UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CASPER FIELD OFFICE
FINDING OF NO SIGNIFICANT IMPACT

Cole Creek Exploratory Drilling Project
WY-060-EA12-184

BACKGROUND

The Bureau of Land Management (BLM) prepared an Environmental Assessment (EA) (WY-060-EA12-184) which analyzed the effects of the Cole Creek Exploratory Drilling Project.

PROPOSED ACTION

Specifically, the approval action consists of the construction, drilling and operation of eleven (11) oil and gas wells within the Cole Creek Project Area, including constructing needed access roads and, if oil and gas is produced by the exploratory wells, and installing water pipelines and electrical power supply lines. The locations of the proposed well pads are identified in **Table 2.1-1** and illustrated in **Figure 1**.

Table 2.1-1 Proposed Action Well Names, Locations, and Ownership

Well Name and Number	Location			Surface Ownership	Mineral Ownership	Formation
	Section	Township	Range			
Cole Creek 4-10	10	35N	77W	Federal	Federal	Dakota
Cole Creek 7-9	9	35N	77W	Private	Federal	Dakota
Cole Creek 11-9	9	35N	77W	Private	Federal	Dakota
Cole Creek 15-8H	8	35N	77W	Federal	Federal	Dakota
Cole Creek 3-22	22	35N	77W	Private	Federal	2nd Frontier
Cole Creek 15-15	15	35N	77W	Private	Federal	2nd Frontier
Cole Creek 1-22	22	35N	77W	Private	Federal	2nd Frontier
Cole Creek 7-22	22	35N	77W	Private	Federal	2nd Frontier
Cole Creek 13-23	23	35N	77W	Private	Federal	2nd Frontier
Cole Creek 15-9	9	35N	77W	Private	Federal	Dakota
Cole Creek 9-15	15	35N	77W	Private	Federal	2nd Frontier

Each proposed Dakota Formation well would be drilled to a total depth of approximately 8,500 feet, and each 2nd Frontier Formation well would be drilled to a total depth of approximately 7,500 feet. Drilling would be initiated as soon as all necessary permits are obtained. Preliminary drilling results coupled with the subsequent testing of the initial wells drilled in the Project Area would dictate the subsequent drilling schedule for the remaining wells. Approximately five wells would be drilled and completed per year, for

a total development period of approximately two years. Should the exploratory wells become producers, it is anticipated that the life of an individual well could extend approximately 30 years. The associated access roads would remain in use during that same time period for operations and maintenance functions.

All lease operations would be conducted in full compliance with all applicable laws, regulations (43 CFR 3100 et al.), Onshore Oil and Gas Orders, the approved plan of operations and any applicable Notices to Lessees. Operations on Federal lands would be conducted in compliance with 43 CFR 2800 et al.

2.1.1 Construction Activities

Construction activities for each proposed well location, access road, and utility corridor would follow practices and procedures outlined in each individual APD and any Conditions of Approval (COAs) appended thereto by the BLM. Well pad, access road, and utility corridor construction activities would follow guidelines and standards as set forth in the joint BLM/U.S. Forest Service (USFS) publication: *Surface Operating Standards for Oil and Gas Exploration and Development* (Fourth Edition) (BLM-USFS 2007) and/or the contractual requirements of any affected private (fee) surface owner(s).

2.1.1.1 Well Pads

Well pad construction would consist of roughing in a new access road (or widening an existing access road) to the well site and then leveling a rectangular pad. With associated cut and fill slopes, berms and soil storage areas, each well pad would require 3.5 to 5.0 acres of surface land.

Sufficient topsoil to facilitate revegetation would be segregated from subsoil materials during construction, stockpiled and labeled with appropriate signage for future reclamation of the disturbed areas. The salvaged topsoil would be evenly distributed over those disturbed surfaces subject to reclamation upon termination of drilling and completion operations as part of the reclamation and revegetation program. Topsoil stockpiles would be stabilized with vegetation and/or the use of structure controls until used for reclamation purposes as necessary or required by the BLM. Topsoil stored for more than 6 months would be windrowed to a depth of 3 to 4 feet and reseeded with the seed mixture specified in the approved permit.

Each vertical well pad would contain a reserve pit approximately 150 feet by 80 feet in size and 12 feet deep for the containment of all cuttings and drilling fluids, and to allow for a minimum 2-foot freeboard. Pits that will hold fluids would include a permanent marker designating the point at which 2 feet of freeboard remains in the pit. Reserve pit walls would be sloped at a 1.5:1 ratio. The reserve pits would be lined with a synthetic liner of minimum 20 millimeter thickness, and padded with sufficient weed-free straw to cover all rocks. A felt liner would be used in cases where straw could not sufficiently cover bed rock fragments to prevent puncture. The reserve pits would be fenced on three sides during drilling activities. Following removal of the drill rig, the reserve pits would be fenced on the fourth side. The fourth side would be fenced if fluids are placed in the reserve pit prior to the drilling rig being moved onto location. No trash, scrap pipe, etc.

would be disposed of in the reserve pit. Based on water production volumes at nearby wells, Blue Tip does not expect their proposed wells to yield substantial volumes of produced water. Therefore, reserve pits may not be needed at some or all of the proposed wells. Should a reserve pit not be used, the site would serve as the cuttings storage area. Cuttings storage areas generally would not be lined.

The drilling operations for the proposed horizontal well would use a closed loop mud and fluid system. Therefore, a reserve pit would not be necessary for the drilling of the proposed Cole Creek 15-8H well.

Any residual hydrocarbons remaining in the reserve pits upon completion of drilling operations would be promptly removed, as practical. If any hydrocarbons are in the pit following completion, the pit would be netted. If any reserve pits contain produced water or other free liquids and if removal is not practical, netting would be placed above "inactive" reserve pit(s) after 60 days of inactivity to discourage entry by birds or other wildlife. Netting would remain in place until fluids are removed or evaporated. Once the pit is free of liquids, the reserve pit would be reclaimed by back filling the pit with sub-soil (spoil) material removed during construction. Fencing would remain in place until the pit is backfilled. Once the pit is backfilled, a portion of the stockpiled topsoil would be evenly distributed over the reclaimed area and reseeded in accordance with the specifications of the BLM. Reserve pit siting, design, construction, maintenance, closure, and reclamation criteria would conform to Instructional Memorandum WY-2012-007, "Management of Oil and Gas Exploration and Production Pits" (BLM 2011).

