

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

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**Environmental Assessment DOI-BLM-G010-2013-0239-EA  
May, 2014**

**Foundation Energy proposes to drill  
Three new gas wells  
The Davis Canyon 7-12-13-25,  
Displacement Point 1-1-13-25, and the  
Davis Canyon 2-7-13-26.**

***Locations:* Lot 6 of Section 7 Township 13 South, Range 26 East  
NW/SE of Section 12 Township 13 South, Range 25 East  
SE/SE of Section 1 Township 13 South, Range 25 East**

***Applicant/Address:* Foundation Energy Mgmt LLC  
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**FOUNDATION ENERGY’S PROPOSED THREE GAS WELLS IN SECTIONS 1, 7 and 12 in  
TOWNSHIP 13 SOUTH, RANGE 25, 26 EAST, DAVIS CANYON AREA, UINTAH COUNTY, UTAH  
Environmental Assessment DOI-BLM-G01000-2013-0239-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 Foundation Energy Managements proposal to drill three new gas wells on federally managed lands in the Davis Canyon area. The proposed access road and pipeline would be within the Lease and Unit boundary and would not need a right-of-way. The well information is as follows:

<u>Well Identification</u>	<u>Legal Location</u>	<u>Lease Number</u>
Displacement Point 1-1-13-25	SE/SE of Sec. 1, T13S, R25E	UTU-70247
Davis Canyon 7-12-13-25	NW/SE of Sec. 12, T13S, R25E	UTU-70247
Davis Canyon 2-7-13-25	Lot 6 of Sec. 7, T13S, R26E	UTU-59005

The project includes 7,110 feet of new access road on BLM lands. There would also be approximately 7,123 feet of buried pipelines paralleling the access road. A Right-of-Way would not be required for the access/pipeline because the entire project is within a unit. The well would be constructed and drilled after approval of the APDs (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 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 Foundation Energy to develop federal leases UTU-70247 and UTU-59005 and validate their proposed unit (UNIT # 89378X) by drilling the proposed unit obligation wells, and if successful, to produce commercial quantities of gas from its federal oil and gas leases. There are known hydrocarbon-trapping mechanisms within Foundation’s development program, based on a previously drilled well and reasoned geologic formation 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 leases UTU-70247 and UTU-59005 (UNIT # 89378X) subject to the leases’ and the unit’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 respond to the Application for permit to drill and allow beneficial use of the applicant's leases in an environmentally sound manner.

### **1.4 CONFORMANCE WITH BLM LAND USE PLANS**

The proposed wells and related facilities would be in conformance with the Vernal Field Office RMP/ROD, October 31, 2008, 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 VRM III area as designated in the 2008 Vernal BLM RMP/ROD. The Project area is also inside critical elk winter range as discussed in the 2008 Vernal RMP/ROD, which restricts construction and drilling from November 1 – March 31.

### **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 Action is consistent with the 2005 Uintah County General Plan, as amended in 2012 (County Plan), which encompasses the location of the Proposed Action. In general, the County Plan indicates support for development proposals, such as the Proposed Action, through the plan's emphasis on multiple-use public land management practices and encouragement of responsible use of natural resources (Uintah County 2012).

The State of Utah School and Institutional Trust Lands Administration (SITLA) has 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 lead to further interest in drilling on state leases in the area, it is assumed that the Proposed Action is 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.

## **1.7 SUMMARY**

This chapter has presented the purpose and need for the proposed project, as well as 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 potential environmental impacts or consequences resulting from the implementation of each alternative are then analyzed in Chapter 4 for each of the identified issues.

## 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. No additional alternatives were considered.

### 2.2 ALTERNATIVE A – PROPOSED ACTION

Foundation Energy Management proposes to drill three new gas wells on BLM administered lands in NW/SE of Sec. 12 T13S R25E, Lot 6 of Sec. 7 T13S, R26E, and SE/SE of Sec. 1 T13S R25E near Davis Canyon, Uintah Co., UT. Table 2.1 summarizes the disturbance potential for the proposed action. Each item is discussed in greater detail in the following subsections.

**Table 2.1: Proposed Disturbance for the Proposed Action Alternative**

Well #	Existing Road to be Upgraded	New road (30 ft. wide temporary, 18 foot permanent)	Buried Pipeline (Based off 50' temporary ROW)	Well Pad	Total disturbance
Displacement Point 1-1-13-25	0	3,113 ft. 2.14 acres	3,136 ft. 3.60 acres	2.50 acres	8.24 acres
Davis Canyon 7-12-13-25	0	2,245 ft. 1.55 acres	2,199 ft. 2.52 acres	2.30 acres	6.37 acres
Davis Canyon 2-7-13-26	0	1,752 ft. 1.21 acres	1,787 ft. 2.05 acres	4.60 acres	7.86 acres
Totals	0	7,110 ft. 4.90 acres	7,122 ft. 8.17 acres	9.40 acres	22.47 acres
<p><b>*Pipeline acreage is over calculated to account for the total ROW width of 50'. It is expected that only 25' would be disturbed, and this disturbance would be reclaimed as soon as pipeline is installed, which would follow Foundation Energy's reclamation plan for this project.</b></p>					

#### 2.2.1 Access

Approximately 7,110 ft. of new access road would be needed to access the proposed locations. Total new surface disturbance to the land from the new access road would be approximately 4.90 acres, plus 1.07 acres of new disturbance for upgrading 2,335 feet of existing road. If interim reclamation is successful then acreage would be lessened by almost half. The access road would be crowned, ditched, and constructed with a permanent running surface of 18 feet and a maximum disturbed width of 30 feet, with 12 feet being able to undergo some kind of final reclamation effort. Graveling or capping the roadbed would be performed as necessary to provide a well-constructed, safe road that minimizes the potential soil and vegetation losses. Prior to construction or upgrading, the proposed road would be cleared of any snow and allowed to dry completely if construction happens in winter months.

Surface disturbance and vehicular traffic would be limited to the proposed location and proposed access routes. Any additional area needed would be approved in advance. 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, to provide flow paths for runoff,

and clear of any noxious or invasive weeds. The 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, and the turnouts kept clear so that snowmelt would be channeled away from the road.

### **2.2.2 Pipelines**

Approximately, 7,122 ft. total of 2" diameter buried pipeline would be installed adjacent to the proposed access corridors for the proposed action. This will be a gas line that will tie into existing lines north of these proposed well pads. There would be a 50 feet disturbance area for the right-of-way. The total temporary disturbance for the pipeline would be approximately 8.16 acres; however following the companies' reclamation plan, 100% of this disturbance would undergo final reclamation when installation is complete. A right-of-way would not be required for the pipeline because the pipeline is all in the Federal Unit UTU-89378X.

### **2.2.3 Well Site Layout**

The pad, pit, cuts, fills, and soil and rock storage piles would amount to approximately 9.40 acres, of which over half of this temporary use would undergo interim reclamation, as per Foundation Energy's reclamation plan. Surface and subsoil materials in the immediate project area would be used for construction. Any necessary gravel to stabilize the site would be obtained from a commercial source, and removed prior to any final reclamation in the area.

