

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

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**Environmental Assessment  
DOI-BLM-UT-G010-2015-0014-EA  
Brennan 2R Oil Well**

**PREPARING OFFICE**

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





**Environmental Assessment**  
**DOI-BLM-UT-G010-2015-0014-EA**  
**Brennan 2R Oil Well**

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

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# Finding of No Significant Impact

## Finding of No Significant Impact:

Based on the analysis of potential environmental impacts DOI-BLM-UT-G010-2015-0014-EA, I have determined that the proposed action will not have any significant impacts on the environment, and an environmental impact statement is not required.

## Signatures:

Recommended by:

---

/s/ Kevin Sadlier  
Kevin Sadlier  
Natural Resource Specialist

12/18/2014  
[Date]

Approved by:

---

/s/ Jerry Kenzcka  
Authorized Officer  
AFM for Minerals

12/22/2014  
[Date]

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# Decision Record - Memorandum

## Selected Action:

It is my decision to approve QEP Energy Company's proposal to drill one oil, well Brennan 2R, located in section 18, T. 7S., R. 21E. Uintah County, Utah as described in the proposed action alternative of DOI-BLM-UT-G010-2015-0014-EA. The proposed project area is located approximately 27.2 miles southwest of Vernal, Utah. The proposed well would be drilled utilizing a new location approximately 3.54 acres in size. Approximately 353 feet of road would be built along with 2,485 feet of 10 inch or smaller surface pipeline. This decision is subject to the below conditions of approval.

## Conditions of Approval:

**This decision is contingent on meeting all stipulations and monitoring requirements listed below, which were designed to minimize and/or avoid impacts.**

- Water or other approved dust suppressants will be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse will not occur at well sites or other facilities.
- Drill rigs will be equipped with Tier II or better diesel engines.
- Well site telemetry will be utilized as feasible for production operations.
- 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 NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.
- All vehicles and equipment shall be cleaned either through power-washing, or other approved method, if the vehicles or equipment were brought in from areas outside the Uinta Basin, to prevent weed seed introduction.
- Any new power poles would be fitted with raptor framing. All work would be done in accordance with REA specifications.
- Class III archeological surveys were conducted by Montgomery Archaeology Consultants. Copies of the reports have been submitted directly to the appropriate agencies by Montgomery Archaeology Consultants. Cultural resource clearance has been recommended for this project. If historic or archaeological materials are uncovered during construction, the Operator is to immediately stop work that might further disturb such materials and contact the Authorized Officer.

## Rationale:

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.

The selected alternative meets the BLM's need to acknowledge and allow development of valid existing leases. The BLM objective to reduce impacts is met by the imposing of mitigation measures to protect other resource values.

## **Land Use Plan Conformance:**

The selected alternative is in conformance with the Vernal Field Office Resource Management Plan and Record of Decision (BLM 2008).

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

There are no comprehensive State of Utah plans for the vicinity of the selected alternative. However, 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 selected alternative is consistent with the objectives of the State.

## **Public Involvement:**

The proposed project was posted on the Eplanning NEPA Register on 10/10/2014. No comments have been received.

## **Alternatives Considered:**

The EA analyzed the proposed action and no action alternatives. Onsite visits were conducted by Vernal Field Office Personnel. The onsite inspection reports do not indicate that any other locations be proposed for analysis. The no action alternative was not selected because it would not best meet the BLM's need to acknowledge and allow development of valid existing leases.

## **Appeal or Protest Opportunities:**

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.

**Signature:**

Authorizing Official:

/s/ Jerry Kenczka  
Authorized Officer

12/22/2014  
Date

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# **Chapter 1. Introduction**

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## **1.1. Identifying Information:**

This Environmental Assessment (EA) has been prepared to analyze the potential impacts of QEP Energy Company’s gas well drilling project in the Brennan Bottoms area of Uintah County, Utah. The EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action or alternatives to the Proposed Action. The EA assists the Bureau of Land Management (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 Finding of No Significant Impact (FONSI) statement. A FONSI statement is a document that briefly presents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in Vernal Field Office Resource Management Plan (BLM 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.

QEP Energy Company proposes to drill one oil well, Brennan 2E, located in section 18, T. 7S., R. 21E., Uintah County, Utah. The proposed project area is located approximately 22 miles south of Vernal, Utah. The proposed well would be drilled utilizing a new location. Approximately 353 feet of road would be rerouted. Additionally 2,485 feet of 10 inch or smaller surface pipeline would be installed. Table 2.1, “Surface Disturbance Summary On BLM” (p. 5) shows the well and its associated surface disturbance.

### **1.1.1. Title, EA number, and type of project:**

Title: QEPs Brennan 2R Oil Well

NEPA #: DOI-BLM-UT-G010-2015–0014–EA

Project Type: Environmental Assessment

### **1.1.2. Location of Proposed Action:**

The proposed project area is located in section 18, T. 7S., R. 21E., Uintah County, Utah. The proposed project area is located approximately 27.2 miles south of Vernal, Utah.

### **1.1.3. Name and Location of Preparing Office:**

Vernal Field Office

170 South 500 East

Vernal, Ut. 84078

(435) 781–4400

### **1.1.4. Identify the subject function code, lease, serial, or case file number:**

Lease Number: UTSL-071745

### **1.1.5. Applicant Name:**

QEP Energy Company

## **1.2. Purpose and Need for Action:**

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 UTSL 071745 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. The BLM's purpose is to allow beneficial use of the applicant's lease in an environmentally sound manner.

The underlying need for the proposed action is for QEP to develop Federal Lease UTSL 071745 by drilling the proposed wells, and if successful, to produce commercial quantities of gas or oil from the federal oil and gas leases. There are known hydrocarbon-trapping mechanisms within QEP's development program, based on previously drilled wells and reasoned geologic formation and mineral potential.

