

Environmental Assessment
EA Number: DOI-BLM-ID-I020-2011-0018-EA
Case Serial Numbers: IDI-36773; IDI-012982;
IDI-37055

**Paris Hills
Prospecting and
Exploration Drilling
Program**

United States Department of the Interior
Bureau of Land Management
Pocatello Field Office

July 2011



It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Table of Contents

Table of Contents.....	ii
List of Figures	iv
List of Tables	iv
List of Acronyms	v
1.0 Introduction	1
1.1 Background	1
1.2 Location and Access.....	1
1.3 Purpose and Need for Action	4
1.4 Land Use Plan Conformance Statement and Other Regulations.....	4
1.5 Decisions to Be Made	5
1.6 Scoping/Public Involvement.....	5
2.0 Description of Alternatives.....	6
2.1 Alternative 1 – Proposed Action.....	6
2.1.1 Mineralization Exploration Plan and Methods	6
2.1.2 Ground Disturbance, Drilling Rate, and Exploration Program Duration	8
2.1.3 Proposed Action Summary	10
2.2 Alternative 2 - No Action	10
2.3 Environmental Protection Measures/Mitigation	10
2.3.1 Cultural Resources	10
2.3.2 Damage to Fish or Wildlife or Other Natural Resources.....	11
2.3.3 Isolation and Control of Toxic or Deleterious Materials	12
2.3.4 Noxious Weeds	12
2.3.5 Surface Water, Stormwater Management, and Soil Erosion	12
2.3.6 Groundwater.....	14
2.3.7 Fire	14
2.3.8 Air Pollution	15
2.3.9 Subsidence.....	15
2.3.10 Hazards to Public Safety.....	15
2.3.11 Reclamation/Regrading, Reshaping, and Seeding.....	15
2.3.12 Drill Hole Plugging and Abandonment	16
2.3.13 Seasonal Closure	17
2.3.14 Unexpected Temporary Closure	17
2.4 Compliance Monitoring	17
2.5 Alternatives Considered But Not Analyzed In Detail.....	18
2.5.1 Obliterate Pre-Existing Roads Prior to Drilling.....	18
2.5.2 Limit Road Use to Pre-Existing Roads with Direction Drilling	18
3.0 Affected Environment and Environmental Consequences	19
3.1 Introduction.....	19

3.2 Resources Considered in the Impact Analysis	19
3.3 Cultural Resources	22
3.3.1 Affected Environment	22
3.3.2 Environmental Consequences	24
3.4 Soil Resources.....	24
3.4.1 Affected Environment	24
3.4.2 Environmental Consequences	26
3.5 Vegetation Resources.....	26
3.5.1 Affected Environment	26
3.5.2 Environmental Consequences	27
3.6 Wildlife and Fish Resources.....	28
3.6.1 Affected Environment	28
3.6.2 Environmental Consequences	29
3.7 Threatened, Endangered, and Sensitive (TES) Species	31
3.7.1 Affected Environment	31
3.7.2 Environmental Consequences	36
3.8 Water Quality – Surface Water and Groundwater	40
3.8.1 Affected Environment	40
3.8.2 Environmental Consequences	41
4.0 Cumulative Impact Assessment (CIA)	43
4.1 Past, Present, and Reasonably Foreseeable Future Actions	45
4.1.1 Past and Present Actions.....	45
4.1.2 Reasonably Foreseeable Actions	46
4.1.3 Cumulative Impacts of Past, Present, and Reasonably Foreseeable Future Actions	46
5.0 Consultation and Coordination	50
5.1 Persons and Agencies Consulted	50
5.2 List of Preparers and Reviewers	50
6.0 References.....	51
Appendix A: Paris Hills Exploration Drilling Plan 2011.....	A
Appendix B: WEPP Model	B

List of Figures

Figure 1. Site Vicinity Map	2
Figure 2. Project Area Map.....	3
Figure 3. Proposed Access Roads and Drill Site Areas.....	7
Figure 4. Disturbed Areas	9
Figure 5. Alternative 1 Sage Grouse Habitat Impacts	39
Figure 6. Cumulative Impact Analysis.....	44

List of Tables

Table 1. Estimated Disturbance.....	8
Table 2. Proposed Seed Mix	16
Table 3. Resources Considered in the Impact Analysis	20
Table 4. Potential Wildlife Species and/or Sign Observations in the Project Area	29
Table 5. BLM Wildlife Special Status Potentially Occurring in the Project Area	32
Table 6. Categorization of Potentially Affected TES.....	36
Table 7. Surface Water Beneficial Use Designations.....	40
Table 8. WEPP Model Results.....	42

List of Acronyms

ACEC	Area of Critical Environmental Concern	IDWR	Idaho Department of Water Resources
BLM	Bureau of Land Management	IFWIS	Idaho Fish and Wildlife Information System
BLRC	Bear Lake Regional Commission	KPLA	Known Phosphate Leasing Area
BMPs	Best Management Practices	NEPA	National Environmental Policy Act
BP	before present	NHPA	National Historic Preservation Act
CEQ	Council on Environmental Quality	NRHP	National Register of Historic Places
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	ORV	off-road vehicle
CFR	Code of Federal Regulations	PHA	Paris Hills Agricom
cfs	cubic feet per second	RC	Reverse Circulation
CIA	Cumulative Impact Assessment	RCA	Riparian Conservation Area
CIAA	Cumulative Impact Analysis Areas	RCRA	Resource Conservation and Recovery Act
EA	Environmental Assessment	RMP	Resource Management Plan
EPA	Environmental Protection Agency	SH	State Highway
EPM	Environmental Protection Measure	SHPO	State Historic Preservation Office
F	Fahrenheit	SWPPP	Storm Water Pollution Prevention Plan
ft	feet	TES	Threatened, Endangered, and Sensitive
HUC	Hydrologic Unit Code	TMDLs	total maximum daily loads
IDAPA	Idaho Administrative Procedures Act	USFWS	United States Fish and Wildlife Service
IDEQ	Idaho Department of Environmental Quality	USGS	United States Geological Survey
IDL	Idaho Department of Lands	VQO	Visual Quality Objectives
		WEPP	Water Erosion Prediction Project

1.0 Introduction

1.1 Background

This Environmental Assessment (EA) was prepared by the Bureau of Land Management (BLM), Pocatello Field Office. Paris Hills Agricom, Inc., (PHA) proposes to prospect for phosphate and associated minerals using exploration drilling on a 244.63-acre, federally owned phosphate deposit known to exist under privately owned surface. Several of the proposed drill hole locations in the federal application constitute prospecting because they are situated on un-leased federal mineral estate which lies outside a nearby federally designated Known Phosphate Leasing Area (KPLA) (IDI-020417). The company also proposes to conduct exploration activities on 34.96-acres of un-leased federal mineral estate within the 1,631-acre KPLA as well as exercise exploration rights related to the existing 65.74-acre federal phosphate lease IDI-012982. This EA addresses the Paris Hills Exploration Drilling Plan submitted to BLM on October 27, 2010.

The Project Area is located in Bear Lake County, Idaho, (Figure 1) within a larger, 2,114 acre non-federal tract referred to as the Paris Hills Property (Figure 2). The property includes the former Bloomington Canyon, Consolidated (Little Canyon), and Paris Canyon underground mine sites which have been explored and developed intermittently for the past 80 years. Within the property, both vanadium and phosphate resources have been the interest of past exploration programs. PHA is primarily interested in defining the extent of the phosphate ore reserve and determining its value. Property holdings consist of three patented lode mining claims and 16 contiguous fee (non-federal) parcels (some with federal mineral reservations). The federally owned mineral estate within the Project Area is managed by the BLM under the Mineral Leasing Act. Activities conducted on private lands, including private surface is managed primarily by the Idaho Department of Lands (IDL) under the Idaho Surface Mining Act. Entry onto the land, conducting mineral exploration, and reclamation activities has been coordinated with the surface owner.

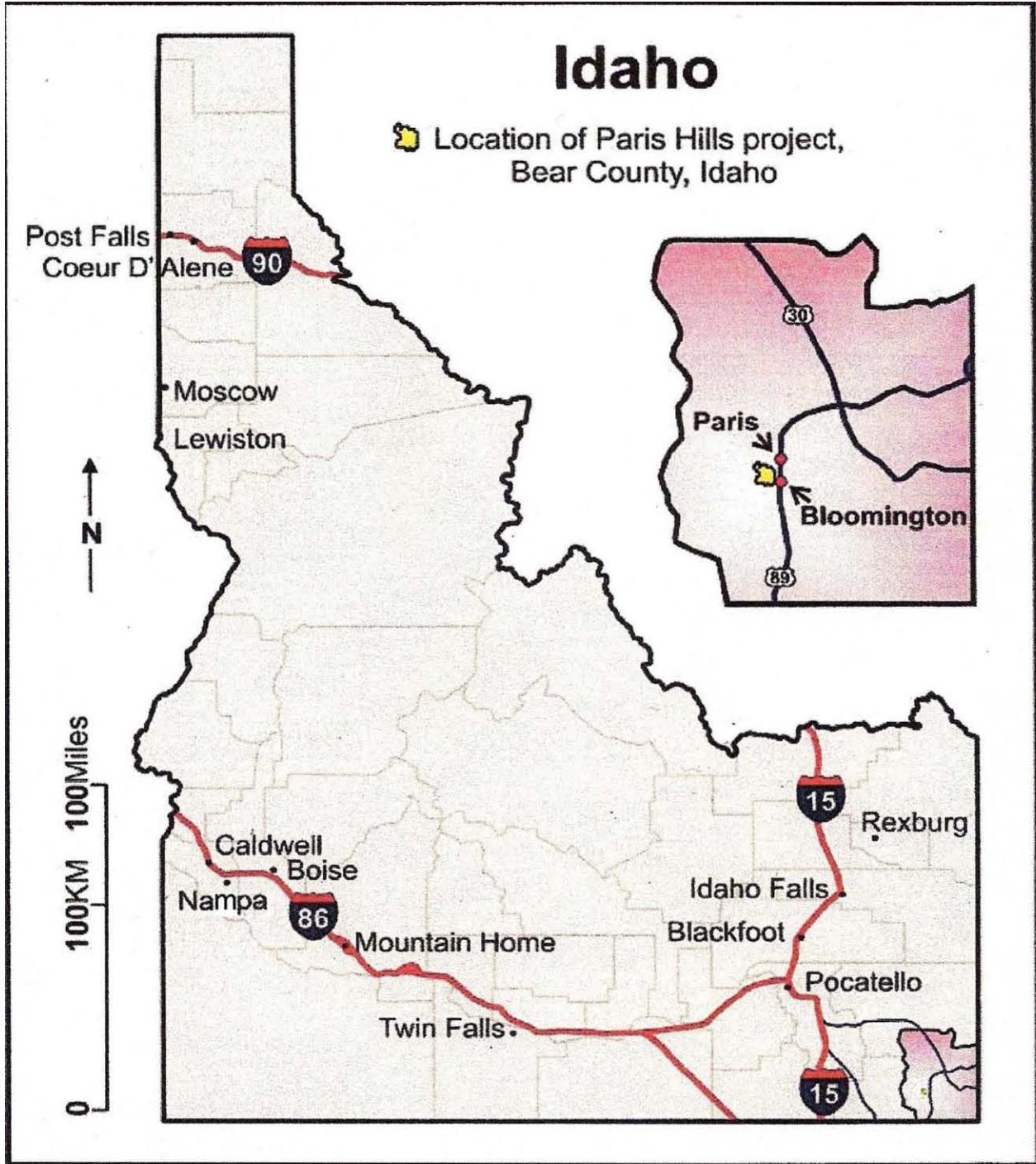
The bedrock within the Project Area is composed of Upper Paleozoic (Pennsylvanian and Permian) and Lower Mesozoic (Triassic) marine sediments which are exposed by the north-south trending Paris Syncline. Phosphatic shales of the Lower Permian Meade Peak Member of the Phosphoria Formation occur in the overturned limb and the horizontal limb of the Paris Syncline at depths of up to 2,000 feet (ft). The vast majority of potential mineralization occurs in the horizontal limb of the Paris Syncline which underlies most of the Paris Hills Property. The Project Area is also defined by several north-trending normal faults which offset beds of the horizontal limb. Within the Project Area, the folded sedimentary rocks are overlain by the Tertiary Wasatch Formation. The proposed exploration activities, which involve the private lands underlain by a federally owned phosphate deposit, will confirm historic drill intersections and further define potential phosphate resources hosted within the Meade Peak phosphatic shales. Currently, PHA is conducting exploration drilling activities on non-federal lands within the property under authorizations issued by the IDL.

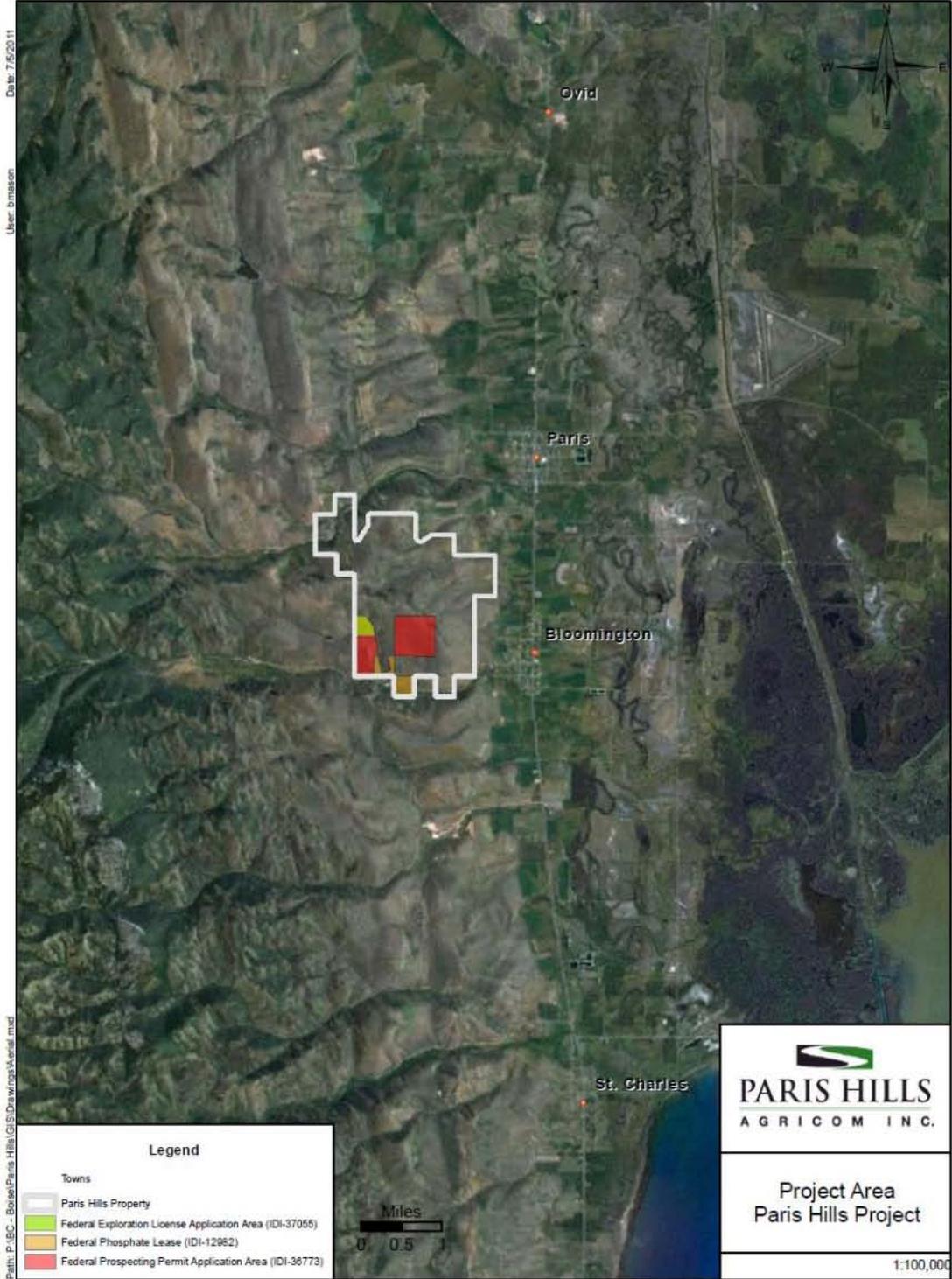
The IDL has requested PHA obtain a series of water samples on the surrounding creeks (Bloomington and Paris Creek) and several springs within the Paris Hills Property prior to any exploration drilling activities. A surface water monitoring program is currently underway.

1.2 Location and Access

The Project Area (Figure 2) is located approximately 2 miles west of the towns of Bloomington and Paris in Bear Lake County, Idaho. The proposed drilling area is located in Section 21 of Township 14 South, Range 43 East, Boise Meridian, Bear Lake County. The principal area of known mineralization is located within Section 21 and Section 16, Township 14 South, Range 43 East, Boise Meridian. The entire Project Area is approximately 345.33 acres in size, of which only a portion would be disturbed by exploration activities.

Figure 1. Site Vicinity Map





The Project Area is situated in the eastern front of the Wasatch/Bear Lake Range and is accessed by Bloomington Canyon Road from Idaho State Highway (SH) 89. From these roads, access into the Project Area is gained via two-track unimproved trails used primarily by ranchers to manage grazing of cattle. Access to the Project Area is secured through agreements with adjacent surface owners.

1.3 Purpose and Need for Action

The purpose of the proposed action is to confirm historic drill results and more confidently define potential phosphate resources within the Paris Hills Property. The proposed exploration drilling would provide more detailed geologic data and information to determine the extent of the Meade Peak Member of the Phosphoria Formation within the BLM-managed mineral reservations. Additional information is needed to identify faulted areas as well as the thickness of overburden overlying the deposit. PHA would use the information to evaluate economic feasibility of recovering these phosphate reserves with future mining activities. Acquisition of the geologic and other scientific information from the exploration activities would also assist BLM in managing phosphate minerals and other resources within the site and vicinity.

Mining of the deposit, and granting any additional federal mineral lease with rights to mine, is not part of the proposed action and is outside the scope of the exploration/prospecting proposal and this analysis. Leasing of un-leased phosphate resources has not been requested. Any future leasing is discretionary by BLM and would need to be evaluated in a separate environmental analysis.

1.4 Land Use Plan Conformance Statement and Other Regulations

The proposed action is within the areas designated as open for solid leasable mineral exploration in the BLM's 1988 Pocatello Resource Management Plan (RMP; BLM, 1988). This land use plan and applicable regulations have been reviewed and a determination made that the proposed prospecting and exploration drilling project is consistent with the current 1988 land use plan, is anticipated to be in compliance with the 2010 Proposed Pocatello Resource Management Plan that is being considered, as well as with federal, state, and local laws and regulations.

The BLM manages the public lands, including the federal mineral estate, to enhance the quality of life for present and future generations of Americans, under a mandate of multiple use and land use planning as described in the Federal Land Policy and Management Act. The Mining and Minerals Policy Act directs BLM to encourage development of domestic mineral resources in an orderly manner. The Mineral Leasing Act guides the leasing, bonding, operations, and reclamation associated with federal solid leasable resources such as phosphate. BLM also reviews and considers proposals such as this to ensure compliance with related environmental laws such as the Clean Water Act, the National Environmental Policy Act, various Historical Preservation Acts and the Endangered Species Act.

Various laws granted land patents to private individuals but reserved the mineral rights to the federal government. The subject land surface became privately owned from a patent granted in 1940 under authority of the Homestead Act of 1862. In accordance with the Act of December 29, 1916, the federal government reserved the phosphate mineral estate from this patent together with the "right to prospect for, mine, and remove" phosphate minerals existing on the tract. In this situation, the federal government, as well as the surface owner, must comply with the provisions of the land patent and relevant laws.

In the case of split estate (federal mineral ownership overlain by private surface ownership), mineral rights are considered the dominant estate, meaning they take precedence to a greater extent over other rights associated with the property, including those associated with owning the surface. The surface owner has the right to use and develop the lands subject to reservations in the title such as

the reservation of the phosphate minerals to the federal government as set forth by the Homestead Acts, as intended by Congress. This includes developing water sources and infrastructures associated with grazing and raising forage crops. The mineral owner must show due regard for the interests of the surface estate owner and occupy only those portions of the surface that are reasonably necessary to explore the mineral estate. If PHA is allowed to explore the mineral estate, they must comply with relevant reclamation and environmental requirements and, in accordance with the Acts, reimburse the surface owner for damages to crops and other improvements. Other mitigation may be negotiated between the parties.

This EA was prepared in compliance with the Council on Environmental Quality (CEQ) regulations, National Environmental Policy Act (NEPA), and the BLM's NEPA Handbook, H-1790-1 (BLM, 2008).

1.5 Decisions to Be Made

Based on the information provided in this EA, the BLM will determine whether or not to approve the exploration and prospecting activities: the entire exploration drill plan, a portion of the exploration drill plan, and what conditions may apply. Activities would also be subject to terms and conditions of the existing lease and any exploration license and/or prospecting permit that may be issued in conjunction with approval of drilling activities. Access to the proposed drilling area will be coordinated with the surface owner.

1.6 Scoping/Public Involvement

On January 7, 2011, the BLM sent 56 scoping letters to agencies, businesses, organizations, individuals, city and county officials, and identified surface owners. A legal notice was published in the Montpelier NEWS-EXAMINER on January 12, 2011. The project was also posted on BLM's web-based NEPA database on January 31, 2011 (BLM, 2011). Eleven comments were received during the public comment period, with one comment received post-public comment period. Copies of these comments and responses are included in the project file.

2.0 Description of Alternatives

2.1 Alternative 1 – Proposed Action

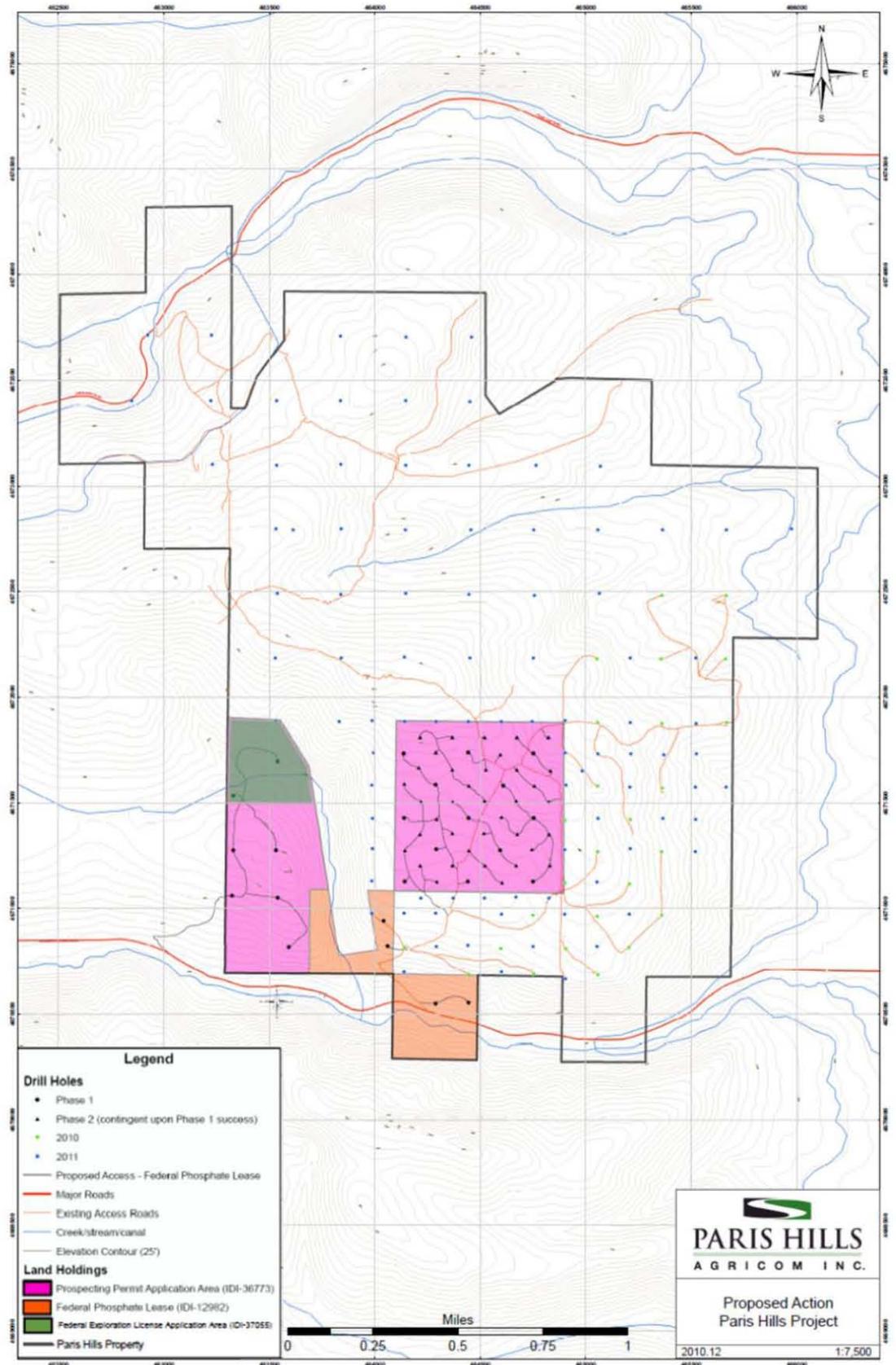
2.1.1 Mineralization Exploration Plan and Methods

Historical exploration holes provided a rough ore-body outline that has been determined to extend into the application area. PHA wishes to prospect and explore the federally owned (BLM-managed) portion of the ore body. PHA would drill into the deposit to gather additional geologic information, identify faulted areas, and better define the depth and quality of the phosphate resource. This information is needed to determine if it is economically feasible to consider development of the phosphate reserve. Any future decision to lease federally owned phosphate within the unleased portion of the tract is a discretionary action by BLM that would require additional environmental analysis and consideration by the agency. Because of this, future leasing and mining are not considered to be “connected actions” under NEPA related to the consideration of issuing an exploration license to PHA. Future leasing would only be considered if an application is later submitted and is outside the scope of this assessment. A copy of PHA’s exploration plan is included in appendix A.

A total of 62 vertical drill holes are planned. Total proposed footage is 76,015 ft with reverse circulation (RC) methods accounting for 56,318 ft and core drilling methods for the remaining 19,697 ft. Drill hole depths range from 150 to 1,600 ft with 1,165 ft representing the average depth. The drilling is planned in two phases. The first phase would be completed on approximately 1,000-ft centers with additional holes drilled between lines on a 500-ft offset from the 1,000-ft grid (13 holes in the NE quarter of Section 21 – see Figure 3). Three additional holes are planned in this phase of drilling and are located in the SW section of the SE quarter (two holes) and in the NE of the SW quarter (one hole). The second phase of drilling which may be completed at least in part concurrently with the first phase is the infill of 500-ft drilling centers across the NE quarter of Section 21.

RC and diamond coring methods would be used, and one drill rig or more would be used to complete the proposed drilling activities. Drill rigs and support vehicles would be wheeled and/or track-mounted depending on equipment availability. Drilling fluids would consist mainly of water with non-polluting lubricating foam, bentonite mud, and/or non-toxic polymers as additives. Water would be hauled to the drill sites by water truck using the access along Bloomington Canyon Road (south end of the property). Water would be sourced from the Bloomington City water supply tank overflow. A temporary water use permit (TP-11-14) was granted to Paris Hills Agricom Inc. by the Idaho Department of Water Resources for the 2011 calendar year. Approximately 6,000 gallons of water per day would be removed from the overflow for the proposed activities with the maximum withdrawal not to exceed 12,000 gallons.

Figure 3. Proposed Action



2.1.2 Ground Disturbance, Drilling Rate, and Exploration Program Duration

Access roads for the proposed exploration drilling activities would reoccupy historic access roads where possible in an effort to minimize new disturbances. All proposed access roads, drill pads, and sumps would be constructed using a dozer, excavator, and a rubber-tired back-hoe operated by a contractor under PHA supervision (either directly or through one of its agents). Figure 4 shows the proposed access roads and drill site areas. With the exception of the established access routes to the exploration area, road grades less than 10 percent would be prepared or upgraded.

Roads and drill pads would be constructed of native on-site materials with gravel used as required for improvement and/or stabilization. Access to the Project Area is secured through agreements with adjacent and surface land owners. Disturbance and new access roads would also be coordinated with surface owners. Pre-existing exploration roads within the Project Area total approximately 7,029 ft in length with widths varying from 10 to 12 ft. Proposed access roads would be approximately 10 ft wide with proposed total length of 12,869 ft within the Project Area. The proposed access roads would have a total estimated disturbance of approximately 5.2 acres.

It is possible that some drill pad locations would need to be adjusted during the drill program as site conditions and subsurface geology necessitate. The adjustments would likely be minor and only require moving drill pads short distances. Minor adjustments to drill hole locations would not affect the alignment and total length of drill access roads that would be constructed during the exploration drilling program.