### **2.2.4 Surface Facilities**

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 Beetle Green as determined during the on-site inspection. This also meets the management objectives laid out in the 2008 Vernal RMP decision.

A reserve pit will not be constructed on the well pads, since it will be a close loop drill system. However, a small 30' long by 10' wide cuttings pit will be installed to handle cuttings during drilling and would not be located within natural drainages, where flood hazards exist or surface runoff would destroy or damage the pit walls. The cuttings 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 cuttings 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. Before backfilling and reclamation of these pits, they will be allowed to dry completely and be free of any muds of drilling fluids prior to backfilling. These materials must be disposed of at an approved disposal facility.

Any other 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.

## **2.2.5 Water Supply**

Water for drilling and cementing purposes would be obtained from any of the following source according to Foundation Energy's APDs: Ouray Municipal Water Plant water source in SW/SW of Section 35, T9S R22E.

On January 21-22, 1988, the Secretary of the Interior; the Governors of Wyoming, Colorado, and Utah; and the Administrator of the Western Area Power Administration were cosigners of a cooperative agreement to implement the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) (US Fish and Wildlife Service [USFWS] 1987). An objective of the Recovery Program was to identify reasonable and prudent alternatives that would ensure the survival and recovery of the four endangered Colorado River fish species while providing for new water development in the Upper Colorado River Drainage Basin.

The water used for this project would be obtained from the state water rights listed above, which are historic depletions (permitted prior to January 1988). The USFWS addresses new and historic depletions differently under the Section 7 agreement of March 11, 1993. Historic depletions, regardless of size, do not pay a depletion fee to the Recovery Program. Also, consultation for historic depletions was conducted in association with the 1993 agreement.

These water sources are considered depletion because it draws water from a well less than five hundred feet alluvium, or colluviums or flood plain. Consultation was conducted in association with the 1993 Recovery Implementation Program, which was updated in 2010.

## **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 small cuttings pit as proposed above. Any spills of oil, gas, salt water, or other noxious fluids would immediately be cleaned up and removed and taken to an approved disposal site.

A chemical portable-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, if herbicides or pesticides are used a Pesticide Use Proposal (PUP) must be submitted and approved prior to the use of these chemical control mechanisms.

## **2.2.9 RECLAMATION**

### **2.2.9.1 Introduction**

General reclamation guidelines from the full reclamation plan are summarized below. Full reclamation plans are located in the well file.

### 2.2.9.2 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 cuttings pit would be removed in accordance with 43 CFR 3162.7-1. The cuttings pit and the portion of the well not needed for production facilities/operations would be recontoured to the approximate natural contours. The cuttings pit would be reclaimed within 120 days from the date of well completion, or as soon as environmental conditions allow. The stockpiled pit topsoil would then be spread over the pit area and broadcast-seeded/drill seeded (preferred method) with the interim seed mixture listed in Table 2.3.5 after August 1<sup>st</sup> and prior to ground freezing. The seed mixture would be worked into the topsoil with a drill seeder, bulldozer or other heavy equipment. If initial seeding is not successful, reseeding may be required.

### 2.2.9.3 Topsoil

Topsoil storage areas would be identified with appropriate signage, segregated from the subsoil (without mixing the two soil types), topsoil will be stockpiled separately from other soil materials (subsoils), and maintained for future use in rehabilitating the locations. After pipeline installation is complete, salvaged topsoil would be re-distributed evenly over disturbed surfaces. Topsoil piles stored beyond one growing season would be stabilized and seeded to prevent loss of topsoil by erosion processes.

### 2.2.9.4 Interim Reclamation

Interim reclamation of the surface environment would take place after drilling and completion and when the well is put into production. The reserve pit and the portion of the well pad not needed for production facilities/operations would be recontoured to the approximate natural contours that occurred prior to surface disturbance. The reserve pit/cuttings pit would be reclaimed within 120 days from the date of well completion, or as soon as environmental conditions allow. Green River District Reclamation Guidelines require reclamation in the fall prior to ground freeze. The stockpiled pit topsoil would then be spread over the pit area and broadcast-seeded or drill seeded (preferred method) with the interim seed mixture listed in Table 2.2 after August 15<sup>st</sup> and prior to winter freezing of the soil. The seed mixture would be worked into the topsoil with a drill seeder, bulldozer or other heavy equipment. If initial seeding is not successful, reseeding may be required.

**Table 2.2 Interim/Final Reclamation Seed Mixture**

Common name	Latin name	lbs/acre
Galleta Grass	<i>Pleuraphis jamesii</i>	3.0
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	3.0
Four-wing saltbush	<i>Atriplex canescens</i>	2.0
Bottlebrush squirrel tail	<i>Elymus elymoides</i>	2.0
Annual Ryegrass	<i>Lolium perenne ssp.</i>	1.0
Blue Flax	<i>Linum perenne L.</i>	1.0

- 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.

### 2.2.9.5 Pipeline Reclamation

Following pipeline installation activities, all disturbed areas would be re-contoured back to the original contour or a contour that corresponds with the surrounding landforms. Salvaged topsoil would be re-distributed evenly, and to pre-disturbance depths, over the surfaces to be revegetated. 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 soil additives. The seedbed preparations would be determined by the appropriate surface managing agency (SMA) at the time of final reclamation. 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 practical). Disking may be necessary to eliminate large soil clumps or clods.

Methods such as hydro-mulching, straw mat application on steeper slopes, soil analysis to determine the need for fertilizer, seed-bed preparation, contour furrowing, watering, terracing, water barring, and the replacement of topsoil would be implemented as directed by the SMA (BLM).

After pipeline installation is complete, all disturbed areas would be 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. The seeding contractor would provide all seed tags to the appropriate SMA prior to seeding efforts. Seeding would occur after August 15<sup>st</sup> and prior to winter freezing of the soil. 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 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.

#### **2.2.9.6 Dry Hole/Abandoned Location**

Abandoned well sites, roads and other disturbed areas would be restored as near as practical to their natural condition. Stockpiled topsoil would be spread across the recontoured area then seeded with the seed mixture shown in Table 2.2. Seed application will follow all guidelines in the interim seed mix bullet statement above, and in Green River Reclamation Guidelines (BLM 2009). If reclamation seeding should take place using the broadcast method, the seed at a minimum will be walked into the soil with a dozer or other heavy equipment immediately after the seeding is completed. Reclamation of the well pad and access road would be done the fall after final abandonment.

#### **2.2.9.7 Monitoring**

Prior to any surface disturbance, vegetative monitoring locations and reference sites would be identified by Foundation Energy and approved by the BLM Authorized Officer. Vegetation monitoring protocol would be developed by Foundation Energy and approved by the BLM Authorized Officer prior to implementation of revegetation techniques and would be designed to monitor % basal vegetative cover. 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. 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.