## **1.3. Scoping, Public Involvement and Issues:**

The proposed project was posted on the Eplanning NEPA Register on 10/10/2014. No inquiries have been received.

# **Chapter 2. Proposed Action and Alternatives**

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## 2.1. Description of the Proposed Action:

QEP Energy Company proposes to drill one oil well, Brennan 2R, located in section 18, T. 7S., R. 21E., Uintah County, Utah, The proposed project area is located approximately 22 miles south of Vernal, Utah. The proposed well would be drilled utilizing a new location. Approximately 353 feet of road would be rerouted. Additionally 2,485 feet of 10 inch or smaller surface pipeline would be installed. Table 2.1, “Surface Disturbance Summary On BLM” (p. 5) shows the well and its associated surface disturbance. .

**Table 2.1. Surface Disturbance Summary On BLM**

Well Name	New Well Pad Disturbance (acres)	Surface Gas Pipeline (feet)*	Surface Gas Pipe Line (acres)*	Access Road (feet)	Access Road (acres)	Total Acres of New Surface Disturbance (acres)
Brennan 2R	3.540	2,485	1.711	353	0.243	3.540

\*Surface pipelines are not considered new surface disturbance.

### 2.1.1. Access

A new road would be built to access the proposed well. Approximately 353 feet of the access road would be built on BLM administered lands. The new road would be crowned (2 to 3%), ditched, and maintained with a running surface of 18 feet and a maximum disturbed width of 30 feet during construction and maintenance.

### 2.1.2. Well Site Layout

The proposed well would be constructed on a new well pad. This would result in approximately 3.540 acres of new surface disturbance during the construction of the well pad, reserve pit, and access road. Topsoil stockpiled from construction of the pad and reserve pit would be stripped to a depth determined on the onsite for each well and placed on determined sites for the well, segregated from the subsoil. The topsoil piles would be signed for identification.

### 2.1.3. Pipelines

There would be 2,485 feet of surface pipeline installed for this project located on BLM administered lands. The pipeline would be steel with a thickness as required by code.

Access to the proposed pipeline would be from existing roads. All construction and vehicular traffic would be confined to the right-of-way corridor or designated county and/or BLM roads unless otherwise authorized by the BLM authorized officer.

### 2.1.4. Electric Power

This project would be electrified. An existing power line is currently in place adjacent to the proposed location. One additional power pole would be placed on the proposed location. The placement of this power pole would not result in any additional surface disturbance.

### **2.1.5. Invasive Plants and Noxious Weeds**

The operator would control noxious/invasive weeds along their roads, pipelines, well sites, or other applicable facilities by the application of herbicides or by mechanical removal until reclamation is considered to be successful by the Authorized Officer (AO) and the bond for the well is released. A list of noxious weeds would be obtained from the BLM or the appropriate county extension office. On BLM-administered land, the operator would submit a Pesticide Use Proposal and obtain approval prior to the application of herbicides, other pesticides, or possible hazardous chemicals.

### **2.1.6. Water Supply and Disposal**

Fresh water for drilling would be obtained from Wonsits Valley water right 49-251 (which was filed on May 7, 1964), or Red Wash water right 49-2153 (which was filed on March 25, 1960). Water would be hauled by a licensed trucking company. Water wells would not be drilled on the lease.

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 (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.

Wonsits Valley, and Red Wash water rights are historic depletions (permitted prior to January 1988). The U.S. Fish and Wildlife Service (USFWS 1994) address's 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.

### **2.1.7. Waste Disposal**

Drill cuttings would be contained and buried in the reserve pits. Drilling fluids, including salts and chemicals, would be contained in the reserve pits. Upon termination of drilling and completion operations, the liquid contents of the reserve pits would be used at the next drill site or would be removed and disposed of at an approved waste disposal facility within 6 months after drilling is terminated. Immediately upon well completion, any hydrocarbons in the pit would be removed in accordance with 43 CFR 3162.7-1.

Unless specified in the site specific APD, the reserve pits would be constructed on the location and not be located within natural drainages, where a flood hazard exists or surface runoff would destroy or damage the pit walls. The reserve pits would be constructed so that they would not leak, break, or allow discharge of liquids.

After first production, wastewater would be confined to the approved pit or storage tank for a period not to exceed 90 days. During the 90 day period, in accordance with Onshore Order #7, all produced water would be contained in tanks on location and then hauled to an approved facility for disposal.

Produced water, oil, and other by-products would not be applied to roads or well pads for control of dust or weeds. The dumping of produced fluids on roads, well sites, or other areas would not be allowed.

A chemical porta-toilet would be furnished with the drilling rig. The chemical porta-toilet wastes would be hauled to Ashley Valley Sewer and Water System for disposal.

No hazardous wastes (as defined in 40 CFR 355 or subject to reporting under SARA Title III) would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of this well.

Trash would be confined in a covered container and hauled to an approved landfill. No waste or oil would be burned. Human waste would be contained and disposed of at an approved sewage treatment facility.

## **2.1.8. Reclamation**

### **2.1.8.1. Producing Location**

Immediately upon well completion, the locations and surrounding areas 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.

### **2.1.8.2. Interim Reclamation**

Interim reclamation of the surface environment would take place after drilling and completion and well is put into production. The reserve pit and the portion of the well not needed for production facilities/operations would be recontoured to the approximate natural contours. The reserve 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 a seed mixture that would be submitted via sundry. 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.

### **2.1.8.3. Dry Hole / Abandoned Locatoin**

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 submitted via sundry. Seed application would 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 would 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 within six months, weather permitting, after final abandonment.