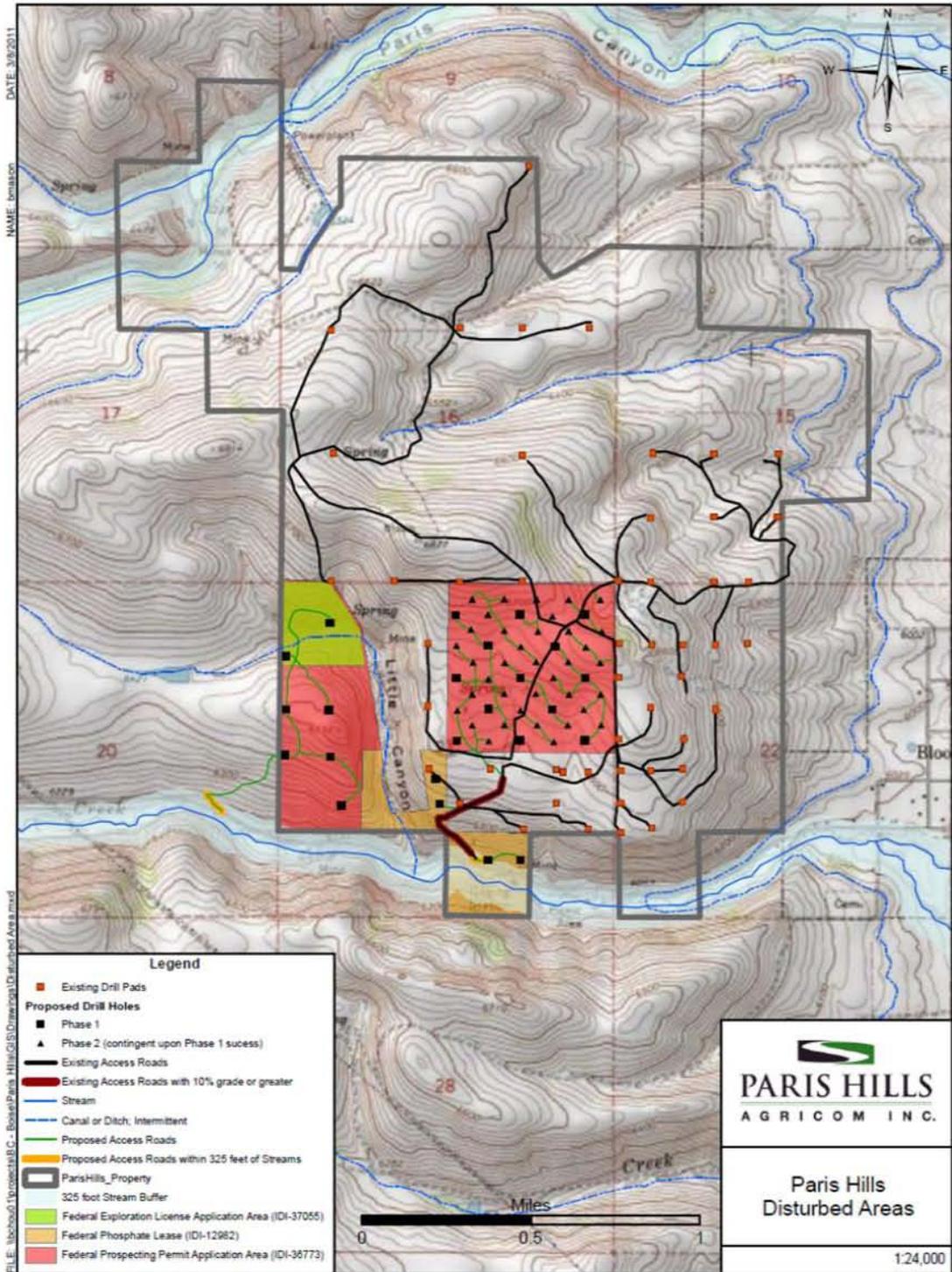
It has been estimated that each potential drill site would require a footprint of approximately 2,500 sq ft (50 x 50 ft) to be cleared to ensure a safe work area for the driller, helper(s), and PHA personnel. The total estimated area of disturbance for drill pads is approximately 3.8 acres. Figure 4 and Table 1 provide the aerial extent of the ground disturbance required to complete this exploration.

Table 1 provides the acres of ground disturbance needed to complete the proposed exploration drilling activities. Please note that these numbers are subject to minor changes due to adjustments or additions that may be made during the life of the proposed drilling activities. The estimated disturbance includes the acreage of the pre-existing roads.

Disturbance	Area (sq ft)	Total Disturbance (acres)
Pre-Existing Access Roads	68,825	1.58
Proposed Access Roads	226,076	5.19
Proposed Drill Pads Phase I	50,094	1.15
Proposed Drill Pads Phase II	114,998	2.64
Total	459,993	10.56

RC drilling is expected to proceed at a rate of 400 ft per day and diamond coring at a rate of 80 ft per day. Drilling would be completed concurrently in two 12-hour shifts. The drill crew roster would likely be 21 days on with 7 days off (21/7) but may be changed to 24 hours a day 7 days a week (24/7) if additional crews are available or if a second rig is added. To minimize impacts to big game wintering areas, exploration or construction activities would not be allowed from November 15 to May 31.

It may be necessary and perhaps likely that additional exploration activities would be needed to assist in proper evaluation of the subsurface resources on this tract; however the estimated total disturbance would not likely be more than 10-25% of the amount estimated in Table 1.



2.1.3 Proposed Action Summary

The following actions are all part of this assessment and some would need to be completed prior to start of the related drilling activities.

- A Prospecting Permit (IDI-36773) would need to be issued for un-leased lands outside of KPLA IDI-020417.
- An Exploration License (IDI-37055) would need to be issued for un-leased lands within KPLA IDI-020417.
- Drilling on Federal Phosphate Lease IDI-012982 would need to be approved by the BLM.
- PHA would conduct exploration drilling on private lands where the phosphate deposit is federally managed. Geologic information would be obtained from private lands which are underlain by the owned subsurface to define the extent and value of the phosphate resource.
- Existing access roads would be utilized where available. Additional access roads will be constructed where needed and drill holes would be located as shown in Figure 4.
- Reclamation activities associated with the project that would be performed are described in the mitigation sections of this EA. Potential mitigation measures are described for each resource that may be impacted.

2.2 Alternative 2 - No Action

Under the No Action Alternative, the proposed exploratory drilling on the existing federal lease would be postponed or deferred indefinitely, and exploration or prospecting drilling activities on the remaining BLM-managed portion of the Paris Hills Property would not be conducted.

2.3 Environmental Protection Measures/Mitigation

2.3.1 Cultural Resources

Direct impacts to any archaeological resources can be mitigated by avoiding the sites during construction. GPS coordinates collected during the archaeological survey will be used to assist in relocating construction activities. It is recommended that the historic structure site be avoided by the project at this time. Prior to any future proposed impacts to the historic structure site further documentation would be conducted to determine if this site really is eligible for inclusion on the NRHP. This documentation would include research to determine the time period the structure was occupied, the owner(s) of the structure, and the type of construction. If the additional research finds the site to be eligible to the NRHP, mitigation measures would be developed in consultation with the State Historic Preservation Office (SHPO). If the research finds the site to be ineligible to the NRHP then no additional mitigation would be necessary. It is recommended that other sites be avoided if possible; however, no mitigation is proposed if these sites cannot be avoided as they have been recommended not eligible for the National Register. The following standard mitigation measure would also be applied by BLM:

Per BLM standard procedures and pursuant to 43 Code of Federal Regulations (CFR) 10.4(b), if any unidentified cultural resources are discovered during proposed activities, operations in the immediate area of the discovery would be halted. The discovery would be reported to the BLM, and the BLM or its authorized representatives would be allowed to document and evaluate the discovery and, if appropriate, would be allowed time for the determination and implementation of actions necessary to prevent or mitigate the loss of important cultural values in consultation with the Idaho State Historic Preservation Office (SHPO).

2.3.2 Damage to Fish or Wildlife or Other Natural Resources

The following measures would be implemented to minimize impacts to sage grouse and suitable habitat.

- Road alignments would be optimized to decrease disturbance;
- Road construction/clearing activities would be initiated post-May 31st; after sage grouse nesting and brood rearing is completed. Overland travel and use of pre-existing access roads would be used where feasible;
- A seed mix with native grasses and forbs would be developed and used for disturbed areas; and
- Applicable conservation measures taken from the Idaho Sage-grouse Advisory Committee (ISAC; 2006) would be implemented and adhered to. These include:
 - Infrastructure conservation measures described in Section 4.3.2.3 of the Idaho Sage-grouse Conservation Plan, which calls for avoidance of inspections, maintenance work, and related human activities between 6 p.m. and 9 a.m. within 0.6 mile of active leks and 2 miles from occupied leks between March 25 and May 15 at higher elevations;
 - Human disturbance conservation measures described in Section 4.3.5.3 of the Idaho Sage-grouse Conservation Plan, which calls for avoidance of project-related work between 6 p.m. and 9 a.m. within 0.6 mile of active leks and 2 miles of occupied leks between March 25 and May 15 at higher elevations; and,
 - Mines, landfills, and gravel pits conservation measures described in Section 4.3.18 of the Idaho Sage-grouse Conservation Plan, which calls for ensuring that an appropriate seed mix (see Environmental Protection Measure [EPM] 2.3.11 below, developed specifically for sage grouse habitat) is used for reclamation of sage grouse habitat and that adequate measures are employed to control invasive and noxious weeds (see EPM 2.3.4).

To avoid impacts to migratory birds and their nesting, ground clearing of vegetation for road and drill pad construction would generally be completed before or after the nesting period (approximately May 15th to August 15th). BLM may grant exceptions to this if erosion, sedimentation, weed infestation, important timing conflicts, or other unacceptable impacts would occur. If an exception is granted, the following bird survey would be required and additional mitigation measures would apply.

If ground clearing is infeasible and not completed outside of the nesting period, a survey of the proposed drill pad locations and access roads would be conducted by a BLM-approved biologist to identify if there are any migratory bird nests within the proposed impacted areas (as defined in the approved exploration drill plan). If no migratory bird nests are found within the proposed impacted areas, then construction activities can proceed.

If migratory bird nest(s) are found within the proposed impacted areas, the location of the proposed drill pad or road would be adjusted in order to minimize the impacts to the nest(s). Adjustments to the road alignment or pad locations would be made to the extent practicable as determined by the authorized officer. BLM would require application of additional measures for given timeframes that may include:

- Minimizing the number of equipment trips through a nesting area.
- Working during daylight hours only.
- Maintaining a nesting buffer distance for disturbance activities of at least 1,000 ft from raptor or owl nest(s) and 200 ft from all other migratory bird nest(s). These distances may be lessened if safety or other site-specific conditions warrant and the BLM feels the

reduced buffer distance would not affect nesting activities; however, the buffer distance should be no less than 100 ft.

The Seasonal Wildlife Restrictions and Procedures for Processing Requests for Exceptions on Public Lands in Idaho (BLM, 2010c) and the Seasonal Restrictions for Wildlife/Raptor Activities/Habitat (BLM, 2010c) would be followed. Where there are conflicts among restrictions, BLM would be consulted prior to initiation of construction activities.

To minimize impacts to big game wintering areas, exploration or construction activities would not be allowed from November 15 to May 31. Exceptions to this limitation in any year may be specifically authorized in writing by the Authorized Office of the BLM, e.g. big game have not entered the winter range due to an extended fall, etc.

2.3.3 Isolation and Control of Toxic or Deleterious Materials

Potential contaminants from the exploration drilling sites include: diesel, oil, grease, lubricants, and solvents. To facilitate immediate reaction to any spill of toxic or deleterious materials on site, a spill containment kit would be stored and available in the core logging facility on site. A spill plan will be prepared and available on site. Berms would be placed around each drill site to aid in runoff control.

Any spills would be reported by PHA staff/contractors to the BLM, the Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality (IDEQ). If necessary, soil remediation would be conducted and would include removal of contaminated soils to an approved bioremediation facility, and soil sample(s) would be taken to verify the success of the site remediation. In addition, the construction contractor would be required to follow any other local, state, or federal regulations related to using, handling, storing, transporting, and disposing of hazardous materials.

As a routine practice at the end of drilling operations each day, all containers or sources of toxic or deleterious materials would be closed, covered, and/or put away and safely stored while the drilling crew is absent in order to prevent potential exposure to wildlife or livestock.

All trash would be removed from the site and disposed of in a proper garbage receptacle. The proposed action would not generate or dispose of any hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) which was enacted in 1976.

2.3.4 Noxious Weeds

Noxious weeds would be controlled within new disturbance areas or redisturbed areas such as access roads and drill sites. Special attention would be given to roadways and areas where vehicles and other equipment would be parked. Vehicles would be adequately cleaned to prevent spread of noxious weeds prior to entering the proposed drilling exploration area. PHA and BLM inspectors would visually monitor the growth of noxious weeds. If noxious weeds are identified or suspected, PHA will apply herbicides according to current BLM policy to prevent the growth and spread of noxious weeds. If needed, PHA can seek consultation for proper noxious weed control techniques from both the BLM and the Bear Lake County Weed Superintendent.

2.3.5 Surface Water, Stormwater Management, and Soil Erosion

All surface water runoff would be managed under the Stormwater Pollution Prevention Plan (SWPPP) which is regulated by the EPA. Surface water runoff from either the exploration drilling process or precipitation would be managed using the guidelines described in the Best Management Practices (BMPs) for Mining in Idaho (IDL, 1992) such as silt fencing, straw waddles, waterbars, and rolling dips. These BMPs would be used within new construction areas and field fit based on topography, landscape, and the vicinity to surface water as deemed necessary.

All drilling sites would be constructed with a sump to control drill cuttings and fluids. The average sump dimensions are 2.5 ft wide, 14 ft long, and 3 ft deep; however, the size and specific location of the sumps would be determined in the field in order to minimize environmental and stability risks by utilizing the existing landscape and topography. Drilling fluids would contain sediments from the drill cuttings as well as the non-polluting lubricating foam, bentonite mud, and/or non-toxic polymer additives used by the drilling contractor. The lubricating foam would be non-toxic and biodegradable, and polymers, if needed, would be also be non-toxic.

Drillers, helpers, and PHA contractors and employees will observe sumps and report issues. If sumps approach their capacity as a result of freezing water and excessive runoff, either additional sumps are prepared or the drill is shutdown.

The following BMPs are designated to help minimize erosion and sediment transport (refer to the specific purpose of each BMP in Sections I through V of the 1992 IDL BMPs).

- I.2 Erosion Control Blanket: temporary treatment for soil stabilization consisting of commercially made matting used for erosion control and slope stabilization. Made of jute or straw and plastic netting. May be used on and adjacent to roadways and drill pads.
- I.3 Mulch-Straw: temporary treatment for soil stabilization lasting 1 to 2 years. The straw would deteriorate without detrimental effects on plant growth or plant establishment. May be used on and adjacent to roadways and drill pads. If straw is used, it would need to conform with other BMPs pertaining to noxious weed mitigation, appropriate seed mix, etc.
- I.4 Mulch-Wood Chips: temporary treatment for soil stabilization consisting of a temporary mulch of small-sized wood chips made from the trunks and branches of trees. May be used on and adjacent to roadways and drill pads.
- I.11 Biotechnical Stabilization: method of controlling erosion, minimizing the potential for mass failure of slopes. May be utilized on especially steep-cut slopes adjacent to roadways.
- II.1 Topsoiling: BMP for seeding and revegetation consisting of placement of topsoil over a prepared subsoil for the purpose of enhancing revegetation conditions. Topsoil would be stockpiled adjacent to a drill pad or other suitable location and utilized when road construction occurs.
- II.3 General Planting and Seeding Specifications: BMP applicable to revegetating disturbed lands and would be utilized, as appropriate, in consultation with BLM and the current surface owner.
- II.4 Broadcast Seeding: BMP consisting of scattering seed over the surface of the soil. This seeding method is most useful on small sites, for repairing damage, or for very large, low-angle rock areas and would be utilized as appropriate.
- III.1 Diversion Ditch/Dike: a runoff interceptor built to divert surface water away from un-vegetated areas on the adjacent vegetated ground. May be utilized when grades are in excess of 2 percent or where larger drainage flows may be anticipated.
- III.2 Interceptor Trench: a trench built along the contour of a slope to store and/or divert surface runoff. May be utilized to carry surface runoff from slopes at 3:1 or less.
- III.4 Siltation Berm: impermeable barrier placed around a disturbed site to capture and contain surface runoff so the sediment can be filtered prior to discharging the water. May be utilized on the downslope side of disturbed ground.
- III.5 Waterbars: reduce erosion by diverting runoff away from the temporary road surface. Would be utilized as appropriate on all temporary roads.
- III.10 Rolling Dips: BMP with the same intent as waterbars, designed to divert surface runoff from road surfaces. Use would be dictated by the slope of the temporary road.

Upgrade approach varies: 85 ft for 6 to 8 percent, 75 ft for 4 to 6 percent, and 65 ft for 0 to 4 percent slopes. Downgrade distances are 15 ft, 25 ft, and 35 ft respectively.

- III.11 Road Sloping: temporary roads would be out-sloped by 1 to 2 percent from the cut slope. On steep slopes, this BMP would not be utilized due to safety concerns related to vehicular travel. Instead, roads would be in-sloped.
- III.12 Roadway Surface Water Deflectors: BMP consisting of a runoff interceptor built of treated wood and conveyor belt. May be utilized on grades in excess of 6 percent.
- V.1 Straw Bale Barriers: used as a temporary berm, diversion, or barrier to help contain sediment on-site by catching and filtering runoff. May be used across small swales, in ditches, and at the toe of bare slopes where there may be a temporary, large volume of sediment-laden runoff.
- V.2 Sediment Traps: temporary or permanent structures intended to catch and store sediment-laden surface runoff. May be utilized at the outflow of culverts, waterbars, and rolling dips.
- V.3 Vegetated Buffer Strip: vegetated ground can serve as a permanent or temporary trap to catch and hold sediment from runoff water flowing across it. May be utilized at construction locations wherever increased protection from stormwater and snow melt are required.
- V.4 Silt Fence/Filter Fence: low fence made of filter fabric, wire, and steel posts used to filter sediment out of runoff water before it is discharged. May be utilized where a potential for sediment laden runoff caused by human-made surface disturbance to be discharged.
- V.5 Brush Sediment Barrier: barrier constructed of brush or brush and filter fabric that serves as a sediment trap if runoff water is diverted through it. Brush sediment traps can be an effective permanent or temporary erosion control structure. May be utilized below any substantial surface disturbance.
- V.6 Slash Filter Windrow: designed to catch and trap sediment coming off un-vegetated ground. May be utilized to catch and retain sediment along road fill slopes adjacent to bare ground in steep terrain.

2.3.6 Groundwater

There are no drinking water wells located within the application area. Two potential risks to groundwater include infiltration of drilling fluids to groundwater and drill holes which could create a preferential pathway of groundwater flow from surface water.

The drilling fluids utilized at each drill site are of insufficient volume and would not pose a threat to groundwater. Drilling fluids would consist of water or water with non-polluting lubricating foam, bentonite mud, and/or non-toxic polymers as additives. Drill holes would be abandoned according to State of Idaho Regulations "Well Construction Standards Rules" (Idaho Administrative Procedures Act [IDAPA] 37.03.09) to minimize risk to groundwater. Drill holes would be plugged with bentonite from the bottom to the surface. Proper abandonment will also prevent water migration from surface to groundwater.

2.3.7 Fire

PHA and its contractors would take all reasonable precautions to prevent, control, or suppress fire at the site. Vehicles would be equipped with fire extinguishers at all times. Additionally, any welding necessary on-site would take place on the drill pad that has been cleared of vegetation. As the drilling process requires water, 700 to 1,500 gallons of water would be available at a drill site at any particular time. This water would also be available to extinguish fires.

2.3.8 Air Pollution

Air quality in the Project Area is generally excellent. Substantial air quality concerns or impacts are not anticipated from the proposed exploration drilling activities. Potential air contaminants may include dust off of the roads and drilling pads and exhaust from the vehicles and drilling rigs. If at any given time during the proposed action excessive dust is created, PHA would initiate dust abatement measures including watering of proposed access roads to minimize dust creation. Neither dust nor exhaust impacts are anticipated to reach the Paris Hills Property boundaries. It is not anticipated that there would be a cumulative impact on air quality in the area due to the short-term and temporary nature of the 2011—2012 exploration drilling activities.

2.3.9 Subsidence

All drill holes would be plugged according to State of Idaho regulations “Well Construction Standards Rules” (IDAPA 37.03.09). Drill holes would be plugged with bentonite from the bottom to the surface. There are no underground mining operations in the proposed 2011—2012 exploration drilling activities. Therefore, ground subsidence is not anticipated.

2.3.10 Hazards to Public Safety

Signs would be used to notify the public of hazards with respect to active truck traffic. Locations for such signs would be at the public access entries points to the Project Area (e.g., East Canyon Street and Cemetery Road and in Bloomington).

Unauthorized personnel would not be allowed within the active exploration drilling area. All drilling equipment would be shut down, secured, and locked out during off-shift or non-operating times.

2.3.11 Reclamation/Regrading, Reshaping, and Seeding

Proposed new access roads, drill pads, and sumps would be reshaped to conform to the natural topography at the completion of the 2011—2012 exploration drilling activities using any soil removed during clearing, unless otherwise approved by the BLM. This work would be designed to minimize erosion and increase the likelihood of seedling success, which would take place in 2011 and possibly 2012, depending on the initial results of the exploratory drilling.

The disturbed areas would be re-seeded in 2011 and/or 2012 with a seed mix approved by the IDL and determined by BLM as beneficial to sage grouse as outlined in the BMPs Guide for Mining in Idaho (IDL, 1992). The disturbed areas would be seeded at a rate of approximately 40 pounds/acre utilizing standard methods. All seeding and fertilizing would be done in the late fall. The use of fertilizer may be utilized for native plant species in areas where soil is particularly degraded or deficient in nutrients (IDL, 1992 p. 66). The proposed exploration area occupies the Upper Mountain elevations with respect to precipitation. A possible seed mix appropriate for the area is provided in Table 2. All species listed in Table 2 are perennial species, except for Quickguard, which is a sterile, annual wheatgrass used to rapidly stabilize disturbed areas.

Table 2. Potential Seed Mix	
Percent/Pound	Name
10.00	Great Basin Wildrye
7.50	Bluebunch Wheatgrass
9.00	Western Wheatgrass
10.00	Mountain Brome
1.50	Rocky Mountain Penstemon
3.50	Alfalfa*
2.50	Lewis Blue Flax
1.00	Orchardgrass
0.50	Timothy
6.00	Pubescent Wheatgrass
10.00	Small Burnet
0.25	Kentucky Bluegrass
0.50	Mountain Phlox
0.50	Big Bluegrass
10.50	Sainfoin
0.25	Showy Goldeneye
0.65	Wax Current
11.00	Antelope Bitterbrush
3.20	Woods Rose
0.50	Strawberry Clover
10.00	Quickguard
1.00	Sticky Purple Geranium
0.16	Sage Brush

*more of another component could be substituted for Alfalfa with approval from the IDL for this seed mix

Stormwater BMPs would be used where necessary to stabilize areas until the seeding can be effectively completed and seedlings have taken hold. This work would be conducted using a trackhoe and/or dozers, depending upon specific site conditions.

2.3.12 Drill Hole Plugging and Abandonment

As previously stated, all drill holes would be plugged according to State of Idaho regulations “Well Construction Standards Rules” (IDAPA 37.03.09). Drill holes would be plugged with bentonite from the bottom to the surface.

As exploration drilling is a method of subsurface discovery, several scenarios of conditions may be encountered and require alternative abandonment methods. According to the Well Construction Standards Rule 10.66.c.i, exploration drill holes are not considered “wells.” However, Rule 45.03 states that exploration drill holes must be decommissioned or abandoned according to well abandonment Rule 25.16.02. All grout and bentonite materials would meet standards such as Rule 10.07.a and c and Rule 10.39. Plugging or sealing material not mentioned here may be used as an additional alternative in the future given authorization as per Rule 25.10 (State of Idaho Department of Administration, 2009).

Depending on ground conditions, water flow, and drill hole depth, one of three or a combination of methods would be used to seal and plug a particular hole. Abandonite, a high solids bentonite grout, would be used to abandon deeper holes using the Tremie method. The Tremie method includes grout being placed below the water level through the drill rods, the lower end of which are

kept immersed in fresh grout so that the rising grout from the bottom displaces the water without washing out the grout content. Bentonite chips would be used in shallower holes where they can be poured and freefall down the hole. In drill holes where ground water is not encountered a 20-ft cap composed of a cement grout may be utilized to seal the hole.

2.3.13 Seasonal Closure

1. *Prevention of Unnecessary or Undue Degradation.*

Seasonal closure would include a variety of tasks prior to the winter months, including closure of the roads, removal of equipment and materials from the Project Area, and a final comprehensive BMP inspection and repair if necessary. Roads would be temporarily closed with waterbars at intervals necessary to stabilize them during the spring runoff.

2. *Measures to Stabilize Excavations and Workings*

All exploration drill holes would be plugged according to the Reclamation Plan section of this document. All drilling holes that have been drilled during the season would be plugged prior to seasonal closure.

3. *Measures to Isolate or Control Toxic or Deleterious Materials*

During periods of seasonal closure, all toxic or deleterious materials would be removed from the site. This includes oil, grease, lubricants, solvents, bentonite, and cement.

4. *Storage and/or Removal of Equipment, Supplies, and Structures*

During periods of seasonal closure, all equipment and supplies would be removed from the site. 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.

5. *Monitoring Site Conditions During Periods of Non-Operations*

A comprehensive annual inspection of all BMPs would be conducted at the close of the drilling season. This inspection would be designed to ensure that the BMPs are functioning and are of adequate maintenance to make it through the winter months and spring runoff. The roads would then be closed with waterbars as appropriate prior to closing the site for the winter. The site would be closed from November 15 to May 31 to minimize impacts to big game wintering areas. The winter closure of the site would render it inaccessible, and so a follow-up inspection would not take place until after the spring runoff is complete and the site is officially reopened.

6. *Schedule of Anticipated Periods of Temporary Closures*

The drilling operations are expected to take place commencing in the late spring or as soon as approval has been granted and weather and ground conditions indicate that it is effective and safe to return to the site. To minimize impacts to big game wintering areas, exploration or construction activities would not be allowed from November 15 to May 31.

2.3.14 Unexpected Temporary Closure

If an unexpected temporary closure occurs that is anticipated to last more than 6 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 as described above in Item 5.

2.4 Compliance Monitoring

The BLM would inspect the proposed actions during and after drilling activities to ensure compliance with BMPs, environmental protection measures, and other requirements. The results of

these inspections would become part of the project record. Appropriate BLM resource specialists would be responsible for monitoring activities.

2.5 Alternatives Considered But Not Analyzed In Detail

During public scoping, potential alternatives were presented by members of the public. These alternatives were initially considered by the BLM but were eliminated from detailed study. Descriptions of these alternatives and the rationale for why they were eliminated from detailed study are provided below.

2.5.1 Obliterate Pre-Existing Roads Prior to Drilling

It was proposed during public scoping that all pre-existing roads be obliterated before commencing exploration activities.

Rationale: As described in Section 1.1, a number of exploration roads were developed on the Paris Hills Property in 2010. The total length of pre-existing access roads is approximately 7,029 ft (1.6 acres). These pre-existing access roads would provide surface access to the proposed drill pad locations under Alternative 1. Because these pre-existing access roads are needed to provide surface access to the proposed drill pad locations, obliterating them before drilling would not meet the purpose and need for the project, which includes PHA's entitlement to conduct operations that are reasonably incident to exploration and development of mineral deposits on private lands not managed by BLM pursuant to the U.S. mining laws. Consequently, this alternative was eliminated from detailed study. Final reclamation requirements of roads on the site will be coordinated with the private surface owner.

2.5.2 Limit Road Use to Pre-Existing Roads with Directional Drilling

It was proposed during public scoping that all operations be limited to work from pre-existing road "prisms," utilizing directional drilling to access other areas.

Rationale: Pre-existing roads, even with directional drilling, are not sufficient to provide the opportunity to access and thereby adequately analyze the mineral resource. Thus, limiting the project to the use of pre-existing roads is not a viable alternative, because it would not meet the purpose and need of the project; namely, to retrieve core samples from within the projected mineral deposit so that PHA can extract detailed geologic data in order to determine the extent of mineral deposit. Directional drilling is effective to reduce the number of drill sites, but the angle of intersection with the phosphate beds and the resulting effect on the definition of resources and ultimately reserves is diminished. Inclined drill holes can be more problematic to install, may require additional drill distance/time to complete, and may "run" along beds or crosscut such that they only represent a very small proportion of the true rock/grade profile. This can result in a longer time that lands and resources are impacted from drilling activities and a poorer understanding of the geology and a poorly constrained geologic model, which is ultimately used for mineral resource and reserve definition. Although this type of mineral deposit has large lateral extents, there is a consistently zoned grade profile with respect to P_2O_5 and deleterious elements, so drill hole angles must be minimized. PHA has made arrangements with the private surface owner to allow for non-directional drilling, since that is the most efficient, effective, and accurate technique for exploring the deposit. For these reasons, this alternative was eliminated from detailed study.

3.0 Affected Environment and Environmental Consequences

This section summarizes the existing physical, biological, and social environments of the Project Area and the potential changes to those environments that could be affected due to implementation of the alternatives described in Chapter 2. The information summarized in this chapter was obtained from published information sources, unpublished materials, and communication with relevant government agencies and private individuals with knowledge of the area. These include: NI 43-101 Technical Report Paris Hills Phosphate Project (AMEC, 2010), Initial Baseline Surface Water Monitoring Data – Summer 2008 Paris-Bloomington Phosphate and Vanadium Project Bear Lake County, Idaho (AMEC, 2008), Bloomington Canyon Mine Preliminary Assessment Report (IDEQ, 2007a), Consolidated Mine Preliminary Assessment Report (IDEQ, 2007b), and Paris Canyon Mine Preliminary Assessment Report Bear Lake County, State of Idaho (IDEQ, 2007c). The affected environment for individual resources was delineated based on the area of potential direct and indirect environmental impacts from the proposed drilling activities. For some resources such as soils and vegetation, the affected area was determined to be the physical location and immediate vicinity of the areas to be disturbed by the proposed drilling activities. For other resources such as water resources, the affected environment comprises a larger area (i.e., watershed). This chapter is organized by environmental resources to be analyzed and describes the existing conditions associated with these resources. The description of the Environmental Consequences includes direct and indirect effects with cumulative effects described in Chapter 4.

3.1 Introduction

The Project Area is located within the Bear Lake sub-basin, which encompasses an area of just over 1,000 square miles (IDEQ, 2008). Primary activities in the catchment include agriculture, livestock grazing, and historic mining. The Project Area lies within the Overthrust Mountains ecological section with a southern xeric shrub land and steppe habitat.

Climate in southeast Idaho is influenced by major topographic features, including the Pacific coast and local mountain ranges. The average annual precipitation varies widely throughout the resource area and with elevation. Lifton pumping station, located at the north end of Bear Lake, approximately 8 miles southeast of the site, has an average total annual precipitation of 10.62 inches based on a 1935 to 2007 period of record, while on the north end of the resource area, Conda reports an annual total average precipitation of 18.91 inches over a period of record from 1948 to 1978 (Western Regional Climate Center, 2007). Precipitation in the surrounding mountains ranges from 25 to 35 inches annually (NRCS, 2007).

3.2 Resources Considered in the Impact Analysis

To comply with NEPA, the BLM is required to consider a wide range of resources that may be impacted. Table 3 identifies the elements that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation by the BLM. For the resources listed in Table 3 which are either “not present” or “present not affected,” a rationale is provided as to why the resource is not impacted and is not addressed further in this assessment. For the resources which are “present affected” by the proposed action, an analysis in narrative form is provided in Sections 3.3 through 3.8.