**2.2.10 Applicant Committed Measures:** The applicant has agreed to the following measures to mitigate the effects of the proposal:

##### **2.2.10.1 Visual Resources**

Applicant has agreed to paint all facilities the color Beetle Green to help meet VRMIII guidelines. The goal is to reduce visual impacts through having all production equipment painted a non-reflective earth tone similar to the vegetation in the area.

##### **2.2.10.2 Floodplains**

Company will use storm water control mechanisms like silt fencing and waddles down gradient of the well pads that are next to the mapped floodplain to help reduce any sediment from reaching the Davis Canyon floodplain.

##### **2.2.10.3 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 (EVG SWP-12/20/2012). However, bedrock will likely be encountered during construction at well location 1-1-13-25. As a result, spot check monitoring is required during construction of the access road and well pad.

Foundation Energy 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. If any potential paleontological resources are uncovered during construction, work would stop immediately in the area and the appropriate BLM AO would be notified.

### **2.3 ALTERNATIVE B – NO ACTION ALTERNATIVE**

Under the No Action Alternative, Foundation Energy would not drill the three wells. 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, especially since they are obligation wells, meaning a well designated to hold the lease or unit. The BLM can deny the application for permit to drill (APD) if the proposal would violate lease stipulations and applicable laws and/or regulations. The BLM can also impose conditions of approval to prevent undue or unnecessary environmental degradation. 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.

### 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 wells would be located approximately 28 miles southeast of Bonanza, Utah in the Davis Canyon area (see Appendix B). The precipitation in the area averages between 12 to 22 inches in a desert shrub/sagebrush/juniper habitat. This area also has many ephemeral type drainages and rills, including main canyon drainages that drain into the White River. The topography is typically rolling. Elevation on the locations is around 6,300 feet.

#### 3.3 RESOURCES AND ISSUES BROUGHT FORWARD FOR ANALYSIS

##### 3.3.1 Air Quality and Greenhouse Gases

The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions, limited precipitation and wide seasonal temperature variations subject to abundant sunshine and rapid nighttime cooling. The Uinta Basin is designated as unclassified by the EPA under the Clean Air Act. This classification indicates that adequate air monitoring is not available to determine attainment.

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, (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM<sub>10</sub>) or 2.5 microns in diameter (PM<sub>2.5</sub>). Airborne particulate matter consists of tiny coarse-mode (PM<sub>10</sub>) or fine-mode (PM<sub>2.5</sub>) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM<sub>2.5</sub> is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM<sub>10</sub> is primarily from crushing, grinding, or abrasion of surfaces. **Table 3-1** lists ambient air quality background values for the Uinta Basin and NAAQS standards.

**Table 3-1. Ambient Air Quality Background Values**

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )
SO <sub>2</sub>	Annual	0.8 <sup>2</sup>	-- <sup>1</sup>
	24-hour	3.9 <sup>2</sup>	-- <sup>1</sup>
	3-hour	10.1 <sup>2</sup>	1,300
	1-hour	19.0 <sup>2</sup>	197
NO <sub>2</sub>	Annual	8.1 <sup>3</sup>	100
	1-hour	60.2 <sup>3</sup>	188
PM <sub>10</sub>	Annual	7.0 <sup>4</sup>	-- <sup>6</sup>
	24-hour	16.0 <sup>4</sup>	150
PM <sub>2.5</sub>	Annual	9.4 <sup>3</sup>	15
	24-hour	17.8 <sup>3</sup>	35
CO	8-hour	3,450 <sup>4</sup>	10,000
CO	1-hour	6,325 <sup>4</sup>	40,000
O <sub>3</sub>	8-hour	100.0 <sup>3,5</sup>	75

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
1 – The 24-hour and annual SO <sub>2</sub> NAAQS have been revoked by USEPA			
2 – Based on 2009 data from Wamsutter Monitoring Station Data (USEPA AQS Database)			
3 – Based on 2010/2011 data from Redwash Monitoring Station (USEPA AQS Database)			
4 – Based on 2006 data disclosed in the Greater Natural Buttes FEIS. (BLM, 2012)			
5 – Ozone is measured in parts per billion (ppb)			
6 – The annual PM <sub>10</sub> NAAQS has been revoked by USEPA			

Existing point and area sources of air pollution within the Uinta Basin include the following:

- Exhaust emissions (primarily CO, NO<sub>x</sub>, PM<sub>2.5</sub>, 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<sub>x</sub>, PM<sub>2.5</sub>, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>;
- Oxides of sulfur (SO<sub>x</sub>), NO<sub>x</sub>, fugitive dust emissions from coal-fired power plants, and coal mining/processing;
- Fugitive dust (in the form of PM<sub>10</sub> and PM<sub>2.5</sub>) 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.

Two year-round air quality monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). These monitors were certified as Federal Reference Monitors in fall of 2011, which means they can be used to make a NAAQS compliance determination. The complete EPA Ouray and Redwash monitoring data can be found at: <http://www.epa.gov/airexplorer/index.htm>

Both monitoring sites have recorded numerous exceedences of the 8-hour ozone standard during the winter months (January through March 2010, 2011, 2013, and 2014). It is thought that high concentrations of ozone are being formed under a “cold pool” process. This process occurs when stagnate air conditions form with very low mixing heights under clear skies, with snow-covered ground, and abundant sunlight. These conditions, combined with area precursor emissions (NO<sub>x</sub> and VOCs), can create intense episodes of ozone. The high numbers did not occur in January through March 2012 due to a lack of snow cover. This phenomenon has also been observed in similar locations in Wyoming. Winter ozone formation is a newly recognized issue, and the methods of analyzing and managing this problem are still being developed. Existing photochemical models are currently unable to reliably replicate winter ozone formation. This is due to the very low mixing heights associated with unique meteorology of the ambient conditions. Further research is needed to definitively identify ozone precursor sources that contribute to observed ozone concentrations.

The UDAQ conducted limited monitoring of PM<sub>2.5</sub> in Vernal, Utah in December 2006. During the 2006-2007 winter seasons, PM<sub>2.5</sub> levels were higher than the PM<sub>2.5</sub> health standards that became effective in December 2006. The PM<sub>2.5</sub> levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated PM<sub>2.5</sub> at the Vernal monitoring station are 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<sub>2.5</sub> 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.

HAPs are 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**

Greenhouse gases keep the planet's surface warmer than it otherwise would be. However, as concentrations of these gases increase 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. Predictions of the ultimate outcome of global warming remain to be seen.

The analysis of the Regional Climate Impacts prepared by the U.S. Global Change Research Program (USGCRP) in 2009 suggests that recent warming in the region (including the project area) was nationally among the most rapid. Past records and future projections predict an overall increase in regional temperatures, largely in the form of warmer nights and effectively higher average daily minimum temperatures. They conclude that this warming is causing a decline in spring snowpack and reduced flows in the Colorado River. The USGCRP projects a region-wide decrease in precipitation, although with substantial variability in interannual conditions. For eastern Utah, the projections range from an approximate 5 percent decrease in annual precipitation to decreases as high as 40 percent of annual precipitation.