### **2.1.8.4. Monitoring**

Prior to any surface disturbance, vegetative monitoring locations and reference sites would be identified by QEP and approved by the BLM Authorized Officer. Vegetation monitoring

protocol would be developed by QEP and approved by the BLM Authorized Officer prior to implementation of revegetation techniques and would be designed to monitor percent 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 31 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.

## **2.1.9. Applicant Committed Environmental Protection Measures (ACEPMS)**

### **2.1.9.1. Air Quality**

QEP agrees to implement the following measures to reduce emissions:

- 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.
- Well site telemetry would be utilized as feasible for production operations.
- Dust suppressant such, as water or other approved suppressants, would be used at construction sites and along roads, as determined appropriate by the Authorized officer.
- Low bleed pneumatics would be installed on separator dump valves and other controllers.
- Any new power poles would be fitter with raptor framing. All work would be done in accordance with REA specifications

### **2.1.9.2. Cultural Resources**

Class III archeological surveys were conducted by Montgomery Archaeology Consultants. Copies of the reports have been submitted directly to the appropriate agencies by Montgomery Archaeology Consultants. Cultural resource clearance has been recommended for this project. If historic or archaeological materials are uncovered during construction, the Operator is to immediately stop work that might further disturb such materials and contact the Authorized Officer.

### **2.1.9.3. Paleontological Resources**

Paleontological surveys have been conducted by Intermountain Paleo Consulting. A copy of this report was submitted to the BLM by Stephen D. Sandau. The surveys resulted in the finding of nscientifically important fossil resources.

## **2.2. No Action Alternative**

Under the No Action Alternative, QEP would not drill the Brennon 2R or its associated access road and pipelines in section 18, T.7S., R.21E., Uintah 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. 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.

## **2.3. Alternatives Considered but not Analyzed in Detail**

There were no other alternatives identified aside from the Proposed Action and No Action Alternatives that were identified.

## **2.4. Conformance**

The alternatives are in conformance with the Vernal Field Office RMP/ROD (October 31, 2008) and the terms of the lease. The RMP/ROD decision allows leasing of oil and gas while protecting or mitigating other resource values (RMP/ROD p. 97-99). The Minerals and Energy Resources Management Objectives encourage the drilling of oil and gas wells by private industry (RMP/ROD, p. 97). The RMP/ROD decision also allows for processing applications, permits, operating plans, mineral exchanges, and leases on public lands in accordance with policy and guidance and allows for management of public lands to support goals and objectives of other resources programs, respond to public requests for land use authorizations, and acquire administrative and public access where necessary (RMP/ROD p. 86). It has been determined that the proposed action and alternative(s) would not conflict with other decisions throughout the plan.

## **2.5. Relationships to Statutes, Regulations, or Other Plans**

### **2.5.1. 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.

### **2.5.2. 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 *Uintah County General Plan, 2011 (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 on multiple-use public land management practices, responsible use and optimum utilization.

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.

## **Chapter 3. Affected Environment:**

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### 3.1. Air Quality

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/attainment by the EPA under the Clean Air Act. This classification indicates that the concentration of criteria pollutants in the ambient air is below National Ambient Air Quality Standards (NAAQS), or 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, “Air Quality Background Values” (p. 13) lists ambient air quality background values for the Uinta Basin and NAAQS standards.

**Table 3.1. Air Quality Background Values**

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (g/m <sup>3</sup> )	NAAQS (g/m <sup>3</sup> )
SO <sub>2</sub>	Annual	0.8 <sup>2</sup>	--1
	24-hour	3.9 <sup>2</sup>	--1
	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>	--6
	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

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (g/m <sup>3</sup> )	NAAQS (g/m <sup>3</sup> )
O <sub>3</sub>	8-hour	100.0 <sup>3,5</sup>	75
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, and 2013). 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.

### 3.1.1. 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.

## 3.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

The invasive species, cheat grass (*Bromus tectorum*), Russian thistle (*Salsola iberica*), and halogeton (*Halogeton glomeratus*) are present at these locations.

The soils are a sandy clay loam. Soils in the Project Area tend to be shallow and well drained.

The vegetation in the Project Area consists of fairly short shrubs, grasses and some forbs. Species include Indian ricegrass (*Achnatherum hymenoides*), Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), shadscale (*Atriplex confertifolia*), mat saltbush (*Atriplex corrugata*), Gardner saltbush (*Atriplex gardneri*), rubber rabbitbrush (*Chrysothamnus nauseosus*), squirreltail (*Elymus elymoides*), needle and thread grass (*Hesperostipa comata*), prickly pear cactus sp. (*Opuntia* sp.), galleta grass (*Pleuraphis jamesii*), black greasewood (*Sarcobatus vermiculatus*), and scarlet globemallow (*Sphaeralcea coccinea*).

### 3.3. Wildlife

#### 3.3.1. Migratory Birds

The Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act were implemented for the protection of migratory birds and eagles. 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. Pursuant to Executive Order 13186, a Memorandum of Understanding (MOU) (BLM MOU WO-230-2010-04[BLM 2010]) between the BLM and USFWS outlined a collaborative approach to promote the conservation of migratory bird populations and avoid or minimize adverse impacts on migratory birds in coordination with state, tribal, and local governments.

Migratory bird species commonly associated with the desert shrub community within the Project Area include the horned lark (*Eremophila alpestris*), sage sparrow (*Amphispiza belli*), vesper sparrow (*Pooecetes gramineus*), black-throated sparrow (*Amphispiza bilineata*), sage thrasher (*Oreoscoptes montanus*), Brewer's sparrow (*Spizella breweri*), western kingbird (*Tyrannus verticalis*), Say's phoebe (*Sayornis saya*), prairie falcon (*Falco mexicanus*), and Swainson's hawk (*Buteo swainsoni*) (BLM 2008a).

