

**U.S. Department of the Interior
Bureau of Land Management**

**Environmental Assessment DOI-BLM-LLUTG01000-2009-0258-EA
May, 2012**

**Cochrane Resources proposes to drill
One new natural gas well
The Horse Point Federal Well 12-13**

***Location:* SW/NW of Section 13 Township 16 South, Range 23 East**
***Applicant/Address:* Cochrane Resources**
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COCHRANE RESOURCES PROPOSED GAS WELL IN SECTION 13, TOWNSHIP 16 SOUTH, RANGE
23 EAST, HORSE POINT AREA, GRAND COUNTY, UTAH
Environmental Assessment DOI-BLM-LLUTG01000-2009-0258-EA

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1.0 INTRODUCTION AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze Cochrane Resources proposal to drill one new natural gas well. The access road and pipeline would be within the Horse Point Lease boundary and would not need a right-of-way. The well information is as follows:

<u>Well Name/Number</u>	<u>Legal Location</u>	<u>Lease Number</u>
Horse Point 12-13	SW/NW of Sec.13 T16S R23E	UTU-84672

The project includes utilization of the existing two track road that enters and crosses the well pad from the west side (see Appendix D: Maps 3 and 4). There would be approximately 366 feet of buried, steel, gas pipeline paralleling the access road. During construction, brush and other vegetation would be left between the location and the Divide Ridge Road to block the view of the access road and well pad (see Appendix G: Figures A and B). In addition, the two northern corners of the well pad will be rounded off to allow more distance from road and well pad and to prevent disturbance from extending past the existing two-track road. Production equipment including tanks on location will be low profile (will not exceed 12 feet in height) and will be placed near where the access road enters the well pad to maximize interim reclamation potential and vegetative screening. The well would be constructed and drilled after approval of the APD (Application for Permit to Drill). An approved APD is valid for two years, and the operator can apply for a two year extension if necessary. The proposed well would be located on land that is administered by the Vernal Field Office (VFO) of the Bureau of Land Management (BLM).

The EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI). A FONSI statement is a document that briefly presents the reasons why implementation of the selected alternative will not result in “significant” environmental impacts (effects) beyond those already addressed in the Vernal Field Office Resource Management Plan and Record of Decision (October 31, 2008). If, the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the alternative selected.

1.2 NEED FOR THE PROPOSED ACTION

The underlying need for the proposed action is for Cochrane Resources to develop federal lease UTU-84672 by drilling the proposed well, and if successful, to produce commercial quantities of gas from its federal oil and gas lease. This is also a lease obligation location which means that the well must be drilled and proved capable of production to secure lease UTU-84672. There are known hydrocarbon-trapping mechanisms within Cochrane's development program, based on previously drilled wells in the area around this proposed action and reasoned geologic formations and mineral potentials.

Private exploration and production from federal oil and gas leases is an integral part of the BLM oil and gas leasing program under authority of the Mineral Leasing Act of 1920, as amended by the Federal Land Policy and Management Act of 1976 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The operator has a valid existing right to extract mineral resources from federal lease UTU-84672 subject to the lease's terms and conditions. The BLM oil and gas leasing program encourages development of domestic oil and gas reserves and the reduction of U.S. dependence on foreign energy sources.

1.3 PURPOSE OF THE PROPOSED ACTION

The BLM's purpose is to allow beneficial use of the applicant's lease in an environmentally sound manner.

1.4 CONFORMANCE WITH BLM LAND USE PLANS

The proposed well and related facilities would be in conformance with the Vernal Field Office RMP/ROD and the terms of the leases. The RMP/ROD decision allows leasing of oil and gas while protecting or mitigating other resource values (RMP/ROD p. 96-98). The Minerals and Energy Resources Management Objectives encourage the drilling of oil and gas wells by private industry (RMP/ROD, p. 96). It has been determined that the proposed action and alternatives would not conflict with other decisions throughout the plan.

The proposed action is within a Visual Resources Management Class II (VRM II) area as discussed in the 2008 Vernal BLM RMP/ROD. The lease predates the Vernal RMP/ROD, and the RMP/ROD specifies that it does not alter valid existing rights (pg. 21, 2008 Vernal RMP/ROD). However, there is a lease notice attached to this lease that states the BLM may require modifications to drilling proposals to reduce visual impacts. The area is also inside crucial deer fawning habitat as discussed in the 2008 Vernal RMP/ROD, which restricts construction and drilling from May 15 – June 30. There is a similar lease stipulation attached to this lease.

1.5 RELATIONSHIPS TO STATUTES, REGULATIONS, OR OTHER PLANS

The Proposed Action and the No Action Alternative are consistent with federal, state, and local laws, regulations, and plans (see Sections 1.5.1 and 1.5.2 below).

Utah's Standards for Rangeland Health (BLM 1997) address upland soils, riparian/wetlands, desired and native species, and water quality. These resources are analyzed later in this document or, if not affected, are listed in Appendix A.

1.5.1 Federal Laws and Statutes

The subject lands were leased for oil or gas development under authority of the Mineral Leasing Act of 1920, as modified by the Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The lessee/operator has the right to explore for oil and gas on the lease as specified in 43 CFR 3103.1-2, and if a discovery is made, to produce oil and/or natural gas for economic gain.

1.5.2 State and Local Laws and Statutes

There are no comprehensive State of Utah plans for the vicinity of the Proposed Action.

The proposed project is consistent with the *Grand County Public Land Use Plan* (County Plan) (published in April 2004) that encompasses the location of the proposed wells. In general, the plan indicates support for development proposals such as the proposed action through the plan's emphasis on multiple-use public land management practices, responsible use and optimum utilization. However, under the Moab Field Office Transportation Plan and according to Grand County, the existing road has been designated closed. Additional mitigation has been included to allow for authorized vehicular access only into the well site itself. Access to the primitive camp beyond the well pad will be by hiking only.

The State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby state land for oil and gas production. Because the objectives of SITLA are to produce funding for the state school system, and because production on federal leases could further interest in drilling on state leases in the area, it is assumed that the alternatives analyzed, except the No Action Alternative, are consistent with the objectives of the state.

1.6 IDENTIFICATION OF ISSUES

Resources that may be affected by the proposed action are listed in Appendix A. The rationale as to why a resource would or would not be affected by the proposed action is also provided in this table. Elements that may be affected by the proposed action are analyzed in detail in Chapters 3 and 4. Federally threatened and endangered species, Utah Special Status Species, and Partners in Flight Species of Concern potentially occurring in the proposed project area are listed in Appendix B. Rationale for why certain wildlife species would not be impacted by the proposed action is also provided in this table. Wildlife species that may be affected by the proposed action are analyzed in detail in Chapters 3 and 4. Maps of the proposed location and the VRM layer from 2008 Vernal RMP is included in Appendix D.

Federally-listed threatened, endangered, and Utah State/BLM-sensitive plant species potentially occurring in the proposed Project Area are listed in Appendix C. Rationale for why certain plant species would not be impacted by the Proposed Action is also provided in this table. Plant

species that may be affected by the Proposed Action are analyzed in detail in Chapters 3 and 4. The resources potentially affected by the proposed action are summarized below.

Air Quality

Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality including greenhouse gases.

Soils and Vegetation

The main issue is the approximately 2.0 acres of proposed disturbance required for building the well pad and access corridors. This includes taking away the vegetation and soils that are there. Soils would be stockpiled on location for use in reclamation.

Wildlife: Big Game

Mule deer from the Vernal Herd Unit occupy the surrounding area of the proposed project area on a year-round basis. The main issue is disturbing approximately 2.0 acres of potential habitat. This will be mitigated by proposed interim reclamation efforts as well as final reclamation efforts that take place when the well is plugged and abandoned.

Wildlife: Migratory Birds

Since approximately 2.0 acres of new disturbance will take place, habitat for migrating birds will be affected by the proposed action.

Wildlife: Special Status Fish

Water depletion will occur for drilling of the proposed location. This has been identified and consulted on through the Endangered Species Act Section 7 process (see Chapter 5); approximately 3 acre-feet of water will be used for drilling purposes.

Visual Resource Management

The area has been identified as being inside a VRM class II area. This class allows for minimal changes in the landscape. The project has been designed to reduce visual impacts by utilizing an existing road for access to the pad, using low profile tanks, moving the tanks to where the access road enters the well pad to maximize interim reclamation potential and vegetative screening, and leaving most of the vegetation surrounding the pad in place to screen the location and facilities from the Divide Ridge Road, which is a key observation point (see Appendix F).

Recreation

There is a primitive campsite adjacent to the proposal to the south. The access to this site is available through utilization of the existing road. The road is designated closed by the Grand County, but this proposal would prevent reclamation of the road for the life of the well. As a result, the Proposed Action has been designed to include placing a sign and a gate at the access

roads' intersection with the Divide Ridge Road indicating that the road is for authorized use only.

Non-WSA Lands with Wilderness Characteristics

Surface disturbance and the placement of semi-permanent structures and facilities would impact the area's naturalness, solitude, and primitive recreation opportunities. Approximately 2.8 acres would be disturbed in the Hideout Canyon area.

1.7 SUMMARY

This chapter has presented the purpose and need for the proposed project, as well as a summary of the relevant issues—i.e., those elements that could be affected by the implementation of the proposed project. The Proposed Action and No Action Alternative are presented in Chapter 2. The existing condition of the affected resources is described in detail in Chapter 3. The potential environmental impacts or consequences resulting from the implementation of each alternative are analyzed in detail in Chapter 4 for each of the identified issues. Chapter 5 lists and summarizes consultation, coordination, and public involvement that occurred during preparation of this EA. Chapter 6 lists the references cited and the acronyms used in this document.

2.0 DESCRIPTION OF ALTERNATIVES

2.1 INTRODUCTION

This EA will focus on the Proposed Action and No Action Alternatives. The No Action Alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action Alternative. Other alternatives considered but dropped from detailed analysis are as discussed in section 2.4.

2.2 ALTERNATIVE A – PROPOSED ACTION

Table 1 summarizes the disturbance potential for the proposed action. Each item is discussed in greater detail in the following subsections.

Table 1: Proposed Disturbance for the Proposed Action Alternative

Well #	Access Road	Buried Pipeline	Well Pad	Total disturbance
Horse Point Federal 12-13	Minor upgrades to existing route. Minimal surface disturbances will occur. Less than 0.1 acre may be upgraded through graveling or crowning.	366 ft. 0.3 acre	1.6 acres	2.0 acres

2.2.1 Access

The project includes utilization of the existing two track road that enters and crosses the well pad from the west side (see Appendix D: Maps 3 and 4 and Appendix G: Figure A). Under the Proposed Action, the existing route would be used as is, but may require some graveling or capping of the two-track roadbed to provide a well-constructed, safe road that minimizes the potential soil loss due to the natural erosion that takes place in the area. The access from the existing two tracks will utilize less than 0.1 acre, or 20 feet of new road. Prior to construction or upgrading, the proposed route would be cleared of any snow and allowed to dry completely if construction happens in winter months.

This road has been closed to motorized recreational use as per Grand County. As a result, the road will have a gate and sign placed where it intersects with the Divide Ridge Road to keep unauthorized motorized vehicles from accessing the area.

Any surface disturbance and vehicular traffic would be limited to the proposed location and proposed access route. Any additional area needed would be approved in advance by submittal

of the Sundry Notice Form 3160-5, but no additional area is anticipated to be needed at this time. All construction shall be in conformance with the standards outlined in the BLM and Forest Service publication: *Surface Operating Standards for Oil and Gas Exploration and Development* (2007).

The road surface and shoulders would be kept in a safe and usable condition and would be maintained in accordance with the original construction standards. All drainage ditches would be kept clear. The existing access road surface would be kept free of trash during operations. All traffic would be confined to the approved disturbed surface. Road drainage crossings would be designed so they would not cause siltation or accumulation of debris in drainage crossings, nor would the drainages be blocked by the road bed. Erosion of drainage ditches by runoff water would be prevented by diverting water off at frequent intervals by means of cutouts. Should mud holes develop, they would be filled in and detours around them avoided. When the snow would be removed from the road during the winter months, the snow would be pushed outside of the borrow ditches if any exist, and the turnouts kept clear so that snowmelt would be channeled away from the road to minimize soil loss.

2.2.2 Well Site Layout

The pad, pit, cuts, fills, and soil and rock storage piles would amount to approximately 2.0 acres. Surface and subsoil materials in the immediate project area would be used for construction. Any necessary gravel would be obtained from a commercial source. During construction, brush and other vegetation would be left between the location and the Divide Ridge Road to block the view of the access road and well pad (Appendix G: Figure B). In addition, the two northern corners of the well pad will be rounded off to allow more distance from road and well pad and to prevent disturbance extending past the existing two-track road.

2.2.3 Surface Facilities

Production equipment including tanks on location will be low profile (will not exceed 12 feet in height) and will be placed near where the access road enters the well pad to maximize vegetative screening and interim reclamation potential. All production facilities would be located on the disturbed portion of the well pad and a minimum of 25 feet from the toe of the back slope or the top of the fill slope.

A dike/berm would be constructed completely around those production facilities which contain fluids (i.e., production tanks, produced water tanks, and/or heater-treater). It would be constructed of compacted subsoil, be impervious, hold 110% of the capacity of the largest tank, and be independent of the back cut.

All permanent (on-site six months or longer), above ground structures constructed or installed, including pumping units, would be painted a flat, non-reflective, earth tone color to match one of the standard environmental colors, as determined by the five state Rocky Mountain Inter-Agency Committee. All facilities would be painted within six months of installation. Facilities complying with the Occupational Safety and Health Act (OSHA) would be excluded. The requested color is Yuma Green as determined during the on-site inspection. Low profile tanks would be installed as discussed on the onsite on August 20, 2007 as well to minimize visual

impacts since the proposed well is within VRM 2. This also meets the management objectives laid out in the 2008 Vernal RMP decision.

The reserve pit would be constructed on the well pad and would not be located within natural drainages, where flood hazards exist or surface runoff would destroy or damage the pit walls. The reserve pit would be constructed so that it would not leak, break, or allow discharge of liquids. A layer of plastic reinforced liner would be used in the pit. It would be a minimum of 16 ml thick lining, with a layer of felt bedding to cover any rocks. The liner would overlap the pit walls and be covered with dirt and/or rocks to hold it in place. No trash or scrap that could puncture the liner would be disposed of in the pit. The reserve pit would be fenced on three sides during drilling operations and on the fourth side when the rig moves off location. It would be fenced, and the fence maintained, until the pit undergoes reclamation.

Any necessary pits would be properly fenced to protect livestock or wildlife from entry. The fence would be maintained until such time as the pits are backfilled. A 39-inch net wire would be used with at least one strand of barbed wire on top of the net wire. Barbed wire would not be necessary if pipe or some type of reinforcement rod is attached to the top of the entire fence. The net wire would be no more than 2 inches above the ground. The barbed wire would be 3 inches over the net wire. Total height of the fence would be at least 42 inches. Corner posts would be cemented and/or braced in such a manner as to keep the fence tight at all times. Standard steel, wood, or pipe posts would be used between the corner braces. Maximum distance between any two fence posts shall be no greater than 16 feet. All wire would be stretched using a stretching device before attachment to the corner posts.

2.2.4 Pipelines

Approximately, 366 ft. of up to 6" steel buried pipeline would be installed adjacent to the existing access corridor for the proposed well location. There would be a 30 feet wide disturbance area for the installation of the proposed pipeline. The total disturbance for the pipeline would be approximately 0.3 acre. A right-of-way would not be required for the pipeline because the pipeline is all in the Horse Point Lease UTU-84672.

2.2.5 Water Supply

Water for drilling and cementing purposes would be obtained from Permit number 43-10447. This water source is considered to be depleting to the Colorado River system because it draws water from a well of less than five hundred feet depth located in alluvium, or colluvium, or a floodplain.

2.2.6 Hazardous Materials

No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with the drilling of this well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of in association with the drilling of this well.

2.2.7 Waste Disposal

Drill cuttings would be contained and buried in the reserve pit. Drilling fluids, including salts and chemicals, would be contained in the reserve pit. Upon termination of drilling and completion operations, the liquid contents of the reserve pit would be removed and disposed of at an approved waste disposal facility within 120 days after drilling is terminated. Any spills of oil, gas, salt water, or other noxious fluids would immediately be cleaned up and taken to an approved disposal site.

A chemical porta-toilet would be furnished with the drilling rig. Garbage, trash, and other waste materials would be collected in a portable, self-contained, fully enclosed trash cage during operations. No trash would be burned on location, or buried in the reserve pit. All debris and other waste material not contained in the trash cage would be cleaned up and removed from the location immediately after removal of the drilling rig.

2.2.8 Invasive Weeds

The operator would control invasive plants and noxious weeds along corridors for roads, pipelines, well sites, or other applicable facilities, through a Pesticide Use Proposal (PUP).

2.2.9 Reclamation

See Appendix E for the full approved Reclamation Plan for Cochrane Resources. Information below is extracted from the Reclamation Plan.

2.2.9.1 Producing Location

Immediately upon well completion, the location and surrounding area would be cleared of all unused tubing, equipment, debris, materials, and trash. Any hydrocarbons in the pit would be removed in accordance with 43 CFR 3162.7-1. The reserve pit and the portion of the well not needed for production facilities/operations would be reclaimed as described in section 2.2.9.3.

2.2.9.2 Topsoil

Topsoil will be stockpiled separately from other soil materials (subsoil) and maintained for future use in rehabilitating the locations. Topsoil storage areas would be identified with appropriate signage or other approved method. After pipeline installation is complete, salvaged topsoil would be re-distributed evenly over disturbed surfaces as described in section 2.2.9.3. Topsoil piles stored beyond one growing season would be stabilized and seeded to prevent loss of topsoil by erosion processes.

2.2.9.3 Interim Reclamation

Interim reclamation of the well pad would take place after drilling and completion and would include the reclamation of the reserve pit and the portion of the well pad not needed for

production facilities and operations, as well as reclamation of the pipeline. The reserve pit would be reclaimed within 120 days from the date of well completion, or as soon as environmental conditions allow. If the pit is not dry prior to the onset of winter, the company has committed to remove the water from the pit via vacuum truck, and then commence reclamation. Final reclamation of the well pad would take place after the well is plugged and would include the reclamation of the remaining well pad and road. Reclamation of the pipeline will take place immediately after installation of the pipeline (see section 2.2.9.4).

During reclamation, disturbed areas would be recontoured to the approximate natural contours that occurred prior to surface disturbance. Site preparation may include gouging, scarifying, dozer track-walking, mulching, or soil additives. Soil compaction would be reduced to the anticipated root depth of the desired plant species (usually 18 to 24 inches in a cross hatch manner where practicable). Disking may be necessary to eliminate large soil clumps or clods. The stockpiled pit topsoil would then be spread over the pit area.

Additional seedbed preparation would be determined by the appropriate surface managing agency (SMA) at the time of reclamation. Methods such as hydro-mulching, straw mat application on steeper slopes, soil analysis to determine the need for fertilizer, contour furrowing, watering, terracing, water barring, and replacing topsoil would be implemented as directed by the SMA.

It is currently anticipated that the below seed mix will be used for final reclamation as well as interim reclamation. However, upon notice of final abandonment and reclamation, the site will be visited and the seed mixture may be changed by the BLM as necessary. Areas of reclamation would be drill seeded (BLM preferred method) or broadcast-seeded or with the reclamation seed mixture listed in **Table 2** after August 15st and prior to winter freezing of the soil. It is anticipated that drill seeding would be used except in areas where topography or substrate composition (rock) precludes the use of the drill. If drill seeding is not possible, broadcast seeding would be implemented. If the broadcast method is used (such as on slopes of 40 percent or greater), the seed rates established for drill seeding would be doubled and seed would be immediately worked into the topsoil with a bulldozer or other heavy equipment, then covered to prevent seed desiccation or predation by birds or rodents. The seeds may be covered in several ways including spreading and crimping straw over the seeded area, raking the area by hand, or dragging a chain or chain-linked fence over the seeded area. If initial seeding is not successful, reseeded may be required. The seeding contractor would provide all seed tags to the appropriate SMA prior to seeding efforts.

Table 2: Interim Reclamation Seed Mixture¹

Common name	Latin name	lbs/acre ²	Recommended seed planting depth
Squirreltail grass	<i>Elymus elymoides</i>	3.0	¼ - ½"
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	3.0	½"
Needle and Thread	<i>Stipa comata</i>	3.0	½"
Mountain Brome	<i>Bromus marginatus</i>	3.0	½"
Lewis Flax	<i>Linum lewisii</i>	2.0	½"
Curlleaf Mountain Mahogany	<i>Cercocarpus ledifolius</i>	1.0	½"
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	1.0	⅛ - ¼"

1 - The seed mixture is based on site-specific vegetation, soils, and precipitation observations from the on-site inspection, and so does not match the general seed mixes included in Appendix E.

2 - All pounds are pure live seed. Rates are set for drill seeding; double rate if broadcasting. All seed and mulch would be certified weed free.

2.2.9.4 Pipeline Reclamation

Following pipeline installation activities all disturbed areas would be re-contoured, topsoil would be re-spread, the soil surface would be prepared, and the seed would be seeded as described in section 2.2.9.3. It is anticipated that pipeline reclamation take place at the same time as interim reclamation of the well pad.

2.2.9.5 Dry Hole/Abandoned Location

Reclamation of the well pad and access road would be done within six months, weather permitting, after final abandonment. Abandoned well sites, roads and other disturbed areas would be restored as near as practical to their natural condition. Reclamation would occur as described in section 2.2.9.3 or as otherwise determined by the BLM upon receipt of a Plugged and Abandoned Sundry Notice.

2.2.9.6 Monitoring

Prior to any surface disturbance, vegetative monitoring locations and reference sites would be identified by Cochrane and approved by the BLM Authorized Officer. Vegetation monitoring protocol would be developed by Cochrane and approved by the BLM Authorized Officer prior to implementation of revegetation techniques and would be designed to monitor % basal vegetative cover. On Federal lands, the reclamation objective would be a vegetation community that within 5 years is comprised of desired and/or seeded species, and where the basal vegetative cover is 75 percent of a similar undisturbed adjacent native vegetation community. If after 3 years basal cover is less than 30 percent, then additional seeding and reclamation efforts may be required.

Revegetated areas would be inspected annually and monitored to document location and extent of areas with successful revegetation, and areas needing further reclamation. A reclamation report would be submitted to the Authorized Officer by March 31st of each year.

2.2.10 Design Features of the Proposed Action

The applicant has agreed to the following design features to help mitigate the effects of the proposal:

2.2.10.1 Air Quality

- All internal combustion equipment would be kept in good working order.
- Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse would not occur at well sites or other facilities.
- Drill rigs would be equipped with Tier II or better diesel engines.
- Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater.
- Low bleed pneumatics would be installed on separator dump valves and other controllers. The use of low bleed pneumatics would result in a lower emission of VOCs.
- During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.
- Well site telemetry would be utilized as feasible for production operations.
- A drilling rig and a completion rig would not be operated simultaneously.

2.2.10.2 Visual Resources

- The vegetation being removed around the road and the well pad will be minimized to help screen in the location from the Divide Ridge Road.
- Low profile tanks will be used, and tanks will be placed near where the access road enters the well pad to maximize interim reclamation potential and vegetative screening.
- All facilities will be painted Yuma Green so the facilities blend in with the surrounding vegetation.
- The existing two track route would be used and upgraded to BLM Goldbook standards as necessary to lessen the visual impact as well as decrease potential impacts to the soils and vegetation.