### **3.3.2 Invasive Plants/Noxious Weeds, Soils & Vegetation**

The soils in the area are typically mixed with high content of clay loams, with some sandy complexes. The soils have been identified as Mikim loam (NRCS Web Soil Survey, 2009). These soils derive mainly from alluvial fans from sandstone, limestone, shale, and quartzite material (NRCS Web Soil Survey, 2009). The slopes are typically around 3-15 percent, depth to restrictive features is around 80 inches, and the capacity of the most limiting layer to transmit water is moderately high to high (NRCS Web Soil Survey, 2009). The ecological site description is a Semi desert Loam inside a Wyoming Big Sagebrush dominant plant community. (NRCS Web Soil Survey, 2009).

Vegetation in the area consists of a mixture of grasses, forbs, and shrubs typical of a Semi desert Loam, and Desert salt brush type plant community, which include but not limited to: mountain big sagebrush and Wyoming big sage, (*Artemisa tridentata ssp. wyomingensis*), scarlet globemallow (*Sphaeralcea coccinea*), Mormon tea (*Ephedra viridis*), prickly pear cacti (*Opuntia sp.*), Indian rice grass (*Achnatherum hymenoides*), shadscale (*Atriplex confertifolia*), and yellow rabbitbrush (*Chrysothamnus nauseosus*) have all been identified onsite. The area has some halogeton and cheatgrass throughout the area which is an invasive species and not desirable for the ecosystem.

### **3.3.3 Paleontology**

The proposed locations are all underlain by sediments of recent age that are too young to preserve fossils according to the paleontology survey for these locations (Winterfeld, 2013). The thickness of these deposits according to the same survey results is thought to be sufficient that building the well pads should not impact bedrock of the underlying Wasatch Formation. The access roads, according to the survey, already exist for the Davis Canyon 7-12-23-25 and 2-7-13-26 locations and traverse sediments that are too young to preserve fossils. The 1-1-13-25 location, according to the survey, branches northward from the Davis Canyon road and traverses sediments that are too young to preserve fossils. The proposed pad for the 1-1-13-25 would be built on bedrock of the Douglas Creek Member, which is covered by a veneer of recent sediments that are too young to preserve fossils. No fossils were found on the surface during the paleontology survey at any of the well locations.

### **3.3.4 Wildlife**

#### **Big Game**

Elk from the Book Cliffs Herd Unit occupy the surrounding area of the proposed project area on a year-round basis. According to the Vernal Resource Management Plan the proposed project area is within crucial summer/calving habitat (BLM 2008).

### 3.3.4.1 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*: black-chinned hummingbird\*, broad-tailed hummingbird\*, Brewer's sparrow\*, Cassin's finch\*, Cassin's kingbird\*, Clark's nutcracker\*, grasshopper sparrow\*, gray flycatcher\*, gray vireo\*, green-tailed towhee\*, juniper titmouse\*, mountain bluebird\*, pinion jay\*, sage sparrow\*, sage thrasher\*, Virginia's warbler\*, horned lark, loggerhead shrike, western kingbird, northern mockingbird, vesper sparrow and western meadowlark.
- *Woodlands*: black-chinned hummingbird\*, gray flycatcher\*, gray vireo\*, Lewis' woodpecker, Clark's nutcracker, pinyon jay, western scrub jay, black-throated gray warbler, bushtit, juniper titmouse\*, northern shrike, Virginia's warbler\*, broad-tailed hummingbird\*, mountain bluebird\*, and Say's phoebe.

### 3.3.5 Special Status Fish Species

The USFWS has 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.

#### 3.3.5.1 T&E Fish and Water Depletion

The USFWS has identified four federally listed fish species (pikeminnow, humpback chub, bonytail, and razorback sucker) that could be affected by water depletion of the Green River from the proposed water source. Water depletion for these gas wells is based off of the use of water from the following water source, Ouray Municipal Water Plant located in the SWSW Section 35 T9S R22E. The water used for this project would be obtained from the state water rights listed above, which are historic depletions (permitted prior to January 1988). The USFWS addresses new and historic depletions differently under the Section 7 agreement of March 11, 1993. Historic depletions, regardless of size, do not pay a depletion fee to the Recovery Program. Also, consultation for historic depletions was conducted in association with the 1993 agreement.

## 4.0 Environmental Impacts

### Proposed Action:

This Proposed Action is considered to be a minor air pollution source under the Clean Air Act and is not controlled by regulatory agencies. At present, control technology is not required by regulatory agencies since the Uinta Basin is designated as unclassified. The Proposed Action would 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 4-1**.

**Table 4-1. Proposed Action Annual Emissions (tons/year) <sup>1</sup>**

Pollutant	Development	Production	Total
NO <sub>x</sub>	14.2	2.2	16.4
CO	3.2	3.2	6.4
SO <sub>x</sub>	0.9	0	0.9
PM <sub>10</sub>	0.7	0.3	0.73
PM <sub>2.5</sub>	0.3	0.01	0.31
VOC	2.5	6.5	9.0
Benzene	0.03	0.13	0.16
Toluene	0.02	0.09	0.11
Ethylbenzene	0.02	0.22	0.24
Xylene	0	0.07	0.07
n-Hexane	0.05	0.08	0.13
Formaldehyde	0	0	0

<sup>1</sup> Emissions include 3 producing well(s) and associated operations traffic during the year in which the project is developed.

Well development includes NO<sub>x</sub>, SO<sub>2</sub>, and CO tailpipe emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. Fugitive dust concentrations would occur from vehicle traffic on unpaved roads and from wind erosion where soils are disturbed. Drill rig and fracturing engine operations would result mainly in NO<sub>x</sub> and CO emissions, with lesser amounts of SO<sub>2</sub>. These emissions would be short-term during the drilling and completion phases.

During well production, continuous NO<sub>x</sub>, CO, VOC, and HAP emissions would originate from well pad separators, condensate storage tank vents, and daily tailpipe and fugitive dust emissions from operations traffic. Road dust (PM<sub>10</sub> and PM<sub>2.5</sub>) would also be produced by vehicles servicing the wells.

Under the proposed action, emissions of NO<sub>x</sub> and VOC, ozone precursors, are 2.2 tons/yr for NO<sub>x</sub>, and 6.5 tons/yr of VOC (**Table 4-1**). Emissions 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. These emissions are estimated to be minor and less than 1 ton per year.

## Greenhouse Gases

The assessment of greenhouse gas emissions and climate change remains in its earliest stages of formulation. Applicable EPA rules do not require any controls and have yet to establish any emission limits related to GHG emissions or impacts. The lack of scientific models that predict climate change on regional or local level prohibits the quantification of potential future impacts of decisions made at the local level, particularly for small scale projects such as the Proposed Action. Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases into the local air-shed.

### 4.2.1.2 Paleontology

Since bedrock will be encountered during construction at well site 1-1-13-25, the operator has committed to fund spot check monitoring for construction at the access road and well pad. This will help to identify anything that could

potentially be destroyed through construction of the well pad and road. The spot inspection should take place prior to installation of a pit liner if one is planned for the mud pit. No monitoring is required at the other two sites proposed.