Use of erosion control measures, including proper grading to minimize slopes, diversion terraces and ditches, mulching, terracing, riprap, fiber matting, temporary sediment traps and broad-based drainage dips or low water crossings would be applied as appropriate or required, to minimize erosion and surface run-off during well pad construction and operation.

Total initial new surface disturbance from construction of the proposed 11 new well pads and access roads would be approximately 58 acres, of which approximately 44 acres are associated with well pad construction. The acreage of surface disturbance associated with the construction of each well pad location under the Proposed Action is outlined in **Table 2.1-2**. Following completion operations, a minimum of approximately 1.23 acres of each well pad not needed for production could be reclaimed. During interim reclamation the cut and fill areas would be recontoured to blend in with adjacent natural landscape and revegetated. Thus, of the estimated 44 acres of total new surface disturbance associated with well pad construction, a minimum of approximately 14 acres would be involved in interim reclamation activities. Assuming interim reclamation success, total long-term surface disturbance associated with new well pads would be reduced to a minimum of approximately 31 acres (see **Section 2.1.3** for more information).

Well pad construction is anticipated to require approximately 10 days per well pad depending on the features of each particular site. Construction of a typical well pad

would involve the use of heavy equipment, such as a crawler tractor, motor grader, track hoe, backhoe, dump truck, and possibly a loader. However, equipment needs would vary depending on the site-specific conditions of the individual well pad. Construction equipment is anticipated to include haul trucks (approximately 80,000 pounds [lbs.]) making approximately three round trips per pad per day and light trucks (approximately 20,000 lbs.) making three round trips per pad per day, resulting in average daily traffic of six round trips per pad per day during the construction period.

On average, five personnel per day, mostly equipment operators, would work on the construction of an individual well pad. Those personnel would be required to carpool to and from each well pad site or to/from a central site serving multiple well pad locations, and would likely travel to/from the vicinity of Casper.

2.1.1.2 Access Roads

The primary access to the Project Area from Casper, Wyoming is from existing I-25. From I-25 North Exit 182, vehicles would follow the existing County Road 256 (Cole Creek Road) and continue northeasterly approximately 3 to 10 miles to local service roads.

For the Proposed Action, access to the proposed 11 well locations would be achieved by constructing new roads. Existing two-track routes would also be upgraded and new roads would be constructed to accommodate heavy equipment and vehicular travel. Low-water crossings or metal culverts would be installed and maintained at all drainage crossings. A total of approximately 3.75 miles of upgraded or new road would be required. Access roads would be constructed with an 18-foot travel surface within a 30-foot wide corridor that would also contain overhead power lines and, in some locations, buried water lines.

The total initial surface disturbance associated with the upgrade of unimproved two-tracks and construction of new roads for the Proposed Action would be approximately 13.6 acres. Following installation and reclamation, the linear road corridor would be reduces to 18 feet in width, resulting in 8.2 acres of long-term disturbance (see **Section 2.1.3** for more details).

New road construction and improvements of existing roads would typically require the use of motor graders, crawler tractors, 10-yard end dump trucks, and water trucks. The standard methodology for building new roads involves the use of a crawler tractor or track hoe to windrow vegetation to one side of the corridor, remove topsoil to the opposing side of the corridor, and rough-in the roadway. This is followed by a grader or bulldozer to establish barrow ditches and crown the road surface. Where culverts are required, a track hoe or backhoe would trench the road and install the culverts. Some hand labor would be required when installing and armoring culverts. Graveling or capping the roadbed would be performed as necessary to provide a well-constructed, safe road. Aggregate would be of sufficient size, type, and amount to allow all weather access and to help minimize fugitive dust. A grader would be used to smooth the running surface.

Construction of new roads or upgrades of existing roads would typically take 2 to 3 days per mile of road. Primary access roads or roads constructed or upgraded in steep terrain would require more time to complete; approximately 3 to 4 days per mile of road. Access roads to individual well pads would be constructed immediately prior to well pad construction. For access roads, several crews could operate simultaneously on different roads or different portions of the same road. Total crews working on road construction or improvements could range in size from 10 to 25 personnel. Each access road workforce would include an average of five personnel to operate the equipment.

2.1.1.3 Pipelines

If produced water quantities exceed 40 barrels of water per well per day, Blue Tip proposes to install water pipelines which would consist of buried 2- to 4-inch polypropylene pipelines that would connect wells within the six 2nd Frontier Formation well sites, identified in **Table 2.1-1**, to a proposed salt water disposal (SWD) well located on an existing well pad (Dakota F32-26G) in the southeastern portion of the Project Area. The pipelines would be installed at a minimum depth of 5 to 6 feet below ground level to prevent freezing. All water pipeline segments would be located a 15-foot wide disturbance corridor within the 30-foot wide linear corridor also containing the road and power line.

Sufficient topsoil to facilitate revegetation would be segregated from subsoil materials during pipeline installation activities, stockpiled and labeled with appropriate signage for future reclamation of the disturbed areas. The salvaged topsoil would be evenly distributed over those disturbed surfaces subject to reclamation as part of the reclamation and revegetation program. Topsoil stockpiles would be stabilized with vegetation and/or the use of structure controls until used for reclamation purposes as necessary or required by the BLM. Topsoil stored for more than 6 months would be windrowed to a depth of 3 to 4 feet and reseeded with the seed mixture specified in the approved permit.

Water produced from five wells targeting the Dakota Formation, identified in **Table 2.1-1**, which would be located in the northern portion of the Project Area, would be piped to a holding tank located on each well pad. Water would then be transported by truck for disposal of at a State of Wyoming-approved facility located outside of the Project Area. Water trucks (approximately 60,000 lbs.) would make an average of one daily round trip per well during production.