2.2.10.3 Cultural Resources

- A cultural resources survey was conducted on all areas where surface disturbance would occur (i.e., well locations, access roads, and pipelines). No sites were found in the project area during inventory of the proposed area (U-07-MQ-1326b).
- Cochrane Resources would educate its contractors and employees about the relevant federal regulations intended to protect cultural resources.
- All vehicular traffic, personnel movement, construction and restoration activities would be confined to areas cleared by the site inventory and to existing roads.
- In the event historic or archeological resources are uncovered during construction, work would stop immediately and the appropriate BLM AO would be notified.

2.2.10.4 Paleontological Resources

- A paleontological survey was conducted on all areas where surface disturbance would occur (i.e., well locations, access roads, and pipelines). No paleontological resources of any kind were observed during inventory of the project area (Sandau, 2008).
- Cochrane Resources would educate its contractors and employees about the relevant federal regulations intended to protect paleontological resources.
- All vehicular traffic, personnel movement, construction, and restoration activities would be confined to areas cleared by the site inventory and to existing roads.
- If any potential paleontological resources are uncovered during construction, work would stop immediately in the area and the appropriate BLM AO would be notified.

2.2.10.5 Recreation

- The access road, where it intersects with the Divide Ridge Road, will be gated and signed to indicate that the road is for authorized use only.
- An additional sign will be installed just beyond the well location itself to prevent motorized use of the road past the well pad.
- Vegetation removed from well pad could be placed to block the road where it continues beyond the well location to prevent any use of the campsite by motorized vehicles to deter unauthorized use of the road.

2.2.10.6 Wildlife

- No surface use is allowed during the following time period, May 15 through June 29, to protect fawning deer. This stipulation does not apply to operation and maintenance of production facilities.

2.3 ALTERNATIVE B – NO ACTION ALTERNATIVE

Under the No Action Alternative, Cochrane Resources would not drill the well Horse Point Federal 12-13 in the SW/NW of Section 13 Township 16 South, Range 23 East, in Grand County, Utah. However, other oil and gas development in the area would be expected to continue. Other current resource trends and land use practices would also continue.

The BLM's authority to implement the No Action Alternative may be limited because oil and gas leases allow drilling in the lease area subject to the stipulations of the specific lease agreement. In addition, this well has been designated by the BLM as an obligation well, meaning the operator is required by the BLM to drill the well and prove it capable of production in paying quantities in order for the company to keep the lease according to CFR 3162.2. However, if the no action alternative is chosen by the decision maker, then a new obligation well for the lease can be designated as per CFR 3162.2.

The BLM can deny the APD if the proposal would violate lease stipulations and applicable laws and/or regulations. If the BLM were to deny the APD, the applicant could attempt to reverse the BLM's decision through administrative appeals, seek to exchange its lease for leases in other locations, or seek compensation from the federal government. The outcome of these actions is beyond the scope of this EA because they cannot be projected or meaningfully analyzed at this time.

2.4 ALTERNATIVE C – DIRECTIONAL DRILLING ALTERNATIVE

This alternative would be the same as the proposed action, except that a previously disturbed well pad 2,000 feet to the north of the current proposed action (see Appendix D: Map 5) would be used to directionally drill to the proposed down-hole location. This previously disturbed well pad has been fully reclaimed and revegetated (see Appendix G: Figures C and D) so this alternative would require the reconstruction of a well pad, road, and pipeline.

Under this alternative, about ¼ mile of new road and pipeline route would need to be established, the width of the amount of temporary disturbance would be 30 feet, with the road having a permanent running surface of 18 feet and all other disturbance undergoing final reclamation.

Although the well pad would be about the same size as the pad under the proposed action, the previously disturbed location is in a drainage so the amounts of dirt work including cut and fill slopes would increase. The amount of surface disturbance anticipated to occur under this alternative is disclosed in **Table 3**. This alternative will require the BLM to re-assign the lease obligation well to be the directionally drilled well.

Table 3: Proposed Disturbance for the Directional Alternative

Well #	Access Road	Buried Pipeline	Well Pad	Total disturbance
Horse Point Federal 12-13 from previously disturbed well pad to the north	0.25 mile of new road, 1.0 acre	0.25 mile, 1.0 acre	3.0 acres	5.0 acres

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

2.5.1 Surface Pipeline Alternative

This alternative would be the same as the Proposed Action Alternative, except that the pipeline would be laid on the ground surface. The new disturbance for the surface pipeline would be limited, effectively eliminating 0.3 acre of disturbance from the proposed action because no vegetation would be removed during installation. This alternative was eliminated from detailed analysis because of the following operational and safety concerns: a buried pipeline would have more resilience to freezing than a surface line; due to the seasonal hunters that frequent the project area, a buried line would have a lower risk of being punctured by a projectile than a surface line; reclamation potential for a buried pipeline in this proposed area is good due to the deep to very deep soils (> 8”) in the project area in addition to a higher precipitation potential in the area as compared to the other areas of the Uinta Basin.

2.5.2 New Road Alternative

This alternative would be the same as the Proposed Action Alternative, except that about 366 feet of new road would have been constructed to access the proposed well from the eastern side.

It was suggested by the BLM on the onsite that the existing road on the western side of the pad be upgraded for access to reduce new surface disturbance, which would in turn reduce impacts to all resources of concern. The proponent agreed to this mitigation measure, so the road from the east as originally proposed was dismissed from detailed analysis.

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

The affected environment of the Proposed Action and No Action Alternative were considered and analyzed by an interdisciplinary team, as documented in the Interdisciplinary Team Analysis Record Checklist (Appendix A). The checklist indicates which resources of concern are present, would be affected by the action, and would require analysis in the EA, or are either not present in the project area or would not be affected to a degree that requires detailed analysis.

3.2 GENERAL SETTING

The well would be located approximately 70 air miles southeast of Vernal, Utah in Grand County in an area known as the Horse Point area in the Book Cliffs (see Map 1). The precipitation is typically between 10 to 12 inches on average in a conifer/sagebrush habitat. Elevation on the location is around 8,278 feet.

3.3 RESOURCES AND ISSUES BROUGHT FORWARD FOR ANALYSIS

3.3.1 Air Quality

The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions and limited precipitation. The Uinta Basin is subject to abundant sunshine and rapid nighttime cooling. Wide seasonal temperature variations typical of a mid-continental climate regime are also common. Existing point and area sources of air pollution within the Uinta Basin include the following:

- Exhaust emissions (primarily CO, NO_x, PM_{2.5}, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO_x, PM_{2.5}, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO_x, CO, SO₂, PM₁₀, and PM_{2.5};
- Oxides of sulfur (SO_x), NO_x, and fugitive dust emissions from coal-fired power plants and coal mining and processing;
- Fugitive dust (in the form of PM₁₀ and PM_{2.5}) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and
- Long-range transport of pollutants from distant sources.

The Uinta Basin is designated as attainment or unclassified under the Clean Air Act, meaning that the concentration of criteria pollutants in the ambient air is less than the National Ambient Air Quality Standards (NAAQS), or adequate air monitoring is not available to make an attainment determination. NAAQS are standards that have been set for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include ground-level ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM₁₀) or 2.5 microns in diameter (PM_{2.5}). Airborne particulate matter (PM) consists of tiny coarse-mode (PM₁₀) or fine-mode (PM_{2.5}) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM_{2.5} is derived primarily from the incomplete combustion of fuel sources and

secondarily formed aerosols, whereas PM₁₀ is primarily from crushing, grinding, or abrasion of surfaces.

The Utah Division of Air Quality (UDAQ) estimates background air quality as guidance for regulatory modeling of permitted sources to insure NAAQS compliance. These background values are used in dispersion models to add to a proposed point source emission so that an evaluation can be made on whether the source will meet NAAQS. These background estimates are based on monitored values when possible and on default factors when monitoring data does not exist. UDAQ does not estimate ozone and PM_{2.5} background values, as the models used to determine impacts from these pollutants estimate background as part of the overall modeling calculations. **Table 4** lists the latest regulatory background values from UDAQ for the Uinta Basin.

Table 4: Ambient Criteria Pollutant Concentrations in the Uinta Basin

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (µg/m ³)	NAAQS (µg/m ³)
SO ₂	Annual	5	80
	24-hour	10	365
	3-hour	20	1,300
NO ₂	Annual	17	100
PM ₁₀	24-hour	28	150
CO	8-hour	1,111	10,000
CO	1-hour	1,111	40,000

Ground-level ozone (O₃) is a secondary pollutant that is formed by a chemical reaction between NO_x and VOCs in the presence of sunlight. Precursor sources of ozone include motor vehicle exhaust and industrial emissions, gasoline vapors, some tree species emissions, wood burning, and chemical solvents. Ozone is generally known as a summertime air pollutant. Ozone is a regional air quality issue because, along with its precursors, it transports hundreds of miles from its origins. Maximum ozone levels may occur at locations many miles downwind from the sources.

The National Park Service operates an ozone monitor in Dinosaur National Monument during the summer months. No exceedences of the current ozone NAAQS have been recorded at this site. Active year-round ozone monitoring in the Uinta Basin began in the summer of 2009 south of Vernal at two monitoring sites: Red Wash and Ouray. While the monitors were not designated Federal Reference Monitors (utilized for making a NAAQS compliance determination) until January 2012, the data is considered viable and representative of the area. Both of these monitoring sites have recorded numerous exceedences of the 8 hour ozone standard during the winter months (January through March) of 2010 and 2011. High concentrations of ozone are being formed under a “cold pool” process whereby stagnate air conditions with very low mixing heights form under clear skies with snow-covered ground and abundant sunlight that, combined with area precursor emissions (NO_x and VOCs), create intense episodes of ozone. The high numbers did not occur in 2012 due to a lack of snow cover. This phenomenon has also been observed in similar types of locations in Wyoming and has contributed to a proposed nonattainment designation for Sublette County.

Winter ozone formation is a newly recognized issue, and the methods of analyzing and managing this problem are still in development. Existing photochemical models are currently unable to replicate winter ozone formation satisfactorily, in part due to the very low mixing heights associated with the unique meteorology of these ambient conditions. Based on the emission inventories developed for Uintah County, the most likely dominant source of ozone precursors in the Uinta Basin are oil and gas operations in the vicinity of the monitors. While ozone precursors can be transported large distances, the meteorological conditions under which this cold pool ozone formation is occurring tends to preclude transport. At the current time ozone exceedences in this area seem to be confined to the winter months during periods of intense surface inversions and low mixing heights. Work still remains to be done to definitively identify the sources of ozone precursors contributing to the observed ozone concentrations. In particular, speciation of gaseous air samples collected during periods of high ozone is needed to determine which VOC s are present and what their likely sources are.

The complete Environmental Protection Agency (EPA) Ouray and Red Wash monitoring data can be found at: <http://www.epa.gov/airexplorer/index.htm>

The complete National Park Service (NPS) Dinosaur National Monument monitoring data can be found at: <http://www.nature.nps.gov/air/Monitoring/MonHist/index.cfm>

The UDAQ conducted limited monitoring of PM_{2.5} in Vernal, Utah in December 2006. During the 2006-2007 winter seasons, PM_{2.5} levels were measured at the Vernal monitoring station that were higher than the PM_{2.5} health standard that became effective in December 2006. The PM_{2.5} levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The sources of elevated PM_{2.5} concentrations during winter inversions in Vernal, Utah haven't been identified as of yet. The most likely causes of elevated PM_{2.5} at the Vernal monitoring station are probably those common to other areas of the western U.S. (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. PM_{2.5} monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin by the Red Wash and Ouray monitors beginning in summer 2009 have not recorded any exceedences of either the 24 hour or annual NAAQS. Monitoring for PM_{2.5} is currently ongoing in the Uinta Basin.

HAPs are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental impacts. The EPA has classified 187 air pollutants as HAPs. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethylbenzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane). There are no applicable Federal or State of Utah ambient air quality standards for assessing potential HAP impacts to human health.

Greenhouse gases keep the planet's surface warmer than it otherwise would be. But, as the concentrations of these gases continue to increase in the atmosphere, the Earth's temperature is climbing above past levels. According to NOAA and NASA data, the Earth's average surface temperature has increased by about 1.2 to 1.4° F in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 1998. However, according to the British Meteorological Office's Hadley Centre (BMO 2009), the United Kingdom's foremost climate change research center, the mean global temperature has

been relatively constant for the past nine years after the warming trend from 1950 through 2000. So while most scientists believe that Earth will continue to warm in the future, this warming has not occurred for the past ten years. Therefore, quantified or globally accepted predictions on the ultimate outcome of global warming are still unknown. The warmest year on record was 1998, a year associated with the most intense El Nino global phenomena ever experienced. Most of the warming from 1950 through 2000 is speculated to be the result of human activities. Other aspects of the climate, such as rainfall patterns, snow and ice cover, and sea level, are also changing.

Based on the combination of methods available to estimate background air quality in the Uinta Basin some general and specific conclusions can be made regarding existing air quality in the project area. Ozone is the primary pollutant of concern, with a potential seasonal pattern the opposite of what is typically considered for ozone. Ozone concentrations during winter inversion events are being monitored well above the current ozone NAAQS. Summer ozone concentrations, while elevated above what would be considered normal background levels, are below the current NAAQS but may become an issue if EPA lowers the existing standard. PM_{2.5} at this time does not appear to be an issue in rural areas of the Uinta Basin, though concentrations in urban settings have been recorded above the NAAQS during winter inversion events. This is not an unusual occurrence, even in smaller rural communities, and is typically due to a combination of woodstoves and vehicle emissions (esp. diesel). Other criteria pollutants do not appear to be an issue at this time, and are anticipated to all be well below applicable NAAQS concentrations.

3.3.2 Soils and Vegetation including Invasive Plants and Noxious Weeds

The soils in the area are typically mixed with high contents of organics, clay loams and gravelly sand loams.

The vegetation in the area consists of a mixture of grasses, forbs, shrubs, and trees: Mountain big sagebrush, Douglas fir, snow berry, Saskatoon serviceberry, Oregon grape, common yarrow, northern mule's ear, large mountain brome, short blue grass, shooting star, Gambel oak, curl-leaf mountain mahogany, common yarrow, needle and thread grass, scarlet Globemallow, Wyoming big sage, and yellow rabbitbrush have all been identified onsite.

Noxious weeds that have previously been identified in the general area of the proposed project include Canada thistle, black henbane, field bindweed, hounds-tongue, and musk thistle. No invasive plants were identified in the project area.

3.3.3 Wildlife

Big game and migratory bird habitat occur within the project area. Habitat for sensitive fish species, although not present in the project area, will be affected by the proposed action.

3.3.3.1 Big Game

Mule deer from the Vernal Herd Unit occupy the area surrounding the project area on a year-round basis. According to the Vernal Resource Management Plan the project area is within crucial fawning habitat (BLM 2008).

3.3.2.2 Migratory Birds

The Migratory Bird Treaty Act (MBTA) was implemented for the protection of migratory birds. Unless permitted by regulations, the MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition to the MBTA, Executive Order 13186 sets forth the responsibilities of Federal agencies to further implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that Federal actions evaluate the effects of actions and agency plans on migratory birds.

Those migratory bird species that are BLM sensitive or are otherwise of special interest that may occupy the proposed project area are addressed below. This section identifies all other migratory birds that may inhabit the project area, including those species classified as High-Priority birds by Utah Partners in Flight (UPIF 2002). High-Priority species are denoted by an asterisk (*).

Sagebrush -Steppe

Migratory bird species commonly associated with the sagebrush-steppe community within the project area include: the black-chinned hummingbird* (*Archilochus alexandri*), broad-tailed hummingbird* (*Selasphorus platycercus*), Brewer's sparrow* (*Spizella breweri*), Cassin's finch* (*Carpodacus cassinii*), Cassin's kingbird* (*Tyrannus vociferan*), Clark's nutcracker* (*Nucifraga columbiana*), grasshopper sparrow* (*Ammodramus savannarum*), gray flycatcher* (*Empidonax wrightii*), gray vireo* (*Vireo vicinior*), green-tailed towhee* (*Pipilo chlorurus*), juniper titmouse* (*Parus inornatus*), mountain bluebird* (*Sialia currocoides*), pinion jay* (*Gymnorhinus cyanocephalus*), sage sparrow* (*Amphispiza belli*), sage thrasher* (*Oreoscoptes montanus*), Virginia's warbler* (*Vermivora virginiae*), horned lark (*Eremophila alpestris*), loggerhead shrike (*Lanius ludovicianus*), western kingbird (*Tyrannus verticalis*), northern mockingbird (*Mimus polyglottos*), vesper sparrow (*Pooecetes gramineus*) and western meadowlark (*Sturnella neglecta*) (UPIF 2002).

3.3.2.3 Special Status Fish Species

The U.S. Fish and Wildlife Service have identified four federally listed fish species historically associated with the Upper Colorado River Basin, including the Green River: Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. These fish are federally and state-listed as endangered and have experienced severe population declines due to flow alterations, habitat loss or alteration, and introduction of non-native fish species. The Green River and its 100-year floodplain have been designated Critical Habitat for these four endangered fish species (USFWS 1994).

Three additional species are endemic to the Colorado River Basin, including the Green River: roundtail chub, flannelmouth sucker, and bluehead sucker. The roundtail chub is a state-listed threatened species, while the two suckers are species of special concern due to declining population numbers and distribution.

3.3.4 Visual Resource Management

The proposed site sits near the edge of a bluff with scenic vistas overlooking a Moab Field office Wilderness Study Area. Several different types of vegetation including deciduous trees, conifers, grasses, and shrubs populate the site with different colors ranging from pine greens to desert sagebrush blue/grays. Predominant vegetation is aspen and scrub oak. Fall is the predominant visitor season, with leaves turning red/yellow/orange and aspens beginning to shed their leaves. Lines are broken, texture is rough, colors varied and form is choppy with patchy vegetation. The project area has been designated as VRM Class II, which means changes to the landscape may be visible but should not attract the attention of the casual observer.

3.3.5 Recreation

The recreation site inventory was conducted and found a high value (heavy use/pristine) recreation site within 100 feet of the proposed site to the south southwest of the proposed well location (see map 3). Use for the site generally is between August 1st and November 30th and is primarily for hunting, firewood gathering, and general camping, with most use happening during hunting season. It is on the downhill, upwind side of the proposed pad, and will be screened by vegetation from the proposed pad site. The campsite has been well used and the existing two track, which ends in a loop, has been used to access the site. According to the Grand County, this road is closed to access by motorized vehicles; the campsite can only be accessed by hiking. The scenic vista offered by the site is one of the most panoramic and dynamic in the Vernal Field Office management area. With an elevation of 8,200 feet, the campsite has a view-shed facing south, overlooking the southern extent of the Book Cliffs, and a Moab Field Office Wilderness Study Area. The existing campsite is open with a canopy surrounding it and shielding it. The campsite is one of very few in the southern reaches of the field office that offer conifer evergreens for protection as well as a variety of wind breaks from other vegetation like pinyon pine and ponderosa pine trees.

3.3.6 Non-WSA Lands with Wilderness Characteristics

The project area is completely contained within a 12,720 acre area that was inventoried by BLM and found to have wilderness characteristics; the “Hideout Canyon non-WSA lands with wilderness characteristics”. Non-WSA lands with wilderness characteristics are areas having at least 5,000 acres in natural or undisturbed conditions, and provide outstanding opportunities for solitude or primitive forms of recreation. This information is documented in a February 7, 2007, Wilderness Characteristics Review conducted by a Vernal Field Office interdisciplinary team, and further discussed in the Vernal Proposed Plan/Final EIS on pages 3-43 through 3-48 and in the Moab Proposed Plan/Final EIS on pages 3-68 through 3-72. The Hideout Canyon wilderness characteristics area is shared by both the Vernal and Moab Field Offices. Vernal manages the lands under 1,113 acres of the wilderness characteristics area, while Moab manages the lands under 11,607 acres. This project is within the 1,113 acres managed by the Vernal Field Office, and does not affect the Moab Field Office acreage. Since the 2007 review, there have been no changed circumstances in this area that would modify the determination of wilderness characteristics. The Field Office has not issued any permits or authorizations in the non-WSA area under management of the Vernal Field Office that would have affected the naturalness or acreage of the wilderness characteristics area.

Neither the Vernal RMP ROD (2008) nor the Moab RMP ROD (2008) carried the Hideout Canyon area forward as a BLM natural area for the protection, preservation, or maintenance for the wilderness characteristics. In fact, the analysis in the Vernal Proposed Plan/Final EIS clearly portrayed on page 4-192 that this area is located in an oil and gas development area with moderate to high potential for further development. The analysis for the Proposed Plan showed that the 1,113 acres in the Vernal Field Office would lose their natural characteristics and opportunities for solitude and primitive recreation due to surface disturbance and the presence and noise of people and equipment during exploration for and development of oil and gas resources in this area. Although only 14 percent of the area in the Vernal Field Office was leased in 2008, the analysis showed that under the Proposed Plan, there would be a direct loss of natural characteristics and reduction in quality of the opportunities for solitude and primitive and unconfined recreation due to sights and sounds of development. A full analysis of existing and projected impacts to this area and other wilderness characteristics areas in the Vernal Field Office is contained in the Proposed Plan/Final EIS from pages 4-175 to 4-186.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

The potential direct, indirect, and cumulative impacts from Alternative A (the Proposed Action), Alternative B (the No Action Alternative), and Alternative C (the Directional Drilling Alternative) are discussed in the following sections. Direct impacts to soils and vegetation in the following analyses are described as short-term and long-term impacts. Reclamation potential for a buried pipeline in this proposed area is good due to the deep to very deep soils (> 8”) in the project area in addition to a higher precipitation potential in the area as compared to the other areas of the Uinta Basin. In areas where interim reclamation is implemented, ground cover by herbaceous and woody species could be re-established within seven to eight years following seeding of native plant species and diligent weed control efforts.

4.2 DIRECT AND INDIRECT IMPACTS ALTERNATIVE A – PROPOSED ACTION

4.2.1 Air Quality

This Proposed Action is considered to be a minor source under the Clean Air Act. Minor sources are not controlled by regulatory agencies responsible for implementing the Clean Air Act. In addition, control technology is not required by regulatory agencies at this point, since the Uinta Basin has not been designated as a non-attainment area. The Proposed Action will result in different emission sources associated with two project phases: well development and well production. Annual estimated emissions from the Proposed Action are summarized in **Table 4**.

Well development includes emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO_x, SO₂, and CO would be emitted from vehicle tailpipes. Fugitive dust concentrations would increase with additional vehicle traffic on unpaved roads and from wind erosion in areas of soil disturbance. Drill rig and fracturing engine operations would result mainly in NO_x and CO emissions, with lesser amounts of SO₂. These temporary emissions would be short-term during the drilling and completion times.

During well production there are continuous emissions from separators, condensate storage tanks, and daily tailpipe and fugitive dust emissions from operations traffic. During the operational phase of the Proposed Action, NO_x, CO, VOC, and HAP emissions would result from the long-term operation of condensate storage tank vents, and well pad separators. Additionally, road dust (PM₁₀ and PM_{2.5}) would be produced by vehicles servicing the wells.

Table 5: Proposed Action Annual Emissions (tons/year)¹

Pollutant	Development	Production	Total
NO _x	6.70	6.12	12.82
CO	2.50	6.10	8.60
VOC	0.60	15.34	15.94
SO ₂	0	0.50	0.50
PM ₁₀	0.04	0.002	0.042

¹ Emissions include 1 producing well and associated operations traffic during the year in which the project is developed.