#### **4.2.1.3 Soils & Vegetation including (Invasive Plants/Noxious Weeds)**

The Proposed Action would disturb approximately 22.44 acres of soils and vegetation. Of this total, approximately 12 acres would be subject to interim reclamation. If interim reclamation is successful, direct long-term impacts to vegetation would occur on 10 acres. If interim reclamation is not successful, the entire 22.44 acres could remain disturbed for the long term. Long-term impacts to vegetation are expected for the life of the well (an average of 25 years or until reclamation is successful).

The project would contribute an estimated 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, 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 construction.

Direct impacts to soils include mixing of soil horizons, soil compaction, short-term loss of topsoil and site productivity, and loss of soil/topsoil through wind and water erosion. Loss of soil/topsoil in disturbed areas would reduce the revegetation success of seeded native species due to increased competition by annual weed species. Annual weed species are adapted to disturbed conditions, and have less stringent moisture and soil nutrient requirements than do perennial native species.

Additional direct impacts to vegetation are primarily associated with clearing of vegetation during construction. Indirect impacts to vegetation resources 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.

Impacts to soils and vegetation would be partially mitigated by reclamation of all disturbed areas with native vegetation and control of noxious and invasive weeds by mechanical and chemical treatment (see Section 2.2.9). Under the Proposed Action, reclamation would occur on approximately 25 percent of the well pad upon completion of drilling. The remaining 75 percent of the well pad would be revegetated after abandonment of the well (approximately 25 years or the life of the well).

#### **4.2.1.4 Wildlife**

##### **4.2.1.4.1 Big Game**

Surface disturbances associated with the Proposed Action would result in the direct loss and fragmentation of approximately 22.4 acres of yearlong crucial elk habitat. Habitat loss and fragmentation resulting from these disturbances could result in reduced habitat use by elk within and near disturbed areas, increased animal densities in adjoining habitats, and increased stress from intra- and interspecific 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 elk from habitats in areas of human activity. However, this is unlikely to occur during the spring calving as no surface activities are allowed from May 15 – June 30 (see mitigation below). As such, it is determined that the Proposed Action would not likely affect the trend of viability of big game populations for elk.

##### *Mitigation:*

The proposed project well is located within crucial elk calving habitat. To minimize impacts construction and drilling is not allowed from May 15 – June 30. This restriction would not apply to maintenance and operation of

existing facilities. This stipulation may be excepted if either the resource values change or the lessee/operator demonstrates to BLM's satisfaction that adverse impacts can be mitigated.

If it is anticipated that construction or drilling would occur during any of the given timing restrictions, a BLM or qualified biologist shall be notified so surveys can be conducted. Depending upon the results of the surveys, permission to proceed may or may not be recommended by the BLM biologist. The AO (Authorized Officer) will then determine if drilling will proceed.

#### **4.2.1.4.2 Migratory Birds**

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. These species will not be carried forward for further analysis.

Successful reclamation efforts would return disturbed habitats to pre-disturbance levels and loss of vegetation would be a temporary impact to migratory bird habitat.

#### **4.2.1.4.3 Special Status Fish Species**

Implementation of the Proposed Action would directly impact the Upper Colorado River Drainage System. These impacts would remain during construction of the proposed wells.

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.

#### **4.2.1.4 T&E Fish and Water Depletion**

##### **Colorado River Fish Species**

The Proposed Action would result in 4.5 acre-feet of water depletion from removal of water from the Upper Colorado River Drainage System for construction and drilling operations. Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats.

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 USFWS has listed these species as endangered and has implemented programs to prevent them from becoming extinct.

Food supply, predation, and competition are also 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 flow regimes that favor nonnative fishes.

Therefore, the Proposed Action would have a “*may affect, likely to adversely affect*” determination for the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. Water for drilling the proposed wells would come from the Ouray Municipal Water Plant located in the SWSW Section 35 T9S R22E. The USFWS addresses new and historic depletions differently under the Section 7 agreement of March 11, 1993. Historic depletions, regardless of size, do not pay a depletion fee to the Recovery Program. Also, consultation for historic depletions was conducted in association with that 1993 agreement.

## **4.2.2 Alternative B: No Action Alternative**

### **4.2.2.1 Air Quality**

Under the No Action Alternative, the proposed well(s) would not be permitted, so no emissions would occur.

### **4.2.2.2 Invasive Plants/Noxious Weeds, Soils & Vegetation**

Under the No Action Alternative, there would be no direct disturbance or indirect effects to soils and vegetation from surface-disturbing activities associated with these wells. 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.

### **4.2.2.3 Paleontology**

Under the no action alternative, fossil resources in the project area would remain the same as they currently are.

### **4.2.2.4 Wildlife**

Under the No Action Alternative, there would be no direct disturbance or indirect effects to elk, migratory species, or special status fish species from surface-disturbing activities associated with these wells. 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.

## **4.3 REASONABLY FORESEEABLE DEVELOPMENT AND CUMULATIVE IMPACTS ANALYSIS**

### **4.3.1 Cumulative Impacts**

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.

#### **4.3.1.1 Air Quality**

The cumulative impact area for air quality is the Uinta Basin. The potential impact of the Proposed Action to Uinta Basin ozone levels cannot be accurately modeled. In lieu of accurate modeling, the Greater Natural Buttes (GNB) air quality study, which is the most recent regional air model available for the Uinta Basin, and the GNB Final EIS section 5.3.1, is incorporated by reference and summarized below. The GNB Final EIS discloses that most of the cumulative emissions in the Uinta Basin are associated with oil and gas exploration and production activities. Consequently, past, present and reasonably foreseeable wells in the Uinta Basin are a part of the cumulative actions considered in this analysis. **Table 4-2** summarizes the 2006 Uinta Basin emissions as well as the incremental impact of this project’s alternatives. The Proposed Action comprises a small percentage of the Uinta Basin emissions summary.

**Table 4-2. 2006 Uinta Basin Oil and Gas Operations Emissions Summary**

County	NO <sub>x</sub> (tpy)	CO (tpy)	SO <sub>x</sub> (tpy)	PM (tpy)	VOC (tpy)
Uintah	6,096	4,133	247	344	45,646
Carbon	995	814	22	40	2,747
Duchesne	3,053	2,448	96	173	19,019
Grand	337	207	16	22	2,360
Emery	273	199	9	14	453
<b>Uinta Basin Total</b>	<b>10,754</b>	<b>7,800</b>	<b>391</b>	<b>592</b>	<b>70,226</b>
Proposed Action	16.4	6.4	0.9	0.73	9.0
No Action	0	0	0	0	0

The GNB model predicted the following impacts to air quality and air quality related values for the GNB proposed action, which encompassed 3,675 new wells:

- Cumulative impacts from criteria pollutants to ambient air quality are well below the NAAQS at Class I airsheds and selected Class II areas;
- The incremental impacts to visibility would be virtually impossible to discern and would not contribute to regional haze at the Class I areas;
- The 2018 projected baseline emissions would result in impacts of 1.0 deciview for at least 201 days per year at the Class II areas;
- Discernible impacts at Flaming Gorge National Recreation Area and Dinosaur National Monument are anticipated under the GNB Final EIS proposed action;
- The GNB Final EIS proposed action would contribute less than 1 percent to the acid deposition in Class I areas, and 4.3 percent at the Flaming Gorge Class II area;
- Project-related acid deposition impacts at sensitive lakes were below the USFS screening threshold; and,
- Ozone levels are below the current ozone standard of 75 ppb for the fourth highest annual level in the Uinta Basin for the 2018 projected baseline, and the proposed action would be approximately 3.2 percent of the cumulative ozone impact within the Uinta Basin.