Common raptor species that breed in the region include the golden eagle (*Aquila chrysaetos*), Swainson's hawk, red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), northern harrier (*Circus cyaneus*), prairie falcon, American kestrel (*Falco sparverius*), great-horned owl (*Bubo virginianus*), burrowing owl *Athene cunicularia*, and long-eared owl (*Strix otus*)

#### **Burrowing Owl *Athene cunicularia***

The burrowing owl is listed as a UDWR Species of Special Concern and BLM sensitive species. In Utah, prairie dog burrows are the most important source of burrowing owl nest sites.

Based on available GIS data, there is one known Golden Eagle nest site and one known Red-tailed Hawk nest site adjacent to the Project Area greater than 0.5 mile of proposed surface disturbing activities. Burrowing owls prefer open areas within deserts, grasslands, and shrubsteppe. They use well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground. Burrowing owls are typically found in open grasslands, where abandoned burrows dug by

mammals such as ground squirrels, and prairie dogs. The burrows may be enlarged or modified, making them more suitable. Suitable habitat for this species is present throughout the Project Area.

### **3.4. Fish and Wildlife Species Excluding USFWS Designated Species**

Wildlife species and habitats occurring within the Project Area are typical of the Uinta Basin arid and semi-arid desert shrub communities. The dominant vegetation species include shadscale, rabbitbrush, and Wyoming big sagebrush.

#### **3.4.1. Roundtail Chub, Flannelmouth Sucker, and Bluehead Sucker (BLM Sensitive)**

These three fish species are endemic to the Colorado River Basin, including the Green and White Rivers. All three species are listed as BLM sensitive species due to declining population numbers and distribution. The flannelmouth sucker (*Catostomus latipinnis*), roundtail chub (*Gila robusta*) and bluehead sucker (*Catostomus discobolus*) are state sensitive species due to declining population numbers and distribution, and they receive special management under a conservation agreement in order to preclude the need for a federal listing. Special status fish species include those fish species that are BLM sensitive species and State of Utah species of concern. Native fish, such as flannelmouth sucker and bluehead sucker, and introduced species such as carp, channel catfish, and red shiner were the most abundant fish species identified during previous surveys (Bestgen et al. 2007; Irving and Modde 1994).

#### **3.4.2. Big Game Species**

Crucial year long habitat is present for mule deer in the project area. Crucial ranges are areas on which a species depends for survival; there are not alternative ranges due to climate conditions or other limiting factors.

#### **3.4.3. White-tailed Prairie Dog**

During the onsite visit prairie dog habitat was identified along the access road and the well pad. The white-tailed prairie dog (*Cynomys leucurus*) is listed as a species of concern by the UDWR as well as a BLM sensitive species, and has been petitioned to be federally listed as threatened or endangered under the Endangered Species Act (ESA). Colonies of this species occur in mountain valleys, semi-desert grasslands, and open shrublands.

### **3.5. Threatened, Endangered or Candidate Animal Species**

#### **3.5.1. Colorado River Fish Species**

The U.S. Fish & Wildlife Service (USFWS) has identified four federally listed fish species historically associated with the Upper Colorado River Basin, including the Green and White Rivers. These fish are the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. The four fish species 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 and White River and their 100-year floodplains have been designated critical habitat for these four endangered fish species (USFWS 1994). The Project Area does not occur within critical habitat for the Colorado River Basin listed fish species, but the Proposed Action would deplete water from the Colorado River Basin. Refer to Section 3.6.9 (pages 3-67 through 3-70) of the GDBR Final EIS (BLM 2008a) for more information on the threatened and endangered Colorado River fish species.

# **Chapter 4. Environmental Effects:**

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## 4.1. Direct and Indirect Impacts

The potential direct, indirect, and cumulative impacts from Alternative A (the Proposed Action) and Alternative B (the No Action Alternative) are discussed in the following sections of Chapter 4. Direct impacts to soils and vegetation in the following analyses are described as short-term and long-term impacts. In areas where interim reclamation is implemented, ground cover by herbaceous and woody species could be re-established to approximately 75 percent of initial basal cover within five years following seeding of native plant species and diligent weed control efforts. These reclaimed areas are categorized as short-term disturbance.

## 4.2. Proposed Action

### 4.2.1. Air Quality

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/attainment. 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, “Proposed Action Annual Emissions (tons/year)” (p. 21).

**Table 4.1. Proposed Action Annual Emissions (tons/year)**

Pollutant	Development <sup>1</sup>	Production	Total
NO <sub>x</sub>	14.20	2.20	16.40
CO	3.20	3.20	6.40
SO <sub>2</sub>	0.90	0.00	0.90
PM <sub>10</sub>	0.70	0.03	0.73
PM <sub>2.5</sub>	0.30	0.01	0.31
VOC	2.50	1.60	4.10
Benzene	0.03	0.03	0.06
Toluene	0.2	0.04	0.06
Ethylbenzene	0.02	0.03	0.05
Xylene	0.00	0.04	0.04
n-Hexane	0.05	0.02	0.07
Formaldehyde	0.00	0.00	0.00

<sup>1</sup> Emissions include 1 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 16.40 tons/yr for NO<sub>x</sub>, and 4.10 tons/yr of VOC (**Table 4.1, “Proposed Action Annual Emissions (tons/year)” (p. 21)**). 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.

#### **4.2.1.1. 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.

##### **4.2.1.1.1. 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<sub>x</sub> per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

#### **4.2.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation**

In addition to the applicant committed measures outlined within QEP’s reclamation plan, the Plan of Development for this project, the below mitigation measures would reduce the risk of establishment or spread of non-native invasive plant species.