Emissions of NO_x and VOC, ozone precursors, are 12.82 tons/yr for NO_x, and 15.94 tons/yr of VOC (**Table 5**). Due to the small amount of emissions from the project in relation to the ambient concentrations in the Basin, project emissions of ozone precursors would be dispersed and/ or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background conditions. The primary sources of HAPs are from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs are emitted by construction equipment. However, these emissions are estimated to be less than 1 ton per year. Based on the negligible amount of project-specific emissions, the Proposed Action is not likely to violate, or otherwise contribute to any violation of any applicable air quality standard.

Mitigation

All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour.

4.2.2 Soils and Vegetation including Invasive Plants and Noxious Weeds

Impacts to soils and vegetation include removal of existing vegetation, mixing of soil horizons, soil compaction, and soil contamination due to leaks, short-term loss of topsoil and site productivity, and loss of soil/topsoil through wind and water erosion. Additional impacts include the invasion and establishment of introduced, undesired plant species. The severity of these invasions would depend on the success of reclamation and revegetation, and the degree and success of noxious weed control efforts. Annual weed species are adapted to disturbed conditions, and have less stringent moisture and soil nutrient requirements than do perennial native species.

The project is estimated to contribute an additional 3.0 tons of soil per acre per year above the current natural erosion rate for the first year of development. After the first year, it is estimated that the soil erosion attributed to the project would reduce to 1.5 tons per acre per year until the access roads and well pads are fully reclaimed. Erosion rates are higher during the first year due to disturbance during the construction efforts.

The Proposed Action would disturb approximately 2.0 acres. Of this total, approximately 1.0 acre would be subject to interim reclamation. If interim reclamation is successful, direct long-term impacts to soils and vegetation would occur on 1.0 acre. If interim reclamation is not successful, the entire 2.0 acres could remain disturbed for the long term. Long-term impacts are expected to last for the life of the well (an average of 25 years or until reclamation is successful).

4.2.3 Wildlife

The following sections describe the impacts of the proposed action on wildlife species present in the project area.

4.2.3.1 Big Game

The proposed project is located within crucial mule deer fawning habitat. Surface disturbances associated with the Proposed Action would result in the direct loss and fragmentation of approximately 2.0 acres of crucial fawning habitat. Habitat loss and fragmentation resulting from these disturbances could result in reduced habitat use by mule deer within and near disturbed areas, increased animal densities in adjoining habitats, and increased stress from intra- and inter specific competition.

In addition to the direct loss and fragmentation of habitat associated with the Proposed Action, noise disturbances from increased traffic levels could temporarily displace mule deer from habitats in areas of human activity. However, the lease contains a timing restriction stipulation which will prevent surface disturbing activities from May 15th through June 29th, the fawning season for mule deer. As such, it is determined that the Proposed Action would not likely affect the trend of viability of big game populations for mule deer.

4.2.3.2 Migratory Birds

The Proposed Action would result in a loss of 2.0 acres of habitat for migratory birds. Direct impacts to nesting and breeding migratory birds may occur, depending upon the time of construction. If development occurs in the spring, during the nesting season for most migratory birds, impacts would be greater than if development occurred between late summer and late winter. Impacts to birds during the spring could include nest abandonment, reproductive failure, displacement, and destruction of nests. Construction would likely have a greater impact on Utah Partners in Flight high-priority migratory bird species that may be utilizing the Project Area due to their smaller population sizes and limited distribution.

Successful reclamation efforts would return disturbed habitats to pre-disturbance levels and loss of vegetation would be a temporary impact to migratory bird habitat. Thus, direct and indirect impacts to migratory bird species occurring in the project area would be minimal. These impacts are not seen as contributing to the decline in overall migratory bird species' populations such that special protection measures are necessary.

4.2.3.3 Special Status Fish Species

The Proposed Action would result in up to 3 acre feet of water depletion from removal of water from the Upper Colorado River Drainage System for construction and drilling operations. These impacts would occur during drilling of the proposed wells. The determination that this project will deplete water from the Colorado River system is based off of the use of water from the following water permit 43-10447, a water well, as explained on page 6 in the Programmatic Water Depletion Biological Opinion for Oil and Gas Development Administered or Permitted by the Bureau of Land Management.

Water depletions from the Upper Colorado River Drainage System, along with a number of other factors, have resulted in such drastic reductions in the populations of the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker that the Service has listed these species as endangered and has implemented programs to prevent them from becoming extinct. The roundtail chub, flannelmouth sucker, and bluehead sucker are also affected by the water depletions.

Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes. Water depletions contribute to alterations in the flow regimes that favor nonnative fishes.

Therefore, the proposed action will have a “*may affect, likely to adversely affect*” determination for the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. The Proposed Action may affect individuals of bluehead sucker, roundtail chub, and flannelmouth sucker, but will not result in a trend toward the listing of the species. The U.S. Fish and Wildlife Service has determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat because reasonable and prudent alternatives would be implemented.

4.2.4 Visual Resource Management

Visual impacts include the potential for alteration of form, line, and color through vegetation removal and construction of the well pad, upgrades to existing road, and installation of pipeline and facilities. The proposed action has been designed to reduce these impacts because: 1) the existing two track road will be used; 2) vegetative screening will be left in place; 3) low profile tanks will be utilized; and 4) facilities will be painted with approved colors that have been identified through the contrast rating worksheet. The tanks as proposed may be visible from Key Observation Point #2 (see Appendix F). The project has been designed to minimize this potential impact. Through the design features, impacts will be within VRM II requirements (see Appendix F).

4.2.5 Recreation

The dispersed campsite, due to the proximity to the proposed well pad and location of the traditional access route for the site, will be adversely impacted from the development, production sounds, and surface disturbance so the campsite will no longer be a pristine site. Hunters/wood gatherers and recreational campers may be displaced and may not be able to replace the type of site within the area. However, the company has already changed the size of the well pad, on the side that faces the campsite, to leave vegetation in place to create a visual barrier between the pad and the campsite. This will help maintain the existing character of the site for production because the well site will be hidden by the dense vegetation, low profile tanks, and being physically lower than the campsite on the other side of a hill. During construction and drilling the campsite will be affected and cannot be mitigated.

4.2.6 Non-WSA Lands with Wilderness Characteristics

Under the Proposed Action Alternative, construction of the proposed well, pipeline, and upgraded access road would directly disturb approximately 2.0 acres in the Hideout Canyon non-WSA lands with wilderness characteristics. The well pad itself is approximately 1,000 feet from the Divide Ridge Road which is the main access road into this area, and is the boundary for the wilderness characteristics in the area. Wilderness characteristics (naturalness, solitude, and primitive recreation opportunities) would be foregone on that acreage due to the surface disturbance and ongoing activities associated with development under this alternative.

Indirect impacts caused by noise and human activity may extend beyond the 2.0 acres. The indirect impacts could affect opportunities for solitude and primitive recreation. Indirect impacts would not affect the size of the area or the naturalness of the area outside of the direct disturbance. Because of the area's rugged topography and vegetation, and proximity to the Divide Ridge Road, indirect impacts would be minimized or limited due to screening effects.

Impacts to wilderness characteristics would continue throughout the life of the project until final reclamation is complete. After successful interim reclamation, the amount of disturbance left until final reclamation could be as much as 1.0 acres for both the existing road and the well pad itself.

Because the proposed well and associated infrastructure is located within 1,000 feet of the northernmost portion of the wilderness characteristics boundary, the surface disturbance could be cherry-stemmed (excluded) from the 1,113 acres Hideout Canyon wilderness characteristics area in the Vernal Field Office. This is less than one percent of this wilderness characteristics area. Based on the information above, the majority of the Hideout Canyon area in the Vernal Field Office would retain its wilderness characteristics.

4.3 DIRECT AND INDIRECT IMPACTS ALTERNATIVE B: NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no direct disturbance or indirect effects to any of the resources brought forward for analysis in this Environmental Assessment. Current land use trends in the area would continue, including increased industrial development, increased off-highway vehicles (OHV) traffic, and increased recreation use for hunting, bird watching, and sightseeing.

4.4 DIRECT AND INDIRECT IMPACTS ALTERNATIVE C – DIRECTIONAL DRILLING ALTERNATIVE

4.4.1 Air Quality

Under this alternative, the impacts to air quality would be the same as under the proposed action.

Mitigation

All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour.

4.4.2 Soils and Vegetation including Invasive Plants and Noxious Weeds

Impacts to soils and vegetation would be the same as the Proposed Action except this alternative would disturb approximately 5.0 acres. Of this total, approximately 1.7 acre would be subject to interim reclamation. If interim reclamation is successful, direct long-term impacts to soils and vegetation would occur on 3.3 acres. If interim reclamation is not successful, the entire 5.0 acres could remain disturbed for the long term. Long-term impacts are expected to last for the life of the well (an average of 25 years or until reclamation is successful).

4.4.3 Wildlife

The following sections describe the impacts of the Directional Drilling Alternative on wildlife species present in the project area.

4.4.3.1 Big Game

Impacts under the Directional Drilling Alternative would be the same as the Proposed Action except that surface disturbance would result in the direct loss and fragmentation of

approximately 5.0 acres of crucial fawning habitat. As such, it is determined that the Directional Drilling Alternative would not likely affect the trend of viability of big game populations for mule deer.

4.4.3.2 Migratory Birds

Impacts under the Directional Drilling Alternative would be the same as the Proposed Action except that surface disturbance would result in a loss of 5.0 acres of habitat for migratory birds.

These impacts are not seen as contributing to the decline in overall migratory bird species' populations such that special protection measures are necessary

4.4.3.3 Special Status Fish Species

Impacts under the Directional Drilling Alternative would be the same as the Proposed Action. Therefore, the Directional Drilling Alternative will have a "*may affect, likely to adversely affect*" determination for the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. The Directional Drilling Alternative may affect individuals of bluehead sucker, roundtail chub, and flannelmouth sucker, but will not result in a trend toward the listing of the species. The U.S. Fish and Wildlife Service has determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat because reasonable and prudent alternatives would be implemented.

4.4.4 Visual Resource Management

Visual impacts include the potential for alteration of form, line, and color through vegetation removal and construction of the well pad, upgrades to the existing road, and installation of the facilities and pipeline. The Alternative will impact the VRM II classification because it will be within line of sight of all Key Observation Points (KOP) as indicated in the Visual Contrast Rating Worksheet (see Appendix F). The location identified is an old plugged and abandoned well which has undergone successful reclamation. In order to drill from this location the old reclaimed area must be re-disturbed, which will be visible from the Divide Ridge Road. The project would attract attention and will change the overall landscape character. The road would also be visible from all KOPs and attract attention, further changing the landscape character.

4.4.5 Recreation

The dispersed campsite, due to the proximity to the proposed well pad and location of the traditional access route for the site, would not be adversely impacted. Hunters/wood gatherers and recreational campers would still be able to access the campsite.

4.4.6 Non-WSA Lands with Wilderness Characteristics

Under the Directional Drilling Alternative, no impacts to non-WSA lands with wilderness characteristics would occur.

4.5 CUMULATIVE IMPACTS ANALYSIS

Cumulative impacts are those impacts that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable actions, regardless of which agency or person undertakes such other actions. The cumulative impacts analysis area (CIAA) varies by resource and will be defined in the section for each individual resource.

4.5.1 Air Quality

The CIAA for air quality is the Uinta Basin. Cumulative air quality impacts are defined as the combination of emissions resulting from the Proposed Action, existing nearby permitted sources, and Reasonably Foreseeable Development (RFD) within the region. Cumulative impacts are incorporated by reference to the Uinta Basin Air Quality Study (UBAQS), the Greater Natural Buttes air quality study, and the Gasco air quality study. The increase in emissions associated with the Proposed Action would be localized, in some cases temporary (well development phase), and on a much smaller scale in comparison with regional emissions. For regional ozone issues, when the emissions inventory for the production phase of the Proposed Action is added to the regional emission inventory compiled during the WRAP Phase III study for the Uinta Basin, 2006 Baseline Emissions, (WRAP, 2009), it can be seen from **Table 6** that the VOC and NOx emissions from the Proposed Action comprise a negligible increase in the WRAP baseline emissions.

Table 6: Proposed Action versus 2012 WRAP Phase III Emissions Inventory

Species	Proposed ^a Action Production Emissions (ton/yr)	WRAP Phase III 2012 Uintah Basin Emission Inventory ^b (ton/yr)	Percentage of Proposed Action to WRAP Phase III
NO _x	12.82	16,547	0.08%
VOC	15.94	127,495	0.012%

^a see Table 4-2

^b http://www.wrapair.org/forums/ogwg/PhaseIII_Inventory.html Uintah Basin Data

The WRAP Phase III baseline inventory for the Uinta Basin for VOC emissions in 2006 was 71,546 tons/yr. For 2012, the NOx and VOC emissions are projected at 16,547 and 127,495 ton/yr, respectively. Potential VOC emissions from the Proposed Action represent 0.012% of the total 2012 VOC estimated emissions for the region, and potential NOx emissions from the Proposed Action represent 0.08% of the total 2012 VOC estimated emissions for the region.

Based on the magnitude of the projected increase in VOC emissions for the Uinta Basin from 2006 to 2012, and the inconsequential contribution that would be emitted from the Proposed Action, an accurate analysis of potential ozone impacts from the Proposed Action is not feasible. Any cumulative ozone impacts from the Proposed Action would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the regional cumulative VOC and NOx emission inventory. Thus the potential cumulative ozone impact from the Proposed Action cannot be modeled with any accuracy due to the level of the emissions from the Proposed Action, the size of the project, and the lack of model sensitivity. When compared to regional emissions inventories, the amounts of ozone precursors emitted from the Proposed Action are not expected to have a measurable contribution or effect on regional ozone formation. The No

Action alternative would not result in an accumulation of impacts. The impacts under the Directional Drilling Alternative would be the same as the Proposed Action.

The assessment of greenhouse gas (GHG) emissions and climate change is still in its earliest stages of formulation. At present, under current scientific data and models, it is not technically feasible to know with any certainty the net impacts to climate due to global emissions, let alone regional or local emissions. The inconsistency in results of scientific models used to predict climate change at the global scale, combined with the lack of scientific models designed to predict climate change on regional or local levels, prohibits the ability to quantify potential future impacts of decisions made at the local level, particularly for small scale projects such as the Proposed Action. However, drilling and development activities from the Proposed Action are anticipated to release a negligible amount of emissions, including GHGs, into the local airshed. The No Action alternative would not result in an accumulation of impacts. The impacts under the Directional Drilling Alternative would be the same as the Proposed Action.

4.5.2 Soils and Vegetation including Invasive Plants and Noxious Weeds

Analysis of the cumulative impacts is incorporated by reference to the existing document Vernal Field Office Resource Management Plan and Record of Decision. For the purpose of cumulative impact analysis, the area considered is the boundary of the T16S, R23E. Cumulative actions within the T16S, R23E area include 1 plugged and abandoned well, and about 1 mile of the Divide Ridge Road. The proposed action is the only reasonably foreseeable well in this Township and Range. Because final reclamation for the plugged and abandoned well has been deemed acceptable by the BLM, the impacts from that plugged well are no longer ongoing.

Cumulative impacts to vegetation and soils include: removal of native vegetation and increased erosion rates of soils which are generally very thin, slow to develop, and difficult to reclaim due to the arid climate and the low organic content; and the invasion of undesired plant species that tend to replace the removed native vegetative cover if left untreated.

Cumulative surface disturbance within the CIAA would be approximately 7 acres from the Divide Ridge Road. The Proposed Action would add 2.0 acres of surface disturbance. The No Action alternative would not result in an accumulation of impacts. The Directional Drilling Alternative would add 5.0 acres of surface disturbance.

4.5.3 Wildlife

Cumulative impacts for wildlife are as described in the following sections.

4.5.3.1 Big Game

The CIAA for deer will be defined as the Township 16 South Range 23 East. The CIAA covers approximately 23,000 acres on BLM, State of Utah, and privately held lands. Cumulative actions within the T16S, R23E area include 1 plugged and abandoned well, and about 1 mile of the Divide Ridge Road. The proposed action is the only well reasonably foreseeable in this Township and Range.

Cumulative impacts to big game include: disturbance of wildlife by noise and activities associated with construction and human presence. Cumulative surface disturbance within the CIAA would be approximately 7 acres from the Divide Ridge Road. The Proposed Action would add 2.0 acres of surface disturbance. The No Action alternative would not result in an accumulation of impacts. The Directional Drilling Alternative would add 5.0 acres of surface disturbance.

4.5.3.2 Migratory Birds

Ongoing and planned surface disturbing activities would reduce the amount of available cover, foraging opportunities, and breeding areas for migratory birds. Well drilling and other human activities (both directly and indirectly associated with this project) would incrementally reduce the productivity of the habitats affected for, at a minimum, the life of the project (approximately 25 years). In general, the severity of the cumulative effects would depend on factors such as the sensitivity of the species affected, seasonal intensity of use, type of project activity, and physical parameters (e.g., topography, forage, and cover availability).

The acres of disturbance proposed for the project area provides a rough index of the cumulative direct and indirect impacts to migratory birds from oil and gas development. Cumulative actions within the T16S, R23E CIAA include 1 plugged and abandoned well, and about 1 mile of the Divide Ridge Road. The proposed action is the only reasonably foreseeable well in this Township and Range. Direct impacts would produce loss of habitat until successful reclamation (approximately 25 years). The Proposed Action would add 2.0 acres of surface disturbance. The No Action alternative would not result in an accumulation of impacts. The Directional Drilling Alternative would add 5.0 acres of surface disturbance.

4.5.3.3 Special Status Fish Species

Under the Endangered Species Act, cumulative effects include the effects of the future state, tribal, local, or private actions that are reasonably certain to occur in the project area. Future federal actions that are unrelated to the Proposed Action are not typically included because they require separate consultation pursuant to Section 7 of the Endangered Species Act. However, to satisfy the requirements of NEPA, all cumulative federal actions in the CIAA are included for analysis.

Declines in the abundance or range of many special status species have been attributed to various human activities on federal, state, and private lands, such as human population expansion and associated infrastructure development; construction and operation of dams along major waterways; water retention, diversion, or dewatering of springs, wetlands, or streams; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of non-native plant, wildlife, or fish, or other aquatic species, which can alter native habitats or out-compete or prey upon native species. Many of these activities are expected to continue on state and private lands within the range of the various federally protected wildlife, fish, and plant species, and could contribute to cumulative effects to the species within the project area. Species with small population sizes, endemic locations, or slow reproductive rates, or species that primarily occur on non-federal lands where landholders may not participate in recovery efforts, would be highly susceptible to cumulative effects.

Reasonably foreseeable future activities that may affect river-related resources in the area include oil and gas exploration and development, irrigation, urban development, recreational activities, and activities associated with the Upper Colorado River Endangered Fish Recovery Program. Implementation of all or any of these projects has affected and continues to affect the environment including, but not limited to, water quality, water rights, socioeconomic, and wildlife resources.

Cumulative effects to this species would include the following types of impacts:

- Changes in land use patterns that would further fragment, modify, or destroy potential spawning sites or designated critical habitat;
- Shoreline recreational activities and encroachment of human development that would remove upland or riparian/wetland vegetation and potentially degrade water quality;
- Competition with, and predation by, exotic fish species introduced by anglers or other sources.

The Proposed Action would add 3 acre feet of water depletion. The No Action alternative would not result in an accumulation of impacts. The Directional Drilling Alternative would add 3 acre feet of water depletion.

4.5.4 Visual Resource Management

The CIAA will be defined as the 3,268 acre VRM class II area affected by the proposed action. Cumulative actions within the T16S, R23E area include 3 plugged and abandoned wells, one producing gas well, and about 12 miles of road. The proposed action is the only reasonably foreseeable well in this Township and Range.

Cumulative impacts include reduction of visual quality by alteration of form, line, and color. However, within VRM II, projects are designed to not draw the attention of the casual observer. Cumulative surface disturbance within the CIAA would be approximately 87 acres from the roads. The Proposed Action would add approximately 2.0 acres of surface disturbance, and would comply with the VRM II objectives due to the presence of vegetative screening. The No Action alternative would not result in an accumulation of impacts. The Directional Drilling Alternative would add 5.0 acres of surface disturbance and would not comply with the VRM II objectives due to lack of vegetative screening.

4.5.5 Recreation

The cumulative impact area is the divide road and all the dispersed campsites along it. Cumulative impacts in the area include oil and gas development, recreation, and other dispersed activities. Cumulative impacts include dust and noise from traffic and other activities in the area. Although we do not know all the dispersed recreation sites that occur along this road, the site potentially impacted by this proposed action has been identified during the onsite investigation and during the visual contrast rating field visit. Through the proposed action, recreation may lose a high value recreation dispersed site to development. Hunters, wood gatherers, and recreational campers will be displaced. The Proposed Action would add approximately 1.9 acres of surface disturbance in close proximity to the campsite. The No Action alternative would not

result in an accumulation of impacts. The Directional Drilling Alternative would add 5.0 acres of new disturbance, but the campsite would not be disturbed.

4.5.6 Non-WSA Lands with Wilderness Characteristics

The cumulative impact area for lands with wilderness characteristics is the 12,720 acre Hideout Canyon area within the Vernal and Moab Field Offices area. Vernal manages 1,113 acres of the wilderness characteristics area, while Moab manages 11,607 acres. This entire area possesses all of the values needed for wilderness including size, naturalness, and opportunities for solitude or primitive and unconfined recreation. Since the 2007 review, there have been no other changed circumstances in this area that would modify the determination of wilderness characteristics.

Neither the Vernal RMP ROD (2008) nor the Moab RMP ROD (2008) carried the Hideout Canyon area forward as a BLM natural area for the protection, preservation, or maintenance for the wilderness characteristics. In fact, the analysis in the Vernal Proposed Plan/Final EIS clearly portrayed on page 4-192 that this area is located in an oil and gas development area with moderate to high potential for further development. The analysis for the Proposed Plan showed that the 1,113 acres in the Vernal Field Office would lose their natural characteristics and opportunities for solitude and primitive recreation due to surface disturbance and the presence and noise of people and equipment during exploration for and development of oil and gas resources in this area. Although only 14 percent of the area in the Vernal Field Office was leased in 2008, the analysis showed that under the Proposed Plan, there would be a direct loss of natural characteristics and reduction in quality of the opportunities for solitude and primitive and unconfined recreation due to sights and sounds of development. A full analysis of existing and projected impacts to this area and other wilderness characteristics areas in the Vernal Field Office is contained in the Proposed Plan/Final EIS from pages 4-175 to 4-186. The Proposed Action would result in the loss of 2.0 acres of wilderness characteristics proposed under this action. The No Action Alternative would not result in an accumulation of impacts. The Directional Drilling Alternative would not result in an accumulation of impacts because it is outside of the wilderness characteristics area.