Table 3. Resources Considered in the Impact Analysis				
Resource	Not Present	Present Not Affected	Present Affected	Rationale
Access		X		The proposed action would not result in changes in access to the area.
Air Quality		X		The implementation of the proposed action would not result in the production of vehicle or equipment emission or particulate matter above incidental levels. It is not anticipated that there would be a cumulative impact on air quality in the area due to the short-term and temporary nature of the 2011—2012 exploration drilling activities.
Areas of Critical Environmental Concern (ACEC)	X			The proposed Project Area is not located within or near an ACEC.
Cultural Resources			X	Although Cultural Resources are not anticipated to be affected, standard BLM mitigation measures and a history of the area are provided under Environmental Consequences.
Economic and Social Values		X		The proposed action is consistent with the prevalent economic and social values characteristic of this area. The proposed action would not generate significant socioeconomic changes. The temporary influx of workers could provide a temporary income to the local establishments for services provided but would be short term and minimal.
Environmental Justice	X			There are no minority or low-income populations residing near the proposed Project Area (U.S. Census Bureau, 2000 a,b). No concerns or disproportionate effects to a minority or low-income population or tribal government are anticipated.
Existing and Potential Land Uses		X		The private surface is utilized to graze livestock. Surface disturbance associated with the proposed action would temporarily reduce the amount of forage consumed by livestock. The use of the private surface would be negotiated between PHA and the surface land owner. The proposed action would also not affect the Project Area's current and likely future use as solid leasable mineral (BLM, 1988, 2010c).
Fisheries			X	Impacts are disclosed under Environmental Consequences.
Floodplains	X			There are no floodplains that occur in the Project Area (FEMA, 1984).
Forest Resources	X			There are no forest resources in the Project Area.
Invasive, Non-Native Species			X	Impacts are disclosed under Vegetation Environmental Consequences.
Mineral Resources		X		Approximately 62 drill holes are proposed to identify the potential mineral resources within the Project Area. Impacts to the phosphate reserves within the Project Area from the advancement of the drill holes into the shale member are considered negligible.
Migratory Birds			X	Impacts are disclosed under Wildlife Resources Environmental Consequences.
Native American Religious Concerns	X			There are no known sites or resources associated with ceremonial practices in the proposed Project Area.

Table 3. Resources Considered in the Impact Analysis				
Resource	Not Present	Present Not Affected	Present Affected	Rationale
Paleontological Resources		X		Paleontological resources which may be present in the Project Area would consist almost entirely of marine invertebrates that are generally abundant and widespread in their distribution in this area. However, they are not unique to the Project Area and potential impacts from exploration activities are anticipated to be negligible.
Prime and Unique Farmlands	X			There are no Prime or Unique Farmlands identified in the Project Area (NRCS, 2010).
Soil Resources			X	Impacts are disclosed under Environmental Consequences.
Threatened, Endangered, and Sensitive Plants	X			There are no occurrences of Threatened, Endangered, or Sensitive Plants within the project area.
Threatened, Endangered, and Sensitive Wildlife			X	Impacts are disclosed under Environmental Consequences.
Threatened, Endangered, and Sensitive Fish			X	Impacts are disclosed under Environmental Consequences.
Range Resources		X		There are no federal grazing allotments within the project area. However, grazing on the private surface would be impacted by surface disturbance temporarily reducing availability of forage on approximately 9 acres. Any damage to range resources would be negotiated between PHA and the current surface land owner.
Recreational Use	X			There are no developed recreational facilities or campgrounds in the Project Area (Recreation.gov, 2010).
Tribal Treaty Rights and Interests		X		Tribal coordination conducted (see Section 5.1).
Vegetation			X	Impacts are disclosed under Environmental Consequences.
Visual Resources		X;		Project Areas occurs within Visual Resource Management (VRM) Class III rating. The objective of a VRM Class III is to partially retain the existing character of the landscape. Change allowed to the landscape is moderate and activities may attract attention but should not dominate the view. Proposed exploration drilling activities would also be temporary and occur on private lands.

Table 3. Resources Considered in the Impact Analysis				
Resource	Not Present	Present Not Affected	Present Affected	Rationale
Wastes, Hazardous and Solid		X		The equipment and materials needed for the proposed exploration activities have low potential for accidental spills of regulated or hazardous materials or waste substance release. These materials include motor fuel and drilling fluids. PHA would maintain all the appropriate Material Safety Data Sheets for all chemicals, compounds, and substances to be used during the proposed drilling activities. Direct and indirect impacts to the environment from the release of hazardous or solid materials or wastes are not expected.
Water Quality (Surface and Ground)			X	Impacts are disclosed under Environmental Consequences.
Wetland and Riparian Zones		X		There are wetlands and riparian areas within and near the proposed Project Area. Bloomington Creek has riparian habitat; however, exploration drilling would not be conducted within wetland or riparian areas. There is also a spring within the center of the Project Area, which contains an associated wetland, though there are no proposed drill holes or roads within the wetland. Due to the location of proposed activities, no direct effects would occur. Implementation of EPMs would prevent indirect effects to wetlands and riparian areas.
Wild and Scenic Rivers	X			There are no designated Wild and Scenic Rivers within or adjacent to the Project Area or that would be affected by the proposed drilling activities (BLM, 2010a).
Wild Horses and Burro HMAs	X			No wild horses or burros occur within the Project Area (BLM, 2010d).
Wilderness	X			There are no designated Wilderness Areas within or adjacent to the Project Area. The closest Wilderness Area is the Mount Naomi Wilderness Area which is managed by the Cache National Forest. The wilderness area is located approximately 15 miles southwest of the project area. The Worm Creek Wilderness Study Area (WSA), managed by the BLM, is located approximately 3 miles west of the project area. The project would not affect any wilderness qualities of the WSA.
Wildlife Resources			X	Impacts are disclosed under Environmental Consequences.

3.3 Cultural Resources

3.3.1 Affected Environment

Cultural resources are defined as buildings, sites, districts, structures, and objects significant to history, architecture, archaeology, culture, or science. Significant cultural resources are those that are listed in or are considered eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires federal agencies to take into account any action that may adversely affect any structure or object that is, or

can be included in the NRHP. These regulations, codified at 36 CFR 800, provide a basis for which to determine if a site is eligible. Beyond that, the regulations define how those properties or sites are to be dealt with by federal agencies or other involved parties. These regulations must be considered for historic properties or sites of historic importance, as well as for archaeological sites. To ensure cultural resources are not disturbed during this project, both a background records search and field inventory were conducted. The records search, performed by the Idaho State Historical Society on November 29, 2010, did not find any historic or prehistoric sites within the Project Area. The records search did not identify any archaeological surveys conducted within the Project Area. Only one recorded site, a historic site in the City of Bloomington, Idaho, was identified within a 1-mile radius of the Project Area.

In general, the geographic region is expected to have limited evidence of both historic and prehistoric occupation. The harsh climate and high, rugged landscape is not conducive to settlement. Natural resources such as wood, chert, precious minerals, and water are scarce in many areas of the region. Farming is very limited in the area. Ranching and grazing are the primary agricultural uses in the region.

3.3.1.1 Cultural Setting

The prehistory in southeastern Idaho spans the past approximately 11,000 years and can be divided into three major time periods: Paleoindian (11,000 to 7,000 before present [BP]), Archaic (7,000 to 300 BP), and Protohistoric (300 BP through historic contact). Historic records of the area begin in the early 1800s when European fur trappers and explorers first visited the region.

3.3.1.1.1 Paleoindian

Human occupation in southeastern Idaho is generally accepted to have begun approximately 11,000 years ago with the earliest evidence coming from sites and tools associated with the Clovis, Folsom, and Plano traditions. Generally, people living within this time period were highly mobile, travelling large distances throughout the year (Goodyear, 1979; Letourneau, 1992).

3.3.1.1.2 Archaic

The transition from Paleoindian to Archaic cultural traditions correlates with a climatic shift to warmer, drier conditions occurring approximately 7,000 years ago. Subsistence during the Archaic Period was more diversified and based on plant gathering and small-game hunting. The artifact assemblage from this time period consists of knives, scrapers, and a diverse set of projectile points as well as milling implements.

Ceramics have been found at archaeological sites dating from the later portion of the Archaic Period (1,300-300 BP). The Shoshone and Bannock groups are documented to have had a presence in southeastern Idaho since at least 700 BP, with artifacts being recovered from the Wahmuza site attributed to these groups. The Shoshone Bannock Tribes state that their ancestors have lived in southeastern Idaho for an extensive period of time.

3.3.1.1.3 Protohistoric

During the Protohistoric Period, groups including the Shoshone and Bannock, which lived in and traveled through the area, relied on horses for transportation. These groups hunted bison, elk, deer, and mountain sheep, as well as gathered fruits and other food items along the Bear River (Murphy and Murphy, 1986). During the early contact with European-Americans, conflicts eventually gave rise to the reservation system. On October 14, 1863, mixed bands of the Shoshone signed a treaty with the United States Government at Soda Springs, Idaho, which was never ratified (Kappler, 1941). Another treaty, signed by the Western Shoshone in 1863, set aside large tracts of land in Idaho, Nevada, Oregon, Utah, and Wyoming for Indian use (Manning and Deaver, 1992). In 1867 and 1868, the Fort Hall and Wind River Valley Reservations were established and all other lands in

Idaho and Wyoming were relinquished by the Shoshone (Clements and Forbush, 1970). The Treaty of Fort Bridger was signed in 1868 and ratified in 1869. The Bannock were assigned to the Fort Hall Reservation in 1869 (Manning and Deaver, 1992). Much of the landscape of southeastern Idaho is sacred to the local Native American groups and may be defined less by archaeological remains and more by the meaning of the location as a burial, monument, or prayer location.

3.3.1.1.4 Historic

In the early 1800s, fur trappers and explorers of European descent began travelling through the region. By the mid-1800s, travelers and settlers moved through the region on the Oregon Trail, which passed just to the northeast of the Project Area near Montpelier. Mormon settlers established the community of Paris in 1863 under the leadership of Charles Rich. Farming and ranching were an early focus of industry in the area. Later the development of mining, especially phosphate mining, became increasingly important in the economy.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1 Direct and Indirect Impacts

Six archaeological sites were identified within the Project Area. Each of these sites are related to the historical agricultural or mining industry in the area. One of these sites consists of a historic structure near a spring. One site consists of a series of prospects and one mine. The other sites are isolated objects. Of the six sites within the project area, five are considered not eligible for inclusion within the National Register due to the lack of information they provide to our cultural heritage. One of the sites, the structure, spring and area surrounding them, were not inspected completely enough for a determination of National Register eligibility to be identified. Although archaeological sites were identified within the Project Area, road alignments and drill pads will not impact the sites.

3.3.2.2 Alternative 2 Direct and Indirect Impacts

Alternative 2 would consist of not approving the exploration plan. Under Alternative 2, the 62 drill holes and associated access roads would not be constructed, and the Project Area would remain in its existing condition in the short term. Exploratory drilling on non-federal lands adjacent to the Project Area and part of the larger Paris Hills Property holding would continue to occur. Alternative 2 would not cause direct or indirect impacts to cultural resources.

3.4 Soil Resources

3.4.1 Affected Environment

According to Soil Survey of Bear Lake County Idaho (NRCS, 2010), major soil types in the Project Area are as follows:

- Hutchley-Cupine-Vitale complex, 2 to 60 percent slopes
- Swanpeak-Cloudless complex, 1 to 15 percent slopes
- Hagenbarth-Zeebar-Dranburn complex, 5 to 45 percent slopes
- Swanpeak-Ant Flat complex, 1 to 20 percent slopes
- Cedarhill-Clegg-Drage complex, 5 to 55 percent slopes
- Dollarhide-Grunder complex, 15 to 50 percent slopes
- Ireland-Falula-Vicking complex, 15 to 40 percent slopes
- Richollow-Dranburn complex, 5 to 50 percent slopes
- Cedarhill-Clegg complex, 2 to 20 percent slopes

- Cedarhill gravelly silt loam, 5 to 25 percent slopes

The soil formed dominantly in colluvium and slope alluvium. The soils in the area are well drained and exhibit medium runoff with slow or moderately slow permeability. Erosion rates are a direct function of the amount of groundcover present. General descriptions of the major soil types are provided below.

Hutchley-Cupine-Vitale complex, 2 to 60 percent slopes are at elevations of 5,940 to 7,410 ft. They are located on hillslopes and mountain slopes. Mean annual precipitation is 16 to 24 inches with a mean annual air temperature of 37 to 41 degrees Fahrenheit (°F). Frost-free period is 65 to 85 days.

Swanpeak-Cloudless complex, 1 to 15 percent slopes are at elevations of 6,040 to 6,880 ft. They are located on mountain slopes and hillslopes. Mean annual precipitation is 16 to 24 inches with a mean annual air temperature of 39 to 43°F. Frost-free period is 65 to 85 days.

Hagenbarth-Zeebar-Dranbum complex, 5 to 45 percent slopes are at elevations of 5,920 to 7,270 ft. They are located on hillslopes and mountain slopes. Mean annual precipitation is 16 to 24 inches with a mean annual air temperature of 36 to 39°F. Frost-free period is 50 to 70 days.

Swanpeak-Ant Flat complex, 1 to 20 percent slopes are at elevations of 6,000 to 7,050 ft. They are located on hillslopes and mountain slopes. Mean annual precipitation is 16 to 24 inches with a mean annual air temperature of 37 to 41°F. Frost-free period is 65 to 85 days.

Cedarhill-Clegg-Drage complex, 5 to 55 percent slopes are at elevations of 5,810 to 7,050 ft. They are located on hillslopes. Mean annual precipitation is 15 to 22 inches with a mean annual air temperature of 41 to 45°F. Frost-free period is 70 to 90 days.

Dollarhide-Grunder complex, 15 to 50 percent slopes are at elevations of 6,030 to 7,560 ft. They are located on hillslopes and mountain slopes. Mean annual precipitation is 16 to 24 inches with a mean annual air temperature of 36 to 39°F. Frost-free period is 50 to 70 days.

Ireland-Falula-Vicking complex, 15 to 40 percent slopes are at elevations of 5,900 to 7,000 ft. They are located on hillslopes and mountain slopes. Mean annual precipitation is 16 to 24 inches with a mean annual air temperature of 39 to 43°F. Frost-free period is 70 to 90 days.

Richollow-Dranburn complex, 5 to 50 percent slopes are at elevations of 6,190 to 7,490 ft. They are located on hillslopes and mountain slopes. Mean annual precipitation is 18 to 24 inches with a mean annual air temperature of 37 to 41°F. Frost-free period is 50 to 70 days.

Cedarhill-Clegg complex, 2 to 20 percent slopes are at elevations of 5,880 to 6,760 ft. They are located on fan remnants and hillslopes. Mean annual precipitation is 15 to 22 inches with a mean annual air temperature of 39 to 43°F. Frost-free period of 70 to 90 days.

Cedarhill gravelly silt loam, 5 to 25 percent slopes are at elevations of 5,840 to 6,650 ft. They are located on hillslopes and fan remnants. Mean annual precipitation is 13 to 20 inches with a mean annual air temperature of 39 to 43°F. Frost-free period of 70 to 90 days.

Some soil erosion occurs as a result of 1.6 acres of pre-existing roads at the site. The site has experienced some reductions in infiltration and percolation, surface ponding, and loss of water-holding capacity of soils. Other existing impacts may include some water quality degradation caused by erosion being delivered to the creeks and streams within the entire watershed. Road building on soil and geologic resources have increased the potential for off-road vehicle (ORV) use.

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1 Direct and Indirect Impacts

Surface soil disturbances totaling approximately 9 acres would result from development of the proposed access roads and drill pads (Table 1). Approximately 22,608 linear ft of 10-ft-wide road would be built, disturbing approximately 5.2 acres. Approximately 6,883 linear ft of varying widths of 10- to 12-ft-wide roads currently exist within the Project Area, disturbing approximately 1.6 acres. Each of the proposed drill pads would require a footprint of approximately 2,500 sq ft (50 x 50 ft), disturbing approximately 3.8 acres. Alternative 1 would result in potential road erosion for a period of 2 years; however, no adverse direct or indirect impacts are anticipated.

3.4.2.2 Alternative 2 Direct and Indirect Impacts

Alternative 2 would consist of not approving the exploration plan. Under Alternative 2, the 62 drill holes and associated access roads would not be constructed, and the Project Area would remain in its existing condition in the short term. Exploratory drilling on non-federal lands adjacent to the Project Area and part of the larger Paris Hills Property holding would continue to occur. Alternative 2 would not cause additional direct or indirect impacts above existing soil erosion.

3.5 Vegetation Resources

3.5.1 Affected Environment

The Project Area is characterized as sagebrush steppe habitat and is within the mountain shrub zone because it is above 6,000 ft in elevation (BLM, 2010 pp. 3-22). The vegetative community in the Project Area primarily consists of a sagebrush rangeland community dominated by sagebrush with a herbaceous understory. Aspen areas occur in the northeastern corner of the Project Area as well as scattered locations along Little Canyon.

Invasive plant species, especially cheatgrass or downy brome (*Bromus tectorum*) and many non-native thistles, can be problematic in sagebrush steppe environments. The Project Area does not appear to currently have substantial amounts of invasive plant cover, though cheatgrass and flixweed (*Descurania sophia*) were observed along several of the road alignments during field surveys. Additionally, the Project Area is used for cattle grazing which influences the plant community. Introduced pasture grasses are common throughout the Project Area and include Kentucky bluegrass (*Poa pratensis*), bulbous bluegrass (*Poa bulbosa*), smooth brome (*Bromopsis inermis*), and crested wheatgrass (*Agropyron cristatum*).

Field surveys conducted in May 2011 indicated that the Project Area is vegetated predominantly with a mixed sagebrush shrub and grass/forb plant community. Typical shrub species include big sagebrush (*Artemisia tridentata*), black sagebrush (*Artemisia nova*), antelope bitterbrush (*Purshia tridentata*), mountain mahogany (*Cercocarpus montanus*), snowberry (*Symphoricarpos albus*), Oregon grape (*Mahonia repens*), serviceberry (*Amelanchier alnifolia*) and Douglas' rabbitbrush (*Chrysothamnus viscidiflorus*). The grass/forb understory includes both native and introduced plant species, typically yarrow (*Achillea millefolium*), lupine (*Lupinus spp.*), penstemon (*Penstemon spp*), crested wheatgrass, Kentucky bluegrass, bulbous bluegrass, dandelion (*Taraxacum officinale*), smooth brome, cheatgrass, milkvetch (*Astragalus spp.*), woolly mulesears (*Wyethia amplexicaulis*), and basin wildrye (*Elymus cinereus*). Bands of aspen forests occur on the upper parts of north facing slopes in the northeastern corner of the Project Area and patchily along Little Canyon and include species such as trembling aspen (*Populus tremuloides*), Douglas fir (*Pseudotsuga menziesii*), mountain maple (*Acer glabrum*), chokecherry (*Prunus virginiana*), and white fir (*Abies lasiocarpa*). However, the aspen areas are a minor cover type component in the Project Area, and coniferous trees are limited to a small number of individual trees within the aspen forest.

Riparian Areas

Areas south of the Project Area closer to Bloomington Creek contain riparian habitat. Based on field surveys, riparian vegetation along Bloomington Creek includes various willows (*Salix* spp), cottonwood (*Populus* spp), alder (*Alnus* spp), redosier dogwood (*Cornus sericia*), and various grasses, sedges, and forbs. The proposed RMP indicates characteristic vegetation of scrub-shrub riparian vegetation includes Geyer's willow (*Salix geyeriana*), Booth's willow (*Salix boothii*), plane-leaf willow (*Salix planifolia*), coyote willow (*Salix exigua*), yellow willow (*Salix lutea*), whiplash willow (*Salix lucida*), red-osier dogwood, water birch (*Betula occidentalis*), mountain alder (*Alnus incana*), and Douglas hawthorne (*Crataegus douglasii*) (BLM, 2010 pp.3-28). Characteristic emergent herbaceous vegetation within riparian areas includes beaked sedge (*Carex utriculata*), water sedge (*Carex aquatilis*), Nebraska sedge (*Carex nebrascensis*), soft-leaved sedge (*Carex disperma*), hardstem bulrush (*Schoenoplectus acutus*), common spikerush (*Eleocharis palustris*), common cattail (*Typha latifolia*), reedgrass (*Calamagrostis* spp), reed canarygrass (*Phalaris arundinacea*), and tufted hairgrass (*Deschampsia cespitosa*) (ibid).

An ephemeral drainage referred to as Little Canyon does not contain substantial riparian vegetation, though there are some small scrub-shrub willow areas near where this drainage enters the northwestern corner of the Project Area.

3.5.2 Environmental Consequences

3.5.2.1 Alternative 1 Direct and Indirect Impacts

The proposed drill pads and access roads would occur in the sagebrush steppe and result in approximately 9 acres of temporary disturbance. This increases the potential for spread of non-native plants such as cheatgrass and downy brome. Seeding with the proposed reclamation mix would reduce this potential. Though grasses and forbs would reestablish within 1 to 2 years after seeding and reclamation, re-growth of sagebrush and other shrubs to pre-project size would likely take longer. Therefore, the linear corridors of shrub removal along the roads and drill pads would result in a long-term vegetation cover type change. To aid revegetation efforts, PHA would coordinate an agreement with the surface owner to control grazing activities that would occur during the proposed exploration drilling and reclamation activities.

Stormwater BMPs would be used where necessary to stabilize areas until the seeding can be effectively completed and seedlings have taken hold. This work would be conducted using a trackhoe and/or dozers, depending upon specific site conditions.

Though riparian areas occur within the Project Area along Bloomington Creek, there are no drill holes or roads proposed in riparian habitats. Therefore, direct impacts to riparian habitats would not occur. Indirect effects on vegetation could occur through the introduction of noxious weeds and sediment deposition which could bury vegetation. However, as indicated above, these two issues are mitigated by EPMs proposed by PHA in the exploration plan, thus these effects would be unlikely and minor under Alternative 1.

3.5.2.2 Alternative 2 Direct and Indirect Impacts

Alternative 2 would consist of not approving the exploration plan. Under Alternative 2, the 62 drill holes and associated access roads would not be constructed, and the Project Area would remain in its existing condition in the short term. Exploratory drilling on non-federal lands adjacent to the Project Area and part of the larger Paris Hills Property holding would continue to occur. Alternative 2 would not cause direct or indirect impacts to vegetation.

3.6 Wildlife and Fish Resources

3.6.1 Affected Environment

The Idaho Comprehensive Wildlife Conservation Strategy (IDFG, 2005) indicates that the Project Area lies within the Overthrust Mountains ecological section with a southern xeric shrub land and steppe habitat. This type of habitat can be used by a variety of wildlife species including mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), moose (*Alces alces*), ruffed grouse (*Bonasa umbellus*), redtail hawks (*Buteo jamaicensis*), Swainson hawks (*Buteo swainsoni*), kestrels (*Falco sparverius*), and an occasional migrating bald eagle (*Haliaeetus leucocephalus*) during the fall. The Project Area is sage grouse (*Centrocercus urophasianus*) key habitat that may support nesting populations (BLM, 2010 Figure 3-7). Blue (*Dendragapus obscurus*) and ruffed grouse may also occur in the Project Area (BLM, 2010 pp. 3-31). The Project Area does provide suitable habitat for a variety of migratory birds which likely utilize the Project Area during migration and breeding periods. Wildlife associated with the mountain shrub vegetation type can include: blue grouse, cottontail rabbit (*Sylvilagus audubonii*), sharp-tailed grouse (*Tympanuchus phasianellus*), gray partridge (*Perdix perdix*), mule deer, elk, and sage grouse (BLM, 2010 pp. 3-31).

Stream surveys conducted by Idaho Department of Fish and Game indicate that Bonneville Cutthroat Trout inhabit Bloomington Creek (IDFG, 2011). A short segment of Bloomington Creek is located within the southern portion of the Project Area; however there are no proposed roads or drill pads would occur within riparian vegetation or habitats along Bloomington Creek. As described in the Threatened, Endangered, and Sensitive Species (see Section 3.7), approximately 800 ft of proposed access roads would occur within the 325 ft Bloomington Creek Riparian Conservation Area (RCA). Segments of the proposed access roads would occur within previous road cuts as well as areas previously disturbed by mining activities.

The Project Area is within mule deer and elk winter range (BLM, 2010 Figure 3-5). Proximity to water is an important habitat factor for both deer and elk in spring, summer, and fall (BLM, 2010 p. 3-32). The riparian areas along Bloomington Creek are therefore likely to be utilized by big game during much of the year and may provide a movement corridor to late summer/fall habitats at higher elevations west of the Project Area. Aspen areas can be used during fawning, which occur primarily in the northeastern corner of the Project Area on north facing slopes and in proximity to Little Canyon. There are several small stock ponds downgradient of the aspen areas in the northeastern corner of the Project Area, which could serve as a water source if fawning occurs here.

The Bear Lake National Wildlife Refuge occurs approximately 3 miles to the east of the Project Area and consists of a large marsh known as the Dingle Marsh at the north end of Bear Lake. Bald eagles winter in and around Bear Lake (United States Fish and Wildlife Service [USFWS], 2011).

Biological field surveys of the Project Area were conducted between May 16 and 19, 2011. A purpose of the surveys was to characterize existing conditions for wildlife habitat and to review the proposed drill pads for the presence of bird nests. The surveyor walked the proposed road alignments and inspected the proposed drill holes for wildlife, including migratory birds, and their sign. Multiple migratory birds were observed as indicated in Table 4 below.

Table 4. Potential Wildlife Species and/or Sign Observations in the Project Area		
Species	Habitat Description at Observation	Comments and Notes
Birds		
Chipping sparrow	sagebrush	
Magpie	sagebrush and aspen	Multiple stick nests in aspen areas but outside project footprint. Multiple pair seen.
Western meadow lark	sagebrush and meadows	
American robin	aspen	
Sage sparrow	sagebrush	
Lark sparrow	sagebrush	
Brown-headed cowbird	sagebrush	
Downy woodpecker	aspen	
Brewer's sparrow	sagebrush	Multiple individuals seen and heard
Greater sage grouse	sagebrush	Flushed hen that flew towards Little Canyon. Winter scat noted at multiple locations
Ruffed grouse (gray phase)	aspen	Flushed individual several times from northeast corner of Project Area
American kestrel	sagebrush	Kiting over sagebrush at several location in Project Area
Common poorwill	sagebrush	
American crow	aspen	Observed chasing a hawk
Northern flicker	aspen	
Yellow-rumped warbler	hillside meadow	
Mountain bluebird	aspen and hillside meadow	
Dark-eyed junco	aspen	
Mourning dove	aspen	
Killdeer	stock ponds	East side of Project Area near stock ponds
Mammals		
Uinta ground squirrel	sagebrush	Individuals and burrows throughout Project Area
Badger	sagebrush	Multiple burrows observed and one individual seen
Mule deer	sagebrush and aspen	
Porcupine	aspen	Bark stripping and branch drop on several Douglas fir northeast corner of Project Area
Black-tailed jackrabbit	sagebrush	

Though no bird nests were observed within the road and drill hole areas, multiple inactive stick nests and two active magpie nests were observed within the band of aspen trees in the northeast corner of the Project Area. However, no roads or drill holes are proposed in the aspen stand.

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1 Direct and Indirect Impacts

The proposed action would temporarily impact approximately 9 acres of sagebrush rangeland cover type. Proposed drill holes and access roads would not occur within aspen areas, though several roads and drill holes are proposed in proximity to aspen areas in the northeast corner of the Project

Area. Sagebrush habitats can be used by a variety of wildlife species including mule deer, elk, moose, grouse, redtail hawks, Swainson hawks, kestrels, and, less frequently, migrating bald eagles during the fall and foraging eagles in winter. Habitat for small mammals and birds identified in Table 4 will be eliminated by 9 acres of disturbance. During the implementation period, wildlife could be displaced to surrounding habitats within the Project Area that are adjacent to the disturbance footprint. Removal of shrub vegetation would result in a temporary change to the vegetation structure within those portions of the disturbance footprint. Population-level effects are not expected under Alternative 1 due to the small disturbance footprint. It is expected that the wildlife would recolonize and utilize the area in the long term at levels similar to those prior to the exploration activities.

Though the Project Area is within big game winter range, exploration and construction activities would not occur from November 15 to May 31. This will avoid impacts to big game during wintering and fawning periods. Until reclamation efforts are successful, there would be up to 9 acres of lost forage within the disturbance footprint. However, because approximately 336 acres of the Project Area would not be disturbed, forage effects would be negligible. Potential adverse impacts to forage quality through the introduction of noxious weeds is addressed and mitigated (see Section 2.3.4).

Project Area activities during the summer and fall months may displace big game to adjacent suitable habitats. Aspen areas can be used during fawning, which occur primarily in the northeast corner of the Project Area and along Little Canyon; however, construction activities would not begin until after calving or fawning is completed. Accordingly, Alternative 1 would not impact calving or fawning activities.

Drilling fluid sumps have the potential to trap wildlife, especially small animals. Though the fluids are non-toxic, wildlife could become stuck in the sumps while they remain open. PHA has added a mitigation measure, discussed below, to address this issue.

As indicated in Appendix D of the 2010 Proposed RMP, BLM has instituted restrictions on activities within 50 ft of ephemeral streams such as Little Canyon. Under Alternative 1, the proposed drill sites near Little Canyon are set back more than 50 ft from the channel.

As indicated in the Threatened, Endangered, and Sensitive Species (see Section 3.7), water withdrawals from Bloomington City's water supply tank overflow would at most have temporary and minor effects on surface flows, which would occur intermittently during water haul truck filling. The Bloomington water supply tank overflow flows year-round, with the possible exception occurring during drought conditions. Water withdrawals are not expected to substantively impact wildlife dependent on riparian areas or fish in Bloomington Creek (see analysis below). Additionally, the use of non-toxic drilling fluid further avoids potential fish impacts. The potential for sediment to reach Bloomington Creek and affect fish is minimal under Alternative 1. Sediment impacts are mitigated in the temporary time period by a SWPPP and by EPMS stated in sections 2.3.3, 2.3.5, and 2.3.6. Impacts to the Bloomington Creek fishery are not expected, and potential fish issues would be avoided.

Adverse direct impacts to wildlife and fish are not anticipated. Indirect impacts may include the introduction of weeds, potential for fire, temporary noise impacts, and temporary fragmentation of habitat. These potential indirect impacts would be avoided or minimized through utilization of EPMS as stated in Sections 2.3.4 and 2.3.7. Additionally, the herbaceous plant community within much of the Project Area currently includes many introduced pasture grasses, which makes the potential introduction of non-native plant species less of a change.