The Proposed Action would disturb approximately 3.540 acre of soils and vegetation. The portions of the disturbed areas that would not be utilized for production and product transportation would be subject to interim reclamation. If interim reclamation is successful, direct long-term impacts to vegetation would not occur. If interim reclamation is not successful, the entire area 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).

Each well in 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.

The area's poor soil reclamation potential, has made successful reclamation efforts challenging. BLM field inspections indicate that short-term impacts may be more accurately portrayed as long-term impacts. However, most of these issues should be addressed in the BLM approved Questar Exploration and Production Company Uinta Basin Division Reclamation Plan. A copy of this plan is on file at the BLM Vernal Field Office.

Impacts to soils and vegetation would be partially mitigated by reclamation of disturbed areas with native vegetation and control of noxious and invasive weeds by mechanical and chemical treatment (see 2.1.6). 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).

### **Mitigation**

- All vehicles and equipment shall be cleaned either through power-washing, or other approved method, if the vehicles or equipment were brought in from areas outside the Uinta Basin, to prevent weed seed introduction.

## **4.3. Wildlife**

### **4.3.1. Migratory Birds**

The Proposed Action would result in loss of approximately 3.5 acres of potential breeding, nesting, and foraging habitat for migratory birds and raptors. Additional impacts could include displacement from suitable habitats due to increased noise levels and visual disturbances on the landscape; reduced habitat values in foraging areas due to prey displacement or weed invasion; potential loss of prey habitat; and an increased potential for collisions with vehicles traveling in the Project Area. Development would also result in indirect impacts such as habitat fragmentation, habitat degradation by dispersal of noxious and invasive weed species, and dust effects from unpaved road traffic.

### **Mitigation**

No construction or drilling will take place during the Burrowing owl nesting season from March 1 to August 30.

### **4.3.2. Fish and Wildlife Species Excluding USFWS Designated Species**

#### **4.3.2.1. Roundtail Chub, Flannelmouth Sucker, and Bluehead Sucker**

The analysis for the three special status fish species is the same as the analysis for threatened, endangered or candidate fish species.

### 4.3.2.2. Big Game

The proposed well pad and access road overlap year-long crucial habitat and fawning habitat for mule deer. The Proposed Action would result in approximately 3.5 acres of new surface disturbance in the year-long crucial habitat for mule deer. Direct impacts to big game species from the Proposed Action would include reduction or degradation of available forage for mule deer in the year-long crucial habitat and fawning habitat and increase potential for wildlife-vehicle collisions. Under the Proposed Action, the indirect impact of greatest concern to big game species would be displacement or avoidance resulting from increased human activity, noise from equipment operation, and increased vehicular traffic. Additional indirect effects include noxious weeds and invasive species that reduce habitat quality and increased potential for dust effects from unpaved road traffic. Refer to Section 4.6 (4-28 through 4-31) in the GDBR Final EIS (BLM 2008a) for additional information on potential impacts to big game species.

#### Mitigation

No construction or drilling activities will be allowed during the mule deer fawning period between May 15 to June 30.

### 4.3.2.3. White-tailed Prairie Dog

Proposed development associated with the well pad and access road would be a surface disturbance of 3.5 acres. Surface disturbance activities may affect white-tailed prairie dog habitat, making it less suitable for this species to establish colonies. Due to the scattered distribution of the species, avoidance of all occupied burrows is often impractical. Direct impacts could include loss of habitat until successful reclamation is completed and increased potential for direct mortality of individuals from increased vehicular traffic in and near prairie dog colonies. Indirect impacts would include habitat fragmentation, displacement of individuals, increased noise levels and human presence in the Project Area, and habitat degradation by dispersal of noxious and invasive weed species. Weed invasions may lead to a decrease in the amount of native perennials and bare ground, thereby degrading habitat for prairie dogs by decreasing visibility, forage quality, and suitability for colony establishment.

## 4.4. Threatened, Endangered or Candidate Animal Species

### 4.4.1. Colorado River Fish Species:

The Proposed Action would result in an estimated 1.5 acre-feet of water depletions from the Upper Colorado River Drainage System for dust abatement, construction, and drilling operations. Water depletions could reduce the ability of the Upper Colorado River Basin to create and maintain the physical habitat (areas inhabited or potentially habitable to fish for use of spawning, development of fish larvae, feeding, or serving as corridors between these areas). Therefore, the Proposed Action “*may affect, is likely to adversely affect*” the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker, as described in the GDBR Final EIS (BLM 2008a). The Proposed Action may also affect individuals of bluehead sucker, roundtail chub, and flannelmouth sucker, but it would not result in a trend toward the listing of the species. The Proposed Action is within the scope of the Section 7 consultation that was completed and documented in Final Biological Opinion of the GDBR ROD (BLM 2008c).

*Chapter 4 Environmental Effects:  
Threatened, Endangered or Candidate Animal  
Species*

## 4.5. No Action Alternative

### 4.5.1. Air Quality

Under the No Action Alternative, the proposed gas well(s) would not be drilled and there would be no additional impacts to air quality. Effects on ambient air quality would continue at present levels from existing oil and gas development in the region and other emission producing sources.

### 4.5.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

Under the No Action Alternative, there would be no direct disturbance or indirect effects to soils and vegetation from surface-disturbing activities associated these wells. Current land use trends in the area would continue, including increased industrial development, increased traffic, and increased recreation use for hunting, bird watching, and sightseeing.

### 4.5.3. Wildlife

Under the No Action Alternative there would be no impacts to wildlife species including; migratory birds, fish and wildlife species, and threatened, endangered or candidate animal species. There would be no additional water depletion to the Green or White River systems.