5.0 CONSULTATION AND COORDINATION

5.1 PERSONS, GROUPS, AND AGENCIES CONSULTED

List of Persons, Groups, and Agencies Consulted for Purposes of this EA:		
Name	Purpose and Authorities for Consultation or Coordination	Findings and Conclusions
U.S. Fish and Wildlife Service	Information on Consultation, under Section 7 of the Endangered Species Act (16 USC 1531)	A programmatic Biological Opinion was issued on August 9, 2011 that includes the formal consultation for this water depletion. The BLM is required to submit the information included in Table 7 to the U.S. Fish and Wildlife Service. Consultation is considered to be closed.
Utah State Historic Preservation Office	Section 106 of the National Historic Preservation Act	The area of potential effect (APE) is defined as the current project area within the polygons. The Horse Point Federal #12-13 is located on land managed by the Bureau of Land Management (BLM). Montgomery Archaeological Consultants completed an intensive pedestrian survey of the APE. The Class III inventory resulted in the identification of no cultural resources. BLM made a recommendation of “no historic properties affected.” A consultation letter was sent to the SHPO on August 24, 2010. We received a concurrence letter from SHPO on September 21, 2010. Consultation is considered to be closed.
Native American Tribes: White Mesa Ute, Ute Mountain Ute, Ute, Southern Ute, Hopi, Navajo Nation, Laguna Pueblo, Zia Pueblo, Santa Clara Pueblo, Eastern Shoshone, and Northwest Band of Shoshone.	Government to Government Consultation	Tribal consultation was sent 11/12/2010. We received “no adverse effect” correspondences from the Pueblo of Laguna with the 30-day consultation period. No other response was received. Consultation is considered to be closed.
Moab Field Office (BLM)	Information on the transportation plan and the non-WSA lands with wilderness characteristics. Also information on air emissions.	General coordination for actions in the Moab Field Office resulted in changes to Proposed Action including the gate and signs for the closed road to prevent unauthorized use.

Table 7: Water Depletion Report

Project name and or applicant name	Cochrane Resources, Inc.
Permit number and or special use authorization	Horse Point Fed 12-13
Lease Number	UTU-84672
Water Right Number & Location	43-10447
General location and legal description	T 8 S, R 20 E, sec. 9
Depletion amount in acre feet	3 acre feet per well
Timing of depletion	unknown
Identify if new or historic depletion	New
Sub-total water depletion (acre-feet) for each applicant	3 ac/ft
Total depletion for the entire year in acre-feet	unknown
Total number of APD's approved	1
Total number of wells spudded	Unknown

5.2 SUMMARY OF PUBLIC PARTICIPATION

The Proposed Action was posted to the Utah BLM's Environmental Notification Bulletin Board on July 7, 2008. A public comment period was requested. Two comment letters were submitted, one from Southern Utah Wilderness Alliance, one from the U.S. Fish and Wildlife Service. Their substantive comments and responses to their comments are included below.

U.S. Fish and Wildlife Service

1. *Comment:* Greater sage grouse are now a candidate species. Occupied habitat (UDWR, 2010) is immediately adjacent to the proposed project. Based on the topography, the well is within brooding habitat for greater sage grouse. An active lek is just over 3 miles to the west. Potential impacts to this species should be analyzed within the EA.

Response: This project is site-specific and habitat located within the project area was determined to be poor sage-grouse nesting habitat, unlike the area UDWR has identified as being occupied habitat. Conifer and Gambel's oak brush are the dominant vegetation types within the project area. Sage grouse has been dismissed from detailed analysis in Appendix B because there is no habitat in the project area.

2. *Comment:* The canyons immediately south of the proposed well were not analyzed within the SWCA 2005 Mexican spotted owl habitat assessment for the Vernal Field Office. This is potential habitat for Mexican spotted owl according to the models of Spotskey (1997) and Spotskey and Willey, (2000). The BLM's Moab Field Office may have assessed this habitat and documented its suitability for Mexican spotted owl. If this habitat has not been assessed, this assessment should be completed before consultation with us. If this is not completed, it is assumed that the habitat is suitable and two years of Mexican spotted owl surveys will be required prior to the start of construction.

Response: During the onsite visit, the surrounding areas were identified as poor Mexican spotted owl nesting habitat. According to the Moab Field Office, the nearest known

nesting habitat is located six miles southwest of the project area in Horse Canyon. The Horse Canyon area was surveyed in accordance to USFWS protocol during 2010-2011 and no Mexican spotted owls were identified.

3. *Comment:* To help meet responsibilities under Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), we recommend conducting activities outside of critical breeding seasons for migratory birds; minimizing temporary and long-term habitat losses; and mitigating unavoidable habitat losses. If activities occur in the spring or summer, we recommend conducting surveys for migratory birds to assist with efforts to comply with the Migratory Bird Treaty Act.

Response: The project area has a timing limitation of May 15 – June 30 for crucial deer and elk fawning/calving periods. This timing limitation would minimize or eliminate migratory bird nesting impacts if nesting occurred within the area. Please note that the nearest migratory bird conservation area, where species-specific bird habitat conservation projects may most effectively take place as identified in Martinsen et al. 2005, is located ten miles from the project area.

4. *Comment:* It is not clear whether the project area has had a formal survey for raptors. Since this is within the BLM's Moab Field Office, they may have additional information regarding raptors in this area. The Book Cliffs Divide has high potential to support species like the golden eagle and northern goshawk. The pictures of the site indicate the presence of trees that could support goshawks and other forest dwelling species.

Response: The BLM completed a raptor survey after the initial onsite visit and no raptors were observed nesting in the area. It was determined that the project area does not contain suitable habitat for goshawks given the vast open areas and the lack of old growth forests within the nearby drainage systems.

Southern Utah Wilderness Alliance

1. *Comment:* SUWA encourages the BLM to adopt and approve the directional drilling in the finding of no significant impact and decision record. The well pad proposed in the directional drilling alternative is located on a previously disturbed pad 2,000 feet to the north of the proposed location and north of the Book Cliffs Divide Road. The EA does not dispute that the directional drilling alternative is technically feasible and SUWA has contracted with a qualified third party (Ken Kreckel) to confirm that this is the case and in fact that directional drilling has frequently been used to target the same formations at issue here.

Response: Thank you for your comment. The BLM Decision Maker will select an alternative to approve upon consideration of the purpose and need and all the impacts associated with the alternatives.

2. *Comment:* The EA explains that the operator has committed to using low profile tanks at the proposed location and SUWA assumes that this would be the case for the directional drilling location as well, though the EA is silent on this point. The EA suggests that visual impacts would be more serious at the directional drilling location because the access road would be visible, but SUWA is confident that through rigorous application of BLM best management practices and Gold Book standards, these impacts can be reduced. For example, the company could be required to construct a narrower, lower standard road, use ultra-low profile tanks and cellared wellheads. The EA also confusingly asserts that the operator could use the existing two-track with few improvements to access the proposed location, but would be required to construct ¼ mile of a 30 foot wide road to access the directional drilling alternative location. Surely the access road to the directional drilling location would not have to be constructed to a higher standard than the proposed location. If the BLM ultimately does not adopt the directional drilling alternative, the EA must be explicit in why the road to the directional location was required to be built to a higher standard.

Response: The existing road to the proposed action is relatively flat all the way to the proposed well pad (see Appendix G: Figure A). The picture shows the road where it leaves the main divide road. It is a well-established two-track, and the operator agreed to use it as is, with the exception of a gravel cap to help minimize erosion. The trees on both sides of the access road will shield the road from view and help adhere to the VRM guidelines set forth in our Vernal RMP.

The directional alternative road would have to be reconstructed since it has been fully reclaimed (see Appendix G: Figure C). The temporary construction width would be 30 feet, but the permanent running surface would only be 18 feet, the rest would undergo reclamation work. However, the road would run adjacent to a minor drainage feature, which would require work beyond a gravel cap to minimize erosion for the long term. The directional alternative's total vegetation and soil loss is as described in Table 3. Construction of this road would also go against VRM II guidelines, because the road would be seen from both key observation points analyzed during the investigation on 7-26-11.

3. *Comment:* Given the high altitude (over 8,200') and typical harsh winter conditions at either drilling location, SUWA has concerns that the proposed reserve pit will not have adequate time to dry.

Response: If the pit is not dry prior to the onset of winter, the company has committed to remove the water from the pit via vacuum truck, and then commence reclamation.

4. *Comment:* The Final EA must contain an assessment of the 1-hour NO₂ NAAQS. BLM must perform a full assessment of 1-hour NO₂ impacts from the proposed development and compare those impacts (in conjunction with representative background concentrations) to the 1-hour NAAQS for NO₂. It is critical that short term NO₂ impacts are carefully assessed in order to ensure that the short term impacts related to the drilling and production stages will not result in significant health impacts.

Response: A single drilling rig with emission controls equal to a Tier II engine standard has been demonstrated to meet the 1-hour NO₂ NAAQS in the modeling conducted for the Greater Natural Buttes (GNB) EIS. As long as the proposed project does not exceed the emission standards or operating parameters used in the GNB modeling analysis it can be reasonably assumed that the 1-hour NO₂ NAAQS will be met. Conducting additional project-specific modeling in this case would not provide any additional information that could be used in determining impacts from this proposed source.

5.3 LIST OF PREPARERS

BLM:

Name	Title	Responsible for the Following Section(s) of this Document
James Hereford II	Natural Resource Specialist	Vegetation, Soils, Hydrology
Jason West	Recreation Specialist	Recreation, Non-WSA Lands with Wilderness Characteristics, Visual Resources
Stephanie Howard	NEPA Coordinator	Air Quality, Greenhouse Gases
Brandon Macdonald / Dan Emmett	Wildlife Specialist	Wildlife

6.0 REFERENCES, GLOSSARY, AND ACRONYMS

6.1 REFERENCES CITED

- USFWS. 1987. Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin. Final. US Department of the Interior, Fish and Wildlife Service, Denver, Colorado. September 29, 1987.
- BLM. 2008. Vernal Field Office Resource Management Plan and Record of Decision, U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.
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- Martinsen, W., D. Paul, J. McCreary, F. P. Howe, T. Aldrich, J. R. Parrish, R. Berger, R. Player, S. Hedges, T. Wallace, J. Tuey, and D. Fagan. 2005. Coordinated Implementation Plan for Bird Conservation in Utah, Version 1.0. Utah Steering Committee, Intermountain West Joint Venture, Missoula, Montana.

6.2 LIST OF ACRONYMS

AO: authorized officer
APD: application for permit to drill
BLM: Bureau of Land Management
BTEX: isomers of xylene
CEQ: Council on Environmental Quality
CFR: Code of Federal Regulations
CIAA: cumulative impact area of analysis
CO: carbon monoxide
DR: decision record
EA: environmental assessment
EIS: environmental impact statement
EPA: Environmental Protection Agency
FONSI: Finding of No Significant Impact
GHG: greenhouse gas
HAPs: hazardous air pollutants
KOP: Key Observation Point
LUP: land use plans
MBTA: Migratory Bird Treaty Act
NAAQS: National Ambient Air Quality Standards
NASA: National Air and Space Agency
NEPA: National Environmental Policy Act
NOAA: National Oceanic and Atmospheric Agency

Non-WSA: Non-Wilderness Study Area
NOx: oxides of nitrogen
NPS: National Park Service
O₃: ozone
OHV: off-highway vehicles
OSHA: Occupational Safety and Health Act
PM_{2.5}: particulate matter less than 2.5 microns in diameter
PM₁₀: particulate matter less than 10 microns in diameter
RFD: reasonable foreseeable development
ROD: Record of Decision
RMP: resource management plan
SARA: Superfund Amendments and Reauthorization Act
SITLA: School and Institutional Trust Lands Administration (State of Utah)
SO₂: sulfur dioxide
SOx: oxides of sulfur
SUWA: Southern Utah Wilderness Alliance
SW/NW: southwest/northwest
UBAQS: Uinta Basin Air Quality Study
UDAQ: Utah Department of Air Quality
UPIF: Utah Partners in Flight
VOCs: volatile organic compounds
VRM: Visual Resource Management
VFO: Vernal Field Office

Appendix A

Interdisciplinary Team Analysis Record Checklist

INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST

**Project Title: Cochrane Resources, Inc. Proposes to Drill One New Natural Gas Well:
Horse Point Federal Well 12-13**

NEPA Log Number: DOI-BLM-UT-G010-2009-0258-EA

File/Serial Number: UTU 84672

Project Lead: James Hereford II

DETERMINATION OF STAFF:

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for significant impact analyzed in detail in the EA; or identified in a DNA as requiring further analysis

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section C of the DNA form.

Determination	Resource	Rationale for Determination*	Signature	Date
PI	Air Quality	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality.	Stephanie Howard	11/08/2010
NP	Areas of Critical Environmental Concern	None present as per GIS and figure 14a of the 2008 Vernal RMP.	Jason West	7/13/09
NP	BLM natural areas	No BLM natural areas exist in the project area.	Jason West	11-04-09
NP	Cultural Resources	The area of potential effect (APE) is defined as the current project area within the polygons. The Horse Point Federal #12-13 is located on land managed by the Bureau of Land Management (BLM). Montgomery Archaeological Consultants completed an intensive pedestrian survey of the APE. The Class III inventory resulted in the identification of no cultural resources. We are therefore making a recommendation of "no historic properties affected." A consultation letter was sent to the SHPO on August 24, 2010. We received a concurrence letter from SHPO on September 21, 2010.	Kathie Davies	1-12-09
NI	Environmental Justice	No minority or economically disadvantaged communities or populations are present which could be disproportionately affected by the proposed action or alternatives.	Stephanie Howard	11-03-09
NP	Farmlands (Prime or Unique)	The Natural Resources Conservation Service determined that all prime and unique farmlands in Grand County exist in the south east portion of the county.	James Hereford II	11/2/2010
NP	Floodplains	There are no floodplains within the proposed action. No ephemeral drainage channels exist on the proposed location. See the Vernal GIS data base and the onsite dated 11-21-08.	James Hereford II	7/20/10
NP	Fuels / Fire Management	No conflicts with BLM fuels or fire management activities would occur. No fuels treatments are present. As per the Vernal GIS data base.	James Hereford II	7/20/10
NI	Geology / Mineral Resources / Energy Production	Compliance with existing BLM construction restrictions on slopes and construction design will cause the possibility of the project initiating landslides, other mass movements, or flooding	James Hereford II	7/20/10

Determination	Resource	Rationale for Determination*	Signature	Date
		<p>to be unlikely.</p> <p>Natural gas, oil, gilsonite, oil shale, and tar sand are the only mineral resources that could be impacted by the project. Production of natural gas or oil would deplete reserves, but the proposed project allows for the recovery of natural gas and oil per 43 CFR 3162.1(a), under the existing Federal lease. Compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations" will assure that the project will not adversely affect gilsonite, oil shale, or tar sand deposits. Due to the state-of-the-art drilling and well completion techniques, the possibility of adverse degradation of tar sand or oil shale deposits by the proposed action will be negligible.</p> <p>Well completion must be accomplished in compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations". These guidelines specify the following: ... <i>proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.</i>³</p>		
PI	Greenhouse Gases	No standards have been set by EPA or other regulatory agencies for greenhouse gases. In addition, the assessment of greenhouse gas emissions and climate change is still in its earliest stages of formulation. Global scientific models are inconsistent, and regional or local scientific models are lacking so that it is not technically feasible to determine the net impacts to climate due to greenhouse gas emissions. It is anticipated that greenhouse gas emissions associated with this action and its alternative(s) would be negligible.	Stephanie Howard	11/08/2010
PI	Invasive Plants / Noxious Weeds	Operator would control invasive species along road and pipeline corridors and on well pads, through the use of a PUP. Addressed in the Soils and Vegetation section of Chapter 3 and 4.	James Hereford II	7/20/10
PI	Non-WSA Lands with Wilderness Characteristics	<p>The project area falls within the Hideout Canyon non-WSA lands with wilderness characteristics, as identified and analyzed in the Vernal Proposed Plan/FEIS (2008). The Vernal approved Plan FEIS portrays that the area was found to have wilderness characteristics, but did not make the area a "natural area" to protect and preserve such values.</p> <p>The proponent has valid existing rights to drill and minimized impacts at the recommendation of the BLM staff by utilizing an existing two track road. 2.0 acres of new disturbance would occur for the life of the project within the non-WSA lands with wilderness characteristics. This will be lessened if interim reclamation efforts are successful.</p>	Jason West	4-12-2011
NI	Lands / Access	There are no conflicts with the existing access route proposed. The route utilizes an old two track that has been in place many years before the proposed project. The operator agreed to use this road and upgrade it as needed for safety in accessing the site.	James Hereford II	11/2/2010
NI	Livestock Grazing	The project lies within the Book Cliff Pasture Allotment. The allotment is utilized by cattle July through October. Vegetation would initially be disturbed on 2.0 acres. Upon well completion, the reserve pit and the location up to the dead men would be reseeded; however, final reclamation may not occur for decades. Interim reclamation would reduce the effects of the long term disturbance by approximately 50% when the seeding becomes	Dusty Carpenter	11/15/2010

Determination	Resource	Rationale for Determination*	Signature	Date
		established. Although cattle grazing would be displaced within the area of the new access road and pad, the displacement would be minimal due to the small amount of acreage (2).		
NI	Native American Religious Concerns	Tribal consultation was sent 11/12/2010. We received "no adverse effect" correspondences from the Pueblo of Laguna with the 30-day consultation period.	Kathie Davies	1-12-09
NP	Paleontology	Paleontological resources would not be affected by the proposed action. No fossils were found in association with the project. See Paleontological Resource Report dated 3-25-09.	Robin L Hansen	03-25-09
NI	Rangeland Health Standards and Guidelines	Rangeland Health Standards have not been assessed for the Book Cliff Pasture Allotment; however, it is anticipated for the 2011 summer. Hydrologic processes would not be altered because the site-specific well pads and roads are designed to minimize concentrated runoff and to convey runoff to adjacent undisturbed drainages. Species diversity would not decline due to reseeding. See the weeds, water quality, soils and riparian sections.	Dusty Carpenter	11/15/2010
PI	Recreation	Limited recreation takes place within the proposed project area. A dispersed campsite and road will be affected, primarily affecting recreational hunting in the fall. The area is within the "Limited to designated routes" designation as per the Vernal ROD and RMP. Impacts will include potential loss of a pristine campsite due to loss of solitude created by drilling/production.	Jason West	7/13/09
NI	Socio-economics	Due to the small size of the proposed project in relation to ongoing oil and gas activity in the Uinta Basin, impacts would be negligible.	Stephanie Howard	11/08/2010
PI	Soils	Soils would be initially disturbed on 2.0 acres. Upon well completion, the reserve pit and the location up to the dead men would be reseeded and re-contoured to the approximate natural contours. This would reduce the effects of the disturbance by approximately 50% when the seeding becomes established. After abandonment the entire well would be re-contoured and reclaimed	James Hereford II	7/20/10
PI	Special Status Animal Species other than USFWS candidate or listed species e.g. Migratory birds.	There are no documented or known raptor nests within ½ mile of the proposed project area. The proposed project area is within crucial deer fawning habitat. Migratory birds (passerines, PIF sp, etc.) are present (see Appendix B). Water depletion will occur for the proposed project. Fish and wildlife presence/absence are generated from Wildlife Report(s): 001_2009_CRI.	Brandon McDonald	5-13-09
NP	Special Status Plant Species other than USFWS candidate or listed species	No populations of special status plant species were found in the area of the proposed activity. <i>The area of the proposed activity was inventoried on September 6 of 2007 and no special status plant species were found. This site therefore warrants a NO EFFECT determination with respect to Federally listed and Bureau –sensitive plant species. See Special Status Plant Species Report dated 10-02-09 and the updated Special Status Plant Species Report dated 10-08-10.</i>	Aaron Roe	10-08-10
PI	Threatened, Endangered or Candidate Animal Species	GIS layers and field data was reviewed and found no federally listed species and / or habitat within the proposed project area. The proposed project is outside of any brooding, occupied, or winter habitat as per 9/26/2011 UDWR GIS layers. Water depletion will occur for the proposed project; however, the proposed project well has been analyzed under the USFWS's Programmatic Water Depletion Biological Opinion for Oil and	Brandon McDonald Dan Emmett	5-13-09 2-9-2012

Determination	Resource	Rationale for Determination*	Signature	Date
		<i>Gas Development Administered or Permitted by the Bureau of Land Management (2006).</i>		
NP	Threatened, Endangered or Candidate Plant Species	None present as per Special Status Plant species Report dated 10-02-08 by Clayton Newberry and the updated Special Status Plant Species Report dated 10-08-10.	Aaron Roe	10-08-10
PI	Vegetation	Vegetation would be initially disturbed on 2.0 acres. Upon well completion, the reserve pit and the location up to the deadmen would be reseeded and re-contoured to the approximate natural contours. This would reduce the effects of the disturbance by approximately 50% when the seeding becomes established. After abandonment the entire well would be re-contoured and reclaimed.	James Hereford II	7/20/10
PI	Visual Resources	VRM Class II. The objective for this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The applicant has agreed to use the existing road to access the proposed development site, and also relocate and use low profile tanks. Best management practices include leaving vegetative structures in place between the developed area and the road. See Contrast Rating worksheet Appendix E and proposed action.	Jason West	10-21-2010
NI	Wastes (hazardous or solid)	No chemicals subject to reporting under SARA Title III in amounts greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with the wells. Trash and other waste materials would be cleaned up and removed immediately after completion of operations.	James Hereford II	7/20/10
NP	Waters of the U.S.	The proposed project would not impact any streams as identified by the dashed or solid blue lines in USGS topographic map as well as the onsite investigation that took place. No impact to waters of the U.S. is anticipated.	James Hereford II	7/20/10
NI	Water Quality (surface / ground)	Compliance with "Onshore Oil and Gas Order No. 1 will assure that the project will not adversely affect groundwater quality. Due to the state-of-the-art drilling and wells completion techniques, the possibility of adverse degradation of groundwater quality or prospectively valuable mineral deposits by the proposed action will be negligible. Wells completion must be accomplished in compliance with "Onshore Order No. 1., These guidelines specify the following: <i>... proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.</i> Surface water would not be impacted because culverts would be used as needed and no existing surface waters would be impacted.	James Hereford II	7/20/10
NP	Wetlands / Riparian Zones	There are no Wetlands or Riparian Zones present within the area of the proposed action as per the Vernal Field Office GIS data base and the Onsite report dated 11-21-07	James Hereford II	7/20/10

Determination	Resource	Rationale for Determination*	Signature	Date
NP	Wild and Scenic Rivers	There are No Wild and Scenic Rivers present as per the Vernal Field Office GIS data base and the Vernal Field Office RMP/ROD.	James Hereford II	7/20/10
NP	Wild Horses and Burros	The project area is not part of a wild horse herd unit Vernal Field Office RMP/ROD.	James Hereford II	7/20/10
NP	Wilderness	None Present as per the Vernal ROD and GIS layers	Jason West	7/13/09
NP	Woodland / Forestry	There are a few small Douglas fir trees in the project area, but they appear to be encroaching into a mountain brush community and the trees are too small to have any commercial value therefore there is no impact.	David Palmer	7/10/2009

FINAL REVIEW:

Reviewer Title	Signature	Date	Comments
NEPA / Environmental Coordinator	<i>Stephanie J Howard</i>	5/9/12	
Authorized Officer	<i>Jy Foy</i>	5-14-2012	

Appendix B

Special Status Wildlife Species

Appendix B: Threatened, Endangered, Candidate, Utah Special Status Animal Species including Partners-In-Flight Species of Concern.

