diamond Creek and its tributaries are listed as impaired by *Escherichia coli*. Upper and middle Diamond Creek (9.08 miles in CIA) are also listed as impaired for water temperature. Upper Diamond Creek and its unnamed tributaries (31.68 miles in CIA) and Timber Creek (5.55 miles) are listed as impaired for sedimentation and siltation, which are being addressed through the Blackfoot Watershed TMDL Implementation Plan (IDEQ, 2006).

4.3.1 Alternative 1 – Proposed Action

The RFP watershed S&Gs call for not more than 30 percent of any of the principal watershed (approximately fifth level HUC; Diamond Creek Watershed) or their subwatersheds (sixth level HUC; Headwaters Diamond Creek Subwatershed) to be in a hydrologically disturbed condition at any one time. A “Hydrologically Disturbed Condition” is defined in the RFP as “changes in natural canopy cover (vegetation removal) or a change in surface soil characteristics (such as compaction) that may alter natural streamflow quantities and character.” The area of the CIA (Headwaters Diamond Creek Subwatershed) is 13,485 acres, so the S&Gs indicate that the maximum allowable disturbance of the CIA would be 4,046 acres.

The proposed project disturbance is 32 acres, which is 0.2% of the CIA. There are four other phosphate leases in the CIA, of which, three are undergoing or proposed for exploration (Husky 1, Freeman Ridge, Husky 2). The total area of current and proposed exploration disturbance on phosphate leases within the CIA is about 265 acres (32 acres proposed on Dry Ridge, 65 acres approved on Husky 1 [includes small portion outside of CIA], and 168 acres proposed on Freeman Ridge and Husky 2 combined). A mining and reclamation plan has been submitted for the Husky 1 and North Dry Ridge Leases, which would disturb approximately 461 acres within the CIA (which would overlap exploration disturbances on those leases). Exploration and mining would disturb about 661 acres of land (assuming overlap of exploration and mining on Husky 1 lease), or 4.9% of the CIA. Existing hydrologic disturbance is 6.7% of the CIA, including roads, trails, fires, and past timber harvests (Wasniewski, 2014). When combined with the existing hydrologic disturbance, phosphate mineral exploration and development would not exceed the S&G threshold of 30% disturbance within the CIA.

Implementation of BMPs on future mining activities would likely ensure that future management activities would not have a negative cumulative impact on the 303(d) listed condition of any of the segments of Diamond Creek, or its tributaries, and Timber Creek in the CIA. Erosion control measures would prevent water quality degradation and reclamation would promote long-term watershed stabilization. Cold-water aquatic life and primary contact recreation beneficial uses for water bodies in the CIA would be unaltered by the addition of the Proposed action.

Impacts to AIZs, including wetlands and riparian habitat, are not anticipated to exceed 0.1 acres of disturbance from this project. Considering that BMPs and additional mitigation measures would be in place to minimize the impact of this small disturbance, this project would add very little actual impact to AIZs. Therefore, this project would not appreciably add to the cumulative impacts to these resources in this watershed.

4.3.2 Alternative 2 – No Action

Under the No Action Alternative, no additional disturbance would be added to the CIA, so there would be no changes to water resources. Past and current activities within CIA watersheds, including mining, livestock grazing, and timber harvest tend could lead to increased sediment loads to streams and often result in local channel bank instability. Current activities in the CIA would likely continue at rates similar to those occurring at present. The CIA would remain in compliance with RFP watershed goals, and the 303(d) listed condition of Diamond Creek, its tributaries and Timber Creek within the CIA would be unchanged.

4.4 Vegetation

The CIA for vegetation is the Headwaters Diamond Creek Subwatershed (HUC 170402070103). The subwatershed boundaries are shown on **Figure 3-2**. The subwatershed area is 13,485 acres (21.07 square miles). The area of proposed disturbance represents 0.2% of the CIA.

4.4.1 Alternative 1 – Proposed Action

The Proposed Action would disturb approximately 32 acres of coniferous forest, aspen, and mountain big sagebrush communities. Past, present, and reasonably foreseeable activities that could affect vegetation in the CIA include timber harvest, road construction, and minerals exploration. There has been no historic drilling on the lease, although the San Francisco Chemical Company excavated and sampled one trench in the 1950s.

