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## GASCO Production Company Proposes to Drill 6 Oil Wells from 6 Existing Well Pads

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

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**Environmental Assessment  
DOI-BLM-UT-G010-2012-0282**

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**October, 2012**

**GASCO Production Company  
Proposes To Drill 6 Oil Wells from 6 Existing Well Pads**

***Location:* Uintah County, Utah  
Sections 17, 18, 20, 21 & 29 Township 9 South, Range 19 East**

***Applicant/Address:* GASCO Production Company  
8 Inverness Drive East Suite 100  
Englewood, CO 80112**

U.S. Department of the Interior  
Bureau of Land Management  
Field Office  
170 South 500 East  
Vernal, Utah 84078  
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**BLM**



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## **1.0 INTRODUCTION AND PURPOSE AND NEED**

### **1.1 INTRODUCTION**

This Environmental Assessment (EA) has been prepared to analyze the potential impacts of GASCO Production Company (GASCO) oil well drilling project in the 8 Mile Flat area of Uintah County, Utah. GASCO has a valid existing right to extract mineral resources from federal leases UTU-16544, UTU-76262, UTU-75090 & UTU-78433 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 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 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 may be signed for the EA approving the alternative selected.

GASCO proposes to develop sections 17, 18, 20, 21 & 29 of T9S R19E by drilling 6 oil wells from 6 existing well pads. No new roads or pipelines would be built. No new rights-of-ways are needed for this project. The proposed project area is located approximately 25 miles in a Southeast direction from Myton, Utah.

### **1.2 PURPOSE AND NEED FOR THE PROPOSED 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 Leases UTU-16544, 76262, 75090 & 78433 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 need is to respond to Gasco's proposal for beneficial use of lease. The BLM's purpose is to minimize environmental impacts.

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

The proposed well(s) and related facilities would be in conformance with the Vernal Field Office RMP/ROD (BLM, 2008) and the terms of the lease. 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 and permits 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.

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.

### **1.3.1 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.

### **1.3.2 State and Local Laws and Statutes**

The proposed project is consistent with the *Uintah County General Plan, 2011-as amended* (Plan) that encompasses the location of the proposed wells. In general, the Plan indicates support for development proposals such as the Proposed Action through the Plan's emphasis on multiple-use public land management practices, responsible use and optimum utilization.

There are no comprehensive State of Utah plans for the vicinity of the Proposed Action. The State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby state 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.

## 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 PROPOSED ACTION

GASCO proposes to develop sections 17, 18, 20, 21 & 29 of T9S R19E by drilling 6 oil wells from 6 existing well pads. No new roads or pipelines would be built. No new Rights-of-ways are needed for this project. The proposed project area is located approximately 25 miles in a Southeast direction from Myton, Utah. **Table 2-1** lists the well pads by name, legal location and lease number. **Table 2-2** lists the well pads and their associated surface disturbances. Dry wells would be plugged and abandoned as per BLM and State of Utah requirements.

**Table 2-1 Well Pad and Well Names**

Well Name/Number	Legal Location	Lease Number
Federal 13-18G-9-19	NW/SW Sec. 18, T9S, R19E	UTU-16544
Federal 14-17G-9-19	SW/SW Sec. 17, T9S, R19E	UTU-16544
Federal 23-18G-9-19	NE/SW Sec. 18, T9S, R19E	UTU-16544
Federal 23-29G-9-19	NE/SW Sec. 29, T9S, R19E	UTU-76262
Federal 24-20G-9-19	SE/SW Sec. 20, T9S, R19E	UTU-75090
Federal 31-21G-9-19	NW/NE Sec. 21, T9S, R19E	UTU-78433

**Table 2-2 Surface Disturbance**

Well #	New Road*	Surface Pipeline	Power Line	Well Pad	Total Disturbance
13-18G-9-19	N/A	N/A	N/A	0.0 acre	0.0 acre
14-17G-9-19	N/A	N/A	N/A	0.0 acre	0.0 acre
23-18G-9-19	N/A	N/A	N/A	0.0 acre	0.0 acre
23-29G-9-19	N/A	N/A	N/A	0.0 acre	0.0 acre
24-20G-9-19	N/A	N/A	N/A	0.0 acre	0.0 acre
31-21G-9-19	N/A	N/A	N/A	0.0 acre	0.0 acre

\*18 ft. running surface

#### 2.2.1 Access

There would be no new construction of roads for this project. GASCO would be utilizing existing roads only. Construction Best Management Practices would be employed to control onsite and offsite erosion.