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
Bonytail <i>Gila elegans</i>	FE	Is endemic to the Colorado River system within main channels of large rivers, and favor swift currents.	Moderate. This species occurs in the Green River. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Colorado pikeminnow <i>Ptychocheilus lucius</i>	FE	Known from the Colorado River system. Uses large swift rivers.	Moderate. This species occurs in the Green and White Rivers. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Humpback chub <i>Gila cypha</i>	FE	Is endemic to the Colorado River System within deep, swift-running rivers, with canyon shaded environments.	Moderate. This species occurs in the Green River. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Razorback sucker <i>Xyrauchen texanus</i>	FE	Endemic to large rivers of the Colorado River system.	Moderate. This species occurs in the Green and White Rivers. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Black-footed ferret <i>Mustela nigripes</i>	FE	Semi-arid grasslands and mountain basins. It is found primarily in association with active prairie dog colonies that contain suitable burrow densities and colonies that are of sufficient size.	None. The distribution of this species is limited to a nonessential experimental population reintroduced into Coyote Basin, Uintah County starting in 1999. Habitat is not present within the proposed project area.	Yes
Canada Lynx <i>Lynx lynx canadensis</i>	FT	Primarily occurs in Douglas-fir, Spruce-fir, and subalpine forests at elevations above 7,800 feet amsl. The lynx uses large woody debris, such as downed logs and windfalls.	None. If extant in Utah, this species most likely occurs in montane forests in the Uinta Mountains. Habitat is not present within the proposed project area.	Yes
Mexican spotted owl <i>Strix occidentalis lucida</i>	FT; PIF	In Utah, found primarily in rocky canyons. Nests in caves or crevices. Roosts on ledges or in trees in canyons. The species prefers mesic (moister/cooler) canyons with mixed conifer or riparian components. Breeding and nesting season: March through August.	None. The potential habitat has been surveyed and determined unsuitable for nesting (<i>Assessment of Potential Mexican Spotted Owl Nesting on BLM-Administered Lands in Northeastern Utah</i> ,	Yes

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
			<i>September 2005).</i>	
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC; PIF	Riparian obligate and usually occurs in large tracts of cottonwood/willow habitats. However, this species also has been documented in lowland deciduous woodlands, alder thickets, deserted farmlands, and orchards. Breeding season: late June through July.	None. Species is known to occur along the Green River and the Ouray National Wildlife Refuge. Habitat is not present within the proposed project area.	Yes
Bluehead sucker <i>Catostomus discobolus</i>	CAS	Occupies a wide range of aquatic habitats ranging from cold, clear mountain streams to warm, turbid rivers.	Moderate. The bluehead sucker is native in parts of Utah. The species occurs in the upper Colorado River system. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Flannelmouth sucker <i>Catostomus latipinnis</i>	CAS	Adults occur in riffles, runs, and pools in streams and large rivers, with the highest densities usually in pool habitat. Young live in slow to moderately swift waters near the shoreline areas.	Moderate. The flannelmouth sucker is native in Utah. The species occurs in the Colorado River system. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Roundtail chub <i>Gila robusta</i>	CAS	Adults inhabit low to high flow areas in the Green River; young occur in shallow areas with minimal flow.	Moderate. The roundtail chub is native in Utah. The species occurs in the Colorado River system. Habitat is not present within the proposed project area; however, water depletion will occur.	No
Colorado River Cutthroat trout <i>Oncorhynchus clarkii pleuriticus</i>	CAS	Requires cool, clear water and well-vegetated streambanks for cover and bank stability; instream cover in the form of deep pools and boulders and logs also is important; adapted to relatively cold water, thrives at high elevations. Most remaining populations are fluvial or resident. Occurs also in lakes.	None. Habitat is not present within the proposed project area.	Yes
Northern Goshawk <i>Accipiter gentilis</i>	CAS	Generally found in a wide variety of forest types including deciduous, coniferous, and mixed forests. Typically mature and old growth forests and generally selects larger tracts of forest over smaller tracts. In the western U.S., characteristically	None. Prefers old-growth forests near or within large drainage systems. Habitat is not present within the proposed project area.	Yes

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
		<p>nests in coniferous forests including those dominated by ponderosa pine, lodgepole, or in mixed forests dominated by various coniferous species including, Douglas-fir, cedar, hemlock, spruce, and larch. Western birds also nest in deciduous forests dominated by aspen, paper birch, or willow.</p>		
Bald eagle <i>Haliaeetus leucocephalus</i>	WSC	<p>In Utah, breeding occurrences are limited to 10 locations within four counties (Carbon, Daggett, Duchesne, Grand, and Salt Lake counties). Winter habitat typically includes areas of open water, adequate food sources, and sufficient diurnal perches and night roosts.</p>	<p>None. Bald eagles utilize ungulate winter ranges that provide carrion, and areas of open water such as the Green River. Roosting or nesting habitat does not occur within the proposed project area.</p>	Yes
American white pelican <i>Pelecanus erythrorhynchos</i>	WSC; PIF	<p>Inhabits areas of open water including large rivers, lakes, ponds, and reservoirs with surrounding habitats ranging from barren to heavily vegetated sites. Typically nests on isolated islands in lakes or reservoirs.</p>	<p>None. Known to nest on islands associated with Great Salt and Utah Lakes. In northeastern Utah, the species occurs as a transient on larger water bodies. Habitat is not present within the proposed project area.</p>	Yes
Greater Sage-grouse <i>Centrocercus urophasianus</i>	WSC; PIF	<p>Inhabits upland sagebrush habitat in rolling hills and benches. Breeding occurs on open leks (or strutting grounds) and nesting and brooding occurs in upland areas and meadows in proximity to water and generally within a 2-mile radius of the lek. During winter, sagebrush habitats at submontane elevations commonly are used.</p>	<p>None. The species is widespread, but declining, with extant populations in Uintah and Duchesne counties. Habitat is not present within the proposed project area.</p>	Yes
Ferruginous hawk <i>Buteo regalis</i>	WSC; PIF	<p>Resides mainly in lowland open desert terrain characterized by barren cliffs and bluffs, pinion-juniper woodlands, sagebrush-rabbit brush, and cold desert shrub. Nesting habitat includes promontory points and rocky outcrops.</p>	<p>Low. This species is known to occur in the West Desert and the Uintah Basin as a summer resident and a common migrant. Within the Uintah Basin, the species is more associated with prairie dog colonies as the main prey base. No known or documented ferruginous hawk nests are within ½ mile of the proposed project well.</p>	Yes
Burrowing owl <i>Athene</i>	WSC	<p>Inhabits desert, semi-desert shrubland, grasslands, and agriculture areas.</p>	<p>None. Known to occur in Uintah and Duchesne</p>	Yes

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
<i>cunicularia</i>		Nesting habitat primarily consists of flat, dry, and relatively open terrain; short vegetation; and abandoned mammal burrows (within northeastern Utah primarily in association with prairie dog complexes) for nesting and shelter.	counties. Nesting habitat is not present within the proposed project area.	
Mountain plover <i>Charadrius montanus</i>	WSC; PIF	In the Uintah Basin, small Mountain plover populations breed in shrub-steppe habitat where vegetation is sparse and sagebrush communities are dominated by <i>Artemisia</i> spp. with components of black sage and grasses. Nest locations also vary with respect to topography (nests were located on flat, open ground; on the top or at the base of slopes; or very close to large rocky outcroppings).	None. The only known breeding population of mountain plover in Utah is located on Myton Bench. Habitat is not present within the proposed project area.	Yes
White-tailed prairie dog <i>Cynomys leucurus</i>	WSC	Inhabits grasslands, plateaus, plains and desert shrub habitats. White-tailed prairie dogs form colonies or “towns” and spend much of their time in underground burrows and hibernating during the winter months.	None. Prairie dogs are an obligate species to several other state-sensitive species, such as ferruginous hawk, mountain plover, and burrowing owl, in that these species depend on them for food, shelter, and nesting habitat or habitat manipulation. Habitat is not within the proposed project area.	Yes
Short-eared owl <i>Asio flammeus</i>	WSC	Inhabits arid grasslands, agricultural areas, marshes, and occasionally open woodlands. In Utah, cold desert shrub and sagebrush-rabbit brush habitats also are utilized. Typically a ground nester.	None. Known to occur in Uintah County, with occurrence probable in Duchesne County. Habitat is not present within the proposed project area.	Yes
Lewis’s Woodpecker <i>Melanerpes lewis</i>	WSC; PIF	Inhabits open habitats including pine forests, riparian areas, and pinion-juniper woodlands. Breeding habitat typically includes ponderosa pines and cottonwoods in stream bottoms and farm areas. The species inhabits agricultural lands and urban parks, montane and desert riparian woodlands, and submontane shrub habitats.	None. In Utah, the species is widespread, but is an uncommon nester along the Green River. Breeding by this species has been observed in Ouray and Uintah counties, and along Pariette Wash. Habitat is not present within the proposed project area.	Yes
Three-toed Woodpecker <i>Picoides tridactylus</i>	WSC; PIF	Prefers coniferous forest, primarily spruce and balsam fir. It inhabits areas where dead timber remains after fires or logging. It is found less frequently	None. In Utah, the species is widespread but no habitat exists within the Project area. The three-toed	Yes

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
		in mixed forest, and occasionally in willow thickets along streams. Also found in high elevation aspen groves, bogs, and swamps.	woodpecker is associated more with spruce trees and not pinion pine or Douglas-fir. Habitat is not present within the proposed project area.	
Grasshopper sparrow <i>Ammodramus savannarum</i>	WSC; PIF	Prefers grasslands of intermediate height and are often associated with clumped vegetation interspersed with patches of bare ground. Other habitat requirements include moderately deep litter and sparse coverage of woody vegetation.	Moderate. In Utah, the species is widespread and has been known to breed in Uintah, Duchesne, and Daggett counties. Habitat is present within the proposed project area.	No
Long-billed Curlew <i>Numenius americanus</i>	WSC; PIF	Inhabits shortgrass prairies, alpine meadows, riparian woodlands, and reservoir habitats. Breeding habitat includes upland areas of shortgrass prairie or grassy meadows with bare ground components, usually near water.	None. Widespread migrant in Utah. Breeding birds are fairly common but localized, primarily in central and northwestern Utah. Potential nesting has been reported in Uintah County, but has not been confirmed. Habitat is not present within the proposed project area.	Yes
Bobolink <i>Dolichonyx oryzivorus</i>	WSC; PIF	Inhabits mesic and irrigated meadows, riparian woodlands, and subalpine marshes at lower elevations (2,800 to 5,000 feet amsl). Suitable breeding habitat for this ground nester includes tall grass, flooded meadows, prairies, and agricultural fields; forbs and perch sites also are required.	None. The species breeds in isolated areas of Utah, primarily in the northern half of the state. Breeding and winter habitat have been documented throughout Uintah, Duchesne, and Daggett counties. Habitat is not present within the proposed project area.	Yes
Big free-tailed bat <i>Nyctinomops macrotis</i>	WSC	Rocky areas in rugged country. The species has been observed in lowlands of river floodplain-arroyo association; also in shrub desert and woodland habitats. Roosts in rock crevices (vertical or horizontal) in cliffs; also in buildings caves, and occasionally tree holes. Winter habits unknown.	None. The species has been documented in northeastern part of the state from Daggett County into Wyoming. Habitat for this species is not present within the proposed project area.	Yes
Fringed myotis <i>Myotis thysanodes</i>	WSC	The species is widely distributed throughout Utah, but is not very common in the state. The fringed myotis inhabits caves, mines, and buildings, most often in desert and woodland areas.	None. High value and substantial value habitat exists for the species in southern Utah in lower elevations; however, a couple of sightings have been documented along the White River. Habitat is not present within the proposed	Yes

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
			project area.	
Spotted bat <i>Euderma maculatum</i>	WSC	Inhabits desert shrub, sagebrush-rabbit brush, piñon-juniper woodland, and ponderosa pine and montane forest habitats. The species also uses lowland riparian and montane grassland habitats. Suitable cliff habitat typically appears to be necessary for roosts/hibernacula. Spotted bats typically do not migrate and use hibernacula that maintain a constant temperature above freezing from September through May.	None. The species potentially occurs throughout Utah; however, no occurrence records exist for the extreme northern or western parts of the state. Known occurrences have been reported in northeastern Uintah County. Habitat is not present within the proposed project area.	Yes
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	WSC	Inhabits a wide range of habitats from semidesert shrublands and piñon-juniper woodlands to open montane forests. Roosting occurs in mines and caves, in abandoned buildings, on rock cliffs, and occasionally in tree cavities. Foraging occurs well after dark over water, along margins of vegetation, and over sagebrush.	None. The species occurs throughout much of Utah including Duchesne and Uintah counties. One individual was collected at the Ouray National Wildlife Refuge in 1980. Roosting habitat for this species potentially could occur in areas where rock cliffs and caves are present. Habitat is not present within the proposed project area.	Yes
Western (Boreal) toad <i>Bufo boreas</i>	WSC	Commonly found throughout most of Utah and can be found in a variety of habitats, including slow moving streams, wetlands, desert springs, ponds, lakes meadows, and woodlands.	None. The species is commonly spread throughout central and northern Utah. The only known occurrence in the basin exists within the northwest portion of Uintah County which has substantial value habitat for the species. Habitat is not present within the proposed project area.	Yes
Corn snake <i>Elaphe guttata</i>	WSC	Habitat includes pine woodlands, brushy fields, open hardwood forests, mangrove thickets, barnyards, and abandoned buildings, areas near springs, old trash dumps, and caves.	None. Occurs in Uintah County. The species have been identified at Ouray National Wildlife Refuge. Habitat is not present within the proposed project area.	Yes
Smooth green snake <i>Opheodrys vernalis</i>	WSC	Habitat includes meadows, grassy marshes, moist grassy fields at forest edges, mountain shrublands, stream borders, bogs, open moist woodland, abandoned farmland, and vacant lots.	None. Although not commonly seen throughout Utah the species has been documented in the northern section of Uintah County in lower elevations. Habitat is	Yes

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
			not present within the proposed project area.	
Prairie falcon <i>Falco mexicanus</i>	PIF	Habitat includes alpine, cliff, cropland/hedgerow, desert, and grassland/herbaceous areas.	None. Habitat is not present within the proposed project area.	Yes
Swainson's hawk <i>Buteo swainsonii</i>	PIF	Inhabits grasslands, deserts, agricultural areas, shrublands, marshlands, and riparian forests. Nest in trees in or near open areas. Breeding season: April 1 – July 15.	None. Habitat is not present within the proposed project area.	Yes
Black-chinned hummingbird <i>Archilochus alexandri</i>	PIF	Habitat includes dry lowlands and foothills with pinion-juniper woodlands.	Low. Habitat is present within the proposed project area.	No
Broad-tailed hummingbird <i>Selasphorus platycercus</i>	PIF	Habitat includes open woodland, especially pinion-juniper, pine-oak, and conifer-aspen association; brushy hillsides; montane scrub and thickets.	Low. Habitat is present within the proposed project area.	No
Brewer's sparrow <i>Spizella breweri</i>	PIF	Habitat includes desert and shrubland/chaparral.	High. Habitat is present within the proposed project area.	No
Cassin's finch <i>Carpodacus cassinii</i>	PIF	Habitat includes open coniferous forest; in migration and winter also in deciduous woodland, secondary growth, scrub, brushy areas, partly open situations with scattered trees.	Low. Habitat is present within the proposed project area.	No
Cassin's kingbird <i>Tyrannus vociferans</i>	PIF	Habitat includes sparse woods and dry scrub areas.	Low. Habitat is present within the proposed project area.	No
Clark's nutcracker <i>Nucifraga columbiana</i>	PIF	Habitat includes open coniferous forest, forest edge and clearings, primarily in mountains, but wandering into various habitats; in winter also in lowlands.	Low. Habitat is present within the proposed project area.	No
Gray flycatcher <i>Empidonax wrightii</i>	PIF	Habitat includes arid areas of sagebrush or pinion-juniper woodlands.	Low. Habitat is present within the proposed project area.	No
Gray vireo <i>Vireo vicinior</i>	PIF	Habitat includes dry shrubby areas, chaparral, and sparse woodlands.	Low. Habitat is present within the proposed project area.	No
Green-tailed towhee <i>Pipilo chlorurus</i>	PIF	Habitat is usually low shrubs, sometimes interspersed with trees; avoids typical forest, other than open pinion-juniper woodlands. In pinion-juniper, associated with sagebrush (<i>Artemisia</i> spp.) dominated openings with high shrub species richness.	Moderate. Habitat is present within the proposed project area.	No
Juniper titmouse	PIF	Habitat includes sparse pinion-juniper	Low. Habitat is present	No

Species	Status	Habitat Association	Potential for Occurrence Within the Proposed Project area and Cumulative Effects Area	Eliminated From Detailed Analysis (Yes/No)
<i>Parus inornatus</i>		and oak woodlands.	within the proposed project area.	
Mountain bluebird <i>Sialia currucoides</i>	PIF	Habitat includes subalpine meadows, grasslands, shrub-steppe, savanna, and pinion-juniper woodlands; in south usually at elevations above 1500 m (4900 ft.). In winter and migration also inhabits desert, brushy areas and agricultural lands.	High. Habitat is present within the proposed project area.	No
Pinion jay <i>Gymnorhinus cyanocephalus</i>	PIF	Habitat includes semi-arid foothills with pinion-juniper woodlands.	Low. Habitat is present within the proposed project area.	No
Sage sparrow <i>Amphispiza belli</i>	PIF	Habitat includes dry sagebrush/scrublands with sparse vegetation.	High. Habitat is present within the proposed project area.	No
Sage thrasher <i>Oreoscoptes montanus</i>	PIF	Habitat includes desert and shrubland/chaparral.	High. Habitat is present within the proposed project area.	No
Virginia's warbler <i>Vermivora virginiae</i>	PIF	Habitat includes dry woodlands, scrub oak brushlands, canyons and ravines.	Low. Habitat is present within the proposed project area.	No
White-throated swift <i>Aeronautes saxatalis</i>	PIF	Habitat includes cliffs and canyons.	None. Habitat is not present within the proposed project area.	Yes
Wilson's phalarope <i>Phalaropus tricolor</i>	PIF	Habitat includes grassland/herbaceous riparian and wetlands.	None. Habitat is not present within the proposed project area.	Yes

Federally Listed Species:

- FE = Federally listed as endangered;
- FT = Federally listed as threatened;
- FC = Federally listed as candidate

State Sensitive Species:

- CAS = State Conservation Agreement Species;
- WSA = Wildlife Species of Concern

PIF = Partners in Flight species of concern, Colorado Plateau, Utah Mountains, potentially in the Vernal Field Office.

Appendix C

Special Status Plant Species

Appendix C: Special Status Plant Species Eliminated from Detailed Analysis

Species	Status	Habitat	Potential for and/or Occurrence
<p>Goodrich's columbine <i>Aquilegia scopulorum</i> var. <i>goodrichii</i></p>	<p>Sensitive</p>	<p>Green River shale ridges in association with Bristle cone pine, limber pine, Salina wildrye, mountain mahogany, pinyon, and Douglas fir communities. 7,400-9400 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>park rock cress <i>Arabis vivariensis</i></p>	<p>Sensitive</p>	<p>Sandstone and limestone outcrops in mixed desert shrub and pinyon-juniper communities. 5000-6000 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>horseshoe milkvetch <i>Astragalus equisolensis</i></p>	<p>Sensitive</p>	<p>Duchesne River Formation in sagebrush, shadscale, horsebrush and other mixed desert shrub communities. 4800-5200 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Hamilton milkvetch <i>Astragalus hamiltonii</i></p>	<p>Sensitive</p>	<p>Duchesne River, Wasatch, and less commonly Mowry Shale, Dakota and other formations in pinyon-juniper and desert shrub communities. 530-6200 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Goodrich's cleomella <i>Cleomella Palmeriana</i> var. <i>goodrichii</i></p>	<p>Sensitive</p>	<p>Mancos Shale, Tropic Shale and Morrison formations. On eroded slopes of heavy clay in salt desert communities. 4000-6000 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>

Appendix C: Special Status Plant Species Eliminated from Detailed Analysis

Species	Status	Habitat	Potential for and/or Occurrence
Barneby's catseye <i>Cryptantha barnebyi</i>	Sensitive	White semi-barren shale knolls of the Green River Formation in shadscale, rabbitbrush, sagebrush, and pinyon-juniper communities. 6000-7900 ft.	None – No populations, potential or suitable habitat occurs for this species in this area.
Graham's catseye <i>Cryptantha grahamii</i>	Sensitive	Green River Shale in mixed desert shrub, sagebrush, pinyon-juniper, and mountain brush communities. 5000-7400 ft.	None – No populations, potential or suitable habitat occurs for this species in this area.
Untermann fleabane <i>Erigeron untermannii</i>	Sensitive	Calcareous shales and sandstones of the Uinta and Green River formations in pinyon-juniper, mountain mahogany, limber and bristlecone pine, and sagebrush communities. 7000-9400 ft.	None – No populations, potential or suitable habitat occurs for this species in this area.
Ackerman's fraseria <i>Frasera ackermaniae</i>	Sensitive	Semibarren yellowish clay soils of the Chinle and Nugget formations in pinyon-juniper and desert shrub communities. 5000-6000 ft.	None – No populations, potential or suitable habitat occurs for this species in this area.
Rock bitterweed <i>Hymenoxys lapidicola</i>	Sensitive	Pinyon-juniper and ponderosa pine-manzanita communities, often in rock crevices. 6000-8100 ft.	None – No populations, potential or suitable habitat occurs for this species in this area.
Barneby's ridgecress <i>Lepidium barnebyanum</i>	Endangered	White Shale outcrops mainly on ridge crests. 6200-6500 ft.	None – No populations, potential or suitable habitat occurs for this species in this area.