Impacts from the Proposed Action would likely add cumulatively to the past, present, and future activities in the CIA. The majority of the activities are mining related, but they also include recreation and timber harvest, and grazing. The success of past mine-related reclamation has not been catalogued, although there are no known problem areas. However, the South Maybe Mine includes two large pit areas with little vegetation. Spread of noxious weeds was not observed in the proposed disturbance area during the July 2014 surveys (CES, 2014), although future human-related disturbance could disturb soils and contribute to future risk of noxious weed establishment within the proposed disturbance area. EPMs discussed in Section 2.2 will minimize the spread of noxious weeds currently established along existing roads in the Diamond Creek watershed. Reclamation will promote the establishment of native vegetation within the impacted areas of the CIA.

Construction of the roads, pads, and trenches would remove vegetation. Successful reclamation would re-establish vegetation but would comprise an earlier, seral stage for considerable time until the existing vegetation is fully established. This would occur over an area of 32 acres for this project. It is 0.2 percent of the CIA. When added to the past present and future activities that affect vegetation, mainly mining activities, the cumulative disturbance would be about 661 acres or 4.9 percent of the CIA. The impacted vegetation communities and the existing seral stages are common in the CIA. Therefore, the cumulative effect from adding this project to the past present and foreseeable actions would be a negligible additional change in vegetation function. RFP standards and guidelines for mature and old forest would be met.

4.4.2 Alternative 2 – No Action

Under the no action alternative, the exploration program would not proceed within the CIA. Past, present and future disturbances would continue to affect the vegetative community within the CIA. The no-action alternative would not contribute to any cumulative effects, since no action would occur.

4.5 Wildlife, Including Threatened, Endangered, and Sensitive Species

The CIA for wildlife includes suitable habitat within a 5-mile radius around the proposed disturbance area (100.5 square miles, 64,320 acres) (**Figure 4-1**). This area was chosen because direct and indirect impacts to wildlife would primarily occur immediately within the analysis

area (habitat loss and human disturbance) and would not be transported offsite (like soil or vegetation disturbance impacts to water resources). A 5-mile radius would be likely to encompass the daily movements of the most mobile wildlife species that could be affected by the Proposed Action. The proposed area of disturbance represents 0.05% of the CIA for wildlife.

4.5.1 Alternative 1 – Proposed Action

Past and present impacts to the CIA include recreation, road development, minerals exploration, and timber harvest. A trench was explored in the 1950s within the proposed disturbance area, although total disturbance was approximately 0.1 acres. Based on the date of the exploration, this area was probably not reclaimed. However, saplings have recolonized the original area of disturbance.

Present surficial disturbances at the adjacent Husky 1 Lease, Husky 2 Lease, Smoky Canyon Mine, Freeman Ridge Lease, and Dairy Syncline Mine Lease have also occurred within the wildlife CIA in the past, in addition to recreation, timber harvest, and present grazing. Mining and exploration activities have likely resulted in long-term impacts (conversion of forests to grasslands) to wildlife habitat. To a small degree, the Proposed Action is expected to contribute to these long-term impacts within the CIA. The habitats that are impacted are not unique within the CIA. There is no expectation that with the additional 32 acres of narrow linear disturbance that any species would start to decline. There would be no impacts to stands of old growth from this project. Following road reclamation, the only cumulative impact of the Proposed Action added to other actions within the CIA would be a negligible contribution to loss of mid seral forest habitat.

Reasonably foreseeable impacts to the CIA include the Freeman Ridge and Husky 2 phosphate leases, which are east of the proposed disturbance area and Diamond Creek. Collectively, the 265 acres of disturbance from present and reasonably foreseeable phosphate exploration activities (including the Proposed Action) account for about 0.41% of the wildlife CIA.

The Proposed Action is not expected to contribute to past, present and future selenium exposure to terrestrial wildlife species through vegetation uptake of selenium. Past mining has added selenium to the environment in the South Maybe Mine area, which has resulted in some level of exposure. This is currently being addressed by the USFS and other agencies through the Comprehensive Environmental Response, Compensation, and Liability Act process. This project is not expected to add additional selenium exposure. It is anticipated that future foreseeable mining in the Husky 1 Lease area would not be approved if it were predicted to add selenium to the environment above allowable limits. This project would not add appreciably to any existing selenium exposure impacts.