3.6.2.2 Alternative 2 Direct and Indirect Impacts

Alternative 2 would consist of not approving the exploration plan. Under Alternative 2, the 62 drill holes and associated access roads would not be constructed, and the Project Area would remain in its existing condition in the short term. Exploratory drilling on non-federal lands adjacent to the Project Area and part of the larger Paris Hills Property holding would continue to occur. Alternative 2 would not cause direct or indirect impacts to wildlife and fish.

3.7 Threatened, Endangered, and Sensitive (TES) Species

3.7.1 Affected Environment

An assessment of threatened, endangered, and BLM sensitive species was conducted. The assessment was based on both the field surveys that occurred between May 16 and 19, 2011, and a review of pertinent literature and aerial photographs of the Project Area. The scope of potentially applicable threatened and endangered species was based on the USFWS species list for Bear Lake County, Idaho, (USFWS, 2010) and the scope of potentially applicable BLM sensitive species was based on the BLM's Sensitive Species List (BLM, 2003). The USFWS list for Bear Lake County was screened for applicable species based on habitat requirements of the species and habitat conditions within the Project Area. The same general screening approach was used for the BLM sensitive species applicable to the Pocatello Field Office.

Though yellow-billed cuckoo (*Coccyzus americanus*) is listed on the BLM species list, the USFWS does not indicate it can occur in Bear Lake County. Therefore, this species was not included in the analysis because it would not be affected. The bald eagle is listed as an ESA-listed species on the BLM species list. However, because it has been delisted, it was considered as a BLM sensitive species in this analysis. Additionally, there are seven fish species on the BLM species list that would not be affected by the project because they are not found in the project area. They are either restricted to Bear Lake, the Bear River, or the Snake River, and would not be directly or indirectly affected by either alternative. The seven species include Yellowstone Cutthroat Trout (*Oncorhynchus clarki bouveri*), Bear Lake Cutthroat Trout (*Oncorhynchus clarki ssp.*), Bear Lake Whitefish (*Prosopium abyssiicola*), Bonneville Whitefish (*Prosopium spilonotus*), Bonneville Cisco (*Prosopium gemmiferum*), Bear Lake Sculpin (*Cottus extensis*), and Leatherside Chub (*Gila copei*) and are not considered further in the analysis.

A short segment of Bloomington Creek is located within the southern portion of the Project Area. Stream surveys conducted by Idaho Department of Fish and Game indicate that Bonneville cutthroat trout inhabit Bloomington Creek (IDFG, 2011). The proposed RMP has established Riparian Conservation Areas (RCAs) with varying width based on hill slope to protect streams from sediment inputs which could adversely affect Bonneville cutthroat trout. There are no proposed roads or drill pads within riparian vegetation along Bloomington Creek however approximately 800 ft of proposed access roads would be constructed within the Bloomington Creek RCA. The hill slope near the proposed access roads is approximately 30 percent, which according to Appendix E of the proposed Pocatello RMP requires a 325-foot RCA (BLM, 2010c).

Field surveys for TES species were conducted between May 16 and 19, 2011. Sage grouse lek surveys were conducted within the Project Area and adjacent PHA property from approximately 1 hour before to 1 hour after sunrise on May 17, 18, and 19, 2011, according to methods by Connelly et al. (2003). The known lek near the Project Area was inactive during the surveys and no other leks were identified in the Project Area or within approximately 0.5 mile of the Project Area boundary. The known lek was observed to be inactive on each of the three mornings.

Field surveys for other TES species were also conducted between May 16th and 19th. The surveyor walked the proposed road alignments and inspected the proposed drill holes for TES and their sign. Three TES species, greater sage grouse, sage sparrow and Brewer's sparrow, were observed in

the Project Area. Multiple locations of sage grouse winter scat were observed particularly in the northern portions of the Project Area, both east and west of Little Canyon. One sage grouse hen was observed in flight over the Project Area. Lekking activity was not detected on any of the three survey mornings at the known lek site or in other areas within and near the Project Area. Additionally, no TES bird species nests were observed within the proposed disturbance areas.

Table 5 summarizes the results of screening both the USFWS and BLM species lists and provides an indication of the potential for TES wildlife to be present at the Project Area. Type 5 Watch list animal and plant species are not considered BLM sensitive species and were therefore not analyzed in detail. Due to the linear and narrow nature of the proposed disturbances, the types of effects on BLM sensitive species would be similar to the effects on Type 5 Watch Species.

Table 5. BLM Wildlife Special Status Potentially Occurring in the Project Area			
Species	Habitat Description	Potentially Affected?/Rationale	Documented at or near Project Area
Type 1: ESA Listed, Proposed, & Candidate Species			
Gray Wolf (<i>Canis lupus</i>) Experimental, nonessential	Wide-ranging, adaptable species which preys on big game	Yes – re-introduced wolves may pass through the Project Area, but IDFG 2005 and IFWIS data do not indicate wolf occurrences or established packs at or near the Project Area.	No
Idaho BLM Sensitive Species			
Type 2: Range-wide/Globally Imperiled Species			
Greater Sage-Grouse (<i>Centrocercus urophasianus</i>)	Sagebrush shrub. Leks in open areas with short vegetation near sagebrush	Yes – key habitat present on approximately 227 acres of the Project Area (BLM, 2010 Figure 3-7). Leks are located near Project Area, though inactive in 2011. Approximately 2 acres of pre-existing roads occur in sage grouse habitat and within 0.6 mile of a known lek in the Project Area. Sagebrush habitat provides nesting and brood rearing habitat.	Yes ^{1,2}
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Riparian forested areas for nesting and lakeshores and small mammal colonies for hunting	Yes – bald eagles winter in and around Bear Lake (USFWS, 2011) and may hunt within the Project Area.	Yes
Pygmy Rabbit (<i>Brachylagus idahoensis</i>)	Dense stands of sagebrush or greasewood growing in deep, loose soil	No – Project Area is vegetated with sagebrush and is indicated as Category 2 – Moderate likelihood of pygmy rabbit core habitat (BLM, 2009a). However, no individuals or sign found during field surveys.	No
American White Pelican (<i>Pelecanus erythrorhynchos</i>)	Open water habitats, marshes, lakes, ponds. Nests near open water	No – deepwater aquatic habitats and marshes not present at Project Area. Riparian habitat along Bloomington Creek not likely to support pelicans.	Yes ¹
Boreal Toad (<i>Bufo boreas boreas</i>) -	Breed in wetlands, ponds, and other aquatic sites. Uses wide	Yes – riparian areas and a stock pond exist within the	No

Table 5. BLM Wildlife Special Status Potentially Occurring in the Project Area			
Species	Habitat Description	Potentially Affected?/Rationale	Documented at or near Project Area
Southeast Idaho Population only	variety of terrestrial habitats during non-breeding season	Project Area, though would not be directly affected. Species could occur in uplands during the non-breeding season. Not observed during field surveys.	
Northern Leopard Frog (<i>Rana pipiens</i>)	Associated with permanent water sources including a variety of wetland situations, pond margins and slow-moving sections of rivers and streams	Yes – riparian areas and a stock pond exist within the Project Area, though would not be directly affected. Dry sagebrush areas unlikely to support the species but indirect water quality and riparian effects to Bloomington Creek could affect the species.	Yes ¹
Bonneville Cutthroat Trout (<i>Oncorhynchus clarki utah</i>)	Lakes and streams in the Bear River drainage	Yes – Project Area consists of dry sagebrush but indirect water quality and riparian effects to Bloomington Creek could affect the species. Species documented in Bloomington Creek. Two drill holes and associated roads would occur within the Bloomington Creek Riparian Conservation Area.	Yes ¹
Type 3. Regional/State Imperiled Species			
Townsend's Big-Eared Bat (<i>Plecotus townsendii</i>)	Distribution and abundance highly correlated with cavity forming rock formations and historic mining districts where suitable caves occur. IDFG 2005 indicates several point locations for the species on the west side of Bear Lake.	Yes – Wells Limestone formation at Project Area can include caves, and the species may forage within the Project Area.	Yes ¹
Trumpeter Swan (<i>Cygnus buccinator</i>)	Wetlands, lakes, rivers, and terrestrial habitats adjacent to aquatic sites.	No – Project Area consists of dry sagebrush. Riparian areas along Bloomington Creek and Little Canyon are not likely to support swans due to the small size of these waterways.	Yes ¹
Peregrine Falcon (<i>Falco peregrinus anatum</i>)	Adaptable species that inhabits mountains, river corridors, marshes, lakes, coastlines, and cities. Nests are usually on cliffs, in abandoned nests, or on human-made, cliff-like structures.	Yes – may hunt in Project Area, and aspen areas could provide suitable nesting sites.	No
Prairie Falcon (<i>Falco mexicanus</i>)	Dry grasslands, prairies, and sagebrush shrublands. Nest on cliffs.	Yes – may hunt in Project Area, and aspen areas could provide suitable nesting sites.	No
Northern Goshawk (<i>Accipiter gentilis</i>)	Low elevation mixed conifer forest, aspen forest, and riparian areas with medium to large trees and moderate canopy closure.	Yes – species is associated primarily with dense forest cover which occurs in the northeast corner of the Project Area as aspen forest.	No
Ferruginous Hawk	Open grasslands and sagebrush	Yes - species may pass through	No

Table 5. BLM Wildlife Special Status Potentially Occurring in the Project Area

Species	Habitat Description	Potentially Affected?/Rationale	Documented at or near Project Area
<i>(Buteo regalis)</i>	country. Nest in trees or on cliffs.	the Project Area. However, the proposed RMP does not map the Project Area as a Ferruginous Hawk Important Bird Area (BLM, 2010 Figure 3-6).	
Columbian Sharp-Tailed Grouse <i>(Tymppanuchus phasianellus columbianus)</i>	Sagebrush endemic. Dense herbaceous cover combined with a mixture of shrubs. Reliant on riparian areas in winter.	No – Project Area is predominantly sagebrush steppe with herbaceous cover, which could support the species. However, the proposed RMP does not map the Project Area as containing sufficient breeding and winter habitat to support the species (BLM, 2010 Figure 3-6).	No
Black Tern <i>(Chlidonias niger)</i>	Shallow freshwater marshes, margins of ponds, rivers, sloughs.	Yes – Project Area consists of dry sagebrush and small stock pond. Roads and drill holes near the stock pond and indirect water quality and riparian effects to Bloomington Creek could affect species.	Yes ¹
Flammulated Owl <i>(Otus flammeolus)</i>	Montane coniferous forests. Cavity nesters.	No – Project Area is dry sagebrush/grass with few conifers in the aspen forests. Species unlikely to be present in Project Area.	Yes ¹
Calliope Hummingbird <i>(Stellula calliope)</i>	Wide variety of habitats including montane forests, mountain meadows, riparian areas.	Yes – may forage at Project Area in spring and summer. Aspen areas may provide suitable nesting habitat, but would not be directly affected.	No
Lewis' Woodpecker <i>(Melanerpes lewis)</i>	Burned ponderosa pine forests, riparian forests, aspen groves. Nests in large diameter snags in open forests.	Yes – Project Area is open grass/shrub, though aspen areas could support the species.	Yes ¹
Williamson's Sapsucker <i>(Sphyrapicus thyroideus)</i>	Woodland cavity nester	Yes – Project Area is open grass/shrub, though aspen areas could support the species.	No
Willow Flycatcher <i>(Empidonax trailii)</i>	Riparian species. Nest in shrubs along waterways.	Yes – Project Area consists of dry sagebrush, but indirect water quality and riparian effects to Bloomington Creek could affect the species. Minor willow shrub areas along Little Canyon unlikely to support species.	No
Hammond's Flycatcher <i>(Empidonax hammondi)</i>	Montane forests and other forests	No – Project Area is dry sagebrush/grass and is not in the montane zone.	No
Olive-Sided Flycatcher <i>(Contopus borealis)</i>	Montane and northern coniferous forests	No – Project Area is dry sagebrush/grass and is not in	No

Table 5. BLM Wildlife Special Status Potentially Occurring in the Project Area			
Species	Habitat Description	Potentially Affected?/Rationale	Documented at or near Project Area
		the montane zone.	
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	Open woodlands	No – Project Area is dry sagebrush/grass lacking substantial amounts of open woodlands.	No
Sage Sparrow (<i>Amphispiza belli</i>)	Sagebrush and other open shrub habitats	Yes – Project Area is dry sagebrush/grass.	Yes ²
Brewer's Sparrow (<i>Spizella breweri</i>)	Shrubsteppe obligate, closely associated with big sagebrush (<i>Artemisia tridentata</i>).	Yes – Project Area is dry sagebrush/grass.	Yes ²
Common Garter Snake (<i>Thamnophis sirtalis</i>)	Open meadows, forests and other terrestrial habitats associated with water.	Yes – Project Area consists of dry sagebrush but indirect water quality and riparian effects to Bloomington Creek could affect the species. Road building and drilling near aspen areas and stock ponds could affect the species.	Yes ¹
Western Toad (<i>Bufo boreas</i>) - (Northern Rocky Mountain Group only)	Breed in wetlands, ponds and other aquatic sites. Uses wide variety of terrestrial habitats during non-breeding season	Yes – Riparian areas and a stock pond exist within the Project Area, though these habitats would not be directly affected. The species could occur in uplands during the non-breeding season. Species may utilize aspen areas near the stock pond.	Yes ¹
Type 4: Peripheral Species in Idaho			
Cliff Chipmunk (<i>Tamias dorsalis</i>)	Lower- and middle-elevation xeric shrub and conifer habitats. Large boulders, exposed bedrock, and cliff faces.	No – Project Area is dry sagebrush without coniferous trees. Aspen areas contain few coniferous trees.	No
Uinta Chipmunk (<i>Tamias umbrinus</i>)	Montane conifer forests	No – Project Area is dry sagebrush without coniferous trees. Aspen areas contain few coniferous trees.	No
Kit Fox (<i>Vulpes velox</i>)	Desert shrub and shrubsteppe habitats, typically flat and sparsely vegetated.	No – Project Area is sagebrush shrub with herbaceous understory but is hilly.	No
White-Faced Ibis (<i>Plegadis chihi</i>)	Shallow marshes with dense vegetation.	No – marshes are not present in the Project Area.	Yes ¹
Virginia's Warbler (<i>Vermivora virginiae</i>)	Breeds in deciduous woodlands on steep slopes. Mountain streams in sagebrush and cottonwood/willow habitat.	Yes – Project Area is dry sagebrush/grassland, but aspen areas on slopes in the northeast corner of the Project Area could provide breeding habitat.	No

¹ Known occurrence at or within 5 miles of Project Area according to Idaho Fish and Wildlife Information System (IFWIS) data (2011)

² Individuals or sign observed during May 2011 field surveys

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1 Direct and Indirect Impacts

Some of the TES species listed in the Affected Environment Section were deemed potentially affected by the proposed action and were carried forward for further analysis. During development of the Affected Environment for TES, several consistent themes arose regarding potential effects to TES species. Accordingly, the Environmental Consequences section has grouped potentially affected TES species into categories for the impact analysis based on the following three categories.

1. Primarily sagebrush-dependent species potentially affected by activities in the sagebrush steppe.
2. Primarily aquatic and riparian species potentially indirectly affected by surface water quality changes.
3. Species reliant on both riparian and sagebrush habitats potentially affected by activities in such habitats.

Given that the majority of the Project Area and the majority of the proposed surface disturbance are within the sagebrush steppe, effects on species within Category 1 received more detailed consideration than species in Categories 2 and 3. Table 6 below depicts the categorization of the TES species that were carried forward for further consideration. The environmental consequences for TES species is organized by the three categories presented above rather than by species.

Category	Applicable Species
Category 1 - Primarily sagebrush-dependent species potentially affected by activities in the sagebrush steppe with aspen woodland patches.	Greater Sage Grouse, Sage Sparrow, Brewer's Sparrow, Lewis' Woodpecker, Williamson's Sapsucker, Virginia's warbler,
Category 2 - Primarily aquatic and riparian species potentially affected by activities near riparian areas or indirectly through surface water quality changes.	Bonneville Cutthroat Trout, Boreal Toad, Western Toad, Northern Leopard Frog, Common Gartersnake, Willow Flycatcher, Black Tern, White-Faced Ibis
Category 3 - Species reliant on multiple habitats in the Project Area potentially affected by surface disturbance activities.	Bald Eagle, Townsend's Big-Eared Bat, Peregrine Falcon, Northern Goshawk, Prairie Falcon, Calliope Hummingbird

Category 1 Species – Sagebrush

The proposed action would result in physical disturbance to approximately 9 acres of habitat that may be used by Category 1 species during part or all of the year and could result in localized disruption of breeding and nesting activities of Category 1 birds. However, no nests of Category 1 bird species were observed within the disturbance areas during the May 2011 field surveys. Proposed surface disturbances would be reclaimed to a vegetated state once the drilling program is complete, and disturbances would return to a vegetated state within 1 to 2 years after the project is complete. Disturbance effects to Category 1 wildlife would cease once construction activities ended. The potential to introduce cheatgrass as well as noxious weeds, exists, though as stated above is mitigated by the proponent's commitment to clean equipment and vehicles before entering the Project Area, reclamation seeding, and to monitor weeds during implementation. Some cheatgrass was observed in the Project Area which may spread into newly disturbed areas.

Construction activities near sage grouse leks have the potential to disturb sage grouse, and a 0.6-mile buffer has been recommended (ISAC, 2006 pp. 4-69). Approximately 266 acres of the Project Area occur within 0.6 mile of a known sage grouse lek, and Alternative 1 would result in approximately 9 acres of surface disturbance within this zone (see Figure 5). However, this lek was surveyed on May 17, 18, and 19, 2011, and was found to be inactive. Approximately 8 acres of key

sage grouse habitat would be disturbed by activities proposed under by Alternative 1. Disturbance associated with development of roads and drill pads would result in some fragmentation of sage grouse habitat. Proposed surface disturbances would be reclaimed to a vegetated state once exploration activities are complete. Seasonal restrictions on exploration activities outlined in Section 2.3.2 would avoid impacts to sage grouse and other ground nesting birds during nesting and brood rearing seasons.

Construction of roads near aspen pockets within the Project Area could disturb Lewis' woodpecker, Virginia's warbler, and Williamson's sapsucker if they occur in the aspen areas. However, the proposed drill holes and roads would be limited in extent and largely outside the aspen areas. Four exploration holes and approximately 1,000 ft of new access road would occur near aspen areas. Noise and human presence could result in these three bird species relocating to woodland habitats farther from exploration activities or outside the Project Area. Adverse direct impacts to Category 1 species are expected to be minor due to the small project footprint, temporary nature of disturbances, and proposed EPMs such as those outlined in Section 2.3.2. Indirect impacts may include the introduction of weeds, potential for fire, temporary noise impacts, and temporary fragmentation of habitat. These potential indirect impacts would be avoided or minimized through utilization of EPMs as stated in Sections 2.3.4 and 2.3.7.

Category 2 Species – Aquatic and Riparian

A limited amount of riparian and aquatic habitats occurs in the Project Area, and therefore Category 2 species may be affected by Alternative 1. However, there are no exploration activities proposed within aquatic or riparian areas along Bloomington Creek, Little Canyon, and the stock pond, so direct impacts are not anticipated. Alternative 1 could potentially cause indirect adverse effects to aquatic and riparian species through surface water quality effects from stormwater runoff and groundwater effects through drilling. There is approximately 800 ft of access road proposed within the 325-foot RCA for Bonneville cutthroat trout in the southern portion of the Project Area. Segments of the proposed road would occur within a historic road cut and in an area previously disturbed by historic mining activities. Therefore, vegetation disturbances and the potential water quality effects from these drill holes within the RCA are reduced. However, these issues are effectively addressed and mitigated by EPMs contained within sections 2.3.3, 2.3.5, and 2.3.6.

The operator intends to obtain drilling water from the City of Bloomington water supply tank overflow to the southwest of the Project Area, which is a tributary to Bloomington Creek. At most, the operator would withdraw up to 12,000 gallons per day which could intermittently result in small surface flow reductions in Bloomington Creek. However, flow changes from water withdrawals would be minor. Historical flow data for Bloomington Creek indicate that daily mean flow ranges from about 12 cubic ft per second (cfs) to about 200 cfs, depending on the season (United States Geological Survey [USGS], 2011). Assuming the maximum withdrawal of 12,000 gallons per day would occur within 1 hour, surface flows in Bloomington Creek could be reduced by about 0.1 percent during peak flows and about 1.9 percent during low flows. However, these flow reductions would be temporary during and immediately after filling the water trucks and for most of the day there would be no flow reductions. Additionally, these temporary small flow changes would not be expected to adversely affect riparian and wetland vegetation conditions due to the short time period flow reductions would occur. Therefore, flow-related impacts to Category 2 species in and near Bloomington Creek, including Bonneville cutthroat trout, would be minimal.

Potential indirect effects on Bonneville cutthroat trout from sediment-related water quality changes were evaluated using the Water Erosion Prediction Project (WEPP) modeling results from the Water Quality analysis section. According to these results, Alternative 1 would not increase the potential delivery of sediment to Bloomington Creek during the implementation period and assuming BMPs are 90 percent effective (Klamath National Forest, 2001; Caribou-Targhee National

Forest, 2004; IDL, 1992). Once surface disturbances are revegetated and within 1 to 2 years after the implementation period, sediment delivery would return to pre-project levels.

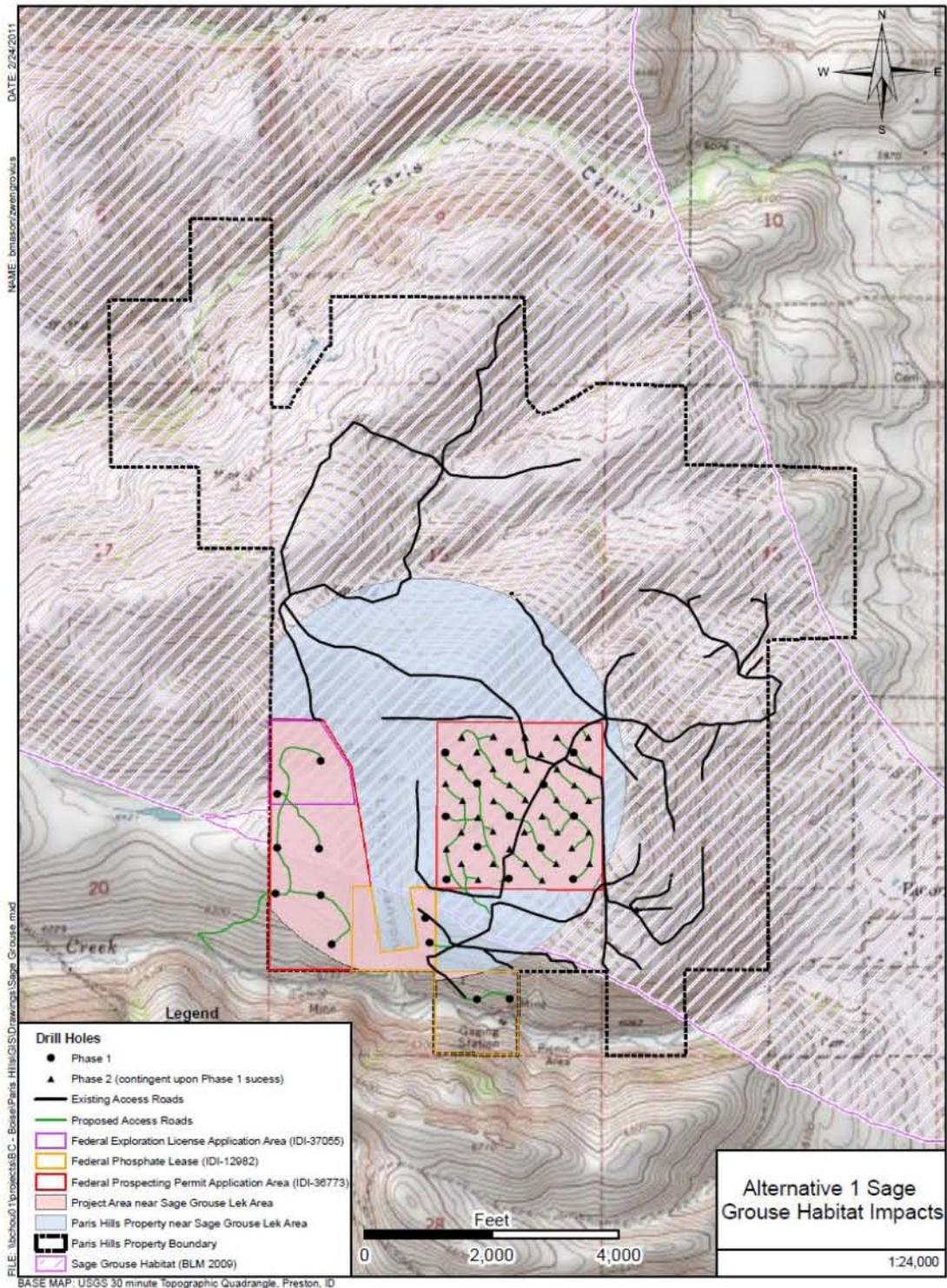
Adverse direct and indirect impacts to Category 2 species are not anticipated.

Category 3 Species – Multiple Habitats

Category 3 species could be affected by Alternative 1 primarily through lost foraging opportunities. Category 3 raptors would be temporarily precluded from hunting on portions of the Project Area during implementation. Townsend's big-eared bat and calliope hummingbird would be precluded from foraging on portions of the Project Area during implementation and could be displaced to adjacent habitats. It is unlikely that roosting caves for bats would be directly affected by roads or drill sites due to the small project footprint. Calliope hummingbirds could nest in aspen patches within the Project Area. Direct impacts to this habitat type are not anticipated, but four drill holes and approximately 1,000 ft of road occur near the aspen patches which could have indirect disturbance effects on Category 3 species. Noise and human presence could disturb Category 3 species and temporarily displace them to adjacent undisturbed habitats.

Species of wildlife that currently reside in the Project Area may be temporarily displaced while exploration drilling activities occur. As exploration drilling activities would only occur in a small area at any given time, this disruption would be small in scale and short in duration. The area surrounding the Project Area is adequately sized to absorb any animals that are displaced from exploration drilling activities, and it is expected that wildlife would return shortly after activities are completed when reclamation is complete.

Adverse direct and indirect impacts to Category 3 species are expected to be minor due to the small project footprint, temporary nature of disturbances, and proposed EPMs such as those outlined in Section 2.3.2. Indirect impacts may include the introduction of weeds, potential for fire, temporary noise impacts, and temporary fragmentation of habitat. These potential indirect impacts would be avoided or minimized through utilization of EPMs as stated in Sections 2.3.4 and 2.3.7.



3.7.2.2 Alternative 2 Direct and Indirect Impacts

Alternative 2 would consist of not approving the exploration plan. Under Alternative 2, the 62 drill holes and associated access roads would not be constructed, and the Project Area would remain in its existing condition in the short term. Exploratory drilling on non-federal lands adjacent to the Project Area and part of the larger Paris Hills Property holding would continue to occur. Alternative 2 would not cause direct or indirect impacts to TES.

3.8 Water Quality – Surface Water and Groundwater

3.8.1 Affected Environment

The Paris Hills Property is located within the Bear Lake sub-basin, which encompasses an area of just over 1,000 square miles (IDEQ, 2008d). Figure 6 shows the surface water resources in the area of the Paris Hills Property including creeks and springs (Bear Lake River is located immediately east of the area). One perennial stream occurs within the Project Area: Bloomington Creek. A small portion of the northeast corner of the Project Area drains towards an unnamed drainage that flows to the Dingle Swamp and does not flow to Paris Creek.

Bloomington Creek flows east through Bloomington Canyon and enters Dingle Marsh southeast of the Project Area. Stream flow in the drainage is sourced from springs and is augmented with precipitation and snowmelt. The headwaters of Bloomington Creek include the North Fork, Middle Fork, and South Fork of Bloomington Creek.

Bloomington Creek currently has surface water beneficial use designations assigned by IDEQ (IDAPA, 2010). Table 7 lists the water bodies and their associated beneficial use designations.

Hydrologic Unit Code (HUC)	Sub-Basin	Water Body	Aquatic Life	Recreation	Other
16010201	Bear Lake				
		Bloomington Creek – source to mouth	COLD, SS	PCR	DWS, SRW

Abbreviations:

COLD = cold water aquatic life

DWS = domestic water supply

PCR = primary contact recreation (swimming)

SRW = special resource waters

SS = salmonid spawning

Designated beneficial uses for Bloomington Creek include cold water aquatic life, salmonid spawning, and primary contact recreation. In addition, Bloomington Creek is also designated as a domestic water supply and as a special resource water. Regardless of designation status (designated or undesignated), IDEQ will apply cold water aquatic life and primary or secondary contact recreation criteria to all waters.

Section 303(d) of the Clean Water Act requires states to identify streams and lakes that do not meet water quality standards and to establish total maximum daily loads (TMDLs) for the listed pollutants. Segments of Bloomington Creek within the Project Area have not been identified as impaired water bodies (IDEQ, 2009).

A total of six seeps/springs have been identified in the Project Area by visual observation and by reviewing regional topographic maps. Four springs are located in the Bloomington Canyon drainage area, and two springs are located in the Paris Canyon drainage area.

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1 Direct and Indirect Impacts

Surface Water:

The main water source for the drilling project would be from Bloomington City's water supply tank overflow. The maximum diversion of water allowed from the Bloomington overflow is 5 acre-ft and a maximum rate of 0.10 cfs. It is estimated that 6,000 gallons of water would be removed each day for the proposed activities, however up to 12,000 gallons per day may be needed at times. Water withdrawals from Bloomington City's water supply tank overflow would have temporary and minor effects on surface waters including Bloomington creek. PHA has obtained a temporary water use permit from the Idaho Department of Water Resources for the 2011 calendar year. Bloomington's water is sourced from a spring and is stored in a water tank. Excess water in the storage tank is discharged into Bloomington Creek. The amount of water discharged into the creek may fluctuate depending on demand for water.

Erosion and sediment delivery estimates for existing conditions and from proposed activities, including application of BMPs, were derived using the Water WEPP modeling program (Appendix B). As shown in Table 9 below, the potential for sediment to reach Bloomington Creek is negligible under Alternative 1. The WEPP model estimates that the 800 ft road segment within the RCA would result in no sediment leaving the buffer zone and entering Bloomington Creek. Potential sediment impacts are mitigated through utilization of a SWPPP and in the long term by the required revegetation plan. Accordingly, no direct impacts to Bloomington Creek are expected due to mitigation measures (BMPs).