Based on the GNB model results, it is anticipated that the impact to ambient air quality and air quality related values associated with the Proposed Action would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the model and Uinta Basin emission inventory. The No Action alternative would not result in an accumulation of impacts.

## Greenhouse Gases

Inconsistent results based on scientific models used to predict global climate change prohibit the BLM from quantifying cumulative impacts. Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases, into the local airshed, resulting in a negligible cumulative impact. The No Action Alternative would not result in an accumulation of impacts.

### 4.3.1.2 Invasive Plants/Noxious Weeds, Soils, and Vegetation

The cumulative impacts analysis area (CIAA) for this resource is defined as the boundary for the hydrologic unit boundary “Little Whiskey Creek-Evacuation Creek,” which contains approximately 23,928 acres. Past activity in the CIAA includes 44 oil and gas wells. Assuming 5 acres of disturbance for well pads, the present disturbance is 220 acres. Reasonably foreseeable development includes 1 well within the CIAA. Assuming 5 acres of disturbance per well, the reasonably foreseeable development would result in approximately 5 acres of disturbance. Total cumulative disturbance would be 255 acres.

Cumulative impacts include increased soil erosion, vegetation disturbance, and weed invasion. In general, soils in the Uinta Basin are very thin, slow to develop, and difficult to reclaim because of the arid climate and lack of

organic material. The proposed action would add 22.47 acres of surface disturbance with its associated impacts. The No Action Alternative would not result in an accumulation of impacts.

### **4.3.2.3 Paleontology**

This project area is considered the area of cumulative impact. This area has a history of oil well and pipeline development. Other roads, power lines, and pipelines associated with the oil industry already cross this area. Historically, fossil resources have been protected during oil field development by conducting paleo surveys and applying the required mitigation measures. However, cumulative impacts include potential destruction and theft of fossils resulting from increased human access to the area and surface disturbing activities.

The proposed well locations and access roads were surveyed for paleontology resources. Outcrops and erosional surfaces were checked within the proposed construction areas to determine if fossils were present and to assess needs when found. The probability for impacting scientifically important paleontological resources during construction was determined to be moderate for well #1-1-13-25. Spot monitoring the construction in the area where bedrock is encountered and notifying the BLM VFO if fossils are found on the site will help to mitigate adverse impacts to paleo resources from this project.

Since the project area is being actively developed and will continue to be in the near future, various methods of mitigation and current laws should protect fossil resources in this area, now as well as in the future. The No Action alternative would not result in an accumulation of impacts.

### **4.3.1.2 Wildlife**

#### **4.3.1.2.1 Elk**

The cumulative impacts analysis area (CIAA) for this resource is defined as the boundary for the hydrologic unit boundary "Little Whiskey Creek-Evacuation Creek," which contains approximately 23,928 acres. Past activity in the CIAA includes 44 oil and gas wells. Assuming 5 acres of disturbance for well pads, the present disturbance is 220 acres. Reasonably foreseeable development includes 1 well within the CIAA. Assuming 5 acres of disturbance per well, the reasonably foreseeable development would result in approximately 5 acres of disturbance. Total cumulative disturbance would be 255 acres.

Cumulative impacts include decreased available cover, carrying capacity, foraging opportunities, breeding habitat, and habitat productivity for elk. 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 quality, cover availability, visibility, and noise presence). The proposed action would add 22.47 acres of surface disturbance with its associated impacts. The No Action Alternative would not result in an accumulation of impacts.

#### **4.3.1.2.2 Migratory Birds**

The cumulative impacts analysis area (CIAA) for this resource is defined as the boundary for the hydrologic unit boundary "Little Whiskey Creek-Evacuation Creek," which contains approximately 23,928 acres. Past activity in the CIAA includes 44 oil and gas wells. Assuming 5 acres of disturbance for well pads, the present disturbance is 220 acres. Reasonably foreseeable development includes 1 well within the CIAA. Assuming 5 acres of disturbance per well, the reasonably foreseeable development would result in approximately 5 acres of disturbance. Total cumulative disturbance would be 255 acres.

Ongoing and planned oil and gas activities would further 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 these projects) would reduce the productivity of the habitats affected and increase the amount of human presence and use of the region for, at a minimum, the lives of the projects (approximately 25 years). Additional development could preclude migratory birds from using areas of more intensive human activity. 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 proposed action would add 22.47 acres of disturbance. The No Action Alternative would not result in an accumulation of impacts.

#### **4.3.1.2.3 Special Status Fish Species**

The cumulative impacts analysis area (CIAA) for this resource is defined as the boundary for the hydrologic unit boundary “Little Whiskey Creek-Evacuation Creek,” which contains approximately 23,928 acres. Past activity in the CIAA includes 44 oil and gas wells. Assuming 5 acres of disturbance for well pads, the present disturbance is 220 acres. Reasonably foreseeable development includes 1 well within the CIAA. Assuming 5 acres of disturbance per well, the reasonably foreseeable development would result in approximately 5 acres of disturbance. Total cumulative disturbance would be 255 acres.

Declines in the abundance or range of the special status species fish 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 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;
- Water depletion from the river systems

The proposed action would add approximately 22.47 acres of surface disturbance and 4.5 acre-feet of water depletion. The No Action alternative would not result in an accumulation of impacts.

#### **Colorado River Fish Species**

The cumulative impacts analysis area for this resource is the Colorado River system. Cumulative impacts in this 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. Cumulative impacts such as decreased water quality and quantity, decreased habitat quality, habitat fragmentation, and mortality result from decreased stream flow, erosion, improperly placed culverts, elevated salinity, and contamination. Decreased stream-flows reduce or eliminate both the extent and quality of suitable habitat by increasing stream temperatures, and subsequently by reducing dissolved oxygen levels. Such impacts may be more pronounced during periods of natural cyclic flow reductions (fall and winter or periods of drought). A loss of stream flow can also reduce a stream’s ability to transport sediment downstream. Sediment amount is influenced by the number of road/stream crossings, bank slope, amount of exposed soil, type of vegetation in the area, frequency and intensity of rainfall, soil type (amount of salinity), soil contamination, and the implementation and effectiveness of erosion control measures. Sediment loads above background levels can reduce pool depths, bury stream substrates and spawning gravels,

adhere to aquatic insects and the gills of fish, alter channel form and function, and result in other forms of habitat degradation. Elevated salinity levels, over extended periods of time, may become toxic for aquatic ecosystems and fish species. In addition, improperly placed, shaped, and sized culverts in roads can act as fish barriers on key streams or exacerbate erosion and cause head cutting. The proposed action would add 4.5 acre-feet of water depletion. The No Action Alternative would not result in an accumulation of impacts.