Impacts to ephemeral or perennial tributaries or Diamond Creek within the CIA would be minimal as a result of the Proposed Action. This project would not contribute to any selenium related water quality issues that currently exist due to historic phosphate mining in the CIA, mainly at Smoky Canyon Mine. Any sediment generated by this project would add to existing and future sediment, but because of the small size of this project and the application of BMPs,

EPMs and mitigation measures, this minor increase would likely not be noticeable. Thus, cumulative downstream impacts to fish habitat in Diamond Creek would not be noticeable. The Proposed Action is expected to contribute to these short and long-term impacts to the CIA. Specific cumulative impacts to species with MIIH determinations are discussed below.

Townsend's Big-Eared Bats: The project is not expected to lead to cumulative impacts to bat hibernacula. Disturbance to 32 acres of potential roosting habitat and prey habitat for Townsend's big-eared bats represents a small percentage (0.05%) of the CIA. Impacts to 32 acres of potential roosting and prey habitat in the project lease would add cumulatively to the historic exploration in the 1950s (0.1 acres) and the existing ATV trail (NF-565). Moreover, these impacts would add cumulatively to other current and proposed phosphate exploration projects and the transportation network developed to support these projects within the CIA. Yet when added together, the cumulative disturbance and effect on habitat supporting Townsend's big-eared bats would be minimal.

Temporary disturbance and displacement of Townsend's big-eared bats using the proposed disturbance area and short- and long-term changes to roosting and prey habitat could occur through the modification of 32 acres of vegetation. However, as discussed, these impacts are small compared to the overall size of the CIA, and, therefore, the impacts are not expected to contribute to a loss of viability to the population or species.

Northern Goshawk: Although no goshawks were detected during the July 2014 surveys, the proposed disturbance area could support nesting and/or foraging activities for this species. Total disturbance to forested habitat is expected to encompass about 0.04% (26.1 acres) of the CIA.

Temporary disturbance and displacement of northern goshawks using the proposed disturbance area and short- and long-term changes to habitat could occur through the modification of 26.1 acres of vegetation. Impacts to 26.1 acres of forested habitat would add cumulatively to the historic disturbance within the project lease and to other current and proposed phosphate exploration projects, as well as the transportation network developed to support these projects within the CIA.

However, as discussed, when combined with past, current, and future disturbance, these impacts are small compared to the overall size of the CIA. The Proposed Action retains the ability of the CTNF to meet the criterion of at least 20% of the forested acres in mature and old age classes (including old growth), which offsets loss of 26.1 acres of forested habitat. Moreover, the Proposed Action does not add cumulatively to the loss of known nest sites. As such, cumulative impacts are not expected to contribute to a loss of viability to the population or species.

Great Gray Owl, Boreal Owl, Flammulated Owl: Great gray owl, boreal owl, and flammulated owl use is expected in in the CIA. Stands of coniferous forest and aspen would be impacted during the Proposed Action. Disturbance of 6.9 acres of mixed coniferous forest, which could include subalpine fir, Engelmann spruce, and aspen, would comprise about 0.01% of the CIA. Impacts to aspen stands would comprise 3.9 acres or 0.006% of the CIA.

Impacts to 6.9 acres mixed coniferous forest and 3.9 acres of aspen in the project lease would add cumulatively to the historic disturbance within the project lease and to other current and proposed phosphate exploration projects, as well as the transportation network developed to support these projects within the CIA.

Temporary disturbance and displacement of owl species using the proposed disturbance area and short- and long-term changes to habitat could occur through the modification of 6.9 acres of mixed coniferous forest and 3.9 acres of aspen. However, mature forest habitat within the CIA would be available, and these impacts are small compared to the overall size of the CIA. Therefore, the impacts are not expected to contribute to a loss of viability to populations or species.

Three-Toed Woodpecker: The July 2014 surveys identified one female three-toed woodpecker along the northern boundary of the project lease. Occupancy is anticipated in other areas of the project with recently killed trees/snags. The Proposed Action will remove about 614 hard snags (19 snags per acre).

Impacts to 26.1 acres of forested habitat in the project lease would add cumulatively to the historic disturbance within the project lease and to other current and proposed phosphate exploration projects, as well as the transportation network developed to support these projects within the CIA.

Temporary disturbance and displacement of woodpeckers using the proposed disturbance area and short- and long-term changes to habitat could occur through the modification of 26.1 acres of vegetation and removal of 614 hard snags. However, structure and arrangement of snags across the majority of the CIA will be retained. Impacts resulting from the Proposed Action are small compared to the overall size of the CIA, and, therefore, the impacts are not expected to contribute to a loss of viability to the population or species.