Existing roads consist of county and improved/unimproved access roads (two-tracks). In accordance with Onshore Order # 1 and Best Management Practices, GASCO would improve or maintain existing roads in a condition that is the same as or better than before operations began.

The existing roads would be maintained in a safe and useable condition. Maintenance for existing roads would continue until final abandonment and reclamation of well pads and/ or other facilities, as applicable. Road maintenance would include, but is not limited to, blading, ditching, and/or culvert installation and cleanout. To ensure safe operating conditions, gravel surfacing would be performed where excessive rutting or erosion may occur. Dust control would be performed as necessary to ensure safe operating conditions.

All vehicular traffic, personnel movement, construction/restoration operations would be confined to the approved area and to existing roadways and/or access routes.

Snow removal would be conducted on an as needed basis to accommodate safe travel. Snow removal would occur as necessary throughout the year, as would necessary drainage ditch construction. Removed snow may be stored on permitted well pads to reduce hauling distances and/or at the aerial extent of approved disturbance boundaries to facilitate snow removal for the remainder of the season.

### **2.2.2 Pipelines**

There would be no new pipelines associated with this project. Existing pipeline infrastructure would be utilized to collect and transport oil and fluids from the wells which are owned and operated by GASCO.

### **2.2.3 Water Supply**

GASCO uses recycled produced water from current operations and fresh water for drilling and completion operations would be obtained from Permit # 41-3530 Duchesne County Water Conservancy District Sec. 15, T2N, R22E. Water would be hauled to the location over the existing roads. No water wells would be drilled on leases UTU- 16544, 76262, 75090 & 78433.

### **2.2.4 Well Site Layout**

The six wells would use existing well locations; therefore no new disturbance is authorized. The location, orientation and aerial extent of each drill pad, reserve/completion/flare pit, access road ingress/egress pints, drilling rig, dikes/ditches, existing wells/infrastructure, proposed cuts and fills, and topsoil and spoil material stockpile locations are depicted on the exhibits for each project, where applicable.

Each well would utilize either a centralized tank battery, centralized fluids management system, or have tanks installed on the pad. Production/produced liquid tanks would be constructed, maintained, and operated to prevent unauthorized surface or subsurface discharges of liquids and to prevent livestock or wildlife entry. The tanks would be kept reasonably free from surface accumulations of liquid hydrocarbons. The tanks would not be used for disposal of liquids from additional sources without prior approval of the BLM.



GASCO will comply with the closed-loop drilling COA listed in the GASCO EIS for the 24-20G-9-19 and 31-21G-9-19 wells. For the other well pads, pits would be constructed to minimize the accumulation of surface precipitation runoff into the pit (via appropriate placement of subsoil storage areas and/or construction of berms and/or ditches, etc.). The pit would contain only de-watered drill cuttings. Should petroleum hydrocarbons unexpectedly be released into a pit, they would be removed as soon as practical but in no case would they remain longer than 72 hours unless an alternate is approved by the BLM. Siphons, catchments, and absorbent pads would be installed to keep hydrocarbons produced by the drilling rig or other equipment on location from entering the reserve pit. Hydrocarbons contaminated pads, and/or soils would be disposed of in accordance with state and federal requirements. In accordance with Onshore Order #7, Hydrocarbon removal would take place prior to the closure of the pit, unless authorization is provided for disposal via alternate pit closure methods (e.g. solidification).

The reserve and/or fracture stimulation pit would be lined with an impermeable synthetic material 16 mil or thicker. The bottom and side wall of the pit would be void of any sharp rocks that could puncture the liner. The liner would be installed over smooth fill subgrade that is free of pockets, loose rocks, or other materials (i.e. sand, sifted dirt, bentonite, straw, etc.) that could damage the liner. After evaporation and when dry, the reserve pit liners would be cut off, ripped and/or folded back (as safety considerations allow) as near to the mud surface as possible and buried on location or hauled to a landfill prior to backfilling the pit with a minimum of five feet of soil material.

Any additional pits necessary for subsequent operation, such as temporary flare or workover pits would be contained within the originally approved well pad and disturbance boundaries. Such temporary pits would be free of fluids within 90 days and backfilled and reclaimed within 180 days of completion of the work at the well location.

Pits containing drilling cuttings, mud, and/or completions fluids would be allowed to dry. In accordance with Onshore Order #7, any free fluids remaining after 90 days from date of completion, and /or determination of inactivity would be removed (as weather conditions allow) to an approved site and the pit reclaimed. Installation and operation of any sprinklers and associated pumps and equipment to facilitate evaporation would ensure that water spray or mist does not drift.