2.1.1.4 Power Lines

Should the proposed wells become producing wells, Blue Tip proposes to install overhead power lines to production facilities (e.g., pump jacks) of the wells. Electrical power lines would be extended to each well pad from a central transmission line located outside of the Project Area. The power lines would involve an overhead 3-phase, 480-volt electrical power line that would be co-located with existing and proposed access roads within the same 30-foot corridor.

2.1.2 Well Development

2.1.2.1 Drilling Operations

A site-specific description of drilling procedures is included in the APDs submitted to BLM by the Applicant and is available at the BLM Casper FO.

A conventional rotary drill rig with capability matched to the depth requirements of the proposed wells would be used. Each proposed Dakota Formation well would be drilled to a total depth of approximately 8,500 feet, and each 2nd Frontier Formation well would be drilled to a total depth of approximately 7,500 feet.

Water required for drilling and completion would be obtained from the Cole Creek Sheep Company from a State permitted water supply well located in SW¼ NW¼ Section 31, T35N, R76W. Should additional water sources be required, they would be properly permitted through the Wyoming State Engineer's Office (WSEO). Water required for drilling and completion purposes would be trucked to the Project Area on existing roads.

No abnormal pressures are anticipated and the drilling equipment would be equipped with a blowout preventer system rated for 5,000 pounds per square inch (psi) pressure control, which would meet or exceed the requirements indicated in Onshore Oil and Gas Order #2. Hydrogen sulfide gas is not expected in the formations to be encountered during drilling.

Blowout preventer equipment would be installed on the casing head and tested prior to initiating drilling activities to ensure the ability to control unexpected borehole pressures. This equipment, along with the drilling mud, prevents unexpected outflow of borehole fluids from the well. All fluids from the borehole are discharged into and contained within the reserve pit.

Well drilling and completion is anticipated to require approximately 10 days for each vertical well and 21 days for the proposed horizontal well. During the drilling period, vehicular traffic is anticipated to include haul trucks making two daily round trips per well pad; logging/mud trucks (70,000 lbs.) making one daily round trip per well pad; water trucks (approximately 60,000 lbs.) making three daily round trips per well pad, and light trucks making five daily round trips per well pad. Total average daily round trip traffic of 11 trips per well pad would be result over the 10 day period.

2.1.2.2 Completion Operations

Once a well has been drilled, completion operations would begin approximately 2 to 3 weeks after drilling is complete, depending on availability of crews and equipment. Well completion involves setting casing to depth and perforating the casing in target production zones, followed by hydraulic fracturing (fracing) the formation by injecting an agent into the formation under pressure. The fracing material would likely contain sand or other proppant to keep the fractures from closing, thereby allowing oil and gas to be produced from the formation. The Cole Creek 15-8H would not be subject to the fracing phase. The next phase of completion would be to flow and test the well to determine

rates of production. Depending upon the concentration of water and proppant in the flow from the well, this "test" gas would either be vented or flared.

Typical equipment and vehicles used during completion activities include sand transport trucks; water trucks; oil service trucks used to transport pumps and equipment for fracing; flat beds and gin trucks to move water tanks, rigs, tubing, and fracing chemicals; logging trucks and pickup trucks to haul personnel and miscellaneous small materials.

Completion activities on individual wells would occur 24 hours per day, 7 days per week, and would require approximately 15 workers. For shallow vertical and horizontal wells, completion of an individual well would generally take 10 to 15 days, depending on conditions at the individual well.

Flare lines would be directed so as to avoid damage to surrounding vegetation, or other resources, and as required by regulations. If necessary, flare lines would be in place on all well locations. In the event it becomes necessary to flare a well, a deflector and/or directional orifice would also be used to safeguard both personnel and adjacent natural rock faces.

Vehicular transport required for well completion is anticipated to require transport trucks carrying sand and water (approximately 80,000 lbs) making up to 25 daily round trips per well; haul trucks making two daily round trips per well, and light trucks making four daily round trips per well.

2.1.2.3 Well Pad Production Equipment

If a well is productive, surface facilities for each well pad would consist of a wellhead, separating tank, pump jack with electric drive; pump-off controller and transformer; telemetry system, two 400-barrel oil tanks; one water tank; and solar panels. The water tank would remain on site until water flowline infrastructure is in place. All above-ground structures remaining on site longer than 6 months would be painted a flat, non-reflective, earth tone color such as Covert Green to match a standard environmental color as recommended by the BLM.

2.1.3 Surface Disturbance

A summary of the disturbance resulting from implementation of the Proposed Action is shown in **Table 2.1-2**. A total of approximately 58 acres of new surface disturbance would be required for the Proposed Action well pads, new or improved access roads, and co-located, buried water lines and overhead power lines.

Table 2.1-2 Surface Disturbance Acreages for the Proposed Action

Well Number	Short-term Surface Disturbance				Long-term Surface Disturbance			
	Well Pad (acres)	Utility Corridor		Total Acres	Well Pad (acres)	Utility Corridor		Total Acres
		Linear Feet	Acres[1]			Linear Feet	Acres[2]	
Cole Creek 4-10	4.8	1,247	0.9	5.7	3.6	1,247	0.5	4.1
Cole Creek 7-9	4.1	1,320	0.9	5.0	2.9	1,320	0.5	3.4
Cole Creek 11-9	3.6	2,794	1.9	5.5	2.4	2,794	1.2	3.5
Cole Creek 15-8H	4.0	3,993	2.8	6.8	2.8	3,993	1.7	4.4
Cole Creek 3-22	3.6	1,048	0.7	4.3	2.4	1,048	0.4	2.8
Cole Creek 15-15	3.6	2,088	1.4	5.0	2.4	2,088	0.9	3.2
Cole Creek 1-22	4.9	3,027	2.1	7.0	3.7	3,027	1.3	4.9
Cole Creek 7-22	4.3	797	0.5	4.8	3.1	797	0.3	3.4
Cole Creek 13-23	3.7	632	0.4	4.1	2.5	632	0.3	2.7
Cole Creek 15-9	3.5	666	0.5	4.0	2.3	666	0.3	2.5
Cole Creek 9-15	4.0	2,198	1.5	5.5	2.8	2,198	0.9	3.7
TOTAL[3]	**44.1**	**19,810**	**13.6**	**57.7**	**30.6**	**19,810**	**8.2**	**38.8**

Source: D.R.Griffin, 2011

[1] Based on a 30-foot wide disturbance corridor within the 30-foot wide ROW, which includes new roadway and co-located buried water pipelines and overhead power lines.