Migratory Landbirds: Species protected by the MBTA were documented during the survey completed in July 2014. Habitat removal associated with the Proposed Action is expected to impact 22.2 acres of coniferous forest habitat, 3.9 acres of aspen habitat, and 5.9 acres of sagebrush/shrub habitat, comprising 0.049% of the CIA.

Impacts to 32 acres of potential habitat in the project lease would add cumulatively to the historic disturbance within the project lease and to other current and proposed phosphate exploration projects, as well as the transportation network developed to support these projects within the CIA.

Temporary disturbance and displacement of migratory landbirds using the proposed disturbance area and short- and long-term changes to habitat could occur through the modification of 32 acres of vegetation. Migratory birds are generally mobile and can move to adjacent unaltered habitats during exploration. Many of the species identified during the 2014 surveys are tolerant of human disturbance. The narrow, linear nature of the disturbance is not expected to restrict migration activities. Thus, impacts are not expected to contribute to a loss of viability to populations or species.

Mule Deer and Elk: The CIA includes high quality ungulate habitat and elk winter range. Minor alterations to early seral wildlife habitat and long-term loss of 26.1 acres of forested habitat will occur as a result of the Proposed Action. Removal of winter range in the CIA north of the Project Lease has the potential to affect forage for wintering elk. Establishment of grassland vegetation in disturbed areas within winter range may result in beneficial impacts to forage availability to elk.

Temporary displacement of big game species may occur during exploration, but mule deer and elk are expected to recolonize the area immediately following human disturbance. In addition, the Proposed Action is not expected to contribute to these short and long-term impacts to elk winter range in the CIA. Overall, the impacts are not expected to contribute to a loss of viability to population or species.

4.5.2 Alternative 2 – No Action

Under the no action alternative, the exploration program would not proceed within the CIA. Past, present and future disturbances (e.g., grazing, minerals exploration, mining, road construction and use) would continue to impact wildlife and their habitats within the CIA. Alternative 2 would not contribute to any cumulative effects, since no action would occur.

4.6 Transportation Facilities and Public Access

Disturbance would take place within two prescription areas: the on-lease disturbance falls within Prescription 8.2.2g Phosphate Mine Areas and the off-lease disturbance falls within Prescription 3.2b Semi-Primitive Recreation. The CIA for transportation facilities and public access would be the extent of those two prescription areas.

4.6.1 Alternative 1 – Proposed Action

During the proposed operations, the public may see higher traffic on Diamond Creek Road, Georgetown Canyon Road, Green Mountain Road and Stewart Canyon Road. Motorized access to the drilling areas would be restricted for safety reasons and because the exploration roads are not designated routes. The general area will still be open to non-motorized public-use; however, the active drilling and construction sites, an estimated one or two drilling pads and/or trenches at any given time, would be restricted to protect public safety.

This project would not contribute to cumulative impacts to transportation facilities and public access. All roads open prior to the project would remain accessible to the public. No new public roads would be created or lost, so there would be no cumulative effect. Existing road densities would not change. The disturbance would take place within two prescriptions that currently meet targeted road densities (USFS, 2005) and that would continue to be the case. The project would comply with RFP standards and guidelines.

4.6.2 Alternative 2 – No Action

No additional transportation facilities or public access in the CIA would occur from the no-action alternative.

4.7 Inventoried Roadless Area

The CIA for the IRAs includes the extent of the Dry Ridge IRA.

4.7.1 Alternative 1 – Proposed Action

Past and present, or reasonably foreseeable future disturbances, in the Dry Ridge IRA, in the immediate vicinity of the Proposed Action, include past exploration activities, existing roads/trails, and the proposed mine development of the leases. Future mining in the Husky 1 Lease (I-05549) area and future exploration in the Freeman Ridge (I-08194)/Husky 2 (I-07942) Leases could add about 629 acres of additional disturbance in the Dry Ridge IRA. The Proposed Action would directly disturb 32 acres within the Dry Ridge IRA, which is part of the GFRG roadless theme and permits road construction for mining activities. However, the impacts would be minimized by successful reclamation. This project would add minimally to the overall decrease in roadless character of the Dry Ridge IRA that could take place in the future. Any degradation of roadless characteristics from phosphate-related road construction in the GFRG theme was considered in the Idaho Roadless Rule, so it was anticipated and allowed.