## 4.6. Reasonably Foreseeable Development and Cumulative Impacts Analysis

### 4.6.1. Cumulative Impacts

#### 4.6.1.1. 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, “2006 Uinta Basin Oil and Gas Operations Emissions Summary” (p. 25)** 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
Uinta Basin Total	10,754	7,800	391	592	70,226
Proposed Action	16.40	6.40	0.90	1.04	4.10
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.

#### **4.6.1.1.1. 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.

#### **4.6.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation**

The CIAA for soils and vegetation is the boundary of the Final Environmental Impact Statement (FEIS) for the Greater Deadman Bench Oil and Gas Producing Region . The Greater Deadman Bench Oil and Gas Producing Region project area is located 20 miles south of Vernal, Utah.

The project area encompasses approximately 3,540 acres of land within Uintah County. The project area is located in section 18, T.7S., R.21E., Uintah County, Utah Salt Lake Base Meridian. The town of Vernal is approximately 27.20 miles north of the project boundary. The foreseeable

activity for the QEP FEIS is the drilling of up to 1,239 new wells. Future total area of disturbance due to oil and gas activity for the FEIS project area is approximately 98,785 acres.

Soil erosion would be increased due to the disturbance associated with oil and gas activities in the area. Each acre of disturbance adds to a cumulative effect by increasing erosion and destroying native vegetation, and through the invasion of undesired plant species. 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.

Direct surface disturbances to vegetation indicated by past, present, and reasonably foreseeable developments are primarily attributable to oil and gas development and vegetation management by various federal agencies. Oil and gas development, however, would continue to degrade local habitat by direct disturbance and slow reclamation of disturbed areas. Surface disturbance within the CIAA would be approximately 98,785 acres. The Proposed Action would add approximately 11.67 acre of surface disturbance. The No Action alternative would not result in an accumulation of impacts.

### **4.6.3. Wildlife**

The CIAA for wildlife would be the same as the invasive plants/noxious weeds, soils, and vegetation section.

#### **4.6.3.1. Migratory Birds, White-tailed Prairie Dogs**

The CIAA for migratory birds, including raptors, is the GDBR. Surface disturbance associated with past, present, and reasonably foreseeable actions, including ongoing and planned oil and gas activities, would cumulatively reduce the amount of available cover, foraging opportunities, habitat productivity, and breeding/nesting areas for migratory birds until successful final reclamation. Human activities would result in short-term or long-term site avoidance, or would preclude migratory birds from using areas of more intensive human activity and could increase the potential for collisions between raptors and vehicles. 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).

### **4.6.4. Non-USFWS Designated Wildlife**

#### **Big Game Species**

The CIAA for non-USFWS designated big game species is the GDBR, a 98,785-acre area (BLM 2008b). Cumulative impacts associated with surface-disturbing activities, including ongoing and planned oil and gas activities, in combination with the Proposed Action would cumulatively contribute to habitat fragmentation, habitat loss, loss of foraging opportunities, and animal displacement, until successful final reclamation. Cumulative impacts could also lead to mortality of small or slow-moving wildlife due to construction equipment and vehicle collisions. Impacts to non-USFWS designated wildlife species would be relative to the amount of cumulative habitat loss and disturbance from incremental development, especially in sensitive habitat (e.g., year-long crucial habitat) (BLM 2008a).

The past, present, and reasonably foreseeable future total area of disturbance due to oil and gas activity in the CIAA is estimated at 31,175 acres (BLM 2008a), which includes the estimated disturbance from the selected alternative in the GDBR ROD (BLM 2008c). The Proposed Action would contribute 64 acres to the incremental increase in the GDBR ROD (BLM 2008c).

Refer to Section 5.3.6 (page 5-18 through 5-19) in the GDBR Final EIS (BLM 2008a) for more information on cumulative impacts to non-USFWS designated wildlife and big game species and their habitat. The No Action Alternative would not contribute to cumulative impacts.

#### **4.6.4.1. Roundtail Chub, Flannelmouth Sucker, and Bluehead Sucker**

The CIAA for potential impacts to non-USFWS designated fish species and fisheries is the entire BLM Vernal Field Office management area. Cumulative effects to fisheries resources would primarily be associated with increased potential for erosion and sedimentation in the Colorado River Basin, and water depletions associated with existing and continued oil and gas developments. Deteriorated waterways due to erosion and sedimentation increases in the CIAA waterways would affect fish spawning, fish rearing, and feeding behaviors (BLM 2008a). Water depletions associated with the Proposed Action, in combination with depletions from other activities in the CIAA, would reduce the ability of the Upper Colorado River Basin to create and maintain the physical habitat (areas inhabited or potentially habitable to special status fish for use of spawning, development of fish larvae, feeding, or serving as corridors between these areas) and the biological environment for the Colorado River Endangered Fish Species.

The Proposed Action would result in an estimated 162.5 acre-feet of water depletions and combined with other past, present, and reasonably foreseeable future projects, would reduce the volume of flow in the Colorado River Basin. As a result, implementation of the Proposed Action in combination with other activities in the CIAA, would degrade USFWS-designated critical habitat for the fish species and fisheries in the Colorado River Basin. Refer to Section 5.3.6 (pages 5-18 through 5-19) in the GDBR Final EIS (BLM 2008a) for more information on cumulative impacts to fisheries and surface water resources. The No Action Alternative would not contribute to cumulative impacts.