Table 8. WEPP Model Results				
Alternative	Total Stream Crossings	WEPP Modeled Sediment Delivery (lbs/yr)		
		Annual Avg. Sediment Generation using Road Prism Erosion (lbs/yr)	Sediment Delivery - with 1-ft Buffer Zone (lbs/yr) over 5 years	Total Annual Sediment Delivery to Streams (lbs/yr) over 5 years
Alternative 1	6,884.5 ft of pre-existing access roads outside 325 ft buffer of stream	3,448.9	0.0	0.0
Alternative 1	22,594.9 ft of proposed access roads outside 325 ft buffer of stream	11,324.4	0.0	0.0
Alternative 1	800 ft length of proposed access roads with 10 ft width within 325 ft buffer of stream	351.4	0.0	0.0
Alternative 1	62 proposed drill pads outside 325 ft buffer of stream	6983.1	0.0	0.0
Total Annual Sediment Delivery – Alternative 1				0.0

Groundwater: Drilling would produce an insignificant volume of formation water and drill cuttings. Bentonite grout and lubricating foam may be used to assist with exploration drilling activities. The drilling cuttings and drill fluids would be confined to drill holes and containerized in sumps located adjacent to the drill pad. Once drilling activities are complete for a particular drill location, the fluids located inside of the sumps would be allowed to infiltrate into the ground surface and the sump would be reclaimed. The volume of drill fluids are considered *de minimis*, and the drilling grout and foam materials are documented as non-toxic and are typically used for this type of application. As a result, the drilling fluids are not likely to have an impact on groundwater.

No drinking water wells are known to be located within or in the near vicinity of the proposed exploration drilling activities. The two potential risks to groundwater include infiltration of drilling fluids to groundwater and drill holes which could create a preferential pathway of groundwater flow from surface water. The drilling fluids at the site are of insufficient volume and material to threaten groundwater. The foreign materials within these fluids are non-toxic and drill holes would be plugged upon completion. Implementation of the exploration plan would not affect or contribute further to the water limitations of Paris and Bloomington Creeks.

3.8.2.2 Alternative 2 Direct and Indirect Impacts

Alternative 2 would consist of not approving the exploration plan. Under Alternative 2, the 62 drill holes and associated access roads would not be constructed, and the Project Area would remain in its existing condition in the short term. Exploratory drilling on non-federal lands adjacent to the Project Area and part of the larger Paris Hills Property holding would continue to occur. Alternative 2 would not cause direct or indirect impacts to water quality.

4.0 Cumulative Impact Assessment (CIA)

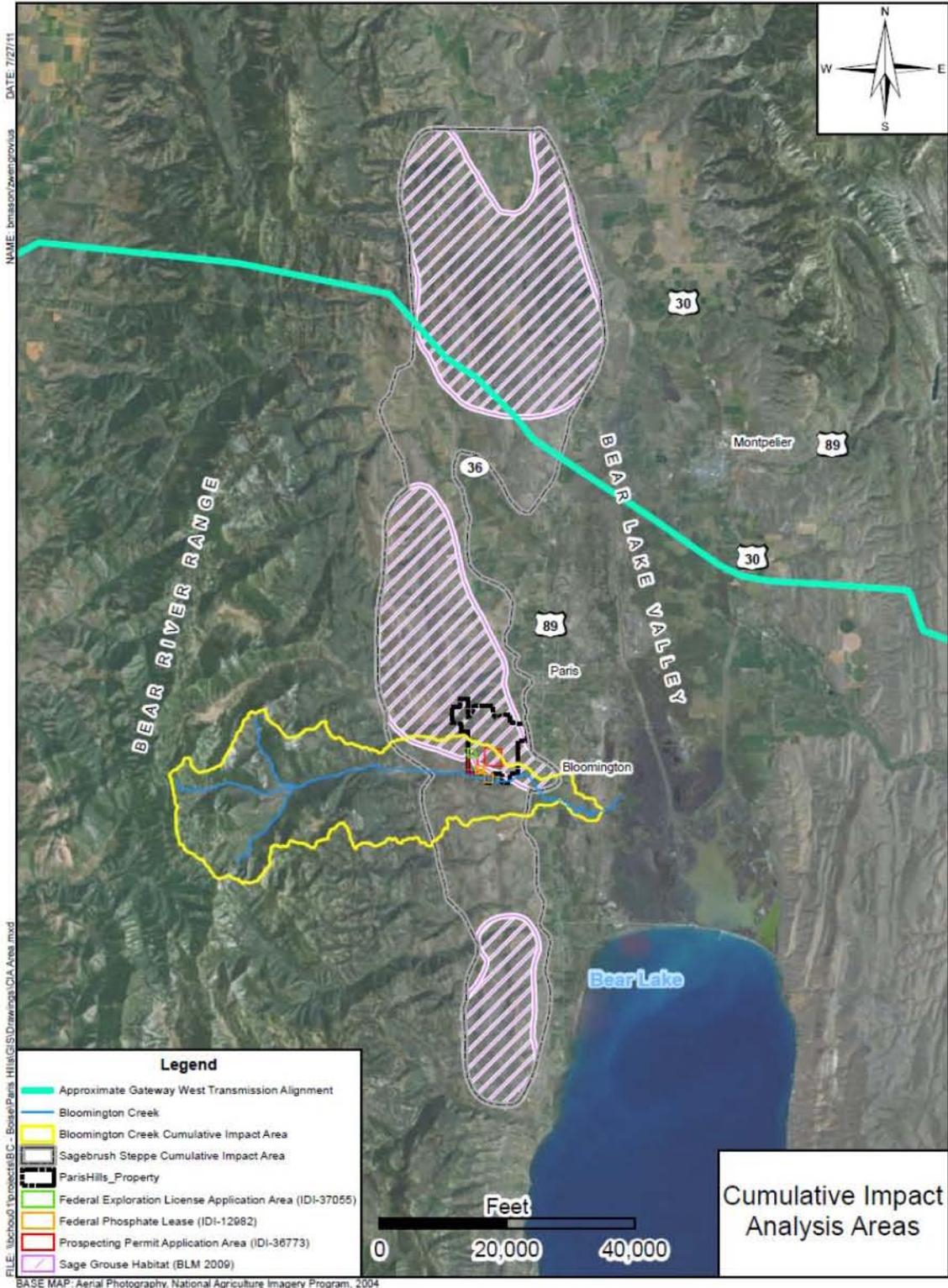
Cumulative effects are those impacts to the environment which result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

This section provides the incremental impacts that the action alternative and no action alternative are likely to have when considered in the context of impacts associated with past, present, and reasonably foreseeable that have occurred or are likely to occur in the area over the next 2 years. This temporal framework was chosen based on the Paris Hills Exploration Plan, which is planned for 2011 to 2012.

The Cumulative Impact Analysis Area (CIAA) for big game is the sagebrush steppe CIAA as shown on Figure 6 and includes areas on the west side of the Bear Valley which area also classified as big game winter range. This CIAA was chosen because it represents the habitat type to be directly impacted and covers much of the big game winter range west of the Bear Valley. The CIAA for fish was selected as the Bloomington Creek watershed because this drainage could be indirectly impacted by Alternative 1. Since direct and indirect impacts of Alternative 1 are limited to the Bloomington Creek watershed, Paris Creek was not included in the CIAA for Bonneville cutthroat trout.

The CIAA for TES species is depicted on Figure 6. Two CIAAs were established for this analysis. One CIAA was selected to coincide with sagebrush steppe habitats on the west side of Bear Lake Valley by merging several ecological factors relevant to the proposed action. The western boundary of the CIAA was based on the limits of sage grouse key habitat (BLM, 2010 Figure 3-7) and the Idaho Land Cover Classification for sagebrush steppe (University of Idaho, 1998). The eastern boundary was based on the sage grouse key habitat and the western limit of the Bear Lake Valley floor as indicated on USGS topographic maps. The northern and southern limits were based on the extents of the three sage grouse habitat areas on the west side of Bear Valley. The second CIAA was established specifically for Bonneville cutthroat trout (and other fish discussed later) and consisted of the Bloomington Creek Watershed. Since direct and indirect impacts of Alternative 1 are limited to the Bloomington Creek watershed, Paris Creek was not included in the CIAA for Bonneville cutthroat trout.

The CIAA for vegetation consists of the Paris Hills Property and includes the present and future action of non-federal exploratory drilling and grazing.



4.1 Past, Present, and Reasonably Foreseeable Future Actions

4.1.1 Past and Present Actions

Information for past and present actions was based on aerial photographic data, agency records, GIS, NI 43-101 Technical Report Paris Hills Phosphate Project (AMEC, 2010), Initial Baseline Surface Water Monitoring Data – Summer 2008 Paris-Bloomington Phosphate and Vanadium Project Bear Lake County, Idaho (AMEC, 2008), Bloomington Canyon Mine Preliminary Assessment Report (IDEQ, 2007a), Consolidated Mine Preliminary Assessment Report (IDEQ, 2007b), and Paris Canyon Mine Preliminary Assessment Report Bear Lake County, State of Idaho (IDEQ, 2007c). The following past and present actions, which have impacted the CIAA to varying degrees, have been identified: livestock grazing and the local transportation network. These actions do not represent every individual action that may have impacted the CIAA, but they are the suite of actions most likely to have contributed substantial impacts based on the aerial photographic and GIS analysis.

4.1.1.1 Livestock Grazing

All or parts of the CIAA have been utilized in livestock grazing; however, there are no federally administered allotments located within the Project Area. State lands in the vicinity are leased by private individuals. The privately owned surface land has been used for livestock grazing, primarily cattle during late spring to late fall and covers approximately 2,114 acres.

4.1.1.2 Mineral Development and Exploration

One Federal Phosphate Lease (I-012982) occurs within the CIAA. Phosphate mining has occurred in the past and includes the Paris Canyon Mine, Consolidated Mine, Bloomington Canyon Mine, and the Bear Lake Mine.

Past actions include the following:

- From 1903-1973, historic work in the CIAA began with a claim in Little Canyon at the future site of the Consolidated Mine. The total underground development was approximately 4,140 ft and total surface disturbance was 512 ft long.
- From 1913-1925, Paris Canyon was explored and sampled by 3,000 ft of underground workings, six trenches, and one short crosscut.
- From 1911-1975, Bloomington Canyon was explored and sampled by 3,040 ft of underground workings, several experimental slopes, and five trenches.
- From 1919-1931, Bear Lake Mine was explored and sampled by 1,500 ft of underground workings.

Since 1972, a total of 53 drill holes have been completed on the Paris Hills Property, consisting of 15 RC holes (11,790 ft), 15 core holes (9,945 ft), 10 undefined holes (6,197 ft), and 13 holes with no records.

In July 2010, Stonegate Agricom, also known as PHA, submitted their Paris Hills Exploration Drilling Plan 2010 to IDL. The plan identified the potential drilling of 26 vertical holes for a combined total of approximately 19,800 ft within state and privately owned lands. The total ground disturbance area for the proposed 2010 drilling activities was 6.66 acres. Water was provided through a temporary permit by the Bloomington City water supply tank overflow (TP-11-14).

4.1.1.3 Transportation Network

Within the CIAA, there are approximately 6884.5 ft or 1.58 acres of roads.

4.1.2 Reasonably Foreseeable Actions

Reasonable estimates of future actions occurring within the various CIAAs considered in the cumulative impact evaluation consisted of the following actions as depicted on Figure 6.

- Non-federal drilling within the Paris Hills Property
- The Gateway West transmission line project
- Preliminary plat for the Black Bear Resort

A preliminary subdivision plan referred to as the Black Bear Resort was submitted to Bear Lake County several years ago. This subdivision occurs within both CIAAs discussed above and could contribute to cumulative impacts. However, after discussions with the local planning and zoning agency, the Bear Lake Regional Commission (BLRC), the Black Bear Resort was deemed not to be reasonably foreseeable for several reasons. First, the BLRC indicated that only a preliminary plat had been submitted and that the project proponent had yet to meet all the conditions specified in their conditional use permit, and second, the BLRC indicated it was unlikely that construction on this project would begin during the implementation period of PHAs proposal (Poulsen personal communication, 2011). These two factors combined with the country-wide slowdown in new housing construction led to the decision to exclude the Black Bear Resort from detailed analysis in the cumulative impact section. Additionally, this proposed subdivision does not occur in Idaho Fish and Game-identified key sage grouse habitat or any other critical habitat, so it would not substantively contribute to cumulative habitat loss for this species or any other species.

4.1.2.1 Livestock Grazing

Current livestock grazing practices are anticipated to remain consistent on the private lands into the future. It is anticipated that adjustments to livestock grazing management such as construction of fencing or stock ponds could occur. The proposed exploration drilling would remove approximately 345 acres from livestock grazing on privately owned lands for a temporary period.

4.1.2.2 Mineral Development and Exploration

PHA has submitted a proposal to prospect and explore for phosphate as well as associated minerals on a 345.33 acre federally owned phosphate deposit known to exist under privately owned surface. Surface disturbance associated with the proposed exploration project would total approximately 9 acres. Phosphate exploration drilling associated with the federally owned phosphate deposit is anticipated to continue for the next 1 to 2 years.

4.1.2.3 Transportation Network

Additional temporary roads are proposed as part of the Paris Hills Exploration Drilling Plan. These total 22,594.9 ft or 5.19 acres.

4.1.3 Cumulative Impacts of Past, Present, and Reasonably Foreseeable Future Actions

4.1.3.1 Soil Resources

Alternative 1 – Proposed Action

Within the CIAA, there have been approximately 11,680 ft of underground workings and unknown acres of surface disturbance. While not reclaimed to today's standards, soils have generally stabilized with only a few areas contributing to erosion. Within the Paris Hills Property, PHA 2010 drilling activities resulted in 6.66 acres of disturbance. Surface disturbance associated with the proposed action would total approximately 9 acres. The entire PHA exploration program within the CIAA would result in a cumulative surface disturbance of approximately 15.66 acres through construction of access roads and drill pads. However, this cumulative impact on soil resources

would remain minor since it represents a small percentage of the CIAA, soil would not be lost but would be salvaged and utilized during reclamation, and temporary disturbances would be revegetated at the end of the implementation period for both the federal and non-federal portions of the PHA drilling program. Because of the EPMs contained in the proposed action, there are not expected to be any long-term effects to soil resources (see Section 2.3.5). Therefore, the proposed action would not add any additional impacts.

4.1.3.2 Vegetation Resources

Alternative 1 – Proposed Action

The CIAA for vegetation consists of the PHA property and includes the present and future action of non-federal exploratory drilling and grazing. Grazing occurs on nearly all unforested lands within the CIAA and is one of the drivers of the existing vegetated conditions within the CIAA. Within the CIAA, there have been approximately 11,680 ft of underground workings and unknown acres of surface disturbance. While not reclaimed to today's standards, soils have generally stabilized with only a few areas contributing to erosion. Within the Paris Hills Property, PHA 2010 drilling activities resulted in 6.66 acres of disturbance. Though Alternative 1 would affect approximately 9 acres of vegetation, it is part of a larger non-federal drilling program within the PHA property. The entire PHA exploration program within the CIAA would result in a cumulative temporary disturbance to approximately 15.66 acres of vegetated habitats through construction of access roads and drill pads. However, this cumulative impact on vegetation would remain minor since it represents a small percentage of the CIAA and temporary disturbances would be revegetated at the end of the implementation period for both the federal and non-federal portions of the PHA drilling program. As indicated earlier, noxious weed management EPMs would minimize cumulative impacts related to the introduction of weeds (see Section 2.3.4).

4.1.3.3 Wildlife and Fish Resources

Alternative 1 – Proposed Action

As previously described, the CIAA for big game is the sagebrush steppe CIAA as shown on Figure 6 and includes areas on the west side of the Bear Valley which area also classified as big game winter range. The CIAA for fish was selected as the Bloomington Creek watershed since this drainage could be indirectly impacted by Alternative 1.

Existing habitat conditions within the CIAA have been shaped by past actions such as mining and grazing. Historic mining has resulted in approximately 11,680 ft of underground workings and unknown acres of surface disturbance; however, they have since been reclaimed. Each of these activities changes the habitat available for wildlife and has resulted in current conditions discussed in the Affected Environment.

The primary foreseeable action that could result in cumulative impacts on wildlife and fish is the larger PHA exploratory drilling program. Within the Paris Hills Property, PHA 2010 drilling activities resulted in 6.66 acres of disturbance. The proposed action would have approximately 9 additional acres of disturbances in the Bloomington Creek watershed, potentially affecting fish and wildlife temporarily displacing various types of wildlife that typically occur in the sagebrush steppe. Because drilling would not occur in the winter under Alternative 1, cumulative impacts on big game winter range and the potential for deer and elk displacement would be minimal. Additional surface disturbances would occur under the larger PHA program and would result in additional short-term disturbances to forage of approximately reductions in forage covering a cumulative total of approximately 15.66 acres. Because of the environmental protection measures contained in the proposed action, there are not expected to be any long-term effects to wildlife and fish resources

(see Sections 2.3.4, 2.3.5 and 2.3.7). Therefore, the proposed action would not add any additional impacts.

4.1.3.4 Threatened, Endangered, and Sensitive Species

Alternative 1 – Proposed Action

As previously described, two CIAAs were established for this analysis. One CIAA was selected to coincide with sagebrush steppe habitats on the west side of Bear Lake Valley by merging several ecological factors relevant to the proposed action. The second CIAA was established specifically for Bonneville cutthroat trout (and other fish discussed later) and consisted of the Bloomington Creek Watershed. Historic mining has resulted in approximately 11,680 ft of underground workings and unknown acres of surface disturbance; however, they have been reclaimed. Within the Paris Hills Property, PHA 2010 drilling activities resulted in 6.66 acres of disturbance.

Category 1 Species – sagebrush

Past and ongoing conversion of sagebrush habitats to other cover types such as residential or agricultural combined with livestock grazing, the spread of noxious weeds and sagebrush loss through wildfire have resulted in substantial losses to sagebrush communities in the western U.S. An indicator of these effects is the inclusion of several sagebrush-dependent species on the BLM Sensitive Species list and the recent designation of sage grouse as a Candidate species under the Endangered Species Act.

Alternative 1 is a portion of PHA's larger exploration program, which occur within an area covering approximately 2,114 acres. Additional exploration roads and drill pads beyond those within the Application Area are planned and would add to the direct and indirect impacts of Alternative 1. Cumulative totals for PHA's entire program would be approximately 15.66 acres of total surface disturbance, 11.6 acres of surface disturbance to sage grouse key habitat, and 10 acres of disturbance within 0.6 mile of an active lek. These areas will be reclaimed. These cumulative disturbances would also result in additive habitat impacts to other sagebrush-dependent species such as Brewer's and sage sparrow. The Gateway West power transmission line would affect additional sagebrush steppe habitats at the north end of the CIAA, though likely after the completion of activities under Alternative 1. Because the Draft EIS for this project has not been released, impact quantities are currently unavailable. However, the project would affect a linear corridor through sagebrush habitats and a key sage grouse habitat area. Interim geotechnical studies along the proposed alignment would add impacts to Category 1 species, because portions of the alignment pass through the CIAA and sagebrush habitats. However, with the cumulative impacts from future projects, the majority of sagebrush steppe within the CIAA would remain and be available for Category 1 species. Additional disturbances to aspen areas would also occur. However, the cumulative impact on Category 1 cavity nesters would remain minor given that these species are more likely to inhabit forested habitats further west of the CIAA, which are not directly or indirectly affected by Alternative 1. Because of the environmental protection measures contained in the proposed action (e.g. seeding with sagebrush steppe mix, reclamation, short duration of activities, seasonal restrictions), there are not expected to be any long-term effects to wildlife and fish resources (see Sections 2.3.4, 2.3.5, and 2.3.7). Therefore, the proposed action would not add any additional impacts.

Category 2 Species – aquatic and riparian

Since direct impacts to aquatic and riparian habitats would not occur under Alternative 1 and indirect impacts are minimized through EPMs, Alternative 1 would not substantively contribute to cumulative impacts to Category 2 species. The entire PHA exploration program would cumulatively result in approximately 15.66 acres of surface disturbances from roads and drill pads. Cumulatively, potential sediment delivery to Bloomington Creek based on WEPP modeling would not result in an

increase in sediment being delivered during the implementation period and assuming BMPs are 90 percent effective (Klamath National Forest, 2001; Caribou-Targhee National Forest, 2004; IDL, 1992). Reclamation and revegetation is required for the entire PHA program, thus sediment-related water quality effects would cease within 1 to 2 years after the implementation period once vegetation had reestablished. Up to 12,000 gallons per day of water withdrawn from Bloomington City's water supply tank overflow would satisfy the needs of PHA's entire drilling program, thus there would not be additional water withdrawals and potential flow-related cumulative impacts. Accordingly cumulative impacts to Bloomington Creek and Category 2 species (including Bonneville cutthroat trout) not occur or would remain minor. Because of the environmental protection measures contained in the proposed action, there are not expected to be any long-term effects to wildlife and fish resources (see Sections 2.3.4, 2.3.5, and 2.3.7). Therefore, the proposed action would not add any additional impacts.

Category 3 Species – multiple habitats

The entire PHA exploration program would result in cumulative impacts on Category 3 species due to the additional surface disturbances and additional potential to displace Category 3 species. The cumulative impact would result that Category 3 species would be displaced to areas outside the PHA property rather than solely outside the Project Area from direct/indirect impacts. A cumulatively greater amount of lost foraging opportunities for Category 3 birds would occur. The Black Bear Resort and the Gateway West Transmission projects would not substantively contribute to cumulative impacts because these other actions are not likely to occur during the implementation period of Alternative 1. Geotechnical drilling activities conducted in the next few years along the Gateway West alignment would have additional impacts on Category 3 species. Because of the environmental protection measures contained in the proposed action, there are not expected to be any long-term effects to wildlife and fish resources (see Sections 2.3.4, 2.3.5, and 2.3.7). Therefore, the proposed action would not add any additional impacts.

4.1.3.5 Water Quality

Alternative 1 – Proposed Action

The CIAA for water quality is the same as established for fish (Bloomington Creek Watershed). No impact to Paris Creek is expected, because no direct connection to Paris Creek exists. Minor temporary impacts to water quality to Bloomington Creek are anticipated due to withdrawals of up to 12,000 gallons per day for drilling activities. No changes to the current beneficial use designations of Bloomington Creek would occur. Because of the environmental protection measures contained in the proposed action, there are not expected to be any long-term effects to water quality (see Section 2.3.5). Therefore, the proposed action would not add any additional impacts.

5.0 Consultation and Coordination

5.1 Persons and Agencies Consulted

The following agencies/tribes were consulted on this proposal:

- Idaho Department of Fish and Game
- Idaho Department of Water Resources
- Idaho Department of Environmental Quality
- Shoshone-Bannock Tribe
- Northwestern Band, Shoshone

5.2 List of Preparers and Reviewers

- Jeffrey Cundick, Mining Engineer, Pocatello Field Office, BLM
- Bryce Anderson, Geologist, Pocatello Field Office, BLM
- Amy Lapp, Archaeologist, Pocatello Field Office, BLM
- Heather Worley, Botanist/Forestry Technician, Pocatello Field Office, BLM
- James Kumm, Biologist, Pocatello Field Office, BLM
- W. Eric Limbach, Range Management Specialist, Pocatello Field Office, BLM
- William Napier, PHA
- James Geyer, Vice President, PHA
- Michelle Stone, PhD P. Geo, Vice President, PHA
- Jeff Johnson, P.G, Vice President, Brown and Caldwell
- Tricia LaRue, NEPA Specialist, Brown and Caldwell
- Chris Reichard, Biologist, Brown and Caldwell
- J. Bryan Mason, Archeologist, Brown and Caldwell
- Todd Glindeman, Water Resource Specialist, Brown and Caldwell

/s/ Jeffrey G. Cundick
NEPA Reviewer

8/01/2011
Date

6.0 References

- AMEC Americas Limited (AMEC). 2008.
- . 2010. *National Instrument 43-101 Technical Report Paris Hills Phosphate Project* for Paris Hills Agricom Inc. Submitted 01 February 2010.
- Bureau of Land Management (BLM). 1988. 1988 Pocatello Resource Management Plan. Located at: Idaho. http://www.blm.gov/id/st/en/fo/pocatello/planning/1988_pocatello_rmp.html. Accessed November 09, 2010.
- . 2003. Idaho Bureau of Land Management (BLM) Sensitive Species List. Instruction Memorandum No. ID-2003-057. May 20.
- . 2008. National Environmental Policy Act Handbook H-1790-1. January 2008.
- . 2009a. Pygmy Rabbit High Confidence Core Areas in Idaho, Raster Dataset – Grid – pygrabbit_blm. U.S. Bureau of Land Management, Idaho State Office. Public Release on the Internet December 2, 2009. Data located at: <http://cloud.insideidaho.org/webApps/util/zip.ashx?fn=http://cloud.insideidaho.org/data/blm/pygmyRabbit>
- . 2009b. 2009 Sage-grouse Habitat. GIS Shapefile. Published to the Interactive Numeric & Spatial Information Data Engine by the Bureau of Land Management, Idaho State Office, Branch of Resources and Science. March 1, 2008.
- . 2010a. National Landscape and Conservation System Wild and Scenic Rivers last updated 5-4-10. Located at: http://www.blm.gov/id/st/en/prog/blm_special_areas/Idaho_WSRs.html. Accessed November 09, 2010.
- . 2010b. National Landscape and Conservation System Wilderness Areas and Wilderness Study Areas last updated 9-8-10. Located at: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Law_Enforcement/nlcs/online_electronic/maps.Par.96225.File.dat/nlcs_ae_07-2010_6_letter_wsa-wa.jpg. Accessed November 09, 2010.
- . 2010c. Pocatello Resource Management Plan and Final EIS. Last updated 05-07-10. Located at: http://www.blm.gov/id/st/en/fo/pocatello/planning/pocatello_resource.html. Accessed November 09, 2010.
- . 2010d. Wild Horses and Burros. Last updated 9-21-10. Located at: http://www.blm.gov/id/st/en/fo/jarbridge/wild_horses.html. Accessed November 09, 2010.
- . 2011. Paris Hills Exploration Drilling Project 2011 Request for Comments. NEPA Register Number DOI-BLM-ID-1020-2011-0018-EA. Located at: <https://www.blm.gov/epl-front-office/projects/nepa/10302/17650/17850/ScopingDocument.pdf>. Accessed January 12, 2011.
- . 2011. Worm Creek WSA. Last updated July 19, 2010. Located at: http://www.blm.gov/id/st/en/fo/pocatello/special_areas/wilderness_study_areas/Worm.html. Access July 11, 2011.
- Caribou/Targhee National Forest. 2004. Idaho Forests Practices Act – Timber Sales Best Management Practices Reviews Summary 1990-2004.
- Clements, L. J., and H. S. Forbush, eds. 1970. *History of Teton Valley, Idaho*, by B.W. Driggs. Eastern Idaho Publishing Company, Rexburg, Idaho.
- Connelly, John W. Kerry P. Reese, Michael A. Schroeder. 2003. Monitoring of Greater Sage-grouse Habitats and Populations. University of Idaho, College of Natural Resources Experiment Station. Station Bulletin 80. October 2003.
- Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

- Council on Environmental Quality (CEQ). 1997. Considering Cumulative Effects under the National Environmental Policy Act. January 1997.
- Federal Emergency Management Agency (FEMA). 1984. Flood Insurance Rate Map for City of Paris, Idaho Bear Lake County. Panel number 160183 0005B Effective Date September 24, 1984. Accessed November 09, 2010.
- Goodyear, A. C. 1979. A hypothesis for the use of cryptocrystalline raw materials among Paleo-Indian groups of North America. Research Manuscript Series 156. South Carolina Institute of Archaeology and Anthropology, Columbia, South Carolina.
- Hamilton, Ronald C. 1993. *Characteristics of Old-Growth Forests in the Rocky Mountain Region*. U.S.D.A Forest Service, Intermountain Region, Ogden, Utah. 86 pages.
- Idaho Administrative Procedures Act (IDAPA). 2010. IDAPA 58.01.02 Water Quality Standards.
- Idaho Department of Environmental Quality (IDEQ). 2008. Bear Lake Subbasin TMDL Implementation Plan for Agriculture.
- . 2009. Department of Environmental Quality Working Principles and Policies for the 2008 Integrated (303[d]/305[b]) Report. May 22, 2009. IDEQ. 2010. Surface Water: Water Quality Standards. Located at http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/standards.cfm#elements. Accessed on November 11, 2010.
- . 2007a. Bloomington Canyon Mine Preliminary Assessment Report. Prepared for EPA. Submitted October 2007.
- . 2007b. Consolidated Mine Preliminary Assessment Report. Prepared for EPA. Submitted September 2007.
- . 2007c. Paris Canyon Mine Preliminary Assessment Report. Prepared for EPA. Submitted November 2007.
- Idaho Department of Fish and Game (IDFG). 2005. Idaho Comprehensive Wildlife Conservation Strategy – Appendix F: Species Accounts and Distribution Maps for Idaho Species of Greatest Conservation Need. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. Located at: <http://fishandgame.idaho.gov/cms/tech/CDC/cwcs.cfm>.
- . 2011. Idaho Fish and Wildlife Information System (IFWIS) database search results for the proposed action. GIS data received from IFWIS on January 31, 2011.
- Idaho Department of Lands, State of (IDL). 1992. Best Management Practices for Mining in Idaho. Published November 16, 1992. Located at: http://www.idl.idaho.gov/bureau/Minerals/bmp_manual1992/bmp_index.htm Accessed October 22, 2010.
- Idaho Sage-grouse Advisory Committee (ISAC). 2006. Conservation Plan for the Greater Sage-grouse in Idaho.
- Kappler, C. 1941. Un-ratified Indian Treaties of the United States. Government Printing Office. Washington.
- Klamath National Forest. 2001. Best Management Practices, Region 5 Evaluation Program Water Quality Monitoring Report, 2001.
- Letourneau, P. D. 1992. Folsom raw material use on the southern plains. Paper presented at the 57th annual meeting of the Society for American Archaeology, Pittsburgh, Pennsylvania.
- Manning, A., and S. Deaver. 1992. Ethnohistoric (aboriginal) resources. Pp. 4-1 – 4-32 in American Falls Reservoir Class I Inventory, vol.1 (draft), eds. J. S. Bruder, S. E. Burke, and D. L. Douglas. Research Paper no. 1. Dames and Moore Intermountain Cultural Resource Services, Boise, Idaho.
- Morefield, D. James. 1996. *Current Knowledge and Conservation Status of Eriogonum lewisii Reveal (Polygonaceae), the Lewis buckwheat*. Nevada Natural Heritage Program, Department of Conservation and Natural Resources. September.
- Murphy, R. F., and Y. Murphy. 1986. "Northern Shoshone and Bannock." Pp. 284-307 in *Handbook of Native American Indians: Great Basin*, eds. W. D'Azevedo and W. C. Sturtevant. Smithsonian Institution, Washington, DC.