4.7.2 Alternative 2 – No Action

Under the no action alternative, the Dry Ridge IRA would continue under current management conditions and there would be no temporary disturbance of the Dry Ridge IRA from the proposed exploration activities.

4.8 Tribal Treaty Rights and Interests

The CIA for tribal treaty rights impacts is southeastern Idaho. This CIA is used because it encompasses the majority of the area currently used by tribal members

4.8.1 Alternative 1 – Proposed Action

Long-term management of the proposed disturbance area would remain unchanged, as reclamation activities would reduce impacts to the overall condition of lands subject to treaty rights and interests within the CIA. Any temporary alterations would be negligible in light of the area available for tribal use within the CIA. Tribal archeological resources were not identified during a survey of the lease boundary and cumulative impacts would be negligible. Cumulative impacts on other natural resources important to the tribal treaty rights and interests are considered negligible and are discussed under the other resources in Section 4.0.

4.8.2 Alternative 2 – No Action

The no action alternative would continue the trend of improving conditions of land subject to the tribal treaty rights and interests in the southeast Idaho, as the land in the proposed disturbance area would be managed in its current condition.

5.0 CONSULTATION, COORDINATION, AND LIST OF PREPARERS

This EA was prepared by the BLM Pocatello Field Office (Pocatello, Idaho) and the CTNF. Technical assistance for the preparation of the EA was provided by Cascade Earth Sciences. The following individuals either provided consultation and coordination during the preparation of this EA or were responsible for the preparation of the document.

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APPENDIX

Appendix A. Roadless Area Worksheets

WORKSHEET 1 – Wilderness Qualities or Attributes
Evaluating the Effects of Project Activities on Wilderness Attributes

Date:	1/29/2015
Roadless Area:	Dry Ridge

<p>Description of Project Activity or Impact to Roadless Area: (note – describe the activity that is affecting the roadless area, ie miles of road construction, timber acres harvested, acres treated by fire, etc...)</p> <p>Phosphate mineral exploration is proposed on the Dry Ridge Lease (I-07238) over a two to three year period. A total of 96 drill holes, 22 surface trenches (3-4 feet deep), and a new road are proposed for construction. A total of 32.0 acres of vegetation would be cleared, including 3.3 acres for drill pads, 1.9 acres for trenches and 26.8 acres for 7.38 miles of access roads. All disturbed areas would be reclaimed either concurrently or at the end of the project. The following effects analysis and information presented below was based upon reviewing applicable information contained within the 2003 Final Environmental Impact Statement for the Caribou National Forest Revised Forest Plan and the 2008 Roadless Area Conservation, National Forest Lands in Idaho, Final Environmental Impact Statement.</p>

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.
<p>Untrammeled This quality monitors modern human activities that directly control or manipulate the components or processes of ecological systems inside wilderness. In summary, <i>wilderness is essentially unhindered and free from modern human control or manipulation.</i> 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</p>	YES	Stable	The function of ecological systems within the Dry Ridge Roadless Area (DRRA) has been impacted by the following physical or human-caused impacts that have occurred in the recent past or are occurring: unimproved roads, timber harvest activities, mining activities, grazing, and recreation. The Project would result in approximately 32 acres of temporary disturbance within the DRRA, which would include approximately 7.38 miles of access roads, 22 trenches

<p>ct your project activities that would alter the natural processes in the area.</p>			<p>and 48 drill pads (2 drill holes per pad). 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. Access roads, in particular, can fragment habitat and alter movements by smaller wildlife species. 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 exploration activities. The total disturbance (32 acres) would be 0.14 percent of the DRRA (23,300 acres) and all disturbances, including access roads, would be reclaimed. Further, the Project includes 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 DRRA.</p>
<p>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, <i>wilderness ecological systems are substantially free from the effects of modern civilization.</i> 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.</p>	<p>YES</p>	<p>Stable</p>	<p>The DRRA 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 DRRA. 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, many of these disturbances (particularly roads and areas of timber harvest) are in various stages of reclamation and are returning to a more natural state. The Project would involve disturbance and habitat loss. The new disturbance would also be visible to the casual observer in the form of roads, road cuts, cleared areas for</p>