For the protection of livestock and wildlife, all open pits (excluding flare pits) would be fenced to prevent wildlife or livestock entry. Total height of pit fencing would be at least 42 inches and 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 post shall be used between the corner braces. Maximum distance between any two fence posts shall be no greater than 16 feet.

### **2.2.5 Methods for Handling Waste**

All wastes subject to regulation would be handled in compliance with applicable laws to minimize the potential for leaks or spills to the environment. GASCO also maintains a Spill Prevention, Control, and Countermeasure Plan, which includes notification requirements for all applicable state and federal governments, for all reportable spills of oil, produced liquids, and hazardous materials.

Any release, such as a leak or spill in excess of 10 gallons or more, as established by 40 CFR Part 117.3, would be reported as per the requirements of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 102 B. If a release involves petroleum hydrocarbons or produced liquids, GASCO would comply with the notification requirements of NTL-3A. Drill cuttings and/or drilling fluids would be contained in the reserve/frac pit. Cuttings would be buried in pit(s) upon closure. Unless specifically approved by the BLM, no oil or other oil-based drilling additives, chromium or other metal-based or saline muds would be used during drilling. Only fresh water (as specified above), biodegradable polymer soap, bentonite clay, and/or non-toxic additives would be used in the mud system.

Approved produced water disposal methods would be employed in accordance with Onshore Order #7 and/or as described in an approved Water Management Plan by the BLM. Revisions to the water source or method of transportation would be subject to written approval from the BLM. Any produced water from the proposed wells would be contained in a water tank and would then be hauled by truck to a State of Utah approved disposal site, such as Brennan Bottom.

No garbage or non-exempt substances as defined by Resource Conservation and Recovery Act (RCRA) subtitle C would be placed in the reserve pit. All refuse (trash and other solid waste including cans, paper, cable, etc.) generated during construction, drilling, completion, and well testing activities would be contained in an enclosed receptacle, removed from the drill operations promptly, and transported to an approved disposal facility. Immediately after removal of the drilling rig, all debris and other waste materials not contained within trash receptacles would be collected and removed from the well location.

Portable, self-contained chemical toilets and/or sewage processing facilities would be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks would be pumped and the contents disposed of in an approved sewage disposal facility. All applicable regulations pertaining to disposal of human and solid waste would be observed.

### **2.2.6 Materials Management**

Hazardous materials above reportable quantities would not be produced by drilling or completing proposed well(s) or constructing the pipelines/facilities. The term "hazardous materials" as used here means: (1) any substance, pollutant, or contaminant listed as hazardous under the CERCLA of 1980, as amended 42 U.S.C 9601 et seq., and the regulations issued under CERCLA; and (2) any hazardous waste as defined in RCRA of 1976, as amended. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing any well.

Hazardous materials may be contained in some grease or lubricants, solvents, acids, paint, and herbicides, among others as defined above. Gasco maintains a file, per 29 CFR 1910.1200(g) containing current Material Safety Data Sheets for all chemicals, compounds, and/or substances that are used during the course of construction, drilling, completion, and production operations for this project. The transport, use, storage, and handling of hazardous materials would follow procedures specified by federal and state regulations. Transportation of hazardous materials to the well locations is regulated by the Department of Transportation (DOT) under 49 CFR, Parts

171-180. DOT regulations pertain to the packing, container handling, labeling, vehicle placarding, and other safety aspects.

Potentially hazardous materials used in the development or operation of wells would be kept in limited quantities on well sites and at the production facilities for short periods of time. Chemicals meeting the criteria for being an acutely hazardous material/substance or meeting the quantities criteria per BLM Instruction Memorandum No. 93-334 would not be used.

Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) in quantities of 10,000 pounds or more may be produced and/or stored at production facilities and may be kept in limited quantities on drilling sites and well locations for short periods of time during drilling or completion activities.

### **2.2.7 Weed Control**

All weed management would be done in accordance with the Vernal BLM Surface Disturbance Weed Policy. Noxious weeds would be controlled, as applicable, on project areas. Monitoring and management of noxious and/or invasive weeds of concern would be completed annually until the project is deemed successfully reclaimed by the surface management agency. Noxious weed infestations would be mapped using a GPS unit and submitted to the BLM with information required in the Vernal BLM Surface Disturbance Weed Policy. If herbicide is to be applied it would be done according to an approved Pesticide Use Proposal, inclusive of the applicable locations. All pesticide application would be recorded using a Pesticide Application Record and would be submitted along with a Pesticide Use Report annually prior to December 31.