- Natural Resources Conservation Service (NRCS). 2007. Climate Narrative for Bear Lake County, Idaho.
- . 2010. Bear Lake County Soil Survey. Accessible online at:
http://websoilsurvey.sc.egov.usda.gov/wssproduct/etqke055bveeff4540lqxive/PV_00001/Soil_Map-Bear_Lake_County_Area_Idaho.pdf Accessed October 26, 2010.
- Poulsen, Mitch. 2011. Email correspondence regarding the Black Bear Resort subdivision with Chris Reichard of Brown and Caldwell. February 2011.
- Recreation.gov. 2010. Recreation Site Map. Located at:
http://www.recreation.gov/camping/map_of_Idaho/r/generateBrowseMapRecGov.do?topTabIndex=CampgroundMap&stateCode=ID&zoom=7&map=BROWSE&long=-115.5&lat=45.25. Accessed November 09, 2010.
- State of Idaho Department of Administration. 2009. Department of Water Resources. Well Construction Standards Rules. <http://adm.idaho.gov/adminrules/rules/idapa37/0309.pdf> Accessed October 29, 2010.
- U.S. Census Bureau. 2000a. P8. Hispanic or Latino by Race. Data Set: Census 2000 Summary File 1.
- . 2000b. P53. Median Household Income in 1999 (Dollars). Data Set: Census 2000 Summary File 3.
- United States Fish and Wildlife Service. 2010. Idaho's Endangered, Threatened, Proposed and Candidate Species (With Associated Proposed and Critical Habitats) Under the Jurisdiction of the Fish and Wildlife Service. December 13.
- . 2000. A History of Phosphate Mining in Southeastern Idaho.
- . 2011. Wildlife and Habitat description for the Bear Lake National Wildlife Refuge. Accessed 2-14-2011. Available at: <http://www.fws.gov/bearlake/wildlife.html>.
- United States Geological Survey. 2011. Historic stream gauge data for Bloomington Creek: USGS 10058600 Bloomington Creek at Bloomington, ID. Accessed March 2, 2011. Available at:
http://waterdata.usgs.gov/nwis/dv?cb_00060=on&format=gif_default&begin_date=1960-10-01&end_date=2011-03-01&site_no=10058600&referred_module=sw.
- University of Idaho, Landscape Dynamics Lab. 1998. Idaho Land Cover Classification GIS data. September 21, 1998.
- Western Regional Climate Center, 2007. Lifton Pumping Station, Idaho (105275) and Conda, Idaho (102071).

Appendix A: Paris Hills Exploration Drilling Plan 2011



Stonegate Agricom Ltd
401 Bay Street, Suite 2010
PO Box 118, Toronto, ON
CANADA M5H 2Y4
Tel: 416-864-0303

July 19, 2011

Mr. Dave Pacioretty
Field Manager
Pocatello Field Office
4350 Cliffs Drive
Pocatello, Idaho 83204

RE: Paris Hills Agricom: 2011 Exploration Program – Additional Environmental Protection Mitigation Measures

Dear Mr. Pacioretty,

Stonegate Agricom Ltd, - Paris Hills Agricom (PHA) Inc., has made an application to the Bureau of Land Management (BLM) for a phosphate prospecting permit (IDI-36773), exploration license (IDI-37055), and approval to conduct exploration activities on Federal Phosphate Lease IDI-0012982. PHA proposes to prospect for phosphate and associated minerals using exploration drilling on a small, federally owned phosphate deposit known to exist under privately owned surface located within the Paris Hills Property approximately 2 miles west of the towns of Paris and Bloomington.

The Paris Hills Exploration Drilling Plan (2011) was submitted on October 29, 2010 with the following environmental protection measures included as part of the plan:

Surface water, storm water management and soil erosion

All surface water runoff will be managed under the Storm Water Pollution Prevention Plan (“SWPPP”) which is regulated by the US Environmental Protection Agency (“EPA”). Surface water runoff from either the drilling process or precipitation will be managed using the guidelines described in the Best Management Practices (“BMPs”) for Mining in Idaho (Idaho Department of Lands, 1992) such as silt fencing, straw wattles, water bars and rolling dips. These BMPs will be used on new construction areas and field fit based on topography, landscape and the vicinity to surface water as deemed necessary.

All drilling sites will be constructed with a sump to control drill cuttings and fluids. The size and specific location of the sumps will be determined in field in order to make the best use of the existing landscape and topography to minimize environmental and stability risks. Drilling fluids will contain sediments from the drill cuttings as well as the non-polluting lubricating foam, bentonite and/or polymer used by the drilling contractor. The lubricating foam will be non-toxic and biodegradable and polymers, if needed, will be non-toxic.

Groundwater

No drinking water wells are known to be located within or in the near vicinity of the 2011 exploration area. The two potential risks to groundwater include infiltration of drilling fluids to groundwater, and drill holes which could create a preferential pathway of groundwater flow from surface water. The drilling fluids at the site are of insufficient volume and material to likely carry a significant threat to groundwater. The foreign materials within these fluids are non-toxic and drill holes will be plugged upon completion.

Isolation and Control of Toxic or Deleterious Materials, and Noxious Weeds

Potential contaminants from the exploration drilling site includes; diesel, oil, grease, lubricants, and solvents. To facilitate immediate reaction to any spill of toxic or deleterious materials on site, a spill containment kit will be stored and available in the core logging facility on site. Berms will be placed around each drill site to aid in runoff control. As a routine practice at the end of drilling operations each day, all containers or sources of toxic or deleterious materials will be closed, covered and/or put away and safely stored while the drilling crew is absent in order to prevent potential exposure to wildlife or livestock. All trash will be removed from the site and disposed of in a proper garbage receptacle. Vehicles will be adequately cleaned to prevent spread of noxious weeds prior to entering the exploration area. If noxious weeds are identified or suspected, Stonegate will contact the county weed superintendent and with the permission of the land owners, spray herbicides over on the impacted area.

Fire

Stonegate vehicles and drilling contractors' vehicles will be equipped with fire extinguishers at all times. Additionally, any welding necessary on site will take place on the drill pad that has been cleared of vegetation. As the drilling process requires water, 700 to 1,500 gallons of water will be on a drill site at any particular time. This will also be available to extinguish fires.

Air Pollution

Air quality in the area of the proposed 2011 exploration area is generally excellent. Significant air quality concerns or impacts are not anticipated from the drilling project. Potential air contaminants may include dust off of the roads and drilling pads, and exhaust from the vehicles and drilling rigs. Neither dust nor exhaust impacts are anticipated to reach the Property boundaries.

Damage to Fish or Wildlife or Other Natural Resources

Species of wildlife that currently reside in the 2011 exploration area may be temporarily displaced while exploration activities occur. As exploration activities will only occur in a small area at any given time, this disruption will be small in scale and short in time. The area surrounding the exploration site is adequately sized to absorb any animals that are displaced from exploration activities, and it is expected that wildlife will return shortly after activities are completed.

Subsidence

All drill holes will be plugged according to State of Idaho regulations "Well Construction Standard Rules" (IDAPA 37.03.09). Drill holes will be plugged with bentonite from the bottom to the surface.

Hazards to Public Safety

Signs will be used to warn the public of hazards with respect to active truck traffic. Locations for such signs will be at the access points to the project area (eg: E Canyon St and Cemetery Road, Bloomington). Unauthorized personnel will not be allowed within the active drilling area. All drilling equipment will be shut down, secured and locked out during off shift or non-operating times.

Drill Hole Plugging and Abandonment

All drill holes will be plugged according to State of Idaho regulations "Well Construction Standard Rules" (IDAPA 37.03.09). Drill holes will be plugged with bentonite from the bottom to the surface.

Regrading, Reshaping and Seeding

New roads, drill pads and sumps will be reshaped to conform to the natural topography at the completion of the proposed drilling project using any soil removed during clearing, unless otherwise approved by the managing agency. This work will be designed to minimize erosion and increase the likelihood of seedling success which will take place in 2011 and possibly 2012 depending on the initial results of the drilling. Disturbed areas will be re-seeded in 2011 and/or 2012 with mix approved by the Idaho Department of Lands as outlined in the BMPs Guide for Mining in Idaho.

The BLM, Pocatello Field Office, is conducting an environmental assessment (EA) according to mandates of the National Environmental Policy Act (NEPA). The attached mitigation measures which are listed in the EA will be incorporated and implemented with the Paris Hills Exploration Plan 2011 to ensure the protection of resources. In addition, Paris Hills Agricom has met with Idaho Fish and Game and has developed a protocol for sage grouse which will be incorporated and implemented with the Paris Hills Exploration Plan 2011.

Please feel free to contact myself if you have any further questions, comments, or concerns at (509) 499-6535.

Sincerely,

William Napier

for
James Geyer
Vice President Exploration

Enclosed: Paris Hills Exploration Drilling Environmental Assessment Environmental Protection Measures/Mitigation; PHA Sage Grouse Protocol

cc: Jeff Cundick, BLM
Bryce Anderson, BLM



May 6, 2011

Paris Hills Agricom Incorporated has been actively working to reduce the project impact upon wildlife. Drill sites have been moved to avoid favorable habitat, work schedules have been modified to reduce impact upon game.

In a meeting with Jim Mende, of the Idaho Fish and Wildlife Service May 5, 2011 Jim provided the following information:

- Sage grouse are a species of concern – they are not on the endangered species list.
- There are no regulations regarding treatment of the sage grouse.
- Any actions PHA may take regarding the sage grouse are voluntary.
- Leks are areas sage grouse utilize for mating rituals.
- There has been one lek identified on the northwest boundary area of the BLM land that PHA is in the process of applying for permit to drill.
- Grouse tend to utilize the same areas for leks year to year.
- Sage grouse mating displays tend to be most active at dawn and dusk.
- At the PHA project location/elevation sage grouse mating activities will run to mid-May.

Mr. Mende recommended the following:

- Identify lek locations (Brown and Caldwell are surveying the property beginning Sunday, May 8.
- Give lek locations a good deal of space – try to keep drilling operations out of line of sight and far enough away from the lek that sound is not a concern.
- Conduct operations at hours that will not disturb mating rituals.

Paris Hills Agricom protocols regarding sage grouse:

The 2011 drilling campaign was reinitiated mid April following the thaw and runoff that had caused a cessation of activities March 9. The drill has been operated with one shift in an effort to reduce impact on the sage grouse. The drill shifts have been run from 6 AM to 6 PM.

Given the recommendations by IFWS we will adjust the drill shifts to be two shifts – day shifts will run 8 AM to 6 PM and night shifts will be from 9 PM to ½ hour before sunrise. These hours will give the sage grouse the hours they favor for mating activities and allow the company to ramp up drill production until May 15 when drilling will resume the 24/7 schedule with two drill shifts.



PARIS HILLS

A G R I C O M I N C.

Drills will be located as to give identified leks good clearance – out of line of sight over a ridge or ½ mile if possible. Where this is difficult to accomplish an artificial barrier may be utilized (dirt berm or straw bale wall).

Mr. Mende recommended the areas around leks be avoided after the mating season is over as these areas are utilized for nesting and brooding activity. Paris Hills Agricom will move the drill to areas with no lek activity during this time if possible.

1.1 Environmental Protection Measures/Mitigation

1.1.1 Cultural Resources

Per BLM standard procedures and pursuant to 43 Code of Federal Regulations (CFR) 10.4(b), if any unidentified cultural resources are discovered during proposed activities, operations in the immediate area of the discovery would be halted. The discovery would be reported to the BLM, and the BLM or its authorized representatives would be allowed to document and evaluate the discovery and, if appropriate, would be allowed time for the determination and implementation of actions necessary to prevent or mitigate the loss of important cultural values in consultation with the Idaho State Historic Preservation Office (SHPO).

1.1.2 Damage to Fish or Wildlife or Other Natural Resources

The following measures would be implemented to minimize impacts to sage grouse and suitable habitat.

- Road alignments would be optimized to decrease disturbance;
- If feasible, road construction/clearing activities would be initiated post-May 31st;
- Overland travel and use of pre-existing access roads would be used where feasible;
- A seed mix with native grasses and forbs would be developed and used for disturbed areas; and
- Applicable conservation measures taken from the Idaho Sage-grouse Advisory Committee (ISAC; 2006) would be implemented and adhered to. These include:
 - Infrastructure conservation measures described in Section 4.3.2.3 of the Idaho Sage-grouse Conservation Plan, which calls for avoidance of inspections, maintenance work, and related human activities between 6 p.m. and 9 a.m. within 0.6 mile of active leks and 2 miles from occupied leks between March 25 and May 15 at higher elevations;
 - Human disturbance conservation measures described in Section 4.3.5.3 of the Idaho Sage-grouse Conservation Plan, which calls for avoidance of project-related work between 6 p.m. and 9 a.m. within 0.6 mile of active leks and 2 miles of occupied leks between March 25 and May 15 at higher elevations; and,
 - Mines, landfills, and gravel pits conservation measures described in Section 4.3.18 of the Idaho Sage-grouse Conservation Plan, which calls for ensuring that an appropriate seed mix (see Environmental Protection Measure [EPM] 2.3.11 below, developed specifically for sage grouse habitat) is used for reclamation of sage grouse habitat and that adequate measures are employed to control invasive and noxious weeds (see EPM 2.3.4).

To avoid impacts to migratory birds and their nesting, ground clearing of vegetation for road and drill pad construction would generally be completed before or after the nesting period (approximately May 15th to August 15th). BLM may grant exceptions to this if erosion, sedimentation, weed infestation, important timing conflicts, or other unacceptable impacts would occur. If an exception is granted, the following bird survey would be required and additional mitigation measures would apply.

A survey of the proposed drill pad locations and access roads would be conducted by a BLM-approved biologist to identify if there are any migratory bird nests within the proposed impacted areas (as defined in the approved exploration drill plan). If no migratory bird nests are found within the proposed impacted areas, then construction activities can proceed.

If migratory bird nest(s) are found within the proposed impacted areas, the location of the proposed drill pad or road would be adjusted in order to minimize the impacts to the nest(s). Adjustments to the road alignment or pad locations would be made to the extent practicable as determined by the authorized officer. BLM would require application of additional measures for given timeframes that may include:

- Minimizing the number of equipment trips through a nesting area.
- Working during daylight hours only.
- Maintaining a nesting buffer distance for disturbance activities of at least 1,000 ft from raptor or owl nest(s) and 200 ft from all other migratory bird nest(s). These distances may be lessened if safety or other site-specific conditions warrant and the BLM feels the reduced buffer distance would not affect nesting activities; however, the buffer distance should be no less than 100 ft.

The Seasonal Wildlife Restrictions and Procedures for Processing Requests for Exceptions on Public Lands in Idaho (BLM, 2010c) and the Seasonal Restrictions for Wildlife/Raptor Activities/Habitat (BLM, 2010c) would be followed. Where there are conflicts among restrictions, BLM would be consulted prior to initiation of construction activities.

To minimize impacts to big game winter areas, exploration or construction activities would not be allowed from November 15 to May 31. Exceptions to this limitation in any year may be specifically authorized in writing by the Authorized Office of the BLM.

Drilling fluid sumps have the potential to trap wildlife, especially small animals. Though the fluids are non-toxic, wildlife could become stuck in the sumps while they remain open. PHA has added a mitigation measure, discussed below, to address this issue:

"As indicated in Appendix D of the 2010 Proposed RMP, BLM has instituted restrictions on activities within 50 ft of ephemeral streams such as Little Canyon. Under Alternative 1, the proposed drill sites near Little Canyon are set back more than 50 ft from the channel."

1.1.3 Isolation and Control of Toxic or Deleterious Materials

Potential contaminants from the exploration drilling sites include: diesel, oil, grease, lubricants, and solvents. To facilitate immediate reaction to any spill of toxic or deleterious materials on site, a spill containment kit would be stored and available in the core logging facility on site. A spill plan will be prepared and available on site. Berms would be placed around each drill site to aid in runoff control.

Any spills would be reported by PHA staff/contractors to the BLM, the Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality (IDEQ). If necessary, soil remediation would be conducted and would include removal of contaminated soils to an approved bioremediation facility, and soil sample(s) would be taken to verify the success of the site remediation. In addition, the construction contractor would be required to follow any other local, state, or federal regulations related to using, handling, storing, transporting, and disposing of hazardous materials.

As a routine practice at the end of drilling operations each day, all containers or sources of toxic or deleterious materials would be closed, covered, and/or put away and safely stored while the drilling crew is absent in order to prevent potential exposure to wildlife or livestock.

All trash would be removed from the site and disposed of in a proper garbage receptacle. The proposed action would not generate or dispose of any hazardous waste as defined by Comprehensive Environmental, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 United States Code 9601 et seq.

1.1.4 Noxious Weeds

Noxious weeds would be controlled within new disturbance areas or re-disturbed areas such as access roads and drill sites. Special attention would be given to roadways and areas where vehicles and other equipment would be parked. Vehicles would be adequately cleaned to prevent spread of noxious weeds prior to entering the proposed drilling exploration area. PHA and BLM inspectors would visually monitor the growth of noxious weeds. If noxious weeds are identified or suspected, PHA will apply herbicides according to current BLM policy to prevent the growth and spread of noxious weeds. If needed, PHA can seek consultation for proper noxious weed control techniques from both the BLM and the Bear Lake County Weed Superintendent.

1.1.5 Surface Water, Stormwater Management, and Soil Erosion

All surface water runoff would be managed under the Stormwater Pollution Prevention Plan (SWPPP) which is regulated by the EPA. Surface water runoff from either the exploration drilling process or precipitation would be managed using the guidelines described in the Best Management Practices (BMPs) for Mining in Idaho (IDL, 1992) such as silt fencing, straw wattles, waterbars, and rolling dips. These BMPs would be used within new construction areas and field fit based on topography, landscape, and the vicinity to surface water as deemed necessary.

All drilling sites would be constructed with a sump to control drill cuttings and fluids. The average sump dimensions are 2.5 ft wide, 14 ft long, and 3 ft deep; however, the size and specific location of the sumps would be determined in the field in order to minimize environmental and stability risks by utilizing the existing landscape and topography. Drilling fluids would contain sediments from the drill cuttings as well as the non-polluting lubricating foam, bentonite mud, and/or polymer additives used by the drilling contractor. The lubricating foam would be non-toxic and biodegradable, and polymers, if needed, would be also be non-toxic.

Drillers, helpers, and PHA contractors and employees have been requested to observe sumps and report issues. If sumps approach their capacity as a result of freezing water and excessive runoff, either additional sumps are prepared or the drill is shutdown.

The following BMPs which are designated to help minimize erosion and sediment transport (refer to the specific purpose of each BMP in Sections I through V of the 1992 IDL BMPs).

- I.2 Erosion Control Blanket: temporary treatment for soil stabilization consisting of commercially made matting used for erosion control and slope stabilization. Made of jute or straw and plastic netting. May be used on and adjacent to roadways and drill pads.
- I.3 Mulch-Straw: temporary treatment for soil stabilization lasting 1 to 2 years. The straw would deteriorate without detrimental effects on plant growth or plant

establishment. May be used on and adjacent to roadways and drill pads. If straw is used, it would need to conform with other BMPs pertaining to noxious weed mitigation, appropriate seed mix, etc.

- I.4 Mulch-Wood Chips: temporary treatment for soil stabilization consisting of a temporary mulch of small-sized wood chips made from the trunks and branches of trees. May be used on and adjacent to roadways and drill pads.
- I.5 Biotechnical Stabilization: method of controlling erosion, minimizing the potential for mass failure of slopes. May be utilized on especially steep-cut slopes adjacent to roadways.
- II.1 Topsoiling: BMP for seeding and revegetation consisting of placement of topsoil over a prepared subsoil for the purpose of enhancing revegetation conditions. Topsoil would be stockpiled adjacent to a drill pad or other suitable location and utilized when road construction occurs.
- II.3 General Planting and Seeding Specifications: BMP applicable to revegetating disturbed lands and would be utilized, as appropriate, in consultation with BLM and the current surface owner.
- II.4 Broadcast Seeding: BMP consisting of scattering seed over the surface of the soil. This seeding method is most useful on small sites, for repairing damage, or for very large, low-angle rock areas and would be utilized as appropriate.
- III.1 Diversion Ditch/Dike: a runoff interceptor built to divert surface water away from un-vegetated areas on the adjacent vegetated ground. May be utilized when grades are in excess of 2 percent or where larger drainage flows may be anticipated.
- III.2 Interceptor Trench: a trench built along the contour of a slope to store and/or divert surface runoff. May be utilized to carry surface runoff from slopes at 3:1 or less.
- III.4 Siltation Berm: impermeable barrier placed around a disturbed site to capture and contain surface runoff so the sediment can be filtered prior to discharging the water. May be utilized on the downslope side of disturbed ground.
- III.5 Waterbars: reduce erosion by diverting runoff away from the temporary road surface. Would be utilized as appropriate on all temporary roads.
- III.10 Rolling Dips: BMP with the same intent as waterbars, designed to divert surface runoff from road surfaces. Use would be dictated by the slope of the temporary road. Upgrade approach varies: 85 ft for 6 to 8 percent, 75 ft for 4 to 6 percent, and 65 ft for 0 to 4 percent slopes. Downgrade distances are 15 ft, 25 ft, and 35 ft respectively.
- III.11 Road Sloping: temporary roads would be out-sloped by 1 to 2 percent from the cut slope. On steep slopes, this BMP would not be utilized due to safety concerns related to vehicular travel. Instead, roads would be in-sloped.
- III.12 Roadway Surface Water Deflectors: BMP consisting of a runoff interceptor built of treated wood and conveyor belt. May be utilized on grades in excess of 6 percent.
- V.1 Straw Bale Barriers: used as a temporary berm, diversion, or barrier to help contain sediment on-site by catching and filtering runoff. May be used across small swales, in ditches, and at the toe of bare slopes where there may be a temporary, large volume of sediment-laden runoff.

- V.2 Sediment Traps: temporary or permanent structures intended to catch and store sediment-laden surface runoff. May be utilized at the outflow of culverts, waterbars, and rolling dips.
- V.3 Vegetated Buffer Strip: vegetated ground can serve as a permanent or temporary trap to catch and hold sediment from runoff water flowing across it. May be utilized at construction locations wherever increased protection from stormwater and snow melt are required.
- V.4 Silt Fence/Filter Fence: low fence made of filter fabric, wire, and steel posts used to filter sediment out of runoff water before it is discharged. May be utilized where a potential for sediment laden runoff caused by human-made surface disturbance to be discharged.
- V.5 Brush Sediment Barrier: barrier constructed of brush or brush and filter fabric that serves as a sediment trap if runoff water is diverted through it. Brush sediment traps can be an effective permanent or temporary erosion control structure. May be utilized below any substantial surface disturbance.
- V.7 Slash Filter Windrow: designed to catch and trap sediment coming off un-vegetated ground. May be utilized to catch and retain sediment along road fill slopes adjacent to bare ground in steep terrain.

1.1.6 Groundwater

There are no drinking water wells located within the application area. Two potential risks to groundwater include infiltration of drilling fluids to groundwater and drill holes which could create a preferential pathway of groundwater flow from surface water.

The drilling fluids utilized at each drill site are of insufficient volume and are unlikely to carry any threat to groundwater. Drilling fluids would consist of water or water with non-toxic lubricating foam, bentonite mud, and/or polymers as additives. Drill holes would be abandoned according to State of Idaho Regulations "Well Construction Standards Rules" (Idaho Administrative Procedures Act [IDAPA] 37.03.09) to minimize risk to groundwater. Drill holes would be plugged with bentonite from the bottom to the surface. Proper abandonment will also prevent water migration from surface to groundwater.

1.1.7 Fire

PHA and its contractors would take all reasonable precautions to prevent, control, or suppress fire at the site. Vehicles would be equipped with fire extinguishers at all times. Additionally, any welding necessary on-site would take place on the drill pad that has been cleared of vegetation. As the drilling process requires water, 700 to 1,500 gallons of water would be available at a drill site at any particular time. This water would also be available to extinguish fires.

1.1.8 Air Pollution

Air quality in the Project Area is generally excellent. Substantial air quality concerns or impacts are not anticipated from the proposed exploration drilling activities. Potential air contaminants may include dust off of the roads and drilling pads and exhaust from the vehicles and drilling rigs. If at any given time during the proposed action excessive dust is created, PHA would initiate dust abatement measures including watering of proposed access roads to minimize dust creation. Neither dust nor exhaust impacts are anticipated to reach the Paris Hills Property

boundaries. It is not anticipated that there would be a cumulative impact on air quality in the area due to the short-term and temporary nature of the 2011—2012 exploration drilling activities.

1.1.9 Subsidence

All drill holes would be plugged according to State of Idaho regulations “Well Construction Standards Rules” (IDAPA 37.03.09). Drill holes would be plugged with bentonite from the bottom to the surface. There are no underground mining operations in the proposed 2011—2012 exploration drilling activities. Therefore, ground subsidence is not anticipated.

1.1.10 Hazards to Public Safety

Signs would be used to notify the public of hazards with respect to active truck traffic. Locations for such signs would be at the public access entries points to the Project Area (e.g., East Canyon Street and Cemetery Road and in Bloomington).

Unauthorized personnel would not be allowed within the active exploration drilling area. All drilling equipment would be shut down, secured, and locked out during off-shift or non-operating times.

1.1.11 Reclamation/Regrading, Reshaping, and Seeding

Proposed new access roads, drill pads, and sumps would be reshaped to conform to the natural topography at the completion of the 2011—2012 exploration drilling activities using any soil removed during clearing, unless otherwise approved by the BLM. This work would be designed to minimize erosion and increase the likelihood of seedling success, which would take place in 2011 and possibly 2012, depending on the initial results of the exploratory drilling.

The disturbed areas would be re-seeded in 2011 and/or 2012 with a seed mix approved by the IDL and determined by BLM as beneficial to sage grouse as outlined in the BMPs Guide for Mining in Idaho (IDL, 1992). The disturbed areas would be seeded at a rate of approximately 40 pounds/acre utilizing standard methods. All seeding and fertilizing would be done in the late fall. The use of fertilizer may be utilized for native plant species in areas where soil is particularly degraded or deficient in nutrients (IDL, 1992 p. 66). The proposed exploration area occupies the Upper Mountain elevations with respect to precipitation. A possible seed mix appropriate for the area is provided in Table 2. All species listed in Table 2 are perennial species, except for Quickguard, which is a sterile, annual wheatgrass used to rapidly stabilize disturbed areas.

Table 2. Potential Seed Mix	
Percent/Pound	Name
10.0	Great Basin Wildrye
7.5	Bluebunch Wheatgrass
9.0	Western Wheatgrass
10.0	Mountain Brome
1.5	Rocky Mountain Penstemon
3.5	Alfalfa*
2.5	Lewis Blue Flax
1.0	Orchardgrass
0.6	Timothy
6.0	Pubescent Wheatgrass
10.0	Small Burnet
2.5	Kentucky Bluegrass
0.5	Mountain Phlox
0.5	Big Bluegrass
10.5	Sainfoin
2.5	Showy Goldeneye
0.65	Wax Current
11.0	Antelope Bitterbrush
3.2	Woods Rose
0.5	Strawberry Clover
10.0	Quickguard
1.0	Sticky Purple Geranium
0.16	Sage Brush

*more of another component could be substituted for Alfalfa with approval from the IDL for this seed mix

Stormwater BMPs would be used where necessary to stabilize areas until the seeding can be effectively completed and seedlings have taken hold. This work would be conducted using a trackhoe and/or dozers, depending upon specific site conditions.

1.1.12 Drill Hole Plugging and Abandonment

As previously stated, all drill holes would be plugged according to State of Idaho regulations "Well Construction Standards Rules" (IDAPA 37.03.09). Drill holes would be plugged with bentonite from the bottom to the surface.

As exploration drilling is a method of subsurface discovery, several scenarios of conditions may be encountered and require alternative abandonment methods. According to the Well

Construction Standards Rule 10.66.c.i, exploration drill holes are not considered "wells." However, Rule 45.03 states that exploration drill holes must be decommissioned or abandoned according to well abandonment Rule 25.16.02. All grout and bentonite materials would meet the standards of such as per Rule 10.07.a and c and Rule 10.39. Plugging or sealing material not mentioned here may be used as an additional alternative in the future given authorization as per Rule 25.10 (State of Idaho Department of Administration, 2009).

Depending on ground conditions, water flow, and drill hole depth, one of three or a combination of methods would be used to seal and plug a particular hole. Abandonite, a high solids bentonite grout, would be used to abandon deeper holes using the Tremie method. The Tremie method includes grout being placed below the water level through the drill rods, the lower end of which are kept immersed in fresh grout so that the rising grout from the bottom displaces the water without washing out the grout content. Bentonite chips would be used in shallower holes where they can be poured and freefall down the hole. In drill holes where ground water is not encountered a 20-ft cap composed of a cement grout may be utilized to seal the hole.

1.1.13 Seasonal Closure

1. Prevention of Unnecessary or Undue Degradation.

Seasonal closure would include a variety of tasks prior to the winter months, including closure of the roads, removal of equipment and materials from the Project Area, and a final comprehensive BMP inspection and repair if necessary. Roads would be temporarily closed with waterbars at intervals necessary to stabilize them during the spring runoff.

2. Measures to Stabilize Excavations and Workings

All exploration drill holes would be plugged according to the Reclamation Plan section of this document. All drilling holes that have been drilled during the season would be plugged prior to seasonal closure.

3. Measures to Isolate or Control Toxic or Deleterious Materials

During periods of seasonal closure, all toxic or deleterious materials would be removed from the site. This includes oil, grease, lubricants, solvents, bentonite, and cement.

4. Storage and/or Removal of Equipment, Supplies, and Structures

During periods of seasonal closure, all equipment and supplies would be removed from the site. 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.

5. Monitoring Site Conditions During Periods of Non-Operations

A comprehensive annual inspection of all BMPs would be conducted at the close of the drilling season. This inspection would be designed to ensure that the BMPs are functioning and are of adequate maintenance to make it through the winter months and spring runoff. The roads would then be closed with waterbars as appropriate prior to closing the site for the winter. The winter closure of the site would render it inaccessible, and so a follow-up inspection would not take place until after the spring runoff is complete and the site is officially reopened. It is not PHA's intent to attempt to access the site during early spring due to the muddy conditions and likelihood of excessive disturbance that would take place to access it.

6. Schedule of Anticipated Periods of Temporary Closures

The drilling operations are expected to take place commencing in the late spring or as soon as approval has been granted and weather and ground conditions indicate that it is effective and safe to return to the site.