			<p>trenches and drill pads, and noise associated with drilling equipment and vehicles. During and immediately following exploration activities, these disturbances would be highly visible and would contrast with the surrounding landscape. Disturbed areas would have a reduced appearance of naturalness relative to areas within the DRRA that have not been disturbed or that have been reclaimed. This is particularly true of the 7.38 miles of new road construction, which, due to its linear nature, may be visible from more areas than a drill pad or trench located in a single location. Once reclamation is complete, the disturbed areas would have an appearance similar to other areas within the DRRA that have been reclaimed. Therefore, although the Project would degrade the natural condition of 32 acres in the short term, in the long term the condition of the disturbed lands would exhibit a degree of naturalness similar to the rest of the DRRA.</p>
<p>Undeveloped This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation. In summary, <i>wilderness is essentially without permanent improvements or modern human occupation.</i> 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 project's duration or resulting after the project is finished. Consider using ROS maps layers.</p>	<p>YES</p>	<p>Degrading</p>	<p>The Project would involve construction of 7.38 miles of road, 22 trenches and 48 drill pads. During construction, heavy equipment would be present and operating, including bulldozers, water trucks, drill rigs, and various support pickup trucks. Equipment may be visible from several miles away, especially since several drill holes and the associated access roads would be located on or near upper elevation ridges. For the same reason, noise from the equipment may also be noticeable from up to several miles away. As a result, during construction, exploration, and reclamation activities, there would be a noticeable increase in the sights and sounds of civilization within and near the three areas to be affected. However, once exploration is completed, no equipment or structures would be left behind and evidence of human presence or occupation would consist of the reclaimed roads, trenches and drill pads.</p>

<p>Outstanding opportunities for solitude or a primitive and unconfined type of recreation</p> <p>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 <i>per se</i>. In summary, <i>wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge</i></p>	<p>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.</p>	<p>YES</p>	<p>Stable</p>	<p>The Project would increase the amount of visible developments and noise associated with human activity in the short term. This would lead to a short-term decrease in the opportunities for solitude within the DRRRA. However, since the Project area is near the northern boundary of the DRRRA (see Figure 1-1 of the EA), it would not affect the opportunities for solitude within the majority of the DRRRA. Following construction, exploration, and reclamation activities, the traffic and noise associated with equipment would be removed and the opportunities for solitude would be similar to areas of the DRRRA not impacted by the Project.</p>
	<p>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.</p>	<p>NO</p>		<p>Terrain within the DRRRA is typical of the other mountain ranges in southeast Idaho and due to the presence of existing roads, timber harvest remains, and other developments; does not provide much opportunity for primitive recreation. As a result, the disturbance of an additional 32 acres would not affect this quality. In addition, the Project is near the northern boundary of the DRRRA (see Figure 1-1 of the EA).</p>
<p>Special Features (Ecological, Geologic, Scientific, Educational, Scenic or Historical Values)</p> <p>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</p>		<p>NO</p>		<p>Unique or special features are not represented within the DRRRA and no impacts to this quality from the Project are anticipated.</p>

<p>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.</p>			
<p>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.</p>	<p>NO</p>		<p>The proposed disturbance would include roads and other development that would make approximately 32 acres unsuitable for wilderness designation. However, these areas would not fragment the DRRA into smaller pieces that would not meet the size criteria (5,000 acres or more). Further, they would not reduce access to the DRRA. As a result, there would no impacts to manageability.</p>

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		

WORKSHEET 2 – Roadless Area Characteristics
 Evaluating the Effects of Project Activities on Roadless Area Characteristics

Date:	1/29/2015
Roadless Area:	Dry Ridge

Description of Project Activity or Impact to Roadless Area:
 (note – describe the activity that is affecting the roadless area, ie miles of road construction, timber acres harvested, acres treated by fire, etc...)
 Phosphate mineral exploration is proposed on the Dry Ridge Lease (I-07238) over a two to three year period. A total of 96 drill holes, 22 surface trenches (3-4 feet deep), and a new road are proposed for construction. A total of 32.0 acres of vegetation would be cleared, including 3.3 acres for drill pads, 1.9 acres for trenches and 26.8 acres for 7.38 miles of access roads. All disturbed areas would be reclaimed either concurrently or at the end of the project. The following effects analysis and information presented below was based upon reviewing applicable information contained within the 2003 Final Environmental Impact Statement for the Caribou National Forest Revised Forest Plan and the 2008 Roadless Area Conservation, National Forest Lands in Idaho, Final Environmental Impact Statement.