### **2.2.8 Reclamation**

#### ***2.2.8.1 Interim Reclamation***

Interim reclamation would be implemented on areas of the well pad that are not required for production activities. Interim reclamation would include pit evaporation, fluid removal, pit solidification, re-contouring, ripping, spreading top soil, seeding, and weed control, in accordance with Onshore Order #1. If protocols differ, written notification would be provided to the Authorizing Officer for approval.

Interim re-contouring involves bringing all construction material from cuts and fills back onto the well pad and site where possible, and reestablishing the natural contours where desirable and practical. Fill and stockpiled soil no longer necessary to the operation would be spread on the cut slopes and covered with stockpiled topsoil. All stockpiled top soils shall be used for interim reclamation where practical to maintain soil viability. Seed mixes approved by the BLM authorizing officer will be applied.

#### ***2.2.8.2 Final Reclamation***

Final reclamation would be performed for unproductive wells and after the end of the life of a productive well. As soon as practical after the conclusion of drilling and testing operations, unproductive drill holes would be plugged and abandoned. Site and road reclamation would commence following plugging. In no case would reclamation at non-producing locations be initiated later than six (6) months from the date a well is plugged. A joint inspection of the

disturbed area to be reclaimed may be requested by GASCO. The primary purpose of this inspection would be to review the existing conditions, or agree upon a revised final reclamation and abandonment plan. The BLM would be notified prior to commencement of reclamation operations. A Notice of Intent to abandon would be filed for final recommendations regarding surface reclamation. Within 30 days following completion of well plugging, the operator must file a subsequent report of Plug and Abandonment.

After plugging, all wellhead equipment that is no longer needed would be removed, and the well site would be reclaimed. Final contouring would blend with and follow as closely as practical the natural terrain and contours of the original site and surrounding areas. The entire surface of the well site and access road would be ripped and graded to a depth of 18 to 24 and disked to a depth no greater than 6 inches. The surface soil material would be pitted with small depressions to form longitudinal depressions 12 to 18 inches deep, where practical. The entire area would be uniformly covered with depressions constructed perpendicular to the natural follow of water.

Reclamation of roads would be performed at the discretion of the BLM. All unnecessary equipment and structures (e.g. cattle guards) and water control structures (e.g. culverts, drainage pipes) not needed to facilitate successful reclamation would be removed during final reclamation. Roads would be ripped to a depth of 18 inches where practical, re-contoured to approximate the original contour of the ground and seeded in accordance with seeding specifications of the BLM (Table 2-3). Upon successfully completing reclamation of a P&A location, a Final Abandonment Notice would be submitted to the BLM.

Seeding would occur according to the Green River District Guidelines and would typically use a seed driller with a “picker box” in order to properly distribute heavy and light seeds. Where drill seeding is not the preferred method, seed would be broadcast and then raked into the ground at the double the rate of drill seeding. All seed would be certified and tags would be maintained by GASCO. Every effort would be made to obtain “cheat grass free seed”.

**Table 2-3 Interim Reclamation Seed Mix**

<b>Seed</b>	<b>Rate</b>
Indian Ricegrass (Nezpar)	3.00 lbs/acre
Sandberg Bluegrass	0.75 lbs/acre
Bottlebrush Squirreltail	1.00 lbs/acre
Great Basin Wildrye	0.50 lbs/acre
Crested Wheatgrass (Ephraim)	1.50 lbs/acre
Winterfat	0.25 lbs/acre
Shadscale	1.50 lbs/acre
Fourwing Saltbrush	0.75 lbs/acre
Forage Kochia	0.25 lbs/acre
<b>Total</b>	<b>9.50 lbs/acre</b>

Additional soil amendments and/or stabilization may be required on sites with poor soils and/or excessive erosion potential. Where severe erosion can become a problem and/or the use of machinery is not practical, seed would be hand broadcast and raked with twice the specified amount of seed. Slopes would be stabilized using materials specifically designed to prevent erosion on steep slopes and hold seed in place so vegetation can become permanently

established. These materials would include, but are not limited to: erosion control blankets, hydro-mulch, and/or bonded fiber matrix at a rate to achieve a minimum of 80 percent soil coverage. Soil amendments such as “Sustain” (an organic fertilizer that would be applied at the rate 1,800-2,100 lbs/acre with seed) may also be dry broadcast or applied with hydro-seeding equipment.