[2] Based on an 18-foot wide disturbance corridor within the 30-foot wide ROW, which includes new roadway and co-located buried water pipelines and overhead power lines.

[3] Total acreage estimates are based on GIS-software calculations and may not equal total acreage by well pad due to rounding, removal of overlapping development and minute boundary discrepancies. GIS-based calculations are considered more accurate than estimates calculated using simple addition and are therefore used throughout this document.

2.1.4 Water Supply and Disposal

It is estimated that about 1.1 acre-feet (8,534 barrels) of water would be needed to drill and complete each exploratory well, and an estimated 0.1 acre-foot (776 barrels) of water would be needed to control fugitive dust during dry and windy conditions. Thus, an estimated 13.2 acre-feet (102,411 barrels) of water (1.2 acre-feet x 11 wells) would be required for the Proposed Action. Water would be obtained from the Cole Creek Sheep Company from a State permitted water supply well located in SW¼NW¼ Section 31, T35N, R76W and trucked to each well or road construction site. Should additional water sources be required, they would be properly permitted through the WSEO. Water used during exploratory drilling and completion actions would be properly disposed of at a State of Wyoming-approved facility located outside of the Project Area.

2.1.5 Waste Disposal

Drill cuttings (wet sand, shale and rock) would be contained and buried in the reserve pit. Drilling fluids, including salts and chemicals, would be contained in the reserve pit. Any drilling fluids which accumulate in the pit would be promptly reclaimed. All drilling

fluids would be fresh water based, typically containing total dissolved solids (TDS) of less than 3000 parts per million (PPM). No potassium chloride, chromates, trash, debris or other substances deemed hazardous would be placed in the pit.

If produced water quantities exceed 40 barrels of water per well per day, Blue Tip proposes to install water pipelines. However, if produced water pipelines are not warranted, Blue Tip would store produced water onsite in 400-barrel tanks prior to transporting the water via truck to a proposed SWD well located on an existing well pad (Dakota F32-26G) in the southeastern portion of the Project Area.

Upon termination of drilling and completion operations, the liquid contents of the reserve pit would be used at the next drill site or would be removed and disposed of at an approved waste disposal facility within 120 days after drilling is terminated. Immediately upon well completion, any hydrocarbons in the pit would be removed in accordance with 43 CFR 3162.7-1.

Any oil, gas, saltwater, or other noxious fluid spills would be immediately removed and transported to an approved disposal site. The spills would be reported to the BLM and other appropriate authorities.

No hazardous wastes (as defined in 40 CFR 355 or subject to reporting under SARA Title III) would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of the proposed well. In the course of drilling, Blue Tip and their contractors and subcontractors could potentially store and use diesel fuel, sand (silica), hydrochloric acid, and carbon dioxide (CO_2) gas, all described as hazardous substances in 40 CFR Part 302, Section 302.4, in quantities exceeding 10,000 pounds. In addition, natural gas condensate and crude oil, described as hazardous substances in 40 CFR Part 302, Section 302.4, may be stored or used in reportable quantities. During production operations, triethylene glycol, ethylene glycol mix (50 percent), and methanol, all described as hazardous substances in 40 CFR Part 302, Section 302.4, may be stored or used on site. Small quantities of retail products (paint/spray paint, solvents [e.g., “WD-40”], and lubrication oil) containing non-reportable volumes of hazardous substances may be stored and used on site at any time. No extremely hazardous substances, as defined in 40 CFR Part 355, would be used, produced, stored, transported, or disposed of under any of the alternatives.

Garbage, trash, and other waste materials would be collected in a portable, self-contained, fully-enclosed trash cage during operations. Trash would not be burned on location. A chemical porta-toilet would be furnished with the drilling rig. Human waste would be removed from the location and disposed of at an approved municipal sewage system.

2.1.6 Spill Procedures

Sources of potential contamination include leaks or spills of natural gas condensate liquids from wellheads, reserve pits, produced water sumps, and condensate storage tanks located on the well pads, leaks from natural gas gathering pipelines and water management facilities, and spills of produced water or condensate from the proposed

conveyance pipelines. Of these materials, leaks or spills of natural gas condensate would have the greatest potential environmental impact. Leaks or spills of hydrofracturing chemicals, fuels, and lubricants could also result in soil contamination. Depending on the size and type of spill, the effect on soils would primarily consist of the potential loss of soil productivity that could inhibit plant growth and reclamation activities.

As each new well is completed, Blue Tip would complete a site-specific Spill Prevention, Control and Countermeasure Plan (SPCC) diagrams and applicable information, which would be added as an amendment to a field-wide SPCC. If spills of condensate, produced water, or other fluids were to occur in reportable amounts, as defined in BLM NTL-3A, Blue Tip, their contractors, or sub-contractors would immediately contact the BLM, and any other regulatory agencies (e.g., U.S. Environmental Protection Agency [EPA] National Response Center, State of Wyoming) as required by law or regulation. Strict cleanup efforts would be initiated as soon as practicable. Proper final remediation and reporting to the appropriate agencies would be completed by Blue Tip or subcontractors.

2.1.7 Reclamation

A reclamation plan that conforms to Instructional Memorandum WY-2012-032, "Wyoming Bureau of Land Management Reclamation Policy," has been submitted by Blue Tip with the Surface Use Plan of Operations. The reclamation plan discusses procedures for both interim and final reclamation, and is available in the APD package at the BLM Casper FO.