Appendix C: Special Status Plant Species Eliminated from Detailed Analysis

Species	Status	Habitat	Potential for and/or Occurrence
<p>Huber pepperplant <i>Lepidium huberi</i></p>	<p>Sensitive</p>	<p>Sand or silty sands derived from the Chinle formation, and on the Park City and Weber Sandstone formations in sagebrush, snowberry, mountain mahogany, ponderosa pine, Douglas fir, lodgepole pine, and spruce-fir communities. 7300-9700 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Goodrich blazingstar <i>Mentzelia goodrichii</i></p>	<p>Sensitive</p>	<p>Steep, white, marly calciferous shale outcrops of the Green River formation with scattered limber pine, pinyon pine, Douglas fir, mountain mahogany, and rabbitbrush. 8100-8800 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>stemless penstemon <i>Penstemon acaulis</i> var. <i>acaulis</i></p>	<p>Sensitive</p>	<p>Semibarren substrates in pinyon-juniper and sagebrush-grass communities. 5900-8200 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Gibben’s penstemon <i>Penstemon gibbensii</i></p>	<p>Sensitive</p>	<p>Shaly slopes and bluffs with mixed desert shrubs and scattered juniper 5500-5600 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>

Appendix C: Special Status Plant Species Eliminated from Detailed Analysis

Species	Status	Habitat	Potential for and/or Occurrence
<p>Goodrich’s penstemon <i>Penstemon goodrichii</i></p>	<p>Sensitive</p>	<p>Blue gray to reddish, clay-impregnated badlands of the Duchesne River Formation in shadscale and juniper-mountain mahogany communities 5600-6205ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Graham beardtongue <i>Penstemon grahamii</i></p>	<p>Proposed</p>	<p>Shale ledges and talus of the Green River Formation growing in sparsely vegetated shadscale, <i>Eriogonum</i>, horsebrush, ryegrass, and pinyon-juniper communities. 4600-6800 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>White River penstemon <i>Penstemon scariosus</i> var. <i>albifluvis</i></p>	<p>Candidate</p>	<p>Sparsely vegetated pale tan, shale slopes of the Green River formation in shadscale, rabbitbrush, ricegrass, ryegrass, sagebrush, Barneby’s thistle, and pinyon-juniper communities. 5000-6800 ft..</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Argyle Canyon phacelia <i>Phacelia argylensis</i></p>	<p>Sensitive</p>	<p>Sandy-silty soil in wash bottoms on the Green River shale in pinyon-juniper, serviceberry, and Douglas Fir communities. Around 7600 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>

Appendix C: Special Status Plant Species Eliminated from Detailed Analysis

Species	Status	Habitat	Potential for and/or Occurrence
<p>Clay thelopody <i>Schoenocrambe argillacea</i></p>	<p>Threatened</p>	<p>On the lower Uinta and upper Green River formations in shadscale, Indian ricegrass, pygmy sagebrush, and other mixed desert shrub communities. 4800-5600 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Shrubby reed-mustard <i>Schoenocrambe suffrutescens</i></p>	<p>Endangered</p>	<p>Calcareous shale of the Green River formation in shadscale, pygmy sagebrush, mountain mahogany, juniper and mixed desert shrub communities. 5400-6000ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Wagonhound cactus <i>Sclerocactus brevispinus</i></p>	<p>Threatened</p>	<p>Pedimental gravels (desert pavement) over Uinta Formation within Pariette Draw, Castle Peak Draw, and the surrounding benches. Growing in association with shadscale and sagebrush. 4700-5200ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Uinta Basin hookless cactus <i>Sclerocactus wetlandicus</i></p>	<p>Threatened</p>	<p>Typically gravelly terraces and benchlands. Also found in locations with desert pavement, shale outcrops, and mudstone deposits. 4500-6000ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Ute lady's tresses <i>Spiranthes diluvialis</i></p>	<p>Threatened</p>	<p>Wet meadows, stream banks, abandoned oxbow meanders, marshes, and raised bogs. 4500-6850ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>

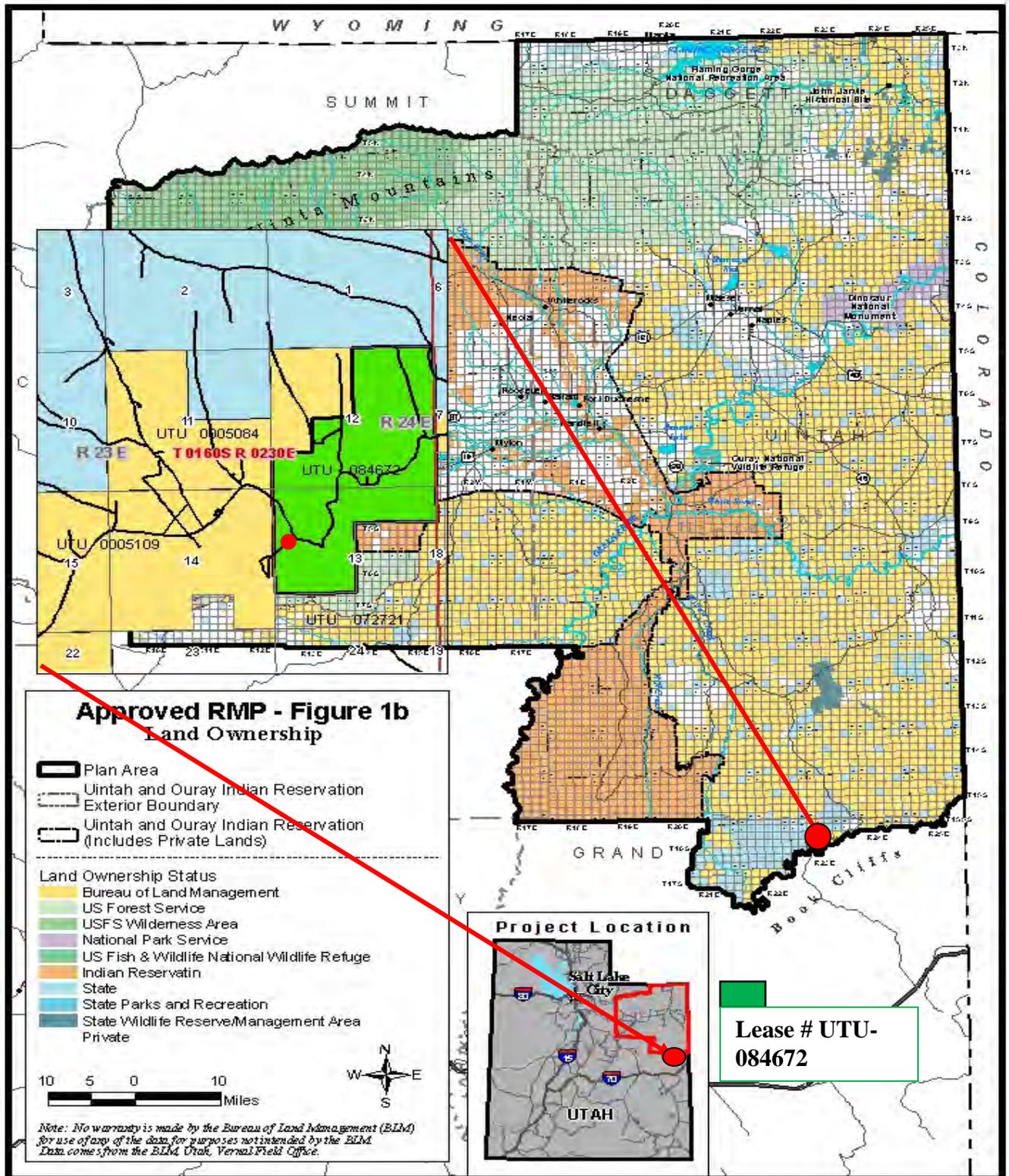
Appendix C: Special Status Plant Species Eliminated from Detailed Analysis

Species	Status	Habitat	Potential for and/or Occurrence
<p>Uinta greenthread <i>Thelesperma caespitosum</i></p>	<p>Sensitive</p>	<p>White shale benches and windswept slopes of the Green River and Uinta formation with pinyon and mountain mahogany. 5900-8400 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Strigose Townsendia <i>Townsendia strigosa</i> var. <i>prolix</i></p>	<p>Sensitive</p>	<p>Mixed desert shrub communities</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>
<p>Sterile yucca <i>Yucca sterilis</i></p>	<p>Sensitive</p>	<p>Salt and mixed desert shrub communities growing in sandy soils. 4800-5800 ft.</p>	<p>None – No populations, potential or suitable habitat occurs for this species in this area.</p>

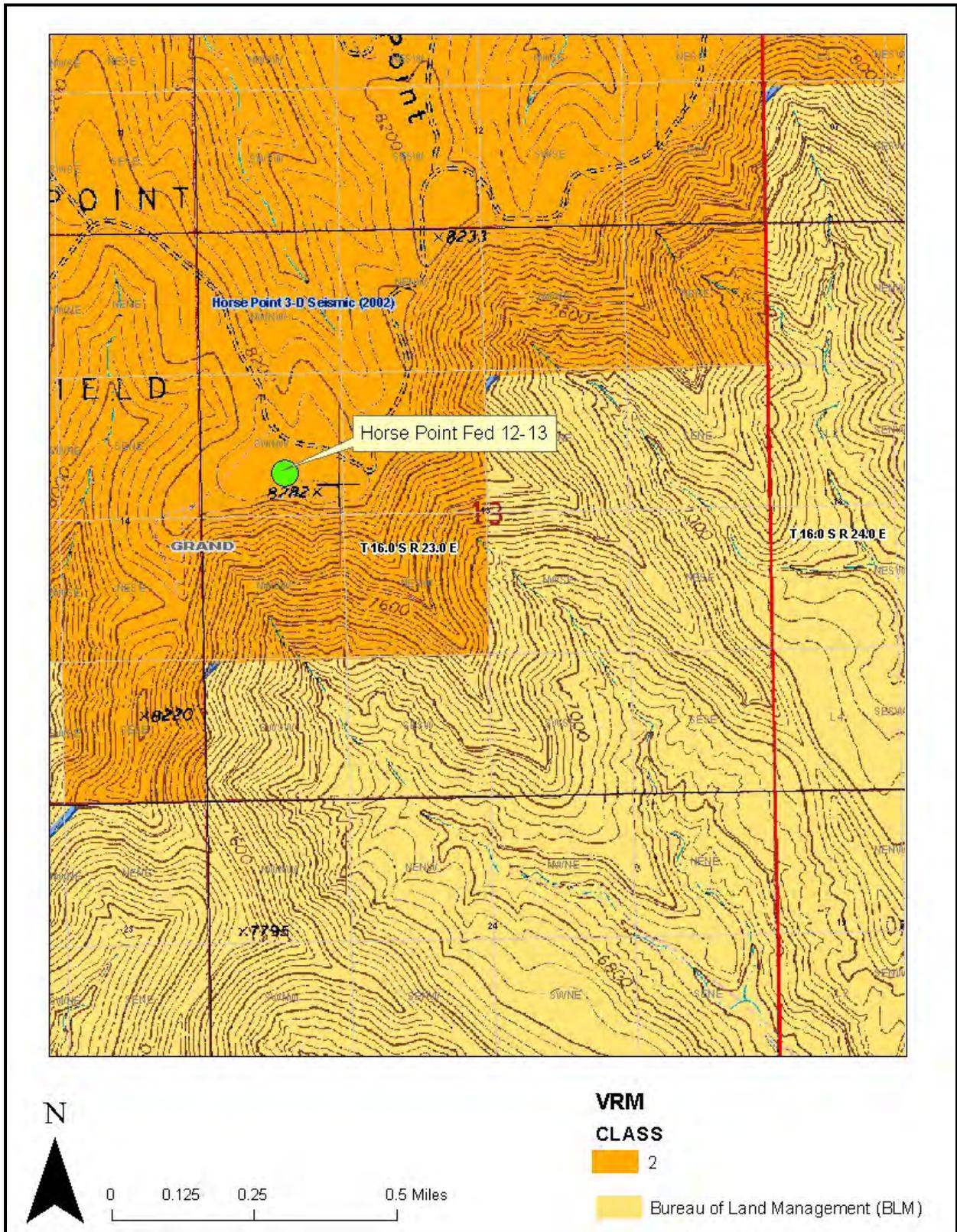
Appendix D

Location Maps

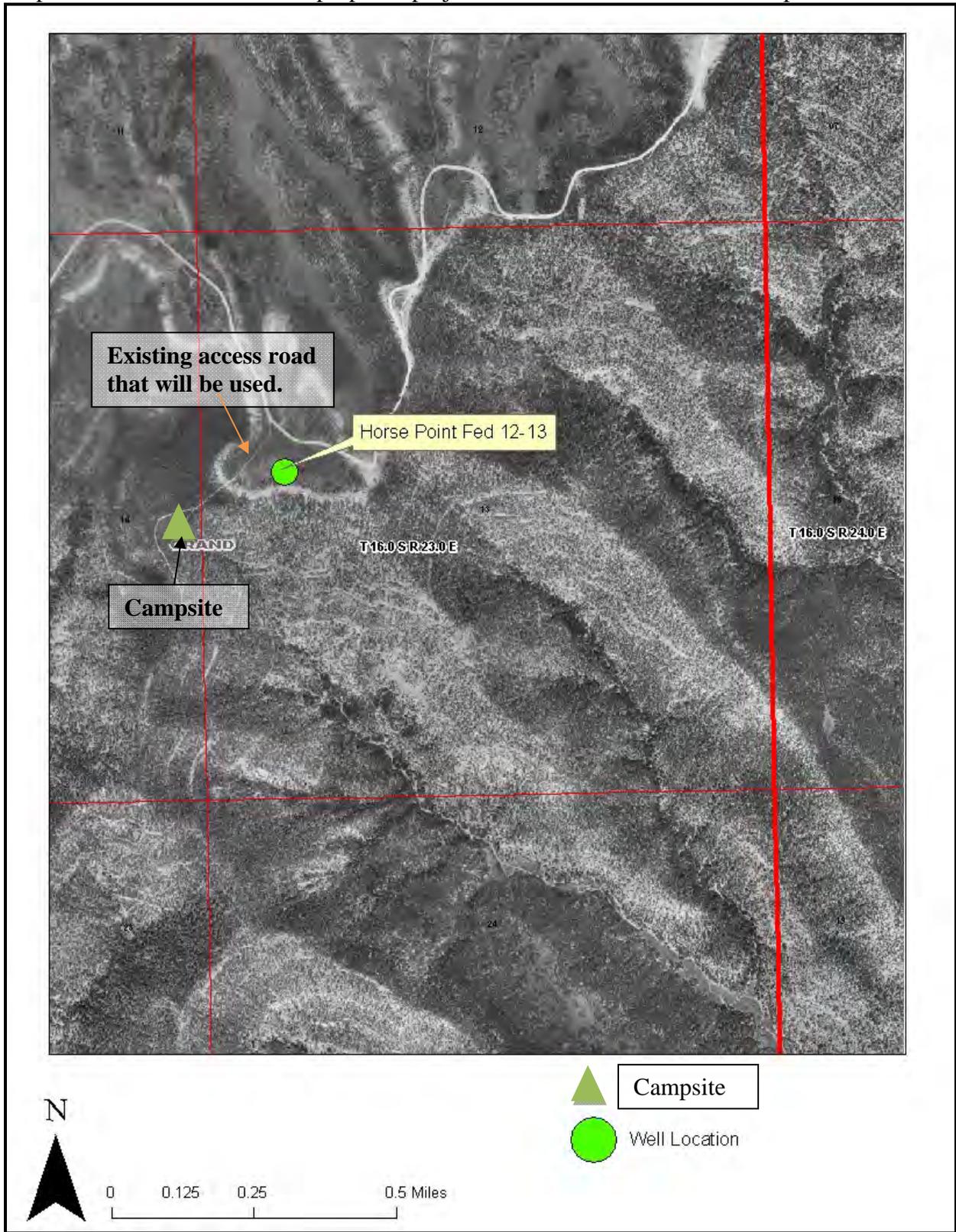
Map 1. Shows project area in relation to the field office boundary and also the lease in question.



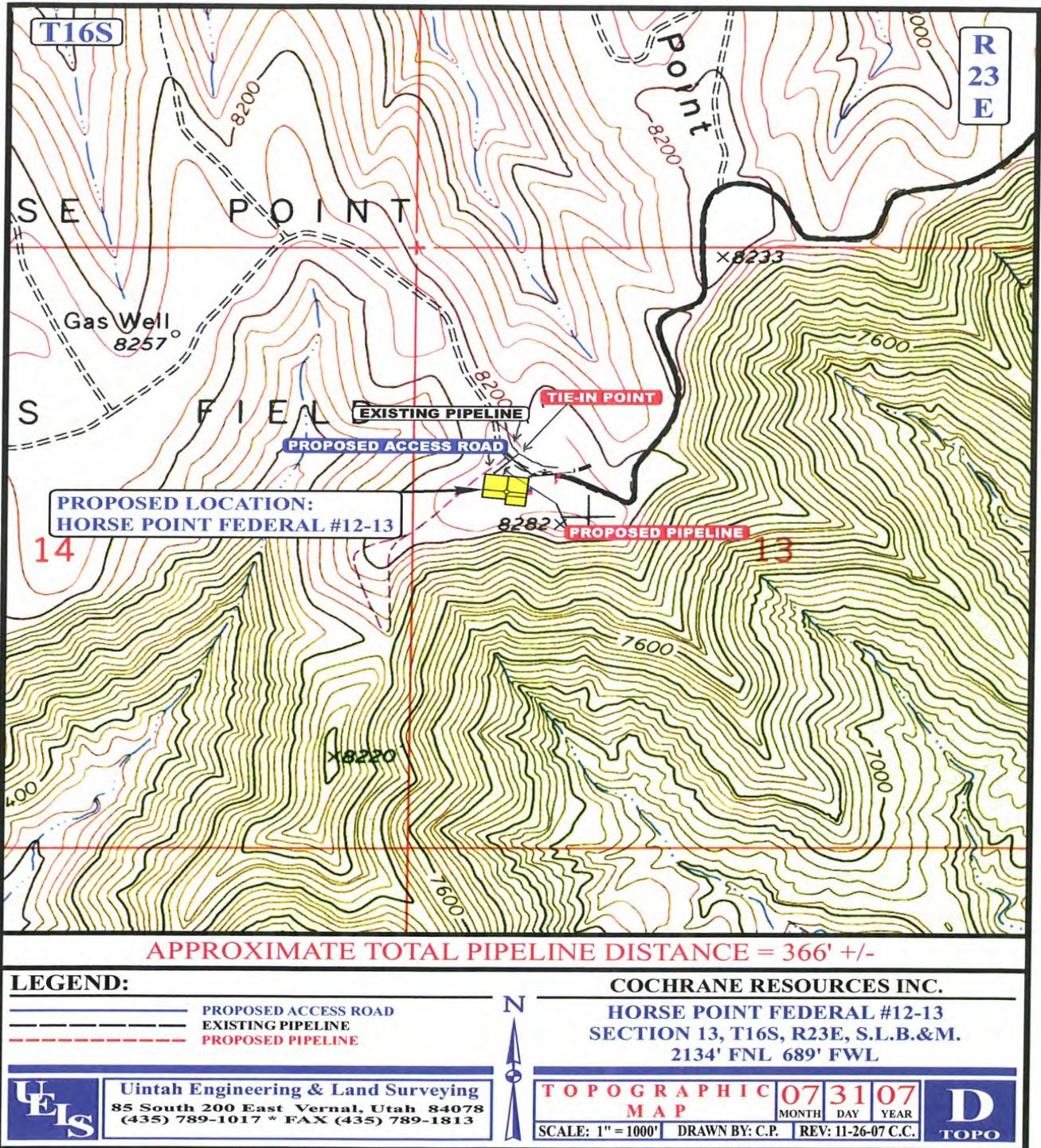
Map 2. Shows VRM Class 2 designation and well location



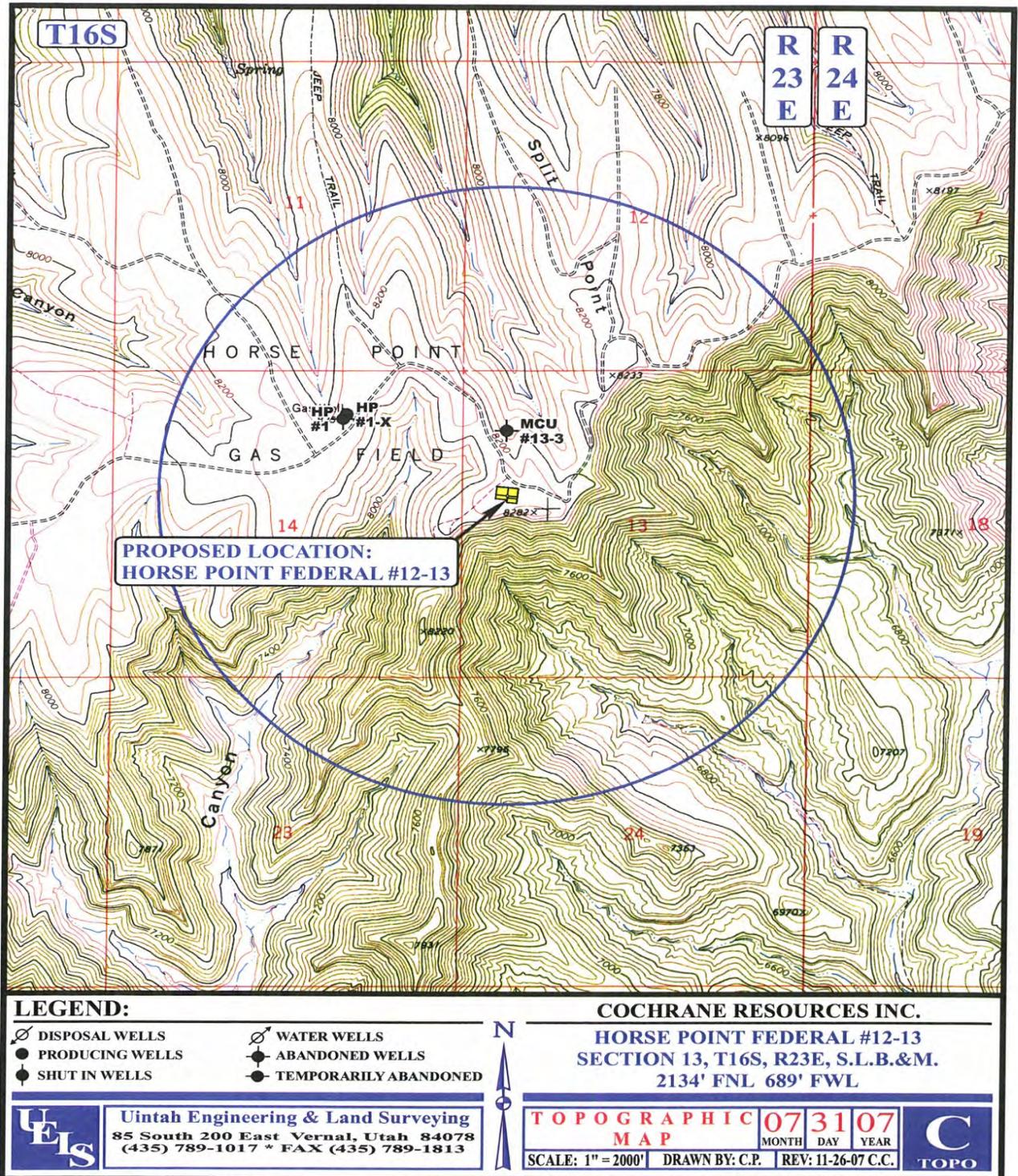
Map 3. General Location of the proposed project and also shows recreation/camp site in the area.