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	Stable	The Project would disturb approximately 32 acres of soil, which is 0.14 percent of the Dry Ridge Roadless Area (DRRA). Primary impacts to soils would result from removal of topsoil, compaction and erosion. Environmental protection measures will be used to mitigate these affects, including stockpiling and replacing topsoil where practical, erosion controls, recontouring and reseeded. Soil productivity would

			<p>be reclaimed to the greatest potential achievable. Approximately 12.5 acres of disturbed soil have severe revegetation limitations, so a slow response to reseeding is expected in these areas.</p> <p>The Project would not directly impact water resources, since no surface waterways will be crossed. Project disturbance areas have the potential to cause sediment transport to surface waterways through erosion and mass soil movements. However, Project erosion control BMPs will be used to minimize this potential. Drill fluids could migrate into the formation and reach groundwater; however, this is unlikely because drill holes are expected to terminate approximately 300 feet above the regional aquifer, additives will be used to minimize fluid migration out of the hole, and drill holes will be promptly and properly plugged.</p> <p>Significant air quality concerns or impacts are not anticipated from the exploration project. Potential air contaminants may include dust from the roads and drilling pads and exhaust from vehicles and equipment. If the USFS or the BLM determine that suppression of dust created by exploration activities is necessary, dust abatement methods will be initiated. It is not anticipated that there will be a cumulative impact on air quality in the area due to the short-term nature of this activity.</p>
<p>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.</p>	NO		<p>No listed public drinking water sources are located within the project area. The closest public water supply is a private well at a mine approximately 4.5 miles east of the Project area.</p>
<p>Diversity of plant and animal communities Discuss the diversity of plant and animal communities.</p>	Yes	Stable	<p>Plant Communities: Field reconnaissance generally identified a composition of various successional stages of mixed coniferous forest, aspen, big mountain sagebrush/steppe,</p>

<p>Identify any unique plant and animal communities within the area. Describe effects to the diversity of communities and impacts to populations in the areas.</p>			<p>riparian, and subalpine meadows within the Project Area (CES, 2014).</p> <p>Disturbance minimization, topsoil salvage, reseeding, and reclamation will assist with vegetation reestablishment following exploration activities. Interim residual impacts from vegetation disturbance are possible. However, reclamation efforts should assist with reestablishment of native herbaceous communities. Mountain shrub and tree communities will reestablish over the longer term to provide wildlife habitat and stabilize soils.</p> <p>Animal Communities: Minimal residual impacts to wildlife, including TES or sensitive species are anticipated from the proposed exploration. Implementation of EPMs and vegetation reestablishment will further minimize impacts. It is expected minor long term impacts will be observed following removal of mature trees and mid-seral canopy species during exploration activities.</p>
<p>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.</p>	<p>YES</p>	<p>Stable</p>	<p>A review of the February 2013 Intermountain Region (R4) Threatened, Endangered, Proposed, and Sensitive Species (species list) did not identify any known federally Threatened or Endangered vegetation species or habitat on the Caribou National Forest (USFS, 2013). Ute ladies' tresses orchid (<i>Spiranthes diluvialis</i>) is a federally listed Threatened species with suspected/potential habitat on the Forest. However, there are no suspected rare plants for this area that would occur within forested habitat (Lehman, 2014). No R4 Sensitive species were encountered on or within a ½-mile buffer of the proposed Project disturbance area during field reconnaissance in July 2014. In addition, no whitebark pine (<i>Pinus albicaulis</i>), a federal candidate species, were observed.</p>