2.1.8 Control of Noxious and Invasive Weed Species

Noxious and invasive weed species would be controlled on all surface disturbance areas in the Project Area by the use of mechanical and/or chemical treatments designed to best control weed species at a specific site. The applicant has submitted an integrated pest and weed management plan (see APD package at the BLM Casper FO).

2.1.9 Applicant-Committed Environmental Protection Measures

In addition to the environmental protection measures required by applicable regulatory authorities, the following Applicant-Committed Environmental Protection Measures (ACEPMs) would be applied to all activities involving Federal lands and/or Federal minerals within the Project Area. Implementation of these measures would be incorporated as COAs, which authorizes the BLM to enforce these measures to help avoid or minimize impacts to the environment.

2.1.9.1 Cultural Resources

- Additional Class III cultural resource inventories would be conducted by a qualified cultural resource consultant on all areas proposed for surface disturbance that have not been previously surveyed. If any cultural resources are identified during these Class III surveys, avoidance or appropriate mitigation would be accomplished in consultation with the State Historic Preservation Officer (SHPO) and the BLM.

- Construction monitors and/or open trench inspections by a qualified cultural resource consultant will be utilized in circumstances where there is no surface indication of cultural resources but deeply buried, intact remains may be present within certain soil conditions such as semi-stabilized dunes and the floodplain of Cole Creek.
- If cultural resources are uncovered during surface-disturbing activities, Blue Tip would suspend operations at the site and immediately contact the BLM's Authorized Officer (AO), who would arrange for a determination of eligibility in consultation with the SHPO, and, if necessary, recommend a recovery or avoidance plan.
- All project personnel would be prohibited from collecting artifacts and from distributing any cultural resources in the area. Blue Tip would be responsible for all persons associated with this proposed project.

2.1.9.2 Paleontological Resources

- As directed by the BLM, a third-party paleontological monitor or representative of the BLM would be present during the use of excavation equipment, specifically during the original cutting of previously undisturbed lands of high paleontological resource potential to inspect exposures for contained fossils. The qualified paleontological monitor would adhere to the reporting and monitoring requirements prescribed by the BLM. A qualified paleontologist is defined as an individual with an M.S. or Ph.D. in paleontology or geology, who is familiar with paleontology procedures and techniques, and holds a BLM-issued paleontological permit.

2.1.9.3 Road Maintenance

- Blue Tip would maintain roads in a safe, usable condition. A regular maintenance program shall include, but not be limited to, blading, ditching, culvert installation, drainage installation, surfacing, and cattleguards, as needed. Design, construction, and maintenance of the roads would be in compliance with the standards contained in the BLM Manual, Section 9113 (Roads), and guidelines and standards identified in the *Surface Operating Standards for Oil and Gas Exploration and Development, 4*th *edition,* also known as the "Gold Book" (BLM/USFS 2007). Construction Best Management Practices (BMPs) for sandy soils (see Section 4.4) would be followed as appropriate.

2.1.9.4 Wildlife, Including Special Status Animal Species

Sage-Grouse

- A qualified biologist would conduct sage grouse surveys within the project area. To reduce potential impacts to sage-grouse nesting/brood-rearing habitats and strutting activities, Blue Tip would prohibit construction, drilling, or completion activities within 2 miles of an occupied lek or suitable habitat from March 15 to July 15.

Raptors

- Prior to any surface-disturbing activities proposed between February 1 and July 31, all areas within 0.5 mile of proposed construction activity would be surveyed for the presence of raptor nests. If occupied raptor nests are found, construction, drilling, and completion would not occur until after July 31 or until young have fledged the nest, except for the species listed below for which a 0.25 mile buffer will be applied for the following species:
    - Red-tailed Hawk
    - American Kestrel
    - Great-horned Owl
    - Northern Saw Whet Owl
    - Western Screech Owl
    - Swainson's Hawk
    - Osprey
    - Long-eared Owl
    - Common Barn Owl
- Overhead power lines will be designed, constructed and installed in accordance with the standards outlines in Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006 (APLIC 2006).

Mountain Plover

- Suitable habitat for mountain plover may be present in the Project Area. Prior to any construction, drilling or completion during the mountain plover breeding season (April 10 – July 10), surveys would be conducted to determine presence/absence and nesting status. If nests are located, then construction would not occur in any mountain plover habitat until after July 10th.

Prairie Dog

- Prairie dog colonies within 0.5 miles of proposed well pads would be surveyed and added to project mapping. If construction, drilling and completion is proposed during the burrowing owl breeding season (March 1 – August 31), any prairie dog colonies within 0.5 mile of the proposed well pad and access road/power line corridor would be surveyed for the presence of nesting burrowing owls.

Burrowing Owl

- If burrowing owls are documented within 0.5 mile of the well pad access road/power line corridor, surface disturbing, drilling, or completion activities at that location would not commence until after August 31st.

2.1.9.5 Vegetation, Including Special Status Plant Species, and Invasive Non-Native Plant Species (Noxious Weeds)

Blowout Penstemon

- A qualified botanist would conduct surveys within the Project Area during the growing season (June 15 – July 15) to determine if habitat or individuals exist on sand dune locations. If blowout penstemon are located, no surface disturbing

activities would be conducted that would directly affect existing plant populations.

- No surface disturbance would occur in suitable blowout penstemon habitat, which consists of open, sandy habitats of wind-excavated depressions (blowouts) in dune tops.

Invasive Non-Native Plant Species

- Blue Tip would control invasive plant species along road and power line corridors, well pads, and other applicable facilities, as well as on areas where these species originate on disturbed surface and invade adjacent areas. A list of invasive plant species would be obtained from the BLM or Natrona and Converse Counties. On lands administered by the BLM, an approved Pesticide Use Proposal (PUP) would be obtained before the application of herbicides or other pesticides for the control of these invasive plant species.

2.1.9.6 Erosion

- No installation activities would be performed during periods when the soil is too wet to adequately support installation equipment. If such equipment creates ruts in excess of three inches deep in straight line travel routes, the soil would be deemed too wet to adequately support the equipment, and installation would cease until drier or frozen conditions are encountered. BMPs for sandy soils will be applied as required in sand dune locations (see **Section 4.4**). For all proposed well sites, reserve pit topsoil would be stored separately from well pad topsoil stock piles.