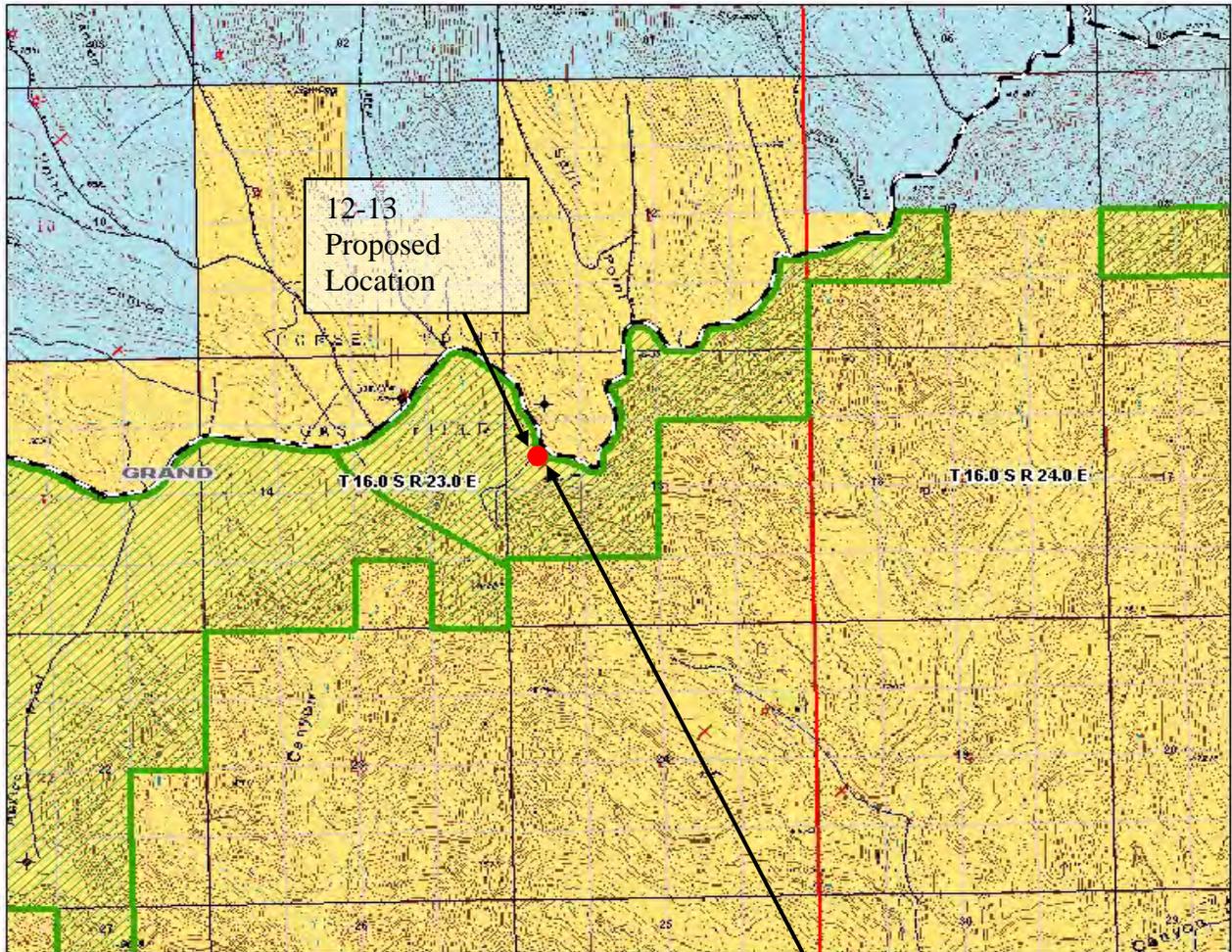
Map 4. Proposed location map from APD.



Map 5. Proposed location, showing surrounding abandoned locations from APD.

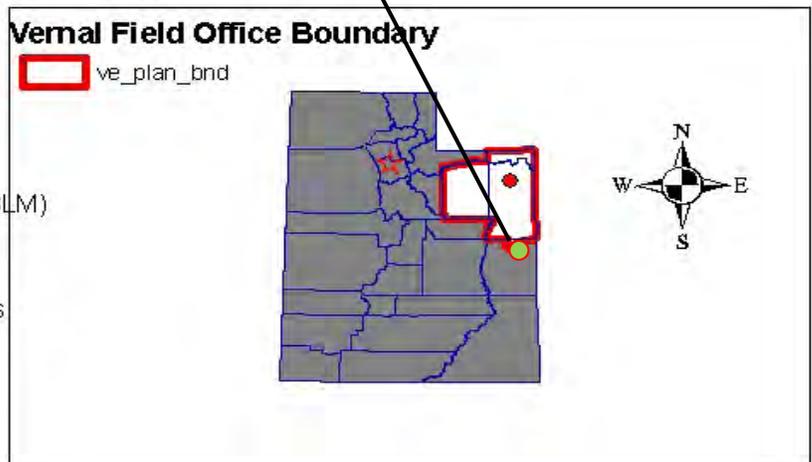


Map 6 Shows the Non-WSA with Wilderness Characteristics area in relation to the Proposal.



Non-WSA with Wilderness Characteristics

-  No Wilderness Character
-  Wilderness Character
-  Excluded - Size Limitation
-  Excluded - Non-BLM Lands
-  Bureau of Land Management (BLM)
-  State



Appendix E

Reclamation Plan

Cochrane Resources Inc.

Interim and Final Reclamation Plan

Introduction

The following Reclamation Plan outlines procedures and measures that would be taken to initiate reclamation within areas that have been or would be disturbed on BLM lands by the implementation of development by Cochrane Resources Inc. The objectives of this reclamation plan are to re-establish vegetation, reduce dust and erosion, compliment the visual resources of the surrounding area, and generally minimize impacts to the environment.

This Reclamation Plan for Cochrane relies on the *Surface Operating Standards for Oil and Gas Exploration and Development* or “Goldbook” (BLM and USFS 2007) for guidelines and was prepared to address those requirements. Onshore Oil and Gas Order Number 1 (72 FR 10328, issued under 43 CFR 3160), which applies to all onshore Federal leases, requires all that APD packages include a Surface Use Plan of Operations and Plans for Surface Reclamation. Section III.D.4.j of Onshore Oil and Gas Order Number 1 as well as the Green River Reclamation Guidelines requires that reclamation plans include, as appropriate, the following: configuration of the reshaped topography, segregation of spoil materials (stockpiles, backfill requirements, redistribution of topsoil, soil treatments, seeding or other steps to reestablish vegetation, weed control, and reclamation of all disturbed areas).

Onshore Oil and Gas Order Number 1 and the “Gold Book” call for both interim and finalized reclamation (BLM and USFS 2007). Interim reclamation refers to measures applied to minimize the footprint, re-contour to final appearance, spreading of previously removed topsoil, and stabilize disturbed area to control runoff and erosion during time periods when application of final reclamation measures is not feasible or practicable. Interim reclamation would be implemented on all disturbed areas that are not needed for production activities (this includes unused portions of road and pipeline Right-Of-Ways (ROWs), well pads, compressor stations, and any other disturbed areas). Final reclamation refers to measures that would be applied after well abandonment and at the end of the project. Earthwork for final and interim reclamation would be completed within 6 months of well completion or well plugging (weather permitting) (72 FR 10328).

This Reclamation Plan follows the progression of proposed and reclamation activities with preliminary goals and objectives as stated below. All of which would occur in three comprehensive phases: 1) drilling and construction of facilities; 2) production and maintenance; and 3) decommissioning and final reclamation. Reclamation activities that would occur during or following each of the three phases are discussed within this plan.

Goals & Objectives

Short-term goals of this plan are to immediately stabilize disturbed areas and provide necessary conditions to achieve long-term goals. Stabilizing the site generally means to conserve and to protect topsoil, to control erosion and sedimentation, to protect water quality and aquatic resources, to encourage reclamation success, and to minimize impacts to adjacent uses and ecological resources. Properly executed practices, and ongoing evaluations by Cochrane, BLM and Contractor personnel will ensure both reclamation success and continued proper functioning of land health, which will mitigate long-term

impacts. Long-term goals include eventual ecosystem reconstruction by returning land to a safe, stable, and proper functioning condition by the control of erosion and sedimentation, as well as protection, followed by restoration, of environmental resources including water, soils, and vegetation to a condition similar or nearly equal to what existed prior to surface disturbance.

General objectives include establishment of a self-perpetuating diverse plant community with 75% basal cover of the reference site on an adjacent area within 5 years of initial reclamation. However if after three (3) growing seasons there is less than **30%** of the basal cover based on similar undisturbed native vegetative community, then the Authorized Officer may require additional seeding efforts.

The establishment of slope stability and topographic diversity and reconstruction of altered water courses such as ephemeral, intermittent and perennial drainage features while ensuring the integrity of soil resources during all aspects of development along with best management practices (BMPs) and proper soil segregation. The noxious and invasive plant management plan will be implemented by Cochrane under the approved Pesticide Use Permit or that of their contractors. Monitoring activities and plans will be designed as dynamic processes to evaluate the success of erosion control and re-vegetation efforts, but will follow BLM guidelines to ensure success. Implementation of these monitoring practices will be used to qualitatively and quantitatively assess success of reclamation actions.

Scope of Disturbance

The annual monitoring plan will be an ongoing record of surface disturbing activities and reclamation efforts and identification of problem areas that would need further remediation. Cochrane's effort to reclaim areas disturbed during construction will be evaluated over the life of the project.

Right of Way disturbances can have final reclamation done immediately after the construction has finished. Whereas the life of a well can last up to 30 years depending on production, leaving final reclamation at a future date that would be analyzed as production and recovery activities diminish within the project area. The BLM has designed **Interim Reclamation** as a method of minimizing the effects of such long-term disturbance as a step towards final reclamation.

Cochrane Resources Reclamation Strategy

Phase I: Construction, Drilling, and Completion

Surface Disturbance:

1. All surface disturbances would be kept to a minimum (for example: existing roads would be utilized where possible, well pads would be constructed to minimize the size of disturbance, while allowing for safe construction, drilling, and completion activities).

Noxious Weeds:

1. Prior to surface disturbance, an invasive and noxious weed inventory of the proposed action would be conducted. Inventory would be submitted to the Vernal BLM AO.
2. To reduce the spread/introduction of noxious and invasive weed species via project-related vehicles and equipment, Cochrane and its subcontractors would power-wash all construction equipment and vehicles entering the Project Area from outside the Uinta Basin.

Topsoil and Surface Preparations:

1. At all construction sites, topsoil would be stockpiled separately and identified appropriately

from other soil materials and maintained for future use in reclaiming the location. Signage disclosing the segregated soil levels will be placed in a manner that Cochrane and its contractors will not displace or degrade the resource.

2. Appropriate Best Management Practices (BMPs) will be applied to prevent soil loss from wind and water erosion.
3. Salvaged topsoil will be seeded in a manner to maintain vitality and gross degradation along with compliance with Cochrane's Surface Use Plan of Operations (SUPO).
4. After well completion, compacted soils would be reduced and ripped 18-24 inches in a cross-hatched manner and re-leveled, and all salvaged topsoil would be evenly re-spread over disturbed surfaces not actively used during the production phase, unless future well development is forecasted for that location in the near future (1 year).
5. With approval of the BLM AO, Cochrane may utilize a number of dynamic methods to maintain suitable soil vitality, example of these methods include the use Oak or High Density Polyethylene (HDPE) mat drilling, and soil stabilizing flocculates to prevent erosion, limit native vegetation loss and maintain soil integrity.

Reserve Pit Reclamation:

1. After well completion, reserve pits would be backfilled within 180 days of that well going into production. Prior to backfilling, reserve pits would be dry and free of hydrocarbons and other liquid or solid wastes (drill cuttings and trash). The pit would be backfilled with previously excavated subsoil from the reserve pit (reserve pit and pad location soils need to be segregated). NO TOPSOIL would be used for fill purposes.
2. Pit Liners would be trimmed and buried or removed from location and brought to an approved waste management facility in accordance with applicable Federal and State regulations or folded and buried at location.
3. Pit Liners left in place will be free of hydrocarbons by method of evaporation and manual removal. No portion of pit liners will be visible and buried to a depth that future erosion will not expose.

Interim Revegetation:

1. After well completion, all disturbed areas not needed for the operation of the well would be recontoured and reseeded. The seed mixtures to be used would be similar to the vegetation of the surrounding areas and may consist of grasses, forbs, or shrubs.
2. Seed mixtures will be approved by the appropriate BLM AO and will be based on site specific observations of the surrounding habitat and vegetation communities. **Table 1** and **Table 2** provides a spectrum of Pure Live Seeds (PLS) which will be utilized as appropriate on a site or area specific basis.
3. The seeding contractor would keep all seed tags and may be asked provide them to the BLM AO or appropriate Surface Managing Agency (SMA). Private and State lands may be seeded with a similar seed mixture, unless the landowner requests a different seed mixture based on the current land uses.
4. Seeding would occur in the fall after August 15th and prior to winter freezing, with weather permitting. Variances may be allowed under certain circumstances by approval from BLM AO.
5. Depending on topography and/or timing, seeding will be primarily accomplished by drill seeding with broadcast seeding utilized on steep slopes. If the broadcast method is used, the seed rates established for drill seeding would be doubled and seed would be immediately covered to prevent seed loss by erosion or predation by birds or rodents. The seeds could be covered in several ways including spreading and crimping straw over the seeded area, raking the area by hand, or dragging a chain or chain-linked fence over the seeded area or tackifier/mulch products designed for reclamation purposes. For example, Hydromulch, or

Earthguard products.

Phase II: Production and Maintenance

Access:

1. If necessary for safe access and operation during production, gravel or similar reinforcing material would be used on access routes and necessary portions of well pads (such as in clay soils) to stabilize these areas. Reclamation must take place on unused portions of the access road by bringing those in and reseeding those areas brought in, as well as seeding of the borrow ditch to decrease erosion and to increase soil viability.

Noxious and Invasive Weeds:

1. Cochrane would annually inspect well pads and ROWs to identify, treat and control any noxious weed infestations. Any herbicide application on BLM lands would be applied in accordance with the BLM approved Pesticide Use Proposal (PUP).
2. A list of noxious and invasive weeds would be obtained from the BLM or the appropriate County Extension Office.

Fugitive Dust Control:

1. Cochrane would use water or other approved dust suppressants in the Project Area during construction and installation activities, as necessary, to abate fugitive dust with prior approval from BLM or Authorized Officer.

Revegetation:

1. Re-vegetated areas will be inspected annually to document location and extent of areas with successful revegetation, and areas needing further reclamation. Success of criteria would be determined by the BLM or appropriate SMA and will be documented and reported.
2. Areas that do not meet the success criteria within this plan and the BLM Green River District Reclamations Guidelines 3 growing season objective may be required to do additional reclamation efforts.

Phase III: Decommissioning and Reclamation

Plugging the Well:

1. Prior to well abandonment, the operator shall submit and receive approval for the Sundry Notices and Reports on Wells (Form 3160-5) from the Authorized Officer.

Topsoil and Final Surface Preparation:

1. After well plugging, all disturbed land administered by BLM would be re-contoured back to the original contour or a contour that blends with the surrounding landform (roads must also be reclaimed unless the appropriate SMA or surface owner requests that they be left unreclaimed).
2. To achieve final reclamation of an area not previously recontoured, all topsoil and vegetation must be re-stripped from areas that were not previously reshaped.
3. The appropriate SMA would determine if any gravel or similar materials used to reinforce an area is to be removed or buried in place during final reclamation.
4. Salvaged topsoil would be spread evenly over the surfaces to be revegetated.
5. The soil surface would be prepared to provide a seedbed for re-establishment of desirable vegetation. Site preparation may include gouging, scarifying, dozer track walking, mulching, or fertilizing.

Final Revegetation:

1. All disturbed and recontoured areas would be seeded using techniques outlined under Phase I and II of this Reclamation Plan. The seed mixtures to be used would be similar to the vegetation of the surrounding areas and may consist of grasses, forbs, and shrubs.
2. Compacted soil areas may need to be ripped and reworked to create a better seed bed for the approved seed mix.
3. Final revegetation and reclamation success would be determined by the appropriate SMA through a FAN (Final Abandonment Notice) or ROW (Right of Way) closure request.
4. Alternate seed mixtures approved by the AO may be used. **Table 1 and Table 2** provides ideal seed mixtures that will be utilized on a site-specific basis. The seeds identified in **Table 1** would be used in BLM identified Zone 1 and **Table 2** in Zone 2. Final determination of the appropriate seed mixtures will be developed as germination and growth proves success or the need for further remediation.

Table 1. Zone 1 Species List (4-8” Precipitation)

Common Name	Scientific Name
GRASSES	
Crested Wheatgrass (v. Hycrest or Ephraim)	<i>Agropyrum cristatum v. hycrest or ephraim</i>
Western Wheatgrass	<i>Pascopyrum smithii</i>
Sandberg bluegrass	<i>Poa secunda</i>
Siberian wheatgrass	<i>Agropyron fragile</i>
Bottlebrush Squirreltail	<i>Elymus elymoides</i>
Russian Wildrye	<i>Psathrostachys juncea v. bozoisky</i>
Indian Ricegrass	<i>Oryzopsis hymenoides</i>
Needle and Thread Grass	<i>Stipa comata</i>
FORBS	
Rocky Mtn. Beeplant	<i>Cleome serrulata</i>
Evening Primrose	<i>Oenothera ceaspitosa</i>
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>
Small flower Globemallow	<i>Sphaeralcea parvifolia</i>
SHRUBS	
Shadscale	<i>Atriplex confertifolia</i>
Fourwing saltbush	<i>Atriplex canescens</i>
Gardners Saltbush	<i>Atriplex gardnerii</i>

Table 2. Zone 2 Species List (8-12” Precipitation)

Common Name	Scientific Name
GRASSES	
Crested Wheatgrass (v. Hycrest or Ephraim)	<i>Agropyrum cristatum v. hycrest or ephraim</i>
Sandberg bluegrass	<i>Poa secunda</i>
Siberian wheatgrass	<i>Agropyron fragile</i>
Western Wheatgrass	<i>Pascopyrum smithii</i>
Bottlebrush Squirreltail	<i>Elymus elymoides</i>
Russian Wildrye	<i>Psathrostachys juncea v. bozoisky</i>

Indian Ricegrass	<i>Oryzopsis hymenoides</i>
Needle and Thread Grass	<i>Stipa comata</i>
Canby bluegrass	<i>Poa secunda v. canby</i>
Shermans Bluegrass	<i>Poa secunda v. sherman</i>
Bluebunch wheatgrass	<i>Psuedoroegneria spicata</i>
Beardless bluebunch wheatgrass	<i>Psuedoroegneria spicata v. inermis</i>
FORBS	
Snake River Wheatgrass v. Secar	<i>Elymus wawawaiensis v. secar</i>
Rocky Mtn. Beeplant	<i>Cleome serrulata</i>
Evening Primrose	<i>Oenothera caespitosa</i>
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>
Small flower Globemallow	<i>Sphaeralcea parvifolia</i>
Small burnet	<i>Sanguisorba minor</i>
Sagebrush penstemon	<i>Penstemon speciosus</i>
Ladak alfalfa	<i>Medicago sativa</i>
SHRUBS	
Shadscale	<i>Atriplex confertifolia</i>
Fourwing saltbush	<i>Atriplex canescens</i>
Wyoming sagebrush	<i>Artemisia tridentate v. wyomingensis</i>
Forage kochia	<i>Kochia prostrate v. immigrant</i>

Reclamation Methodology

Monitoring and Reporting

It is the responsibility of Cochrane to monitor all reclaimed areas, determine if reclamation criteria from the Green River Guidelines are being met, develop and implement remedial actions if success standards are not being met, provide resulting data to the BLM Vernal FO annually, and request concurrence from BLM that success standards have been met and monitoring is no longer required. When Cochrane feels they have met Green River Guidelines they will submit a FAN requesting BLM to concur with the reclamation findings.

It is the responsibility of the BLM Vernal FO to evaluate the monitoring reports, provide concurrence (or not) with the reclamation assessments as to whether or not success standards are being met and the rationale for the determination, and provide recommendations to Cochrane to achieve compliance.

It is the responsibility of the BLM to determine acceptance of recommendations and to provide Cochrane with recommendation on remedial actions when reclamation success criteria are not being met. The remedial actions may include such things as soil testing, soil amendments, irrigation, seeding etc. Mainly giving guidance on whether reclamation efforts are successful, it's up to Cochrane to reach the success outlined in objectives of the reclamation efforts.

1. Location of data collection:

- a. A reference site location will be chosen which is a sample representation of the vegetative population that exists prior to surface disturbing activities.
- b. The reference site location will represent the ecological characteristics described in the reclamation criteria and will be used when final abandonment happens to see if reclamation objectives are being met.

2. Timing and frequency of data collection.

a. Well Pads

-A minimum of one monitoring location will be identified on each well pad that is representative of the ecological site of the proposed disturbed area.

b. Rights-of-Way

i. Pipeline rights-of-way require one monitoring location every one-half mile or change of soil site as defined by the Natural Resource Conservation Service (NRCS) soil survey or BLM identified zones, whichever comes first. Specific monitoring locations may be modified as approved by the BLM AO.

ii. Additionally, multiple pipeline rights-of-way will be monitored by each "linear layer" based on date of disturbance/reclamation.

c. Quantitative Monitoring. (Data collected to measure reclamation success.)

i. Reference Sites will be established in adjacent vegetation and will be site specific to vegetation and soil types. Vegetative cover will be calculated on average within the control area for which the well lies, based on basal cover, as suggested by BLM, and used to calculate species composition and density. Multiple Control Sites will be averaged to establish a general vegetative cover for the surrounding area. Professional third party botanists will determine the amount of vegetation in each reference site. Reference Sites will be reassessed annually for long term management objectives as dictated by the 2008 Green River Guidelines.

d. Qualitative Monitoring. (Data collected to monitor long-term trend.)

i. Will be conducted the first year, the third year, and the 5th year on all reclamation sites until final reclamation criteria have been met.

3. Data Collection

a. Quantitative Monitoring.

i. Permanent photo points will be established on both the reclamation and reference sites. Photos will be taken the first year of reclamation and when the site is plugged and abandoned to document the on the ground change in vegetative cover.

ii. Cochrane and/or their representative will collect the data to verify the concurrence with the approved criteria. A BLM approved monitoring technique to monitor basal vegetative cover will be used.

b. Qualitative Monitoring.

i. Qualitative monitoring consists of personal ocular observations. The Cochrane Reclamation and Weed Monitoring Worksheet will be used to collect this data.

ii. Results from qualitative monitoring may require additional photographs.

4. Reporting Format:

- a. Documentation of monitoring will be submitted to the BLM Vernal FO the first year the reclamation begins, the third year per location, and the fifth year. This is due March 1st of the year identified.

Appendix F

Visual Contrast Rating Worksheets

A. Proposed Action Alternative.

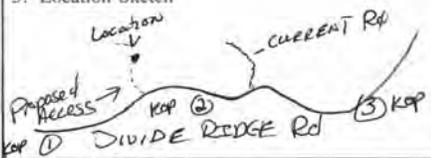
Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 11/12/08
District Grand Prairie Dist
Resource Area Vernd Field Office
Activity (program) oil/gas Drill Pad

SECTION A. PROJECT INFORMATION

1. Project Name <u>Cochran Horsepoint fed #12-13</u>	4. Location Township <u>16 S</u> Range <u>23 E</u> Section <u>13</u>	5. Location Sketch 
2. Key Observation Point <u>3 Kops</u>		
3. VRM Class <u>VRM CLASS II</u>		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	<u>Rolling, Rough Jagged</u>	<u>Jagged, Prominent, Rough</u>	—
LINE	<u>Bold, Diagonal, Continuous</u>	<u>Curving, diverging</u>	—
COLOR	<u>Browns, Oranges, Reds from Soils/form</u>	<u>Green, Brown, tan, Yellow</u>	—
TEXTURE	<u>COARSE</u>	<u>COARSE</u>	—

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	<u>Rolling, smooth moderate</u>	<u>Smooth - Medium</u>	<u>Round, conical, cylindrical</u>
LINE	<u>Regular, undulating</u>	<u>Removed - Straight</u>	<u>hard, diverging</u>
COLOR	<u>Browns, orange,</u>	<u>Removed - Browns Green</u>	<u>to be determined by NRS.</u>
TEXTURE	<u>Smooth</u>	<u>Bladed - Removed Smooth</u>	<u>Smooth from Metals</u>

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

1.	DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	
ELEMENTS	Form		X				X			X				
	Line	X				X				X				
	Color		X			X	X			X				
	Texture	X				X				X				
													Evaluator's Name <u>Chuck Patterson</u> Date <u>11/12/08</u>	
													<u>Outdoor Rec. Specialist</u>	

SECTION D. (Continued)

Comments from item 2.

The proposed project will meet URM Class II objectives if effectively screened by the existing Vegetation. The Storage tank is too close to the road/casual observation from KOP 2. Currently, the proposed site for the tank will not meet URM II. Also, the proposed Access Route will not meet URM II.