1.1.14 Unexpected Temporary Closure

If an unexpected temporary closure occurs that is anticipated to last more than 6 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 as described above in Item 5.

Paris Hills Exploration Drilling Plan 2011

Federal Land



Submitted to:

Tracy Cron, Bureau of Land Management
Bill Stout and Jeffery Cundick, Bureau of Land Management
Doug Tanner, Idaho Department of Environmental Quality
Al Ruberry and Pat Brown, Idaho Department of Lands
James Mende, Idaho Department of Fish and Game

October 29th, 2010

Submitted by:

Michelle Stone, Ph.D., P.Geol.
VP Exploration
Stonegate Agricom Ltd.
401 Bay Street, Suite 2010
PO Box 118, Toronto, ON
CANADA M5H 2Y4



Operator Information

Operator: Stonegate Agricom Ltd. on behalf of Paris Hills Agricom Inc.

Point of Contact: Michelle Stone

Mailing Address: 401 Bay Street, Suite 2010
PO Box 118, Toronto, ON
Canada M5H 2Y4

IDL Exploration Permits: TP-8175, TP-8176 and TP-8177

Insurance: Valid through the 28th of May 2011

Area Land Holders: attached with map



Introduction

Paris Hills Agricom Inc. ("PHA"), a wholly owned subsidiary of Stonegate Agricom Ltd. ("Stonegate") of Canada, has initiated an exploration program on their Paris Hills Property (the "Property") located in Bear Lake County, Idaho (approximately 2 miles west of the towns of Paris and Bloomington). The phase of drilling presented in this Exploration Plan, which will be completed on Federal Lands, is designed to confirm historic drill results and more confidently define potential phosphate resources on the Property. These resources have been recently described in a Technical Report on the Paris Hills Phosphate Project by AMEC in 2010. This report is available for electronic download from Stonegate's website: www.stonegateagricom.com.

Property Location and Access

The Project is located in Bear Lake County, Idaho, approximately 2 miles west of the towns of Paris and Bloomington (Figure 1). The Project encompasses all, or parts of, Sections 8, 9, 15, 16, 17, 21, and 22 in Township 14 South, Range 43 East ("T14S, R43E"), Boise Meridian ("B.M."), Bear Lake County. The total area of the Project is 2,114 acres (856 hectares).

The Property is situated in the eastern front of the Wasatch/Bear Lake Range and is accessed on Bloomington Canyon Road from Idaho State Highway 89. From these roads, access onto the Project site is gained via two-track unimproved trails, used primarily by ranchers to manage grazing of cattle.

The Project is located on the USGS Preston 1:100,000 scale topographic map and the USGS Paris 1:24,000 scale, 7.5 minute series quadrangle map. It is centered at latitude 42° 12' North and longitude 111° 25' West. The principal area of known mineralization on the Project property is located within the northern half of Section 21 and Section 16, Township 14 South, Range 43 East, B.M.

Tenure and Surface Rights

The Project's property and mineral leases encompass an area of approximately 2,114 acres. The Property consists of three patented lode mining claims and 16 contiguous fee parcels (some with federal mineral reservations) covering portions of Sections 8, 9, 15, 16, 17, 20, 21 and 22, T14S, R43E. A complete listing of all patented mining claims and fee parcels acquired under the Paris agreement with Rocky Mountain Resources Corp., dated September 24, 2009, is provided

in Table 1. Codes used in Table 1 are summarized in Tables 2 and 3. Three exploration permits have been obtained by PHA from the Idaho Department of Lands as referenced in Table 1.

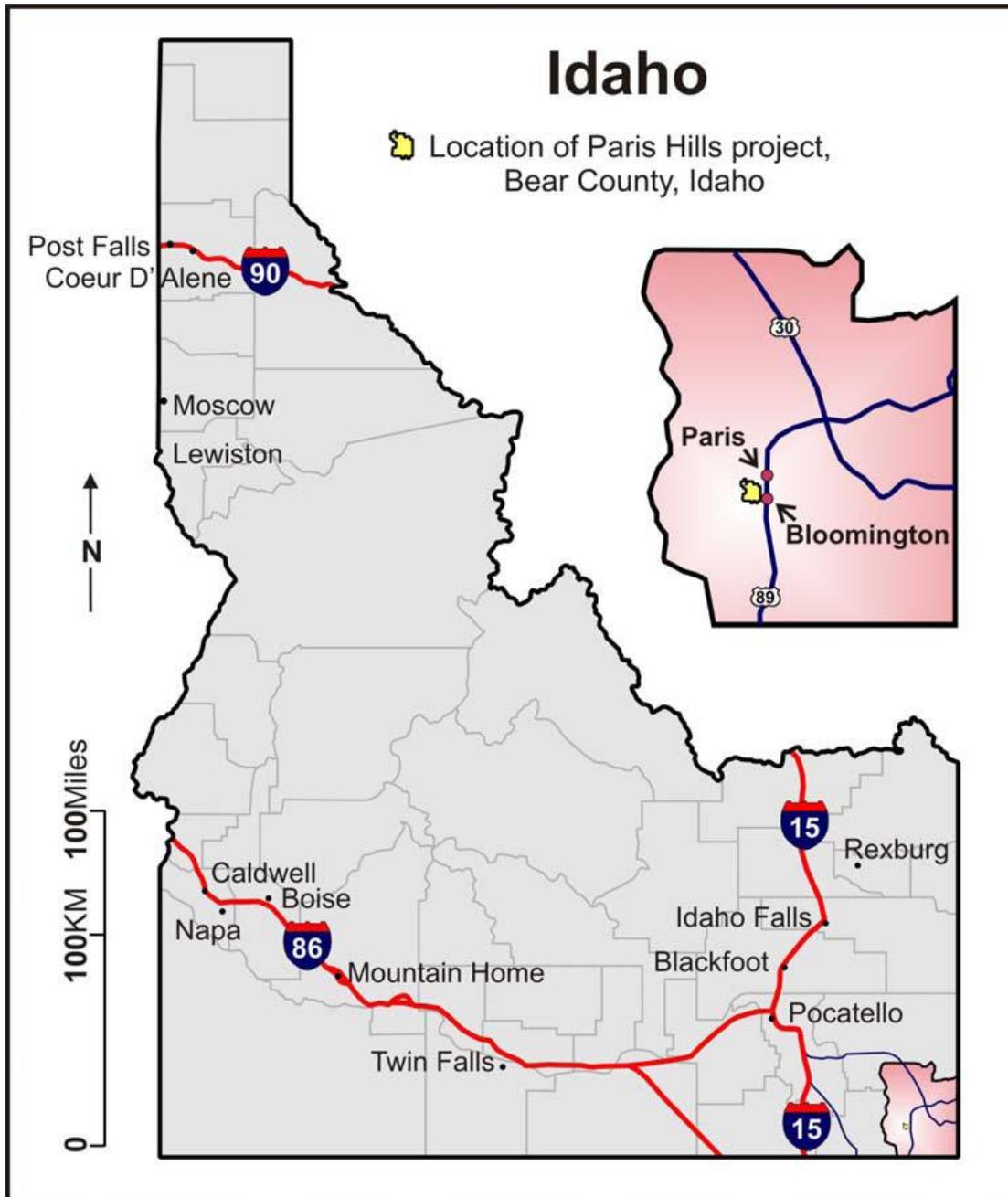


Figure 1. Location of the Paris Hills project.

Table 1. Property description within Township 14 South, Range 43 East, B.M., Bear Lake County.

Source	Rights	Section	Description	Acres
ESI	S, AM	8	S½ SE¼, NE¼ SE¼ (fractional exceptions; County Parcel #1939, #3781)	115.87
ESI	S, AM	17	N½NE¼ (fractional exceptions), SE¼NE¼	119.05
ESI	S, AM	21	Star Mine #1 Patented Lode, M.S. 2765	20.66
ESI	S, AM	21	Star Mine #2 Patented Lode, M.S. 2765	20.66
ESI	S, AM	16 & 21	Star Mine #3 Patented Lode, M.S. 2765	18.67
ESI	P	21	Federal Phosphate Lease, IDI-12982 - Lot 4, SW¼ SE¼	65.74
IDL	AM	15	TP-80-2176 - SW¼ NE¼, NW¼ SE¼, NE¼ SW¼, S½ SW¼	238.22
IDL	S, AM	16	TP-80-2177 - S½ (excluding Star Mine #3), S½ NW¼	390.2
IDL	S, AM	22	TP-80-2178 - NW¼, NW¼ SW¼, NE¼ SW¼, SW¼ SW¼	278.32
WBD	S, AM	9	S½ SW¼ (excluding County Parcel #1878), SW¼ SE¼	99.76
WBD	S, AM	15	NW¼ NW¼	40.00
WBD	S, FM	15	SW¼ NW¼, NW¼ SW¼ (66.6% All Minerals ¹)	80.00
WBD	S	15	SE¼ NW¼, NE¼ SW¼, S½ SW¼	160.00
WBD	S, AM	16	NE¼ (excluding County Parcel #4770), N½ NW¼ (excluding County Parcel #1928)	226.98
WF	S, AM	21	Lots 1 and 2, N½ SE¼	123.10
WF	S, AEP	21	Lots 3, 4 and 5, NE¼, SW¼ NW¼	264.83
WF	S, AEP	21	NW¼ SW¼	40.00
WF	S, AEP	21	That part of SW¼ SE¼ lying north of Bloomington Canyon Road	16.30
BLM	P	21	Federal Prospecting Permit Application, IDI-36773 - Lot 5, SW¼ NW¼, NW¼ SW¼, NE¼	244.63

¹ Records show that the other fraction of this area appears to be held by B and F Investments.

Table 2. Source code definition.

Code	Description
ESI	Earth Sciences Inc.
IDL	Idaho Department of Lands
WBD	Ward Brothers Dairy
WF	Ward Family
BLM	Bureau of Land Management

Table 3. Property right code definition.

Code	Description	Comment
S	Surface Only	Rights for access, construction and operations
P	Federal Phosphate Only	Federal reservation of phosphate under the Act of July 17, 1914 (38 Stat. 509; 30 U.S.C. sec. 122), as amended by the Act of July 20, 1956 (70 Stat. 592)
AM	All Minerals	All minerals, including phosphate (no federal reservation)
FM	Fractional Minerals	Percentage of 100% of mineral ownership, as divided by grant or warranty deed
AEP	All Minerals Except Phosphate (Federal Reservation)	All other minerals on parcels subject to federal reservation of phosphate

Property Geology and Mineralization

Geological Setting

The Project is located near the center of the Western Phosphate Field which constitutes the most extensive phosphorite beds in the United States (McKelvey, et.al., 1959). Phosphate beds of the Western Phosphate Field occur within the Phosphoria Formation of Permian age (Figure 2). Permian rocks in and adjacent to the Western Phosphate Field consist of a chert-mudstone-phosphorite facies in eastern Idaho and southwestern Montana. These beds intertongue with a sandstone facies toward the northeast and a carbonate facies toward the east and south. Further east and south the interval is represented by red bed facies dominant in eastern Wyoming and northwestern Colorado.

The Phosphoria sediments of southeastern Idaho were deposited in the Cordilleran geosyncline under marine conditions. The various facies of the formation were largely determined by water depth and exhibit systematic facies changes. From west to east or from deepest to shallowest water, the sequence of principal facies is: black mudstone, dark dolomite and phosphorite, chert, limestone, and sandstone. Phosphatic beds and associated black shales of the Meade Peak member of the Phosphoria Formation in southeastern Idaho are representative of the intermediate facies. Shallower water chert beds comprise the upper Rex Chert member of the Phosphoria Formation (Sheldon, et.al., 1957).

The amount of phosphate in the Phosphoria Formation of the Western Phosphate Field is more than five times greater than that in the sea today. The conclusion is that the Phosphoria Sea must have drawn on the nutrients-rich waters of circulating ocean currents over a long time



period. Oceanographic conditions consistent with phosphate supply and physio-chemical environment are compatible with areas of upwelling of cold phosphate-rich water where phosphate deposition occurred as the water warmed (Sheldon, 1967). The distribution of the Meade Peak and its shoalward facies suggests that it was deposited in a large ocean embayment similar to the present Arabian Sea (McKelvey, et.al., 1959 p. 25).

Mineralization

Phosphate and vanadium-rich mineralized beds occur in the overturned limb and the horizontal limb of the Paris Syncline at depths of up to 2,000 ft. Grades and thicknesses in both the overturned western limb and the eastern horizontal limb of the anticline are similar. The vast majority of potential mineralization occurs in the horizontal limb which underlies most of the Project. Mineralization in the overturned limb has a strike length of over 2 miles and can be traced in a north-trending series of outcrops on the Property.

Upper Phosphate Bed which occurs approximately 10 ft below the contact with the Rex Chert. Based on historical evaluation of outcrops, trenches, underground workings, and drill penetrations this bed averages about 15 ft in thickness and averages 26% P₂O₅.

- Lower Phosphate Bed occurs approximately 5 ft above the Meade Peak contact with the underlying Wells Formation and approximately 160 ft below the vanadiferous zone. This bed ranges from 6 to 23 ft in thickness and averages about 25% P₂O₅, based on historical reports.

(Modified from ESI 1974 Report)

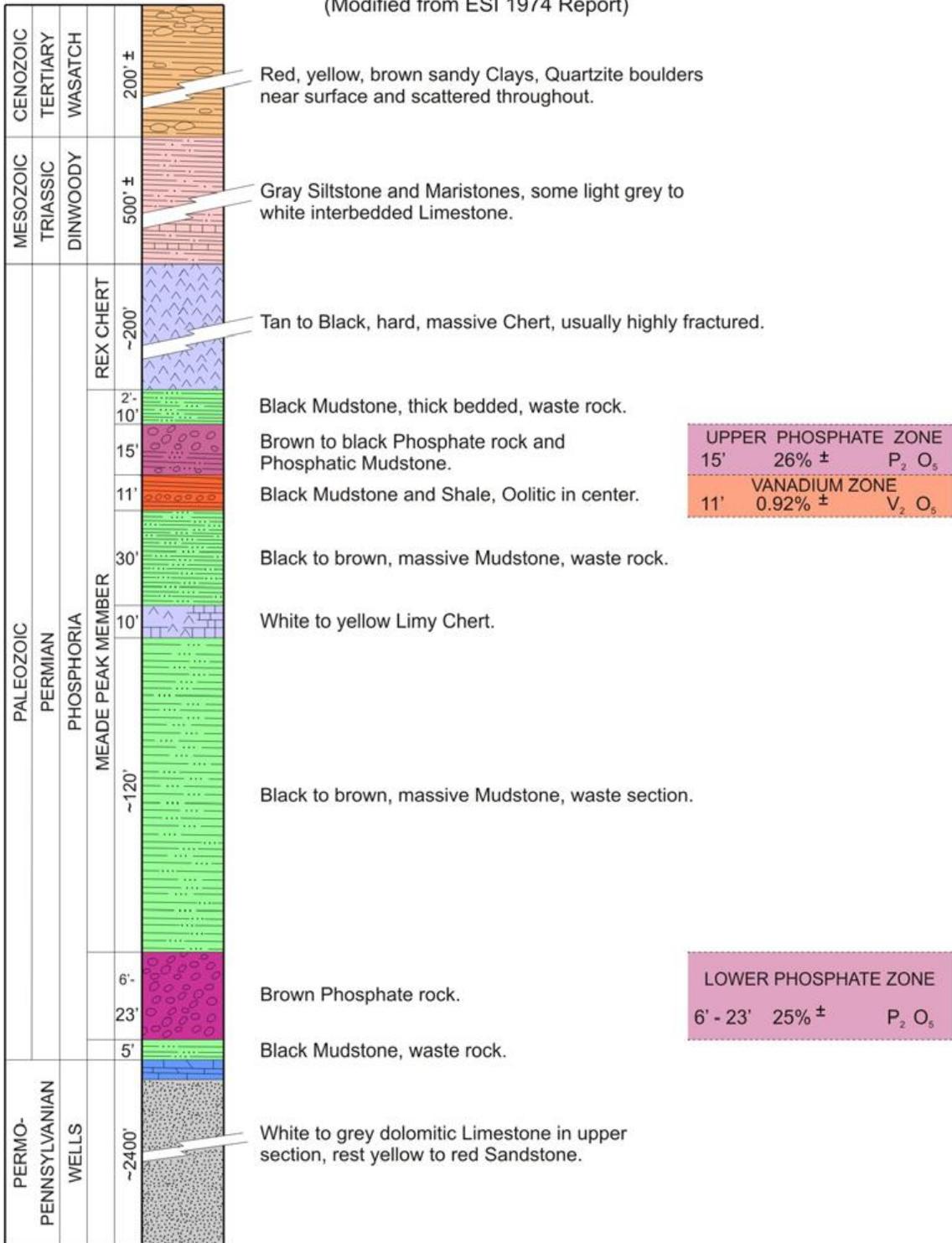


Figure 2: Generalized stratigraphic column, Paris Hills Project, Bear Lake Co., Idaho



Current Mineral Resource Estimate

The following mineral resources was prepared by Edward Orbock III, M.AusIMM, an employee of AMEC, and independent of Stonegate as defined in Section 1.4 of Canada's National Instrument 43-101 ("NI 43-101").

The mineral resource estimate has an effective date of 1 February 2010. AMEC cautions that mineral resources are not mineral reserves until they have demonstrated economic viability.

A high-grade, near-surface sub-set of the Phosphate Inferred Mineral Resource has been identified in the southeastern quadrant of the property. At a cut-off grade of 20% P₂O₅, this material contains an estimated 4.6 million tons of Inferred Mineral Resources at 29% P₂O₅.

Vanadium resources have also been reported for the Property, but are not the focus of investigation in the proposed drill program. Details are provided in the 2010 Technical Report available from www.sedar.com.

Table 4. : Paris Hills Inferred mineral resources* reported with a 20% P₂O₅ cut-off grade

Domain	Tons (millions)	P ₂ O ₅
Upper	81.1	23.1
Lower	39.6	24.7
Total	120.7	23.6

*effective date 1 February 2010. Prepared by Edward J. C. Orbock III, M.AusIMM of AMEC.

Exploration Plan

Methods

The purpose of the proposed exploration is to continue drill testing and defining potential mineralization hosted within the Meade Peak phosphatic shales on the Property.

Sixty two (62) vertical drill holes for a combined total of approximately 72,250 ft are planned for completion in 2011-2012 (Table 5 and Figure 3; PA027 through PA088). Drill hole depths range from 150 ft to 1,600 ft with 1,165 ft representing the average depth. The drilling is planned in two (2) phases. The first phase of drilling will be completed on ~1,000 ft centres with additional holes drilled between lines on a 500 ft offset from the 1,000 ft grid (13 holes in the NE quarter of Section 21). Three other holes are planned in this phase of drilling and are located in the SW of the SE quarter (3 holes) and the W half (9 holes) of Section 21. The second

phase of drilling which may be completed at least in part concurrently with the Phase 1 program is one of infill to 500 ft drilling centres across the NE quarter of Section 21 (37 holes).

Table 5. Proposed 2011-2012 drill hole details. Coordinates reported in NAD83, Zone 12.

	Easting (m)	Northing (m)	Elevation (m)	Depth (m)	RC (m)	Diamond (m)	Phase
PA027	464288	4670551	1868	150		150	1
PA028	464444	4670553	1877	175		175	1
PA029	464060	4670824	1933	630		630	1
PA030	464441	4671129	1981	950	630	320	1
PA031	464294	4671126	1983	970	660	310	2
PA032	464141	4671126	1984	980	695	285	1
PA033	464602	4671123	1987	880	580	300	2
PA034	464750	4671128	1989	770	495	275	1
PA035	464366	4671204	1986	1070	765	305	2
PA036	464522	4671203	1986	1010	712	298	2
PA037	464213	4671203	1989	1090	765	325	2
PA038	464669	4671203	1992	950	680	270	2
PA039	464828	4671204	1999	910	568	342	2
PA040	464444	4671275	1989	1200	740	460	2
PA041	464594	4671278	1989	1150	760	390	2
PA042	464142	4671275	1992	1060	595	465	2
PA043	464291	4671282	1992	1200	735	465	2
PA044	464744	4671278	1992	930	760	170	2
PA045	464366	4671357	1997	1150	781	369	2
PA046	464213	4671353	1999	1170	825	345	1
PA047	464516	4671356	2001	1100	734	366	1
PA048	464675	4671353	2009	1040	716	324	2
PA049	464825	4671353	2012	970	659	311	1
PA050	464138	4671429	2001	1230	750	480	1
PA051	464292	4671425	2001	1160	890	270	2
PA052	464444	4671431	2003	1150	814	336	1
PA053	464600	4671431	2013	1130	817	313	2
PA054	464753	4671430	2021	1120	782	338	1
PA055	464218	4671506	2009	1280	974	306	2
PA056	464368	4671504	2009	1220	908	312	2
PA057	464519	4671509	2018	1200	899	301	2
PA058	464670	4671509	2027	1220	893	327	2
PA059	464824	4671505	2033	1200	849	351	2
PA060	464138	4671588	2012	1360	1048	312	2
PA061	464288	4671587	2013	1360	1052	308	2



Hole	Easting (m)	Northing (m)	Elevation (m)	Depth (m)	RC (m)	Diamond (m)	Phase
PA062	464445	4671582	2015	1360	1044	316	2
PA063	464608	4671582	2024	1310	955	355	2
PA064	464755	4671579	2037	1280	945	335	2
PA065	464366	4671658	2021	1420	1115	305	2
PA066	464207	4671666	2024	1440	1140	300	1
PA067	464526	4671655	2029	1420	1137	283	1
PA068	464831	4671654	2030	1400	1080	320	1
PA069	464673	4671657	2036	1420	1144	276	2
PA070	464751	4671736	2027	1455	1138	317	1
PA071	464136	4671735	2031	1535	1235	300	1
PA072	464289	4671737	2033	1520	1219	301	2
PA073	464442	4671737	2033	1500	1205	295	1
PA074	464595	4671728	2033	1500	1187	313	2
PA075	464823	4671808	2010	1440	1100	340	2
PA076	464673	4671808	2034	1485	1220	265	2
PA077	464520	4671809	2042	1550	1272	278	2
PA078	464367	4671812	2044	1580	1303	277	2
PA079	464214	4671809	2045	1600	1328	272	2
PA080	464136	4671735	2031	1535	1235	300	1
PA081	464751	4671736	2027	1455	1138	317	1
PA082	464442	4671737	2033	1500	1205	295	1
PA083	464289	4671737	2033	1520	1219	301	2
PA084	464823	4671808	2010	1440	1100	340	2
PA085	464673	4671808	2034	1485	1220	265	2
PA086	464520	4671809	2042	1550	1272	278	2
PA087	464214	4671809	2045	1600	1328	272	2
PA088	464367	4671812	2044	1580	1303	277	2

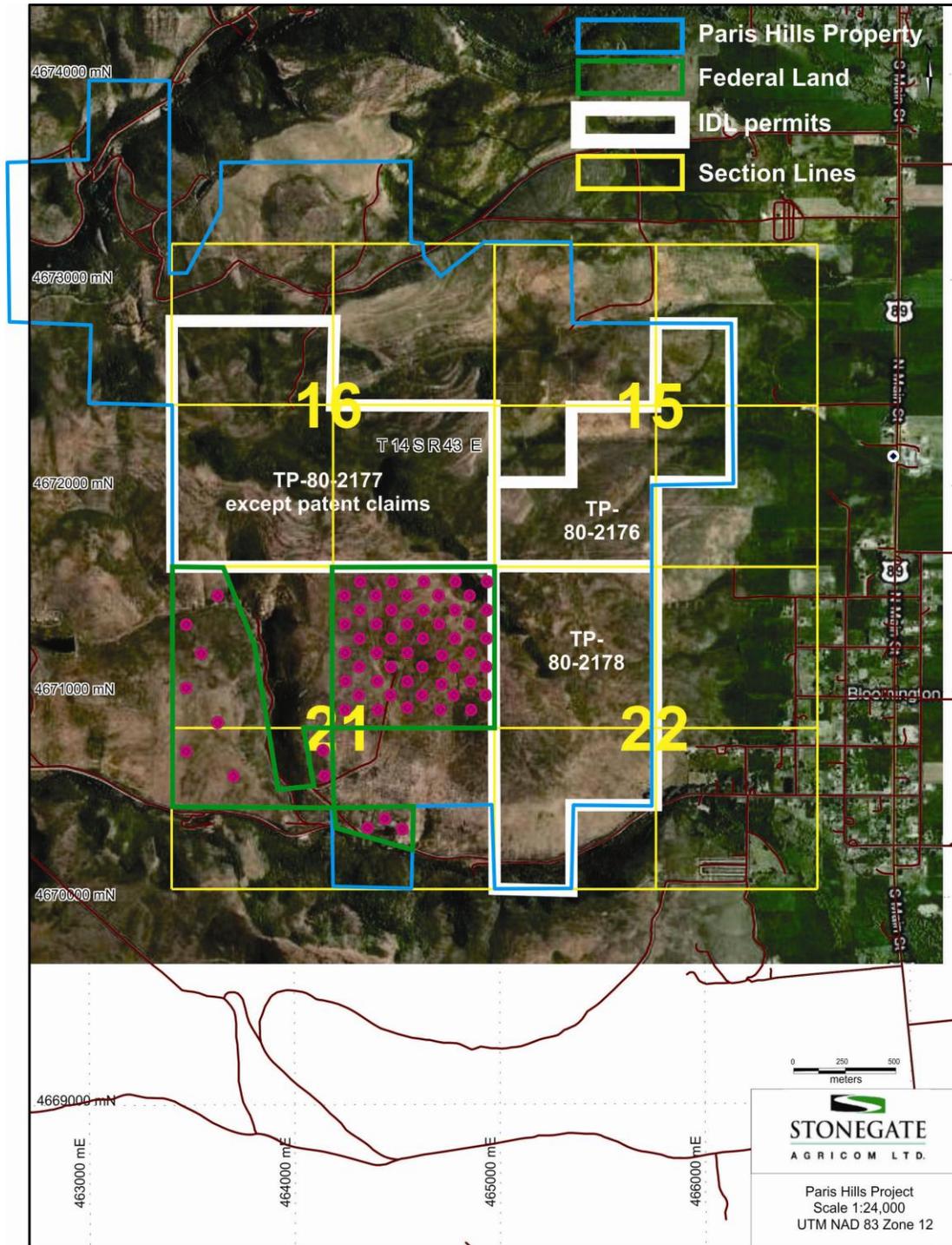


Figure 3. Location of 2011-2012 proposed drill holes (magenta) at Paris Hills.



Major Drilling America Inc. will likely be engaged to complete the planned drilling. They are currently completing work on private and State permitted land. Reverse circulation and diamond coring methods will be used, and one or more rigs used to complete the program. Drill rigs and support vehicles will be wheeled and/or track mounted depending on equipment availability.

Drilling fluids will consist mainly of water with foam, bentonite mud, and/or polymers as additives if needed to maintain hole stability. Water will be hauled to the drill sites by water truck using the access along Canyon Road (south end of the Property). Water is currently being sourced from the Bloomington City Overflow (temporary permit TP-11-14). Stonegate anticipates renewing this permit for the duration of the proposed drill program and/or purchasing water from the City of Bloomington and sourcing that from a local hydrant or other approved location.

Ground Disturbance

Access roads for the proposed exploration drill program will reoccupy historic access roads where possible in an effort to minimize new disturbances. All roads, drill pads and sumps will be constructed using a dozer and a rubber tired back-hoe operated by a contractor under Stonegate supervision (either directly or through one of its agents). Figure 4 shows the proposed access roads and drill site areas. With the exception of the established access routes to the exploration area, road grades less than 10 percent will be prepared or upgraded. Parts of the main access roads into the drill area have slopes with grades greater than 10%. Roads and drill pads will be constructed of native on-site materials with gravel used as required for improvement and/or stabilization. The main access for the drill program will be from the red gates (Ward's property) on Canyon Road. New drill roads will be approximately 10 ft wide.

It is possible that some drill pad locations will need to be adjusted during the drill program as site conditions and subsurface geology necessitate. The adjustments will likely be minor and only require moving drill pads short distances. Minor adjustments to drill hole locations will likely not affect the alignment and total length of drill access roads that will be constructed during the exploration drill program. It has been estimated that each drill site requires a footprint of ~2,500 sq ft (50 x 50 ft) to be cleared to ensure a safe work area for the driller and helper(s), and PHA personnel.

Figure 4 and Table 6 show the aerial extent of the ground disturbance required to complete this exploration. The total estimated area of disturbance is 7.8 acres.

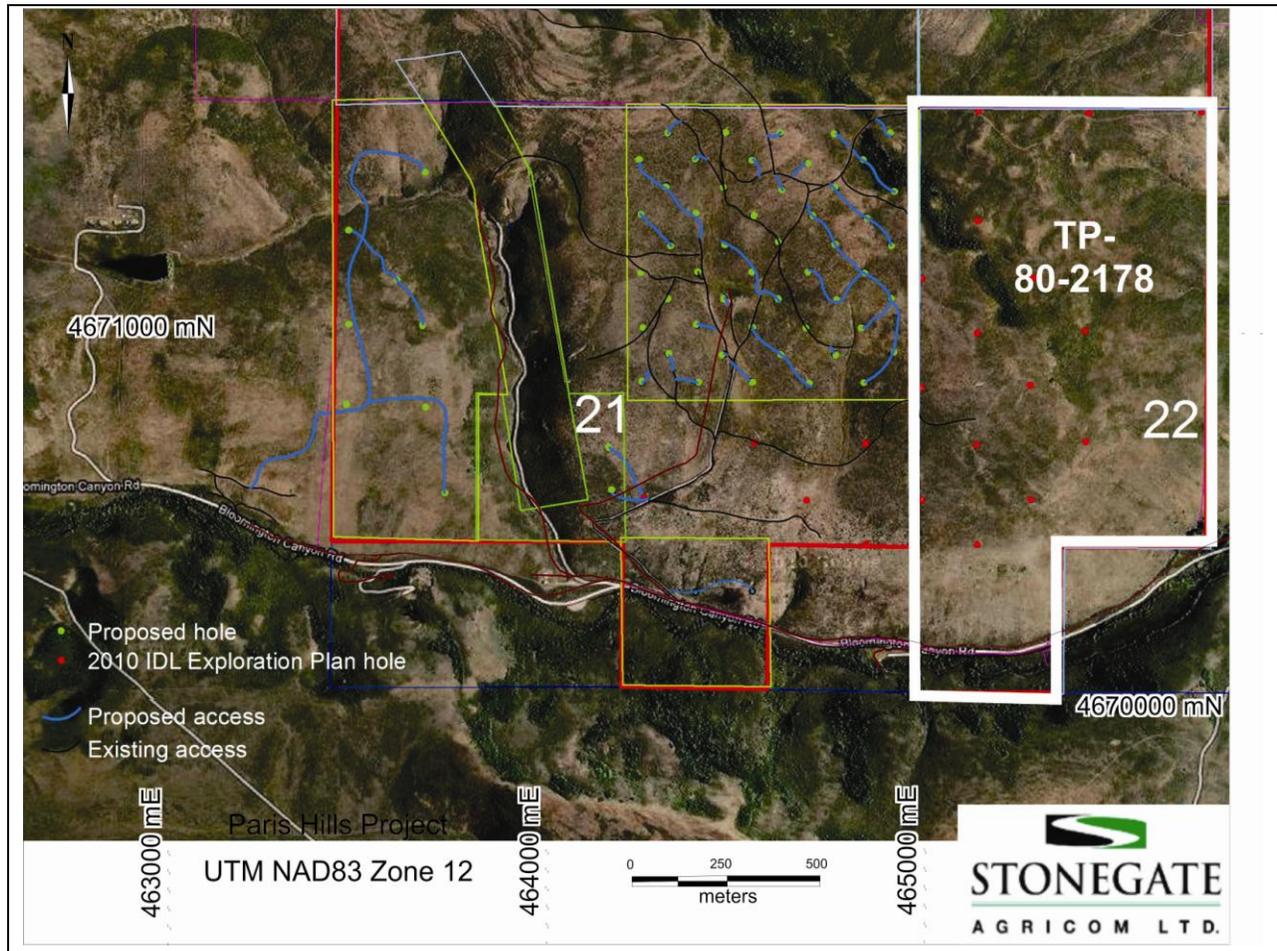


Figure 4. Drill road access and planned drill pads for 2011-2012. Proposed ground disturbance is shown in blue. Existing roads are black.