2.1.9.7 Human Health and Safety

- To protect and minimize the possibility of fires during the construction phase, all equipment, including welding trucks, would be equipped with fire extinguishers and spark arresters. An emergency response plan has been prepared by Blue Tip or its contractors to identify appropriate response measures to situations such as fire, chemical spill or exposure, accident, injury or other type of situation that may require emergency medical treatment or evacuation.
- Implementation of the project SPCC Plan would minimize the risk of such spills by detailing techniques to prevent spills, and outlining measures to be taken in the event of a spill. In the event of a spill, Blue Tip would immediately contact the BLM, and any other regulatory agencies required by law. Strict cleanup efforts would be initiated immediately. Thus, given the reporting and cleanup procedures that would be used, the potential for impacts to soils from spills is considered to be minor.

2.1.9.8 Air Quality

- If wells are productive and gas is produced in association with the targeted oil reserves, Blue Tip would comply with the Department of Interior's Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases (NTL-4A). Specifically, current requirements state that during initial well evaluation

tests, venting and flaring actions would be limited for a period not to exceed 30 days or the production of 50 MMcf of gas, whichever occurs first.

- Members of the pipeline construction crew would car pool to and from the surrounding cities and towns to minimize vehicle-related emissions. During hot, dry, and/or windy conditions, Blue Tip would implement dust control measures (e.g., watering) approved by the BLM during surface disturbing activities to minimize fugitive dust.

2.1.9.9 Water Quality

- Construction at drainage crossings would be limited to periods of low or no-flow.
- Blue Tip would follow all practical alternatives and designs to limit disturbance within drainage channels, including ephemeral and intermittent draws.
- A 100-foot wide buffer area of undisturbed land would be left between proposed well locations and ephemeral and intermittent channels.
- Channel crossings by pipelines and power lines would be constructed so that the pipe is buried at least four feet below the channel bottom.
- Channel crossings by roads, pipelines and power lines would be constructed perpendicular to flow and would not run parallel to ephemeral and intermittent channels.
- Disturbed channel beds would be reshaped to their approximate original configuration.
- All cuttings pits would be constructed with 100 percent of the total depth of the pit below the finished grade of the well location. Pit volumes would be calculated to allow for a minimum of four feet of overburden on the solidified cuttings upon pit closure.
- All cuttings and frac water pits would be designed with a minimum of two feet of freeboard.
- The discharge of all water (storm water, produced water, etc.) would be done in conformance with applicable Wyoming Department of Environmental Quality (WDEQ), BLM and WOGCC rules and regulations.

2.1.9.10 Livestock Grazing

- Removal or disturbance of vegetation would be kept to a minimum through construction site management (e.g., by utilizing previously disturbed areas, using existing ROWs, designating limited equipment/material storage yards and staging areas, scalping, etc.).
- Blue Tip would seed and stabilize disturbed areas in accordance with management direction from the BLM AO.
- Blue Tip would monitor for noxious and invasive weed species and would apply BLM approved weed control techniques (e.g., soil sterilants, biological controls, etc.) as necessary to control infestations with the prior approval of the BLM AO.
- Blue Tip would fence all open pits as deemed necessary by and in accordance with management direction received from both the BLM AO and the affected private surface owner.

2.1.9.11 Geology and Minerals

- If usable quality water and/or prospectively-valuable minerals, such as gilsonite, tar sands and oil shales, were encountered by the well bore, those formations would be isolated and/or protected by the cement program for the production casing. Based on cement log results, remedial cementing action would be conducted as necessary.

Mitigation Measures:
In addition to the Applicant-Committed Environmental Protection Measures (ACEPMs) in section 2.1.9 in the EA and listed above, the following mitigation measures will be applied:

The operator will follow the guidance provided in the Wyoming Policy on Reclamation (Instructional Memorandum WY-2012-032). The Wyoming Reclamation Policy applies to all surface disturbing activities. Authorizations for surface disturbing actions are based upon the assumptions that an area can and ultimately will be successfully reclaimed. BLM reclamation goals emphasize eventual ecosystem reconstruction, which means returning the land to a condition approximate to an approved "Reference Site" or NRCS Ecological Site Transition State. Final reclamation measures are used to achieve this goal. BLM reclamation goals also include the short-term goal of quickly stabilizing disturbed areas to protect both disturbed and adjacent undisturbed areas from unnecessary degradation. Interim reclamation measures are used to achieve this short-term goal.

Topsoil and subsoil would be stockpiled separately. Stockpiled topsoil would be labeled with signage.

Proposed surface-disturbing activities will be modified (located) to avoid areas of highly erosive soils to the greatest extent practicable. When avoidance of highly erosive soils is not practicable the operator shall submit an individual site plan to and approved by the BLM AO meeting the following requirements.

- Engineered drawings for construction, site drainage design, and final rehabilitation contours with a written rational describing how the proposed controls will prevent slope failure and erosion, while maintaining viable topsoil for final reclamation.
- This plan should also include a timeline identifying the actions that will be applied during the construction, production and rehabilitation phases of the plan so appropriate monitoring protocols can be developed by the BLM to ensure that the plan is meeting the objective described in its rationale.

If wells are productive and gas is produced in association with the targeted oil reserves, Blue Tip would comply with the Department of Interior's Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases (NTL-4A). Specifically, current requirements state that during initial well evaluation tests, venting and flaring actions would be limited for a period not to exceed 30 days or the production of 50 MMcf of gas, whichever occurs first.

As discussed previously in **Section 2.1.1**, drilling and completion operations would be conducted in accordance with Onshore Oil and Gas Order No. 2 (BLM 1988) and the Gold Book (BLM-USFS 2007). If usable quality water and/or prospectively-valuable minerals, such as gilsonite, tar sands and oil shales, were encountered by the well bore, those formations would be isolated and/or protected by the cement program for the production casing. Based on cement log results, remedial cementing action would be required as necessary.