			<p>A review of the wildlife species list and the Sensitive Species and Survey Methods, Soda Springs Range District and Montpelier Ranger District Wildlife and Rare Plants (USFS, 2014b) identified special status wildlife species that may be present on the CTNF, including Canada lynx (Threatened) and 23 sensitive and/or management indicator species. A BA/BE for the Project (project record) concluded that the Project will have no effect on Canada lynx due to small linear area of disturbance, which would not affect lynx movements and non-contiguous fragmented habitat in the Project vicinity. The BA/BE for the Project also concluded that the Project would have no impact on 18 of the 23 sensitive and/or management indicator species, but may impact individuals or habitat (but not contribute to a trend towards of federal listing or loss of viability to the population or species) for the following: Townsend's big-eared bat, northern goshawk, great gray owl, boreal owl, flammulated owl, and three-toed woodpecker, as well as big game and migratory bird species.</p> <p>Mitigation measures, including disturbance minimization, avoidance of stick raptor nests, and reclamation would be implemented as described in Section 2.3 of the EA. Impact avoidance for migratory bird species would be accomplished by conducting ground clearance for roads, drill pads, and trenches outside the general nesting season from May 15-August 15. USFS may grant exceptions if erosion, sedimentation, weed infestation, important timing conflicts, or other unacceptable impacts would occur.</p> <p>Minimal residual impacts to wildlife, including TES or sensitive species are anticipated from the proposed exploration. Implementation of EPMs and vegetation</p>
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			reestablishment will further minimize impacts. It is expected minor long term impacts will be observed following removal of mature trees and mid-seral canopy species during exploration activities.
<p>Primitive and semi-primitive classes of recreation</p> <p>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.</p>	YES		<p>The DRRR is managed for summer and winter recreation. During the snow-free season, the most of the DRRR is managed for semi-primitive motorized recreation (16,719 acres), while the remainder is managed for roaded modified recreation (4,935 acres) and semi-primitive non-motorized recreation (1,653 acres). During the snow season, areas managed for roaded modified recreation are closed, so more of the area is managed for semi-primitive motorized recreation (18,786 acres) and semi-primitive recreation (4,520 acres). The area has about 3 miles of forest roads and 9.5 miles of motorized trails. A campground is located adjacent to the southwest boundary of the DRRR. The area receives moderate use for big game hunting, off highway vehicle use, and dispersed camping. Visitors are attracted to the area by the loop road from Georgetown Canyon into Diamond Creek and the driving for pleasure opportunities it affords. Most of the area is open to snowmobiling, except for 4,520 acres that is closed in the winter to protect wildlife. The Project will disturb 32 acres in an area of the DRRR managed for semi-primitive motorized recreation. The addition of Project personnel in the area, and an increase in noise levels, might detract from the recreational experience in the area by trail users. In addition, drilling areas may be less desirable for hunting during Project activities. Overall, recreation opportunities within the DRRR are not anticipated to change except during the brief periods of exploration activities.</p>
<p>Reference landscapes for research study or interpretation</p> <p>Describe the landscape that is present. Describe any unique reference landscapes that exist within the Roadless area.</p>	NO		<p>The Project area is located along the east side of Dry Ridge, which is rather uniform, at about 8,000 to 9,000 feet elevation, and slopes gently eastward towards Diamond Creek. Typical</p>

<p>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.</p>			<p>of the DRRA at similar elevations, the Project and vicinity are vegetated with mixed coniferous forest, aspen, big mountain sagebrush/ steppe, riparian, and subalpine meadows. There are no known unique reference landscapes in the DRRA, or in the Project disturbance area. The Project would not affect the reference landscape values of the DRRA.</p>
<p>Landscape character and Natural 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.</p>	<p>YES</p>	<p>Stable</p>	<p>The natural integrity of the DRRA is considered low to moderate, because some human activities are evident including past timber harvest units, unimproved or closed roads, livestock grazing, and extensive evidence of phosphate mining. The general appearance of the DRRA is natural, due to the steep, inaccessible west-facing slopes that dominate the area. Project disturbance will temporarily impact the natural character of 32 acres of land by creating road cuts, drill pads and trenches that would be visible to the casual observer and would contrast with the surrounding landscape. As such, the scenic integrity of these disturbed areas would be reduced compared to undisturbed areas of the DRRA. The disturbed areas would be reclaimed to restore the natural characteristics and scenic integrity of the project area to the maximum extent practical.</p>
<p>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.</p>	<p>NO</p>		<p>A cultural resource survey conducted in 2014 and submitted to the State Historical Preservation Office (SHPO) concluded that there are no archeological resources on the Dry Ridge phosphate lease, so no avoidance or mitigation measures would be necessary. SHPO concurrence would be granted prior to commencing any disturbance activity at the Project. No sacred sites were identified in BLM consultations with the Shoshone Bannock Tribe. If unidentified cultural resources are discovered during Project implementation, the BLM and CTNF shall be notified and work in the area shall halt until inspection by a professionally trained archeologist is conducted and a mitigation plan developed, if necessary.</p>

Other locally unique characteristics Identify any locally unique characteristics and describe how the project would affect these values.	NO		No known locally unique characteristics have been identified for this DRRA; thus, the Project would not impact this attribute.
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