## 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
US Fish and Wildlife Service	Endangered Species Act Section 7	The USFWS addresses new and historic depletions differently under the Section 7 agreement of March 11, 1993. Historic depletions, regardless of size, do not pay a depletion fee to the Recovery Program. Also, consultation for historic depletions was conducted in association with the 1993 agreement.
Utah SHPO	National Historic Preservation Act Section 106	No resources found within this project area. Concurrence letter received 1/24/2014

### 5.2 SUMMARY OF PUBLIC PARTICIPATION

The Proposed Action was posted to the Utah BLM's Environmental Notification Bulletin Board on July 2, 2013. A public comment period will be held from May 7 through May 22, 2014.

### 5.3 LIST OF PREPARERS

**BLM:**

Name	Title	Responsible for the Following Section(s) of this Document
Tyler Cox	Natural Resource Specialist	Vegetation, and Soils
Dan Emmett	Wildlife Biologist	Wildlife
Elizabeth Gamber	Paleontologist	Paleontology
Stephanie Howard	Environmental Coordinator	Air Quality and Quality Control

## **6.0 REFERENCES, GLOSSARY, AND ACRONYMS**

### **6.1 REFERENCES CITED**

- BLM. 2008. Vernal Field Office Resource Management Plan, U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.
- BLM 1997. Standards for Rangeland Health and Guidelines for Grazing Management on BLM Lands in Utah. U.S. Department of the Interior, Bureau of Land Management. Washington. D.C. May 20.)
- BLM. 2012c. Final Environmental Impact Statement for the Greater Natural Buttes  
British Meteorological Office (BMO). 2009. British Meteorological Office's Hadley Centre, 2009. Accessed January 2009 at <http://www.metoffice.gov.uk/climatechange/science/monitoring/>.
- BLM. 2012c. Final Environmental Impact Statement for the Greater Natural Buttes  
British Meteorological Office (BMO). 2009. British Meteorological Office's Hadley Centre, 2009. Accessed January 2009 at <http://www.metoffice.gov.uk/climatechange/science/monitoring/>.
- Foundation. 2013. Standard Operating Procedures, Uintah and Duchesne Counties, Utah. Foundation Energy (APDs).
- Kuntz, Kimberly. 2013. Cultural Resource Inventory of Foundation Energy's 3 proposed wells in Township 13 South, Range 25&26 East, Sections 1, 7, and 12 Uintah County, Utah (UT SHPO # U-12-MM-1091b).
- 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.
- Winterfeld, Gustav. 2013. Paleontological Resource Inventory of Foundation Energy's 3 Proposed Well Pad Sites (Section 12, T13S, R25E, Section 7 T13S R26E, and Section 1 T13S R25E – Uintah County, Utah).

### **6.2 LIST OF ACRONYMS**

- AO: authorized officer
- APD: application for permit to drill
- BLM: Bureau of Land Management
- CEQ: Council on Environmental Quality
- CFR: Code of Federal Regulations
- DR: decision record
- EA: environmental assessment
- EIS: environmental impact statement
- FONSI: Finding of No Significant Impact
- LUP: land use plans

NEPA: National Environmental Policy Act

OHV: off-highway vehicles

OSHA: Occupational Safety and Health Act

RMP: resource management plan

SARA: Superfund Amendments and Reauthorization Act

SITLA: School and Institutional Trust Lands Administration (State of Utah)

VFO: Vernal Field Office

**APPENDIX A:**

**INTERDISCIPLINARY TEAM CHECKLIST**

**Project Title:** Foundation Energy proposes to drill 3 new gas wells on BLM surface into Federal minerals.

**NEPA Log Number:** DOI-BLM-UT-G010-2013-0239

**File/Serial Number:** UTU-70247 and UTU-59005

**Project Leader:** Tyler Cox

**DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)**

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 relevant impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource/Issue	Rationale for Determination	Signature	Date
<b>RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)</b>				
PI	Air Quality & Greenhouse Gas Emissions	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, daily tailpipe and fugitive dust emissions, and other sources could adversely affect air quality and contribute to Greenhouse Gas Emissions (GHGs).	Tyler Cox	12/16/2013
NP	BLM Natural Areas	No BLM Natural Areas exist within the identified project area according to RMP and GIS review.	Jason R. West	7/22/2013
NI	Cultural: Archaeological Resources	No cultural resources eligible for inclusion into the National Register of Historic places (NRHP) are identified within the APE of the proposed project. SHPO Consultation Received 1/24/2014	Cameron Cox	1/7/2014
NI	Cultural: Native American Religious Concerns	No Traditional Cultural Properties (TCPs) are identified within the APE. The proposed project will not hinder access to or use of Native American religious sites.	Cameron Cox	1/7/2014
NP	Designated Areas: Areas of Critical Environmental Concern	No ACEC exist within the identified project area according to GIS review.	Jason R. West	7/22/2013
NP	Designated Areas: Wild and Scenic Rivers	No Wild and Scenic River segments exist within the identified project area according to RMP and GIS review.	Jason R. West	7/22/2013
NP	Designated Areas: Wilderness Study Areas	None present as per RMP and GIS layer review	Jason R. West	7/22/2013
NI	Environmental Justice	No minority or economically disadvantaged communities or populations would be disproportionately adversely affected by the proposed action or alternatives because none are present in or adjacent to the project area.	James Hereford II	8/22/2013
NP	Farmlands (prime/unique)	No prime or unique farmlands as designated by the NRCS are present in the project area.	Tyler Cox	12/16/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Fuels/Fire Management	No fire or fuel management activities are planned for the Project Area. The proposed project would not conflict with fire management activities due to the use of existing and proposed well pad operations.	Tyler cox	12/16/2013
NI	Geology/Minerals/Energy Production	<p>No known gilsonite veins are in the area, however, encounters with gilsonite during any surface or drilling operation must be reported to the BLM Vernal Field Office. Please provide location and depth encountered.</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><sup>3</sup></p>	Betty Gamber	1/2/2014
IP/NW: PI	Invasive Plants/Noxious Weeds, Soils & Vegetation	Invasive Plants/Noxious Weeds (IP/NW): Invasive and Noxious weeds were present in the proposed area. A weed management plan included with the site specific reclamation plan will be required. This will help identify how Foundation Energy plans on dealing with weed issues. If pesticides are to be used Foundation must obtain a PUP from a BLM Botanist.	James Hereford II	8/22/2013
Soils: PI		Soils: The proposed project takes place in areas identified as having clay loam soils with sandy complexes throughout the area. A site specific reclamation plan will be required on these wells proposed in the proposed action.		
Veg: PI		Veg: The proposed project takes place in area identified as having Wyoming Sagebrush, Greasewood, Desert Shrubs, Black Sagebrush, Saltbush, and various grasses typical of a High Desert Ecosystem. The removal of the surface vegetation from this proposed action could cause		