#### **4.6.4.2. White-Tailed Prairie Dog**

The CIAA for white-tailed prairie dog is the Greater Uinta Basin as described in the BLM Vernal Field Office Cumulative Impact Technical Support Document (BLM 2012c). The past, present, and reasonably foreseeable future total area of disturbance due to oil and gas activity in the CIAA is estimated at 67,436 acres (Table 13) (BLM 2012a). The Proposed Action would result in 3.540 acres of surface disturbance with some disturbance occurring in white-tailed prairie dog habitat. Surface disturbances associated with oil and gas projects in the CIAA would have direct and indirect cumulative effects on white-tailed prairie dog populations through loss of habitat, introduction of invasive and noxious plant species, reduced cover and forage quality, reduction in existing population size, changes in species composition, and increased potential for direct mortality from predation and increased vehicular traffic. Refer to Section 5.3.6 (pages 5-18 through 5-19) in the GDBR Final EIS (BLM 2008a) for more information about cumulative impacts to white-tailed prairie dogs. The No Action Alternative would not contribute to cumulative impacts.

## **4.7. Threatened, Endangered, Proposed, or Candidate Wildlife Species**

### **Colorado River Fish Species**

The CIAA for potential impacts to Colorado River Fish Species is the entire BLM Vernal Field Office management area. Cumulative effects to Colorado River fish species would be similar to those described for non-USFWS designated fish species and fisheries above.

The Proposed Action would result an estimated 162.5 acre-feet of water depletions and when combined with other past, present, and reasonably foreseeable future projects, would reduce the volume of flow in the Colorado River Basin. As a result, implementation of the Proposed Action or alternatives, in combination with other activities in the CIAA, would degrade USFWS-designated critical habitat for the Colorado River Endangered Fish Species in the Colorado River Basin. The No Action Alternative would not contribute to cumulative impacts.

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## **Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted:**

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**Table 5.1. List of Persons, Agencies and Organizations Consulted**

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
State Historic Preservation Office (SHPO)	Historic Preservation Act.	BLM recommended a No Effect determination based on Class III surveys and asked for concurrence on all of the wells listed in this EA. Concurrence was received, documentation of this can be found in the individual well/APD files.
Ute Mountain Ute Tribe, Hopi Tribe, Goshute Indian Tribe, Zia Pueblo Tribe, White Mesa Ute Tribe, Navajo Nation, Northwest Band of Shoshone Tribe, Southern Ute Tribe, Eastern Shoshone Tribe, Ute Indian Tribe, Santa Clara Pueblo Tribe, and Pueblo of Laguna Tribe.	Consultation with Native American Tribes.	Tribal consultation for this area was done during preparation of the Greater Deadman Bench EIS (2004). No concerns were raised at that time.

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# **Chapter 6. List of Preparers**

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**Table 6.1. List of Preparers**

Name	Title	Responsible for the Following Section(s) of this Document
Kevin Sadlier	Natural Resource Specialist/ Environmental Scientist	Chapters 1 & 2  Chapters 3 & 4: Soils and vegetation
Jessica Brunson	Botanist	Plants:  BLM Sensitive  Plants:  Threatened, Endangered, Proposed, or Candidate
Stephanie Howard	Environmental Coordinator	Air Quality

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## **Chapter 7. References Cited**

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# Appendix A. Interdisciplinary Team Checklist

**Project Title:** Brennan 2R oil Well Project

**NEPA Log Number:** DOI-BLM-UT-G010-2015-0014-EA

**File/Serial Number:**

**Project Leader:** Kevin Sadlier

**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, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality.  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.	Kevin Sadlier	10/20/2014
NP	BLM Natural Areas	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014
NP	Cultural:  Archaeological Resources	No eligible cultural resources were identified within the APE of the proposed project area.	Kathie Davies	9/12/2013

<b>Determination</b>	<b>Resource/Issue</b>	<b>Rationale for Determination</b>	<b>Signature</b>	<b>Date</b>
NP	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.	Kathie Davies	9/12/2013
NP	Designated Areas: Areas of Critical Environmental Concern	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014
NP	Designated Areas: Wild and Scenic Rivers	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014
NP	Designated Areas: Wilderness Study Areas	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014
NI	Environmental Justice	While the Uintah—Ouray Reservation is located near the project area, this project is not expected to have an adverse affect to the tribe.  There are no other minority or economically disadvantaged communities or populations would be disproportionately adversely affected by the proposed action or alternatives.	Kevin Sadlier	10/21/2014
NP	Farmlands (prime/unique)	No prime or unique farmlands, as identified by the NRCS, based on soil survey data for the county are located in the project area; therefore, this resource will not be carried forward for analysis.	Kevin Sadlier	10/21/2014
NI	Fuels/Fire Management	No fuel management activities planned for the project area. The proposed project would not conflict with fire management activities following GIS/field office review.	Kevin Sadlier	10/21/2014
NI	Geology/Minerals/ Energy Production	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.  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	Betty Gamber	10/27/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<p>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></p>		
<p>IP/NW: PI Soils: PI Veg: PI</p>	<p>Invasive Plants/ Noxious Weeds, Soils &amp; Vegetation</p>	<p>IP/NW: Proposed disturbance would provide suitable habitat for the establishment and spread of non-native plant species.</p> <p>Operator would control invasive species in all disturbed areas as discussed in Chapter 2 and QEP approved reclamation plan.</p> <p>Soils: 3.54 acres of soil disturbance would occur during construction until reclamation is successful. Soils would be recontoured and reseeded during reclamation. The locations would be reclaimed and monitored in accordance with the Questar Exploration and Production Company Uintah Basin Division Reclamation Plan on file with the Vernal Field Office of the BLM. Locations would be seeded with the seed mix approved by the BLM Authorized Officer.</p> <p>Veg : 3.54 acres of initial vegetation disturbance/removal. Upon construction completion, the disturbed area would be reseeded and re-contoured to the approximate natural contours. This would reduce the effects of the disturbance when the seeding becomes established. The locations would be reclaimed and monitored in accordance with the Questar Exploration and Production Company Uintah Basin Division Reclamation Plan on file with the Vernal Field Office of the BLM. Locations would be seeded with the seed mix approved by the BLM Authorized Officer.</p>	<p>Kevin Sadlier</p>	<p>10/21/2014</p>