Any residual hydrocarbons remaining in the reserve pits following the completion of drilling operations would be promptly removed, as practical. Once the pit is backfilled, a portion of the stockpiled topsoil would be evenly distributed over the reclaimed area and reseeded in accordance with the specifications of the BLM. Use of erosion control measures, including proper grading to minimize slopes, diversion terraces and ditches, mulching, terracing, riprap, fiber matting, temporary sediment traps and broad-based drainage dips or low water crossings would be applied as appropriate or required, to minimize erosion and surface run-off during well pad construction and operation.

The potential for off-site erosion and sedimentation throughout the Project Area would be reduced through the implementation of BMPs in the construction and subsequent reclamation of surface disturbances.

Construction activities for each proposed well location, access road, and utility corridor would follow practices and procedures outlined in each individual APD and any COAs appended thereto by the BLM. Well pad, access road, and utility corridor construction activities would follow guidelines and standards as set forth in the Gold Book and/or the contractual requirements of any affected fee/private surface owner(s).

Culvert design would be determined prior to construction activities and would be sized adequately to meet anticipated stream flows, minimizing impact to streamflow volume to Cole Creek.

As determined by the BLM AO, Storm Water Management Plans (WYPDES Storm Water Permit) will be required on all new BLM projects of more than 1 acre (BLM 2007).

Any residual hydrocarbons remaining in the reserve pits following the completion of drilling operations would be promptly removed, as practical. Once the pit is backfilled, a portion of the stockpiled topsoil would be evenly distributed over the reclaimed area and reseeded. Use of erosion control measures, including proper grading to minimize slopes, diversion terraces and ditches, mulching, terracing, riprap, fiber matting, temporary sediment traps and broad-based drainage dips or low water crossings would be applied as appropriate or required, to minimize erosion and surface run-off during well pad construction and operation.

The potential for off-site erosion and sedimentation throughout the Project Area would be reduced through the implementation of BMPs in the construction and subsequent reclamation of surface disturbances.

Well pad, access road, and utility corridor construction activities would follow guidelines and standards as set forth in the contractual requirements of any affected fee/private surface owner(s).

Culvert design would be determined prior to construction activities and would be sized adequately to meet anticipated stream flows, minimizing impact to streamflow volume to Cole Creek.

Impacts to vegetation would be partially mitigated by proper storage of topsoil and subsoil stockpiles, reclamation of disturbed areas with desired plant species and control of noxious and invasive weeds. Effective weed control would be needed to minimize impacts from noxious and invasive weed infestations until reclamation is deemed successful.

Areas known or suspected to contain essential habitat for special status plant species will be subject to a controlled use restriction requiring Blue Tip to conduct inventories or surveys to verify the presence or absence of special status species. Additionally, no well pads or access roads will be placed on top of sand dunes which provide potential suitable habitat for blowout penstemon. A qualified botanist would conduct surveys within the project area during the growing season (June 15 – July 15) to determine if habitat or individuals exist on sand dune locations. If individuals are located, no well site development activities would take place.

Areas known or suspected to contain essential habitat for special status plant species will be subject to a controlled use restriction requiring Blue Tip to conduct inventories or surveys to verify the presence or absence of special status species. Additionally, no well pads or access roads will be placed on top of sand dunes which provide potential habitat for blowout penstemon. A qualified botanist would conduct surveys within the Project Area during the growing season (June 15 to July 15) to determine if habitat or individuals exist on sand dune locations. If individuals are located, no well site development activities would take place.

Direct and indirect impacts to big game would be minimized through ACEPMs regarding revegetation and erosion control to restore suitable habitat that provides sufficient forage and needed cover.

To avoid impacts to breeding mountain plovers, Blue Tip has committed to avoiding construction during the mountain plover nesting period (April 10 to July 10).

If any ground disturbing activity is proposed for the Federal 15-9 well during the breeding season, prairie dog colonies within 0.25 mile of the proposed surface disturbance would be surveyed for the presence of nesting burrowing owls. If burrowing

owls are documented within 0.25 mile of a host location, surface disturbing, drilling, or completion activities at that location would not commence until after the breeding season.

Successful interim and final reclamation, in conjunction with weed control efforts, would help to restore the needed forage and cover types required by migratory birds over time.

All lease operations would be conducted in full compliance with all applicable laws, regulations (43 CFR 3100 et al.), Onshore Oil and Gas Orders, the approved plan of operations and any applicable Notices to Lessees. Operations on Federal lands would be conducted in compliance with 43 CFR 2800 et al.

To maintain the integrity of vegetation and to protect highly erosive soils and watershed values in the SHMA, travel on the access road associated with the Federal 15-8H well would be designated as limited to authorized use only, and would be restricted to permitted users having authorization for use of specific routes.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the information contained in the EA, and all other information available to me, it is my determination that: (1) the implementation of the Proposed Action will not have significant environmental impacts beyond those already addressed in Casper Resource Management Plan, December 2007; (2) the Proposed Action is in conformance with the Resource Management Plan; and (3) the Proposed Action does not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement is not necessary and will not be prepared.

This finding is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR '1508.27), both with regard to the context and to the intensity of the impacts described in the EA.

Rationale for Finding of No Significant Impact

The primary purpose for conducting an environmental assessment (EA) is to determine whether or not a proposed action will have a significant impact on the human environment and therefore will require the preparation of an EIS. As defined in 40 CFR 1508.13, the Finding of No Significant Impact (FONSI) is a document that briefly presents the reasons why an action will not have a significant effect on the human environment. The regulations further define the term "significantly" in 40 CFR 1508.27 and require that the context and intensity of impacts be considered in analyzing significance. The following provides an analysis of the significance of impacts of the Cole Creek Expolratory Drilling Project in terms of context and intensity as defined in the regulations.