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		increases in general sedimentation in down gradient environments. A site specific reclamation plan will be required to identify how Foundation will handle interim reclamation and final reclamation.		
NI	Lands/Access	The proposed area is located within the Vernal Field Office Resource Management Plan area which allows for oil and gas development with associated road and pipeline right-of-ways. The proposed project is within Foundation Energy's Displacement Point II Unit, the APD's would be authorized under beneficial use of the Unit; therefore, this project does not require a right-of-way. No existing land uses would be changed or modified by the implementation of the proposed action; therefore there would be no adverse effect.  BLM-Colorado's White River Field Office maintains jurisdiction of the road right-of-way files for the portion of the road located in Colorado. Foundation Energy's road right-of-way is authorized under case file COC-57667.	Katie White Bull  Stacey Burke	07/22/2013  7/23/2013
NP	Lands with Wilderness Characteristics (LWC)	Reviewed as part of the Dragon Canyon unit. No wilderness character found	Jason R. West	7/22/2013
NI	Livestock Grazing & Rangeland Health Standards	The proposed project falls within the Atchee Ridge Allotment. The allotment is grazed within the summer season and the region of Davis Canyon is not regularly utilized by the permittee due to the steep terrain and proximity to Whiskey Creek on the Colorado portion of the Divide. Therefore, a detailed analysis is not warranted beyond the proposed reclamation and mitigation efforts. However, as development increases beyond the scope of this proposed project that may not be the case and further analysis will be required at that point.	Dusty Carpenter	8/2/2013
PI	Paleontology	At well site 1-1-13-25, no fossils were found at the surface, but construction will impact bedrock. A spot inspection is recommended for construction disturbance associated with building of this access road and well pad. The spot inspection should take place prior to installation of a pit liner. No fossils were found at the other two sites and no paleo monitoring needed.	Betty Gamber	7/23/2013
NP	Plants: BLM Sensitive	No UT BLM sensitive plant species are present or expected in the same or an adjacent subwatershed as the proposed project	Aaron Roe	8/12/2013
NP	Plants: Threatened, Endangered, Proposed, or Candidate	No federally listed, proposed, or candidate plant species are present or expected in the same or an adjacent subwatershed as the proposed project	Aaron Roe	8/12/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NP	Plants: Wetland/Riparian	No riparian or wetland habitats exist in the proposed project area. As per GIS review and onsite investigation.	James Hereford II	7/30/2013
NI	Recreation	OHV limited to existing use. Primary recreation use is during hunting season (late fall through mid-winter) No Special Recreation Permit Campsites identified within the proposed project area.	Jason R. West	7/22/2013
NI	Socio-Economics	No impact to the social or economic status of the county or nearby communities would occur from this project due to its small size in relation to ongoing development throughout the basin.	James Hereford II	8/22/2013
NI	Visual Resources	VRM Class III identified. VRM Class III objectives state: "The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape." Primary vegetation includes pinon/juniper forests, some grasses and forbes and existing well pads along main road arteries. VRM class III objectives in a non-sensitive area can be met by utilizing appropriate paint colors for facilities and locating resources away from the primary line of sight along primary travel routes. (Example, placing any tank or pump facility further off the road and in recessed position or a position that utilizes screening from the primary arteries via natural slope or terrain feature.	Jason R. West	7/22/2013
NI	Wastes (hazardous/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 project. Trash and other waste materials would be cleaned up and removed immediately after completion of operations.	Tyler Cox	12/16/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Water: Floodplains	The 100 year Davis Canyon Floodplain exists adjacent to the proposed well pads. These pads were moved to the far edge of the actual mapped flood plain to help mitigate the potential concerns of siting wells inside active floodplains environments. Davis Canyon drainage is actually an ephemeral drainage most years, but can flow water depending on the amount of runoff from the previous winters precipitation amounts. This area can see flash flood events and sometimes the entire precipitation for the year can come in one strong event. Proper stormwater and erosion control mechanisms will be implemented to reduce the chance of any disturbed soils from getting in the system, and proper siting to ensure that the disturbance stays on the far upper edge of the floodplain is planned for to keep the locations well out of the actual active floodplain.	James Hereford II	7/30/2013
NI	Water: Groundwater Quality	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	Betty Gamber	7/23/2013
NI	Water: Hydrologic Conditions (stormwater)	Hydrologic conditions exist on the proposed project area. The area identified has mostly dry ephemeral drainages within a clay loam soil environment, and falls within the Lower-White, Evacuation Creek, and Little Whiskey hydrologic boundaries. If increases in sedimentation off of this proposed action alter the current hydrologic conditions in the area, then further analysis may need to take place. However, Storm water controls within the site specific reclamation will address how BBC proposes to control this potential concern.	James Hereford II	8/7/2013
NI	Water: Surface Water Quality	The proposed area has been identified as having many ephemeral type drainages that see periodic fluctuations in surface runoff, including the major drainage Davis Canyon. If significant alterations from the proposed action happen, that could cause increases in the amount of sediment reaching main drainage points then further analysis may be required. However, since Foundation has agreed to keep surface impacts to a minimum through reclamation and erosion controls around the well pad and access road, detailed analysis is not required at this time.	James Hereford II	8/7/2013
NP	Water: Waters of the U.S.	Although waters of the U.S do occur down 1-2 miles gradient of the proposed action, direct	James Hereford II	8/7/2013

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		impacts to waters of U.S will not take place with this proposed action. Foundation has agreed to do reclamation on any disturbed area to prevent any indirect concerns from happening in the proposed area.		
NP	Wild Horses	No herd areas or herd management areas are present in the project area per BLM GIS database.	Dusty Carpenter	8/2/2013
PI	Wildlife: Migratory Birds (including raptors)	Migratory birds are present. No known raptor nest exist within 0.5 miles of project area.	Daniel Emmett	7/30/2013
PI	Wildlife: Non-USFWS Designated	Project is within crucial elk calving habitat. Water depletion will occur for this project. Sensitive fish will need to be analyzed.	Daniel Emmett	7/30/2013
PI	Wildlife: Threatened, Endangered, Proposed or Candidate	T&E species will need to be analyzed as water depletion will occur.  Is the proposed project in sage grouse PPH or PGH? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If the answer is yes, the project must conform with WO IM 2012-043.	Daniel Emmett	7/30/2013
NI	Woodlands/Forestry	Woodland and Forestry related resources are present in the proposed area. It is considered a woodcutting zone as per the Vernal RMP. Minimal wood will be removed by the company for constructing the well pads. Compensation may be sought for any trees removed during construction.	Tyler Cox	12/16/2013

**FINAL REVIEW:**

Reviewer Title	Signature	Date	Comments
Environmental Coordinator			
Authorized Officer			

# APPENDIX B:

**Location Map** Shows proposed action with proposed access and pipeline routes for all three proposed gas wells.