Determination	Resource/Issue	Rationale for Determination	Signature	Date
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 APD's would be authorized under beneficial use of their lease; therefore, this project does not require a ROW.	Kevin Sadlier	10/21/2014
NP	Lands with Wilderness Characteristics (LWC)	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014
NI	Livestock Grazing & Rangeland Health Standards	Livestock Grazing: The proposed well pad is outside of any existing grazing allotments so it will not have any affects on Livestock Grazing or rangeland health.	Craig Newman	11/05/2014
NP	Paleontology	A paleontological survey was conducted by Intermountain Paleo Consulting (Rpt #8-61; 4/1/08). A copy of the report has been submitted to the BLM. No scientifically important fossils were found.	Betty Gamber	10/27/2014
NI	Plants:  BLM Sensitive	Potential habitat for Utah BLM Sensitive plant species is not present in the Project Area per BLM GIS data review. Suitable habitat for UT BLM Sensitive plant specie horseshoe milkvetch ( <i>Astragalus equisolensis</i> ) is present; however, the species has not been previously documented in the Project Area and was not observed during the onsite investigation. Utah BLM plant species are not expected to be impacted as a result of the Proposed Action.	Christine Cimiluca	10/28/2014
NI	Plants:  Threatened, Endangered, Proposed, or Candidate	Rationale: The following Federally listed, proposed, or candidate plant species is present or expected in the same or an adjacent subwatershed as the proposed project: Uinta Basin hookless cactus ( <i>Sclerocactus wetlandicus</i> ). However, the Project Area is approximately 0.3 mi outside potential habitat for the species, the species has not been previously documented in the Project Area per BLM GIS data review, and potential habitat for the species was not observed during the onsite investigation. Therefore, the species is not expected to be impacted as a result of the Proposed Action.	Christine Cimiluca	10/28/2014
NP	Plants:  Wetland/Riparian	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014

<b>Determination</b>	<b>Resource/Issue</b>	<b>Rationale for Determination</b>	<b>Signature</b>	<b>Date</b>
NI	Recreation	Proposed project is in a developed area with numerous infrastructures currently in place. Recreation access will not be restricted by the proposed project.	Keivn Sadlier	10/21/2014
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.	Kevin Sadlier	10/21/2014
NI	Visual Resources	The proposed project is in a VRM Class III area, per the Vernal Field Office GIS Data Base & RMP/ROD. Class III objective states: The objective of this class is to partially retain the existing character of the landscape. the level of change to the landscape should be moderate. management activities may attract the attention of the casual observer, 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. The contrast in color, form, line and texture is within the class III objectives.	Bill Civish	10/23/2014
NI	Wastes (hazardous/solid)	Hazardous Waste: No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the project.  Solid Wastes: Trash would be confined in a covered container and hauled to an approved landfill. Burning of waste or oil would not be done. Human waste would be contained and be disposed of at an approved sewage treatment facility.	Kevin Sadlier	10/21/2014
NP	Water: Floodplains	None are present in the project area per the Vernal Field Office RMP and GIS review.	Kevin Sadlier	10/21/2014
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	10/27/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NP	Water: Hydrologic Conditions (stormwater)	The proposed construction of the well pad, and road, would alter the topography of the area to a small degree. It is not expected that surface water or stormwater would be created to the level of concern for Clean Water Act Section 402 (stormwater) review. In addition federal law has exempted energy development from stormwater requirements.	Kevin Sadlier	10/21/2014
NI	Water: Surface Water Quality	Surface Waters: The only potential for the proposed project to negatively impact water quality would be increased potential for chemical spills or increased disturbance to surface soils which could cause soil erosion. This would not be expected to occur in a way that would be a relevant impact to surface waters. The site is in an upland area and more than 3 miles from perennial waters.	Kevin Sadlier	10/21/2014
NP	Water: Waters of the U.S.	Waters of the U.S. are not present per USGS topographic map and GIS data review. The proposed project would not impact any drainage where a high water mark can be distinguished, drainages which regularly run water, or wetlands/riparian areas, per onsite.	Kevin Sadlier	10/21/2014
NP	Wild Horses	No herd areas or herd management areas are present in the project area per BLM GIS database.	Kevin Sadlier	10/21/2014
PI	Wildlife: Migratory Birds (including raptors)	Migratory bird nesting habitat will be disturbed. There are no known raptor nests within .5 mile of the project area. There is potential nesting habitat present for burrowing owls.	Dixie Sadlier	11/17/2014
PI	Wildlife: Non-USFWS Designated	Mule Deer year long crucial habitat is present in the project area.	Dixie Sadlier	11/17/2104
NI	Wildlife: Threatened, Endangered, Proposed or Candidate	Is the proposed project in sage grouse PPH or PGH? Yes No <b>X</b> If the answer is yes, the project must conform with WO IM 2012-043.  The proposed project is outside of proposed critical habitat for the yellow billed cuckoo, also QEP will run power to the pump jack for noise reduction so the project would not affect the yellow billed cuckoo.	Dixie Sadlier	11/17/2014
NP	Woodlands/Forestry	None are present in the project area per BLM GIS database.	Kevin Sadlier	11/26/2014

**FINAL REVIEW:**

Reviewer Title	Signature	Date	Comments
Environmental Coordinator	/s/ Jessica Taylor	12/15/2014	
Authorized Officer	/s/ Jerry Kenczka	12/22/2014	