"a) <u>Context</u>. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the settling of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon

the effects in the locale rather than in the world as a whole. Both short-term and long-term effects are relevant". (40 CFR 1508.27(a))

"(b) Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluation intensity." (40 CFR 1508.27(b))

I have considered the potential intensity/severity of the impacts anticipated from the Cole Creek Exploratory Drilling Project decision relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

1. Impacts that may be both beneficial and adverse.

Chapter 4 of the EA identifies the impacts that would likely occur. Impacts associated with the development of this project are generally considered to be beneficial. Activities and proposed mitigation measures as identified in the EA would occur while not causing impacts that rise to the level of significance as defined by the Council on Environmental Quality.

2. The degree to which the proposed action affects public health and safety.

To protect and minimize the possibility of fires during the construction phase, all equipment, including welding trucks, would be equipped with fire extinguishers and spark arresters. An emergency response plan is in place to identify appropriate response measures to situations such as fire, chemical spill or exposure, accident, injury or other type of situation that may require emergency medical treatment or evacuation.

Implementation of the project SPCC Plan would minimize the risk of such spills by detailing techniques to prevent spills, and outlining measures to be taken in the event of a spill. In the event of a spill, Blue Tip would immediately contact the BLM, and any other regulatory agencies required by law. Strict cleanup efforts would be initiated immediately. Thus, given the reporting and cleanup procedures that would be used, the potential for impacts to soils from spills is considered to be minor.

3. Unique characteristics of the geographic area such as proximity of historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

The Sand Hills Management Area (SHMA) was established to maintain the integrity of soils and vegetation and to protect highly erosive soils and watershed values. The area is comprised of large stabilized sand dunes and the associated vegetation communities. The ecosystem is easily impacted by ground-disturbing activities.

One proposed well site (Federal 15-8H) within Section 8, T.35N., R.77W., is located within the SHMA. Disturbance to land located within the SHMA would be limited to this

one site. The proposed Federal 15-8H pad and associated 0.76 mile access road would initially require approximately 6.8 acres of land. Approximately 0.25 mile of the road would be constructed within the SHMA. The total amount of land area required would be reduced to 4.4 acres after reclamation. This associated access road would remain in use during the time period for operations and maintenance of the well.

The Proposed Action would temporarily result in increased vehicle traffic, noise, dust, and human activity during the construction period in the vicinity of the proposed Federal 15-8H well within the SHMA.

To maintain the integrity of vegetation and to protect highly erosive soils and watershed values in the SHMA, travel on the access road associated with the Federal 15-8H well would be designated as limited to authorized use only, and would be restricted to permitted users having authorization for use of specific routes.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.

No anticipated effects have been identified that are considered "highly controversial". "The term 'highly controversial' refers to instances in which 'a substantial dispute exists as to the size, nature, or effect of the major federal action rather than the mere existence of opposition to a use." Hells Canyon Preservation Council v. Jacoby, 9 F.Supp.2d 1216, 1242 (D. Or. 1998).

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

Improvements in drilling techniques have allowed avoidance of sensitive surface features, recovery of additional oil and gas reserves, reduced drilling time, lower associated waste volumes, reduced emissions, and greater protection of sensitive environments. (Reasonably Foreseeable Development Scenario for Oil and Gas (RFD), (BLM 2005).

The extent and degree of the possible effects on the human environment for oil and gas exploration and development are not considered to be highly uncertain or involve unique or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The proposed action will not establish a precedent and does not represent a decision in principal about future considerations.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

Cumulative impacts are described in Chapter 4 of the Cole Creek Exploratory Drilling Project (WY-060-EA12-184). The affected resources analyzed are not approaching conditions where additional stresses associated with the proposed action and past, present, and future foreseeable actions have consequential cumulative effects that rise to level of significance as defined by the Council on Environmental Quality.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.

A series of Class III inventories have been completed for some of the proposed areas of disturbance presented in this EA by Frontier Archaeology (Frontier 2011a; 2011b; 2011c; 2011d; 2012a; 2012b; and 2012c). These inventories included an adequate buffer zone to account for project changes. Between March and May, 2012, a 500 acre block Class III cultural resource inventory was also completed (Frontier 2012d) to insure maximum flexibility in siting some of the proposed wells and facilities. In summary, three cultural resource sites and 21 isolated finds have been identified.

Impacts to cultural resources would be minimized by avoidance as discussed above, as well as by the ACEPMs listed in Section 2.1.9 of the EA.

The Project Area is underlain by rocks of the Lance Formation and alluvial deposits. The Lance Formation is known to contain a high occurrence of vertebrate and/or other fossil resources, primarily dinosaur and marine remains, which may vary in occurrence and predictability.

As directed by the BLM, a third-party paleontological monitor or representative of the BLM would be present during the use of excavation equipment, specifically during the original cutting of previously undisturbed lands of high paleontological resource potential to inspect exposures for contained fossils. The qualified paleontological monitor would adhere to the reporting and monitoring requirements prescribed by the BLM. A qualified paleontologist is defined as an individual with an M.S. or Ph.D. in paleontology or geology, who is familiar with paleontology procedures and techniques, and holds a BLM-issued paleontological permit.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

Potential blowout penstemon (Penstemon haydenii) habitat is present in the northern portion of the Project Area where dunes are present. Most of these dunes are vegetated, however there are exposed portions of these dunes where sand is present on the surface.

A field habitat survey was conducted by Kleinfelder, Inc. in March 2012, which did not identify any "blowouts" along the areas proposed for well pad and access road construction. In Wyoming, the only known populations of blowout penstemon are located at the eastern end of the Ferris sand dune system at the head of Schoolhouse Creek and on the west side of Bradley Peak in Carbon County (BLM 2003). Therefore, no direct impacts to this species are anticipated as a result of the Proposed Action.

Due to the ACEPMs in Section 2.1.9 of the EA and the mitigation measures, all direct and indirect impacts from implementation of the Proposed Action would be fully mitigated; therefore, there will be "No Effect" to the Blowout penstemon (Penstemon haydenii).

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The proposed action is consistent with all Federal, State, and local laws.

Patrick J. Moore

Assistant Field Manager, Lands and Minerals
Casper Field Office

8/9/2012

Date