Additional Mitigating Measures (See item 3)

- Move proposed water/storage tank to another area not visible via KOP 2 (Road)
- Utilize existing Route. Do not blade a new access road (See proposed) road into proposed site.
- Choose colors to match vegetation next to proposed site.
- Shield Structures using existing vegetation. Do not remove unnecessary vegetation.
- If existing route cannot be utilized, Reclaim existing route

U.S. GOVERNMENT PRINTING OFFICE: 1981-461-984/33081

B. Directional Drilling Alternative

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 7/26/11
District Green River District
Resource Area Vernal Field Office
Activity (program) oil/gas drill pad

SECTION A. PROJECT INFORMATION

1. Project Name <u>Cochrane Horsepoint Fed #4-B</u>	4. Location Township <u>16 S</u> Range <u>23 E</u> Section <u>13</u>	5. Location Sketch
2. Key Observation Point <u>~300 yds along Divide Ridge Rd</u>		
3. VRM Class <u>Management Class II</u>		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	<u>Rough</u>	<u>Rough, Contrasting</u>	<u>P/A well marker (8 foot steel post) (not highly noticeable)</u>
LINE	<u>Discont. nooks</u>	<u>curving, diverging</u>	—
COLOR	<u>(Dominated by veg.)</u>	<u>Shades of green + tan.</u>	—
TEXTURE	<u>Intermediate</u>	<u>Intermediate</u>	—

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	<u>Rough, Discont. nooks</u>	<u>Removed, Contrasting</u>	<u>Round, conical, cyli-dr. eel</u>
LINE	<u>Prominent (Road pad)</u>	<u>Removed - horizontal</u>	<u>hard, diverging</u>
COLOR	<u>Light brown</u>	<u>Removed - contrasting</u>	<u>To Be Determined by NRS</u>
TEXTURE	<u>Rough</u>	<u>Bladed - contrasting</u>	<u>Rough - jutting structures</u>

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

1	DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (Explain on reverse side)	
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)					3. Additional mitigating measures recommended? <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None		
ELEMENTS	Form		X			X				X				Evaluators' Names <u>Evan Glenn</u> <u>ORP</u>	Dates <u>7/26/11</u>
	Line		X			X				X					
	Color	X				X				X					
	Texture		X			X				X					

SECTION D. (Continued)

Comments from item 2.

The proposed project will not meet VRM II class objectives.
The KOP is \approx 300 yards along David Ridge Rd.,
project would be visible along entire KOP and would
attract attention & have at least a moderate change
in area landscape character.

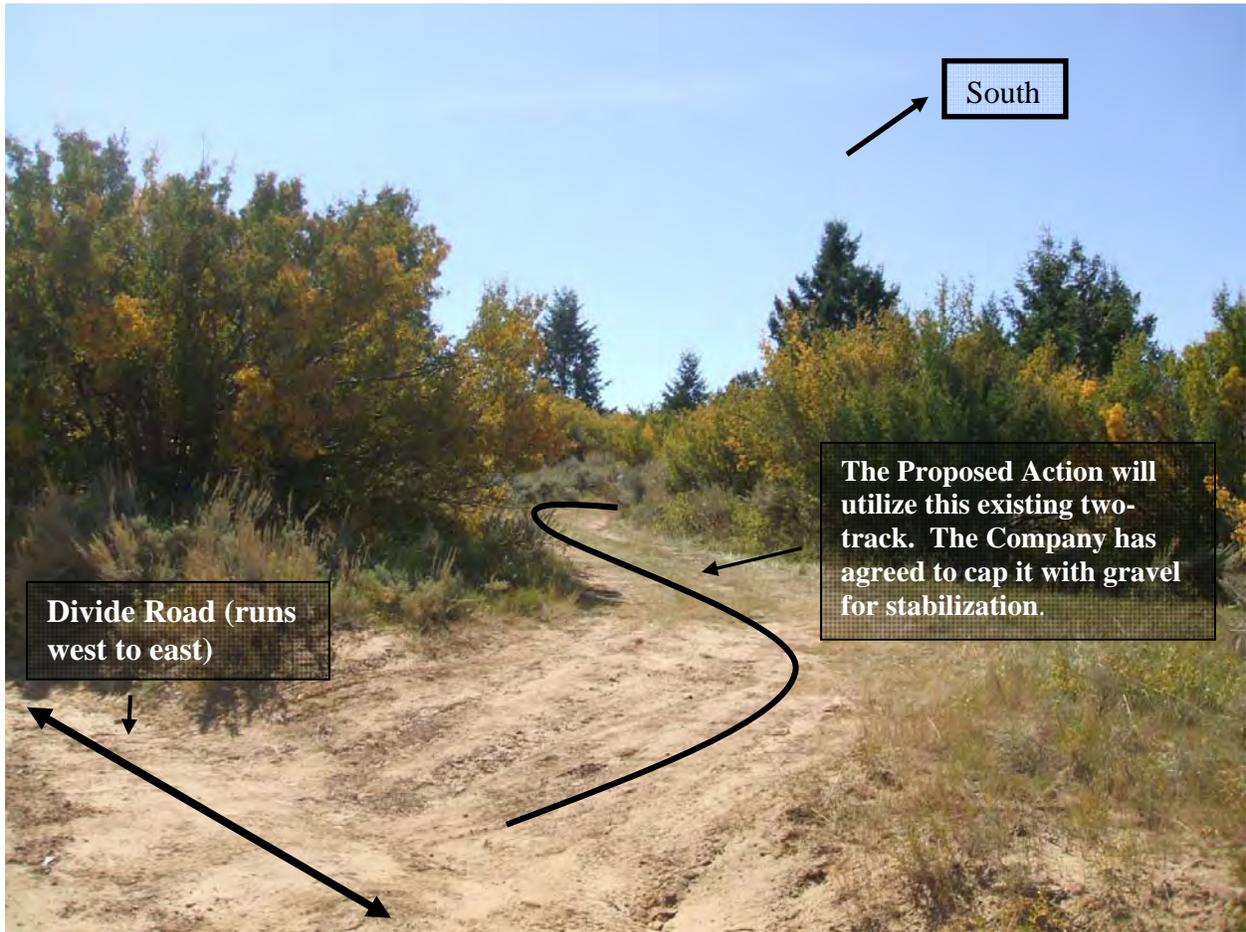
Additional Mitigating Measures (See item 3)

Road & Pad site could not be mitigated
in this location to meet VRM II objectives.

Appendix G

Site Photos

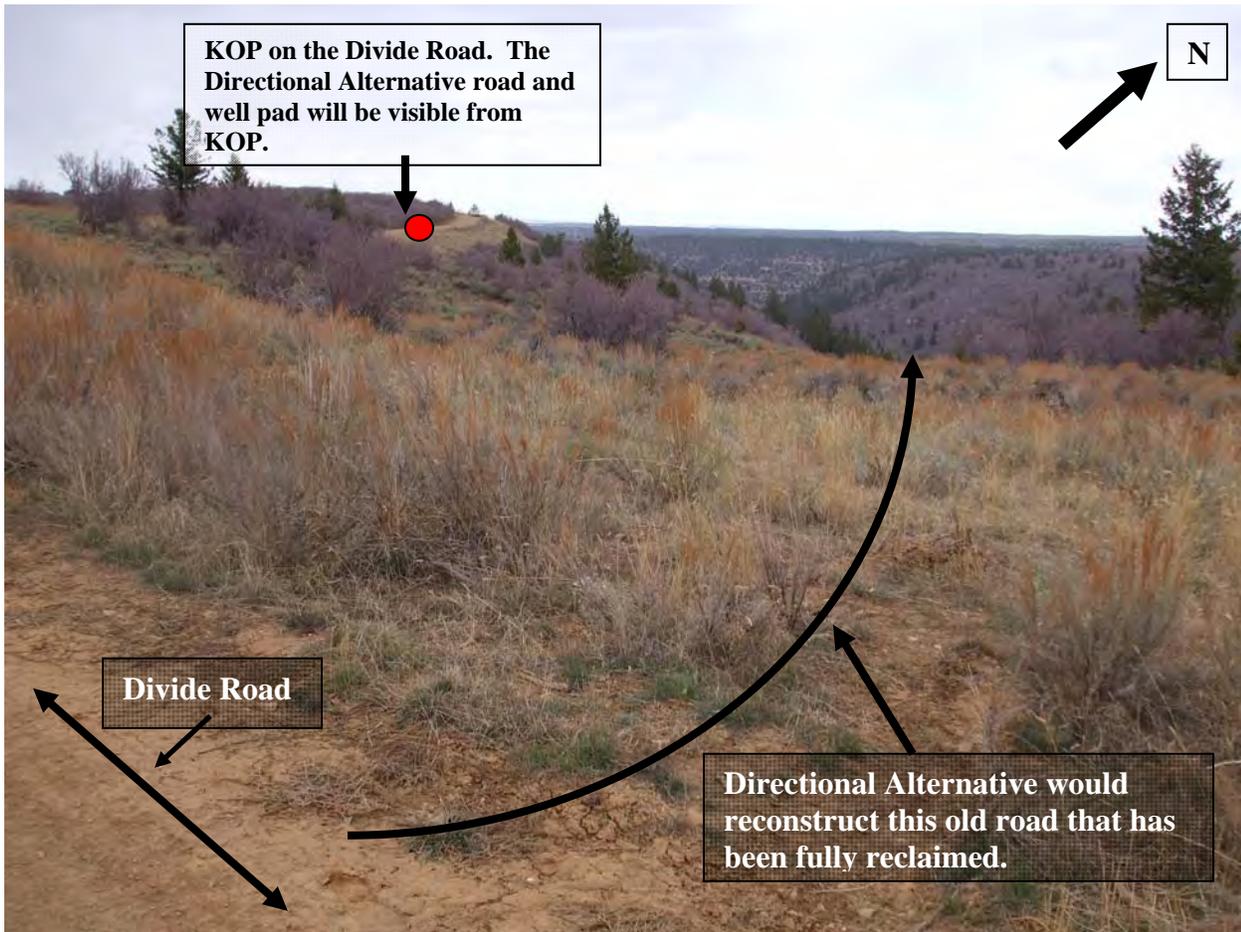
A. Proposed Action Access road.



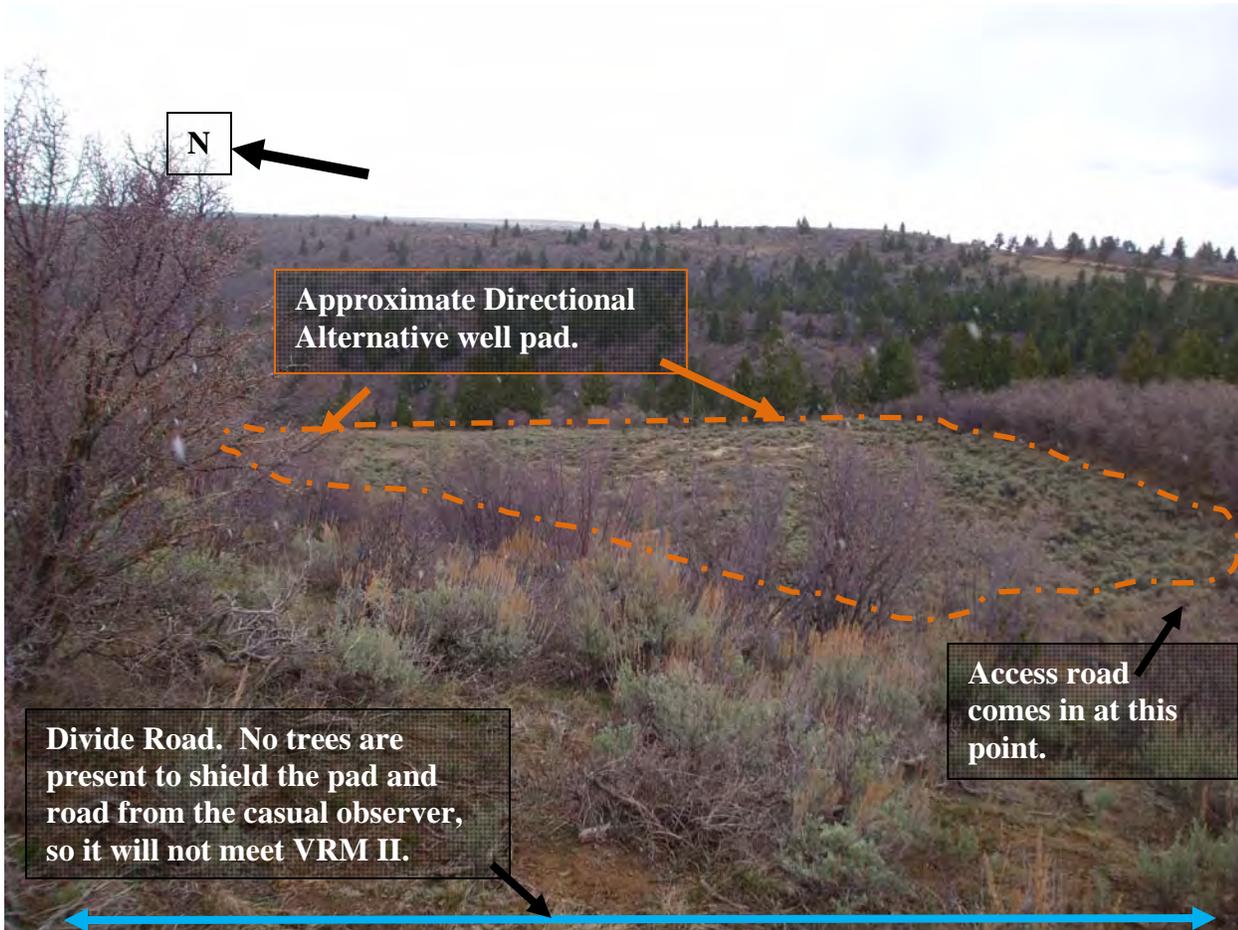
B. Photo of Proposed Action Well Site Location.



C. Directional Alternative Road Location.

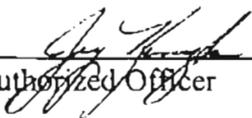


D. Directional Alternative well Pad location.



FINDING OF NO SIGNIFICANT IMPACT
Environmental Assessment
DOI-BLM-UT-G010-2009-0258-EA
Cochrane Resources Company's
Propose gas well in
Grand County, Utah

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that Cochrane Resources Horse Point Federal 12-13 Gas Well Proposed Action will not have a significant effect on the environment. An environmental impact statement is therefore not required.



Authorized Officer

MAY 14 2012

Date

DECISION RECORD

Cochrane Resources Natural Gas Well: Horse Point Federal 12-13 DOI-BLM-UT-G010-2009-0258-EA

Decision:

It is my decision to authorize Cochrane Resources Horse Point Federal 12-13 gas well as described in the Proposed Action Alternative of DOI-BLM-UT-G010-2009-0258-EA, subject to the below Conditions of Approval.

Summary of the Selected Alternative:

Cochrane Resources proposes to drill the gas well listed below. Construction needed is summarized in the following table.

Proposed Disturbance for the Proposed Action Alternative

Well #	Access Road	Buried Pipeline	Acres for Pad	Approximate total acres disturbance
Horse Point Fed 12-13	0	366 ft. 0.3	1.6 acres	2.0 acres

This decision is contingent on meeting all stipulations and monitoring requirements listed below.

-See attached Conditions of Approval.

Rationale for the Decision:

The proposed wells(s) and related facilities would be in conformance with the Vernal Field Office RMP/ROD (October 31, 2008) and the terms of the lease(s). The RMP/ROD decision allows leasing of oil and gas while protecting or mitigating other resource values (RMP/ROD p. 96-98). The Minerals and Energy Resources Management Objectives encourage the drilling of oil and gas wells by private industry (RMP/ROD, p. 96). It has been determined that the proposed action and alternative(s) would not conflict with other decisions throughout the plan.

The subject lands were leased for oil or gas development under authority of the Mineral Leasing Act of 1920, as modified by the Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 and the Energy Policy Act of 2005. The lessee/operator has the right to explore for oil and gas on the lease as specified in 43 CFR 3103.1-2, and if a discovery is made, to produce oil and/or natural gas for economic gain.

There are no comprehensive State of Utah plans for the vicinity of the proposed action. The State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby State lands for oil and gas production. Because the objectives of SITLA are to produce funding for the State school system, and because production on Federal leases could further interest in drilling on State leases in the area, it is assumed that the alternatives analyzed, except the No Action Alternative, are consistent with the objectives of the State.

The proposed drilling is consistent with the *Uintah County General Plan, 2007* as amended (Plan) that encompasses the location of the proposed well. In general, the Plan indicates support for development proposals such as the proposed action through the Plan's emphasis of multiple-use public land management practices, responsible use and optimum utilization of public land resources.

On-site visits were conducted by Vernal Field Office personnel. The On-Site Inspection Reports do not indicate that any other locations be proposed for analysis. In addition, 43 CFR 3101-2 states that at a minimum the relocation of proposed operations by 200 meters or timing restrictions of less than 60 days would be consistent with the lease rights granted.

The proposed action was posted to the public Environmental Notification Bulletin Board with its assigned NEPA number on May 20, 2009. A public comment period was held from January 20 through February 6, 2012. Two comment letters were received. Responses to the comments are documented in Chapter 5 of the EA.

Important Dates				
<i>Well ID</i>	<i>NOS Posting</i>	<i>Onsite Inspection</i>	<i>APD Receipt</i>	<i>ENBB Posting</i>
Horse Point Fed 12-13	11-17-07	11-21-07	07-10-08	05-20-09

Compliance with “Onshore Oil and Gas Order No. 2, Drilling Operations” will assure that well drilling and completion will not adversely affect groundwater quality or prospectively valuable mineral deposits. Due to the state-of-the-art drilling and well completion techniques, the possibility of adverse degradation of groundwater quality or prospectively valuable mineral deposits by the proposed action will be negligible.

Well completion must be accomplished in compliance with “Onshore Oil and Gas Order No. 2, Drilling Operations”. These guidelines specify the following:

... proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.

The above factors and the analysis contained in EA No. DOI-BLM-UT-G010-2009-0258-EA for Cochrane Resources, Inc. drilling of one gas well was carefully considered and evaluated. In addition, the Applications for Permit to Drill (APDs) were reviewed. All reports were read and

the information contained appropriately weighed in determining the appropriateness of the decision stated above.



AEM Minerals (Authorized Officer)

MAY 14 2012

Date

Appeals:

This decision is effective upon the date it is signed by the authorized officer. The decision is subject to appeal. Under BLM regulation, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, Utah State Office, P.O. Box 45155, Salt Lake City, Utah, 84145-0155, within 20 business days of the date this Decision is received or considered to have been received.

If you wish to file a petition for stay, the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

- (1) The relative harm to the parties if the stay is granted or denied;
 - (2) The likelihood of the appellant's success on the merits;
 - (3) The likelihood of irreparable harm to the appellant or resources if the stay is not granted;
- and,
- (4) Whether the public interest favors granting the stay.

**SURFACE USE PROGRAM
CONDITIONS OF APPROVAL (COA's)
Horse Point Federal Well 12-13**

**SURFACE USE PROGRAM
CONDITIONS OF APPROVAL (COA's)
Horse Point Federal Well 12-13
DOI-BLM-UT-G010-2009-0258-EA**

Additional Surface Conditions of Approval or monitoring is listed in the Surface Use Plan of the APDs.

Air Quality COAs

- All internal combustion equipment would be kept in good working order.
- Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse would not occur at well sites or other facilities.
- Drill rigs would be equipped with Tier II or better diesel engines.
- Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater.
- Low bleed pneumatics would be installed on separator dump valves and other controllers. The use of low bleed pneumatics would result in a lower emission of VOCs.
- During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.
- Well site telemetry would be utilized as feasible for production operations.
- A drilling rig and a completion rig would not be operated simultaneously.
- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NO_x per horsepower-hour.

Surface COAs

- To meeting VRMII objectives Storage tanks will be moved to location on the pad not visible from the road, preferably towards the front of the pad on cut, where the existing

two track road will access the well pad. Operator has also agreed to use low profile tanks to lessen the visual impacts of the proposed well location.

- All production equipment will be painted Yuma Green to help blend in with surrounding vegetation and to meet VRM II objectives.
- Operator must use existing road for access to the well pad. Using this existing road will help to lessen impacts and help project meet VRM II objectives. Also, a gate and a sign need to be installed where the existing road leaves the main divide road. The sign should say access by authorized personal only, with location information on it as well.
- If operator intends on upgrading the road which would involve the moving of soils to upgrade the existing road surface a sundry notice form 3160 must be submitted and approved prior to any surface disturbance action not authorized under this EA.
- If the pit is not dry prior to the onset of winter, the company has committed to remove the water from the pit via vacuum truck, and then commence reclamation.
- A dike/berm would be constructed completely around those production facilities which contain fluids (i.e., production tanks, produced water tanks, and/or heater-treater). It would be constructed of compacted subsoil or the preferred corrugated steel berms, be impervious, hold 110% of the capacity of the largest tank, and be independent of the back cut.
- Any storm water runoff should be diverted around and off the well pad to lessen the erosion on the surface.
- The road surface and shoulders would be kept in a safe and usable condition and would be maintained in accordance with the original construction standards. All drainage ditches would be kept clear. The existing access road surface and pad area would be kept free of trash during operations. All traffic would be confined to the approved disturbed surface.
- Enough vegetation between road and well pad will be left to screen well pad from divide road and the two track. Operator will contact BLM surface representative prior to construction to ensure this takes place.
- The operator will control noxious weeds and invasive plants along corridors for roads, pipelines, well sites, or other applicable facilities, through a Pesticide Use Permit (PUP).
- No surface use is allowed during the following time period, May 15 through June 29. This stipulation does not apply to operation and maintenance of production facilities.
- An Interim Surface Reclamation Plan for surface disturbance on the well pad, access road, and pipeline has been completed and will be followed for reclamation of the surface. At a minimum, this will include the Best Management Practice of the reshaping

of the pad to the original contour to the extent possible; the re-spreading of the top soil up to the rig anchor points; and, reseeding the unused area using appropriate reclamation methods and seed mix below (Cochrane reclamation plan).

The interim/final seed mix for reclamation will be:

Table 2-2. Interim/Final Reclamation Seed Mixture

Common name	Latin name	lbs/acre	Recommended seed planting depth
Squirreltail grass	<i>Elymus elymoides</i>	3.0	1/4 - 1/2"
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	3.0	1/2"
Needle and Thread	<i>Stipa comata</i>	3.0	1/2"
Mountain Brome	<i>Bromus marginatus</i>	3.0	1/2"
Lewis Flax	<i>Linum lewisii</i>	2.0	1/2"
Curleaf Mountain Mahogany	<i>Cercocarpus ledifolius</i>	1.0	1/2"
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	1.0	1/8 - 1/4"

- All pounds are pure live seed.
- All seed and mulch would be certified weed free.
- Rates are set for drill seeding; double rate if broadcasting.

-
- Following well plugging and abandonment, the location, access roads, pipelines, and other facilities shall be reclaimed. All disturbed surfaces shall be reshaped to approximate the original contour; the top soil re-spread over the surface; and, the surface re-vegetated. The surface of approved staging areas where construction activities did not occur may require disking or ripping and reseeding. Final abandonment will only be approved when successful reclamation is met as per Green River Reclamation Guidelines and Cochrane's reclamation plan.