Table 6. Planned ground disturbance at Paris Hills.

Disturbance	Area (sq feet)	Area (acres)
Drill roads	180,900	4.2
Drill pads	155,000	3.6
Total	355,900	7.8



Drilling Rate and Exploration Program Duration

RC drilling is expected to proceed at a rate of 400 ft per day and diamond coring at a rate of 80 feet per day. Drilling will be completed concurrently in 2, 12 hour shifts. The drill crew roster will likely be 21 days on with 7 days off, but may be changed to 24/7 if additional crews are available or a second rig may be added. Based on these drilling rates, a 21/7 roster and 24/7 drilling for 1 RC and 1 diamond rig, the RC drilling will be completed in ~ 30 weeks and the diamond drilling is ~ 52 weeks. It is likely that the site may need to shut down periodically for weather. This time has not been included in the estimate.

Environmental

Surface water, storm water management and soil erosion

All surface water runoff will be managed under the Storm Water Pollution Prevention Plan ("SWPPP") which is regulated by the US Environmental Protection Agency ("EPA"). Surface water runoff from either the drilling process or precipitation will be managed using the guidelines described in the Best Management Practices ("BMPs") for Mining in Idaho (Idaho Department of Lands, 1992) such as silt fencing, straw waddles, water bars and rolling dips. These BMPs will be used on new construction areas and field fit based on topography, landscape and the vicinity to surface water as deemed necessary.

All drilling sites will be constructed with a sump to control drill cuttings and fluids. The size and specific location of the sumps will be determined in field in order to make the best use of the existing landscape and topography to minimize environmental and stability risks. Drilling fluids will contain sediments from the drill cuttings as well as the non-polluting lubricating foam, bentonite and/or polymer used by the drilling contractor. The lubricating foam will be non-toxic and biodegradable and polymers, if needed, will be non-toxic.

In areas where there is a risk of rilling or contact with surface water, silt fence, straw waddles, and/or other storm water BMPs will be used in order to ensure that drilling fluids do not impact the environmental resources.

Groundwater

No drinking water wells are known to be located within or in the near vicinity of the 2010 exploration area. The two potential risks to groundwater include infiltration of drilling fluids to groundwater, and drill holes which could create a preferential pathway of groundwater flow from surface water. The drilling fluids at the site are of insufficient volume and material to



likely carry a significant threat to groundwater. The foreign materials within these fluids are non-toxic and drill holes will be plugged upon completion.

Isolation and Control of Toxic or Deleterious Materials, and Noxious Weeds

Potential contaminants from the exploration drilling site includes; diesel, oil, grease, lubricants, and solvents. To facilitate immediate reaction to any spill of toxic or deleterious materials on site, a spill containment kit will be stored and available in the core logging facility on site. Berms will be placed around each drill site to aid in runoff control.

As a routine practice at the end of drilling operations each day, all containers or sources of toxic or deleterious materials will be closed, covered and/or put away and safely stored while the drilling crew is absent in order to prevent potential exposure to wildlife or livestock.

All trash will be removed from the site and disposed of in a proper garbage receptacle. Vehicles will be adequately cleaned to prevent spread of noxious weeds prior to entering the exploration area. If noxious weeds are identified or suspected, Stonegate will contact the county weed superintendent and with the permission of the land owners, spray herbicides over on the impacted area

Preliminary Water Quality Sampling

A program of preliminary water quality sampling will be initiated prior to the commencement of the 2010 exploration program including ground clearance. This work is anticipated to be completed in September. Additional surface water sampling will be completed near the end of the 2010 drill program and continue through 2011. Brown & Caldwell has been engaged to complete the Environmental Assessment for the project and will be responsible for the sampling. The first sampling event occurred in September 2010. Results have just been received by Brown & Caldwell and will be provided to Stonegate. Once received Stonegate will provide the information to the BLM, IDL and IDEQ.

Fire

Stonegate vehicles and drilling contractors' vehicles will be equipped with fire extinguishers at all times. Additionally, any welding necessary on site will take place on the drill pad that has been cleared of vegetation. As the drilling process requires water, 700 to 1,500 gallons of water will be on a drill site at any particular time. This will also be available to extinguish fires.



Air Pollution

Air quality in the area of the proposed 2010 exploration area is generally excellent. Significant air quality concerns or impacts are not anticipated from the drilling project. Potential air contaminants may include dust off of the roads and drilling pads, and exhaust from the vehicles and drilling rigs. Neither dust nor exhaust impacts are anticipated to reach the Property boundaries. It is not anticipated that there will be a cumulative impact on air quality in the area due to the short-term nature of the 2010 drilling program.

Damage to Fish or Wildlife or Other Natural Resources

Species of wildlife that currently reside in the 2010 exploration area may be temporarily displaced while exploration activities occur. As exploration activities will only occur in a small area at any given time, this disruption will be small in scale and short in time. The area surrounding the exploration site is adequately sized to absorb any animals that are displaced from exploration activities, and it is expected that wildlife will return shortly after activities are completed.

Subsidence

All drill holes will be plugged according to State of Idaho regulations “Well Construction Standard Rules” (IDAPA 37.03.09). Drill holes will be plugged with bentonite from the bottom to the surface.

There are no known underground mining operations in the proposed 2010 exploration area. Ground subsidence in the area of the drilling is therefore not anticipated.

Hazards to Public Safety

Signs will be used to warn the public of hazards with respect to active truck traffic. Locations for such signs will be at the access points to the project area (eg: E Canyon St and Cemetery Road, Bloomington).

Unauthorized personnel will not be allowed within the active drilling area. All drilling equipment will be shut down, secured and locked out during off shift or non-operating times.



Reclamation Plan

A \$30,000 reclamation bond has been established for the State Permitted area. No other bonds are currently in place on the Property.

Drill Hole Plugging and Abandonment

All drill holes will be plugged according to State of Idaho regulations “Well Construction Standard Rules” (IDAPA 37.03.09). Drill holes will be plugged with bentonite from the bottom to the surface.

As exploration drilling is a method of sub-surface discovery several scenarios of conditions may be encountered and require alternative abandonment methods. According to the Idaho Department of Water Resources IDAPA 37 Title 03 Chapter 9, Well Construction Standards, Rule 10.66.c.i, exploration drill holes are not considered “wells”. However, Rule 45.03 states exploration drill holes must be decommissioned or abandoned according to well abandonment Rule 25.16.02. Therefore a list of alternative drill hole plugging and abandonment methods are listed below. All grout and bentonite materials will meet the standards of such as per Rule 10.07.a and c and Rule 10.39. Plugging or sealing material not mentioned here may be used as additional alternative in the future given authorization as per Rule 25.10.

Depending on ground conditions, water flow and drill hole depth, one of three or a combination of methods will be used to seal and plug a particular hole. Abandonite, a high solids bentonite grout, will be used to abandon deeper holes using the Tremie method*. Bentonite chips will be used in shallower holes where it can be poured and free fall down the hole. Cement grout forming a 20’ cap is the third method of drill hole abandonment.

*Tremie method: grout is placed below water level through the drill rods, the lower end of which are kept immersed in fresh grout so that the rising grout from the bottom displaces the water without washing out the grout content.

Regrading, Reshaping and Seeding

New roads, drill pads and sumps will be reshaped to conform to the natural topography at the completion of the proposed drilling project using any soil removed during clearing, unless otherwise approved by the managing agency. This work will be designed to minimize erosion and increase the likelihood of seedling success which will take place in 2011 and possibly 2012 depending on the initial results of the drilling.

Disturbed areas will be re-seeded in 2011 and/or 2012 with mix approved by the Idaho Department of Lands as outlined in the BMPs Guide for Mining in Idaho or with a seed mix suggested by Brown & Caldwell (current consultant to Stonegate) and approved by the State.



The disturbed areas will be seeded at a rate of ~40 lbs/acre utilizing standard methods. All seeding and fertilizing will be done in the late fall.

The proposed exploration area occupies the Upper Mountain elevations with respect to precipitation. A possible seed mix appropriate for the area would be:

Percent / lb	Name
10.00	Great Basin Wildrye
7.50	Bluebunch Wheatgrass
9.00	Western Wheatgrass
10.00	Mountain Broome
1.50	Rocky Mountain Penstemon
3.50	Alfalfa*
2.50	Lewis Blue Flax
1.00	Orchardgrass
0.50	Timothy
6.00	Pubescent Wheatgrass
10.00	Small Burnet
0.25	Kentucky Bluegrass
0.50	Mountain Phlox
0.50	Big Bluegrass
10.50	Sainfoin
0.25	Showy Goldeneye
0.68	Wax Current
11.00	Antelope Bitterbrush
3.25	Woods Rose
0.50	Strawberry Clover
10.07	Quickguard
1.00	Sticky Purple Geranium

**more of another component could be substituted for Alfalfa with approval from the IDL for this seed mix*

Storm water BMPs will be used where necessary to stabilize areas until the seeding can be effectively completed and seedlings have taken hold. This work will be conducted using a track-hoe and/or dozers, depending upon specific site conditions.



Abandonment Plan

Seasonal Closure

1. Prevention of Unnecessary or Undue Degradation.

Seasonal closure will include a variety of tasks prior to the winter months, including closure of the roads, removal of equipment and materials from the project area, and a final comprehensive BMP inspection and repair if necessary. Roads will be temporarily closed with water bars at intervals necessary to stabilize them during the spring runoff.

2. Measures to Stabilize Excavations and Workings

All exploration drill holes will be plugged according to the Reclamation Plan section of this document. All drilling holes that have been drilled during the season will be plugged prior to seasonal closure.

3. Measures to Isolate or Control Toxic or Deleterious Materials

During periods of seasonal closure, all toxic or deleterious materials will be removed from the site. This includes oil, grease, lubricants, solvents, anti-freeze, alcohol (possible drill fluid additive), bentonite, and cement.

4. Storage and/or Removal of Equipment, Supplies, and Structures

During periods of seasonal closure, all equipment and supplies will be removed from the site. 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.

5. Monitoring Site Conditions During Periods of Non-Operations

A comprehensive annual inspection of all BMPs will be conducted at the close of the drilling season. This inspection will be designed to ensure that the BMPs are functioning and are of adequate maintenance to make it through the winter months and spring runoff. The roads will then be closed with water bars as appropriate prior to closing the site for winter. A follow up inspection will not take place by Stonegate until after the spring runoff is complete and the site is officially re-opened. It is not our intent to attempt to access the site during early spring due to the muddy conditions and likelihood of excessive disturbance that would take place to access it. However, another water sampling event will need to take place during peak runoff and roads potentially groomed to allow safe access to the sampling sites.

6. Schedule of Anticipated Periods of Temporary Closures

Drilling operations are expected to take place commencing in the late Spring or as soon as approval has been granted and weather and ground conditions indicate that it is effective and



safe to return to the site. It is anticipated that the typically wetter months of approximately March through May, might be a period of temporary closure.

Unexpected Temporary Closure

If an unexpected temporary closure occurs that is anticipated to last greater than six weeks, the same procedures will 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 as described above in Item 5.

Safety, Health, Environment and Social Policy

Stonegate's Safety, Health, Environment and Social Policy applies to the anyone working on the Paris Hills project. This document has been forwarded under separate cover to the BLM and other US agencies. In addition to this policy a Spill Prevention and Response plan and several site specific safety guidelines will be included as an addendum to this policy as appropriate for the exploration activities to be completed on the Property in 2011 and 2012. This document will be reviewed bi-annually and updated accordingly.

Regards,

"Michelle Stone, P.Geo., Ph.D."

Michelle Stone
VP Exploration
Stonegate Agricom Ltd.

PARCEL #1
Instrument #151828
Donald G. Robb
1631 Farm Road
Farmington, Utah 84025

PARCEL #2
STATE OF IDAHO
Not being taxed
Contact:
Bear Lake County Assessors
PO Box 190
Paris, Idaho 83261
208-945-2155

PARCEL #3
Instrument #153437
Thomas Ranch Limited Partnership
PO Box 174
Bloomington, Idaho 83223-0174

PARCEL #4
Instrument #123006
Ray McKay & Sharon M. Bateman
Bateman Family Trust
341 Cimarron PL. S.
Pahrump, NV 89048

PARCEL #5
Instrument #123278
La Vell Ward Inc.
Instrument #201512
John R. & Terri Lin Ward
Instr. #175959
Leroy H. & Carol P. Ward Family Trust
Contact:
Dean Ward
Bloomington, Idaho 83223

PARCEL #6
Instrument #154680
Earth Sciences, Inc.
8100 Southpark Way Ste. B2
Littleton, CO 80120

PARCEL #7
VILLAGE OF BLOOMINGTON
Instrument #43788
Bloomington City Office
PO Box 194
Bloomington, Idaho 83223
Winston Hart City Clerk
208-945-2725

PARCEL #8
Instrument #160081
M. Vernon & Mary Bateman
PO Box 213
Bloomington, Idaho 83223

PARCEL #9
Instrument #141306
Ward Brothers Dairy
PO Box 223
Bloomington, Idaho 83223

PARCEL #10
BUREAU OF LAND MANAGEMENT
Not being taxed
Contact:
Bear Lake County Assessors
PO Box 190
Paris, Idaho 83261
208-945-2155

PARCEL #11
Instrument #201592
William J. Rich
Dixie P. Rich
Kirk R. Rich
Debra H. Rich
Contact:
William J. Rich
PO Box 277
Paris, Idaho 83261

PARCEL #12
Instrument #149861
Arthur B. Martinez
Jim B. Martinez
Mike W. Martinez
Arnold Rios
Contact:
Arthur B. Martinez
1420 23 RD ST
Ogden, Utah 84401

PARCEL #13
Instrument #154680
Earth Sciences, Inc.
8100 Southpark Way Ste. B2
Littleton, CO 80120

PARCEL #14
BUREAU OF LAND MANAGEMENT
Not being taxed
Contact:
Bear Lake County Assessors
PO Box 190
Paris, Idaho 83261
208-945-2155

PARCEL #15
Instrument #200491
Don Dee & Renae F. Hortin
Family Trust
Contact:
Holly Lineback, Trustee
2977 S. 1400 E.
Salt Lake City, Utah 84106

PARCEL #16
Instrument #199077
K.M. Ranch LLC
PO Box 280
Mendon, Utah 84325

PARCEL #17
Instrument #199335
Cassowary Paris LC
833 Odgen Canyon
Ogden, Utah 84401

PARCEL #18
Instrument #165089
Eric & Marcia Mattson
James & Rexine Mattson
John & Janelle Mattson
Contact:
Eric Mattson
PO Box 213
Paris, Idaho 83261

PARCEL #19
Instrument #48570
Paris City
62 South Main Street
Paris, Idaho 83261

PARCEL #20
Instrument #165089
Eric & Marcia Mattson
James & Rexine Mattson
John & Janelle Mattson
Contact:
Eric Mattson
PO Box 213
Paris, Idaho 83261

PARCEL #21
Instrument #190606
Bear Lake County
PO Box 190
Paris, Idaho 83261

PARCEL #22
Instrument #11284
Utah Power & Light
1407 West Temple N.
Salt Lake City, Utah 84116

PARCEL #23
Instrument #162808, 156006
156279, 163606, 180407, 147526
Ward Brothers Dairy
PO Box 223
Bloomington, Idaho 83223

PARCEL #24
Instrument #196161
Michael & Mellanie Miller
& Gene W. & Ruth B. Miller
Contact:
Michael Miller
731 East 300 North
Hyde Park, Utah 84318

PARCEL #25
Instrument #171286
Phillip M. & Cindy B. Hardison
Family Protection Limited Partner.
1073 North 2200 West
Layton, Utah 84041

PARCEL #26
Instrument #172803
Tim R. Newberry
Larry P. & Heidi A. Palmer
Contact:
Tim R. Newberry
PO Box 128
Paris, Idaho 83261

PARCEL #27
Instrument #172802
E & J Investments LLC
1050 South Main
Willard, Utah 84340

PARCEL #28
Instrument #142787
Brian D. Gontarek &
Gwendolyn S. Buck
822 Manchester Road
Arkadelphia, AR 71923

PARCEL #29
Instrument #186871
Brent Christensen
2890 Newman Lane
Salt Lake City, Utah 84121

PARCEL #30
Instrument # 190874
John R. & Linda M. Bee
PO Box 203
Bloomington, Idaho 83223

PARCEL #31
Instrument #180407
Ward Brothers Dairy
PO Box 223
Bloomington, Idaho 83223

PARCEL #32
Instrument #170914
Don J. & Patricia A. Davis
2618 S. Lake Street
Salt Lake City, Utah 84106

PARCEL #33
Instrument #197625
Budge Family Trust
Neil P. Budge
484 North 1330 East
Lehi, Utah 84043

PARCEL #34
Instrument #169851
Gordon E. & Florence W. Peterson
PO Box 207
Bloomington, Idaho 83223

PARCEL #35
Instrument #148903 & 146774
Dee Fred Jr. & Janet Marie Houston
697 North 300 East
Richfield, Utah 84701

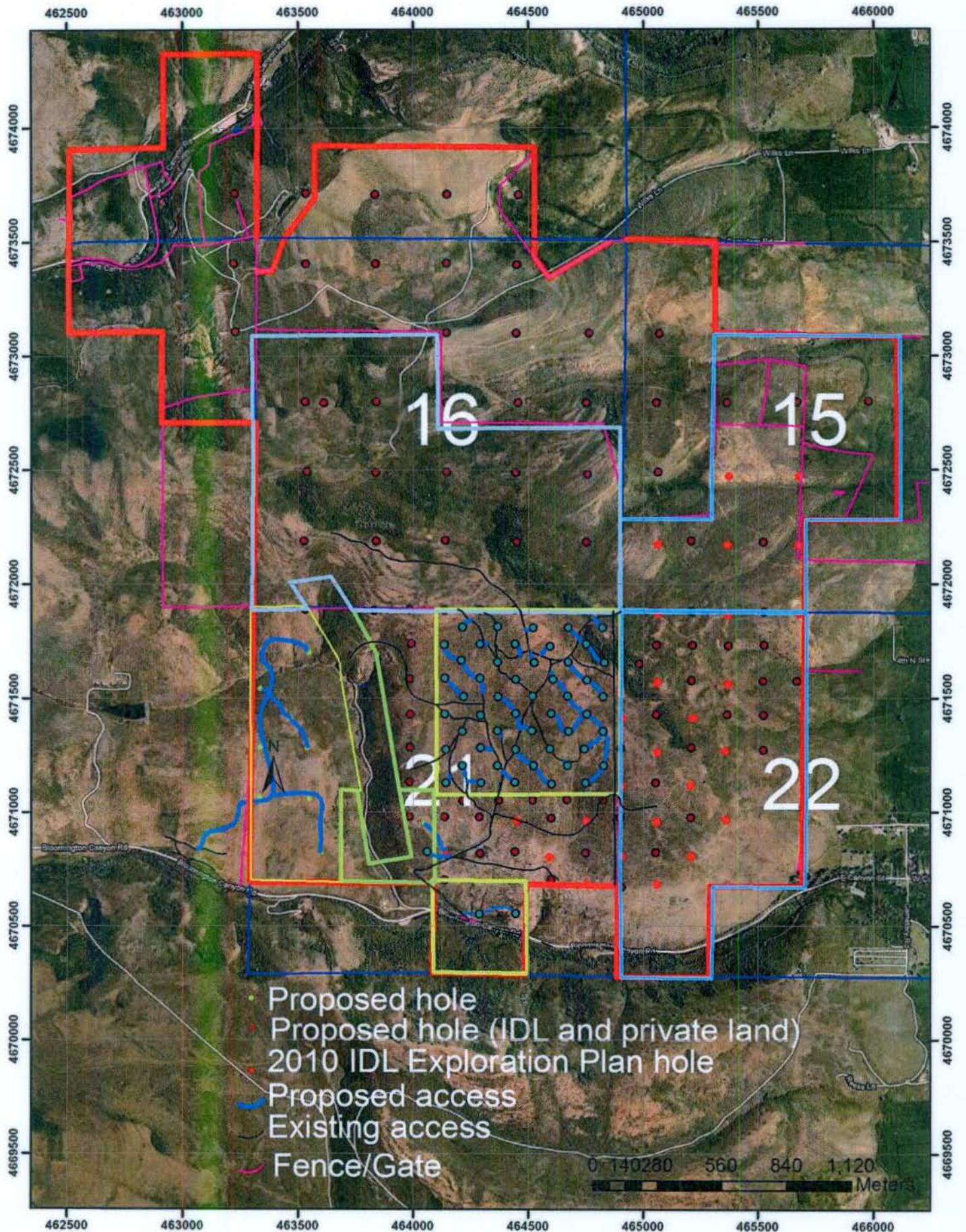
PARCEL #36
Instrument #152115
David G. & Carol S. Houston
1850 Maple Glen Road
Sacramento, CA 95864

PARCEL #37
Instrument #149474
John W. & Nida D. Houston
PO Box 778
Panguitch, Utah 84759

PARCEL #38
Instrument #187111
Beverly Dunford
Family Trust
PO Box 125
Paris, Idaho 83261

PARCEL #39
Instrument #89968
E. Blake & Luann B. Hart
11 East 500 North
Orem, Utah 84057-4030

PARCEL #40
BUREAU OF LAND MANAGE.
not being taxed
Contact:
Bear Lake County Assessors
PO Box 190
Paris, Idaho 83261
208-945-2155



- Proposed hole
- Proposed hole (IDL and private land)
- 2010 IDL Exploration Plan hole
- Proposed access
- Existing access
- Fence/Gate

0 140 280 560 840 1,120
Meters

Appendix B: WEPP Model



WEPP:Road Results



INPUTS			
Climate	MONTPELIER R S ID		
Soil texture	silt loam with 20% rock fragments <small>(road: 20%; fill: 20%; buffer: 20% rock)</small>		
Road design	Insloped, vegetated or rocked ditch		
Surface, traffic	native surface, high traffic		
	Gradient (%)	Length (ft)	Width (ft)
Road	2	100	50
Fill	50	5	
Buffer	10	200	

5 - YEAR MEAN ANNUAL AVERAGES

	Total in 5 years
14.08 in precipitation from	461 storms
0.00 in runoff from rainfall from	32 events
0.00 in runoff from snowmelt or winter rainstorm from	27 events
112.63 lb road prism erosion	
0.00 lb sediment leaving buffer	

Run description:

WEPP files: [[slope](#) | [soil](#) | [vegetation](#) | [weather](#) | [response](#) || [results](#)]

WEPP:Road results version [2009.10.13](#) based on WEPP VERSION 2000.100
 by [Hall](#) and Anderson; Project leader [Bill Elliot](#)
 USDA Forest Service, Rocky Mountain Research Station, Moscow, ID 83843
 07:47 pm Monday March 14, 2011 GMT
 12:47 pm Monday March 14, 2011 Pacific Time
 WEPP:Road run ID wepp-27132





WEPP:Road Results



INPUTS			
Climate	MONTPELIER R S ID		
Soil texture	silt loam with 20% rock fragments <small>(road: 20%; fill: 20%; buffer: 20% rock)</small>		
Road design	Insloped, vegetated or rocked ditch		
Surface, traffic	native surface, high traffic		
	Gradient (%)	Length (ft)	Width (ft)
Road	2	1000	50
Fill	50	5	
Buffer	10	500	

5 - YEAR MEAN ANNUAL AVERAGES

	Total in 5 years
14.08 in precipitation from	461 storms
0.00 in runoff from rainfall from	32 events
0.00 in runoff from snowmelt or winter rainstorm from	26 events
1070.61 lb road prism erosion	
0.00 lb sediment leaving buffer	

Run description:

WEPP files: [[slope](#) | [soil](#) | [vegetation](#) | [weather](#) | [response](#) || [results](#)]

WEPP:Road results version [2009.10.13](#) based on WEPP VERSION 2000.100
 by [Hall](#) and Anderson; Project leader [Bill Elliot](#)
 USDA Forest Service, Rocky Mountain Research Station, Moscow, ID 83843
 08:30 pm Monday March 14, 2011 GMT
 01:30 pm Monday March 14, 2011 Pacific Time
 WEPP:Road run ID wepp-28899





WEPP:Road Results



INPUTS			
Climate	MONTPELIER R S ID		
Soil texture	silt loam with 20% rock fragments <small>(road: 20%; fill: 20%; buffer: 20% rock)</small>		
Road design	Insloped, vegetated or rocked ditch		
Surface, traffic	native surface, high traffic		
	Gradient (%)	Length (ft)	Width (ft)
Road	4	800	10
Fill	50	5	
Buffer	10	250	

5 - YEAR MEAN ANNUAL AVERAGES

	Total in 5 years
14.08 in precipitation from	461 storms
0.00 in runoff from rainfall from	34 events
0.00 in runoff from snowmelt or winter rainstorm from	28 events
351.36 lb road prism erosion	
0.00 lb sediment leaving buffer	

Run description:

WEPP files: [[slope](#) | [soil](#) | [vegetation](#) | [weather](#) | [response](#) || [results](#)]

WEPP:Road results version [2011.03.25](#) based on WEPP VERSION 2000.100
 by [Hall](#) and Anderson; Project leader [Bill Elliot](#)
 USDA Forest Service, Rocky Mountain Research Station, Moscow, ID 83843
 11:43 pm Sunday July 17, 2011 GMT
 04:43 pm Sunday July 17, 2011 Pacific Time
 WEPP:Road run ID wepp-22812





WEPP:Road Results



INPUTS			
Climate	MONTPELIER R S ID		
Soil texture	silt loam with 20% rock fragments <small>(road: 20%; fill: 20%; buffer: 20% rock)</small>		
Road design	Insloped, vegetated or rocked ditch		
Surface, traffic	native surface, high traffic		
	Gradient (%)	Length (ft)	Width (ft)
Road	4	1000	10
Fill	50	5	
Buffer	10	500	

5 - YEAR MEAN ANNUAL AVERAGES

	Total in 5 years
14.08 in precipitation from	461 storms
0.00 in runoff from rainfall from	34 events
0.00 in runoff from snowmelt or winter rainstorm from	28 events
501.33 lb road prism erosion	
0.00 lb sediment leaving buffer	

Run description:

WEPP files: [[slope](#) | [soil](#) | [vegetation](#) | [weather](#) | [response](#) || [results](#)]

WEPP:Road results version [2009.10.13](#) based on WEPP VERSION 2000.100
 by [Hall](#) and Anderson; Project leader [Bill Elliot](#)
 USDA Forest Service, Rocky Mountain Research Station, Moscow, ID 83843
 08:08 pm Monday March 14, 2011 GMT
 01:08 pm Monday March 14, 2011 Pacific Time
 WEPP:Road run ID wepp-28625



Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	0	10	0.00
Proposed	800	10	0.18
Drill Pads	0	0	0.00
Total			0.18

Per proposed road length over 5 yr disturbance

Road prism erosion (lbs/year)	Sediment leaving buffer zone (lbs/year)
0.0	0.0
351.4	0.0
112.6	0.0
464.0	0.0

Within 325 ft of creeks/streams (used 250 ft buffer for roads and 200 ft buffer for drill pads)

Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	6884.5	10	1.58
Proposed	22594.9	10	5.19
Drill Pads (Phase 1) (25)	1250	50	1.43
Drill Pads (Phase 2) (37)	1750	50	2.01
Total			10.21

Per proposed road length over 5 yr disturbance

Road prism erosion (lbs/year)	Sediment leaving buffer zone (lbs/year)
3448.9	0.0
11324.4	0.0
2815.8	0.0
4167.3	0.0
21756.4	0.0

Within Application Area

Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	6884.5	10	1.58
Proposed	19903.2	10	4.57
Drill Pads (Phase 1) (12)	600	50	0.69
Drill Pads (Phase 2) (37)	1850	50	2.12
Total			8.96

Within Sage Grouse Habitat (BLM 2009)

Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	6722.5	10	1.54
Proposed	22594.9	10	5.19
Drill Pads (Phase 1) (20)	1000	50	1.15
Drill Pads (Phase 2) (46)	2300	50	2.64

Total			10.52

Within 0.6 miles of a Sage Grouse Lek

Other Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	58614	10	13.46
Drill Pads (50)	2500	50	2.87
Total			16.33

Within Paris Hills Property (not including Application Area)

Other Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	53360	10	12.25
Drill Pads (46)	2300	50	2.64
Total			14.89

Within Paris Hills Property (not including Application Area) and within Sage Grouse Habitat (BLM 2009)

Other Paris Hills Roads and Drill Pad Calculations

Roads	Length (ft)	Width (ft)	Disturbed Area (acres)
Existing	21210	10	4.87
Drill Pads (16)	800	50	0.92
Total			5.79

Within Paris Hills Property (not including Application Area) and within 0.6 miles of a Sage Grouse Lek