### **2.2.8.3 Monitoring**

Monitoring of the reclaimed project area would be completed annually during the growing season and actions to ensure reclamation success would be taken as needed. During the first two growing seasons an ocular methodology would be used to determine the success of the reclamation activities. During the 3<sup>rd</sup> growing season a 200 point line intercept (quantitative) methodology would be used to obtain base cover.

The goal is to have the reclaimed area reach 30% basal cover when compared to the reference site. If after three growing season the area has not reached 30% basal cover, additional reclamation activities may be necessary. Monitoring would continue until the reclaimed area reaches 75% basal cover of desirable vegetation when compared to the reference site in accordance with the Green River District Reclamation Guidelines.

All monitoring reports would be submitted electronically to the Vernal BLM in the form of a geo-database no later than March 1<sup>st</sup> of the calendar year following the data collection.

## **2.3 NO ACTION ALTERNATIVE**

Under the No Action Alternative, GASCO would not drill the 6 proposed wells in Sections 17, 18, 20, 21 & 29 of T9S R19E., Uintah County, Utah as proposed in this EA.

### **3.0 AFFECTED ENVIRONMENT**

#### **3.1 INTRODUCTION AND GENERAL SETTING**

The affected environment of the Proposed Action and No Action Alternatives were considered and analyzed by an interdisciplinary team, as documented in the Interdisciplinary Team Analysis Record Checklist (Appendix B). 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.

The proposed wells would be located in the 8 Mile Flat area of the BLM's Vernal Field Office (VFO). Mineral extraction activities, transportation corridors, livestock grazing, and erosion have historically affected the project area. The project area is defined as Sections 17, 18, 20, 21 & 29 of T9S R19E. The project boundary has been previously disturbed by the construction of roads and well locations.

#### **3.2 AIR QUALITY AND GREENHOUSE GASES**

##### **3.2.1 Climate**

The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions and limited precipitation. The Uinta Basin is subject to abundant sunshine and rapid nighttime cooling. Wide seasonal temperature variations typical of a mid-continental climate regime are also common. Refer to Section 3.2 in the Gasco Final EIS (BLM 2012a) for additional information on climate in the region.

##### **3.2.2 Air Quality**

Existing point and area sources of air pollution within the Uinta Basin include the following: Exhaust emissions (primarily carbon monoxide [CO], nitrogen oxides [NO<sub>x</sub>], particulate matter less than 2.5 microns in diameter [PM<sub>2.5</sub>], and hazardous air pollutants [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 volatile organic compounds (VOCs), NO<sub>x</sub>, CO, sulfur dioxide [SO<sub>2</sub>], particulate matter less than 10 microns in diameter [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.

The Uinta Basin is designated as unclassified/attainment by the Environmental Protection Agency (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 to protect 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>), SO<sub>2</sub>, nitrogen dioxide (NO<sub>2</sub>), CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. Airborne particulate matter (PM) 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. Regional Ambient Air Quality Background Values**

Pollutant	Averaging Period	Year	Concentration (µg/m <sup>3</sup> )	Applicable NAAQS <sup>1</sup> (µg/m <sup>3</sup> )
NO <sub>2</sub>	1-hour	2009/2010	69.6 <sup>2</sup>	188.0
		2010/2011	52.7 <sup>2</sup>	
		2009/2010	58.3 <sup>3</sup>	
		2010/2011	60.2 <sup>3</sup>	
	Annual	2009/2010	9.0 <sup>2</sup>	100.0
		2010/2011	6.8 <sup>2</sup>	
		2009/2010	7.8 <sup>3</sup>	
		2010/2011	8.1 <sup>3</sup>	
CO	1-hour	2004	6,210	40,000
		2005	6,325	
		2006	6,325	
	8-hour	2004	3,680	10,000
		2005	3,910	
		2006	3,450	
SO <sub>2</sub>	1-hour	2007	21.7	197
		2008	19.7	
		2009	19.0	
	3-hour	2007	16.0	1,300
		2008	16.7	
		2009	10.1	
	24-hour	2007	5.9	6
		2008	-	
		2009	3.9	
	Annual	2007	1.5	6
		2008	1.5	
		2009	0.8	
PM <sub>10</sub>	24-hour	2004	14.0	150
		2005	18.0	
		2006	16.0	
	Annual	2004	5.0	7
		2005	7.0	
		2006	7.0	
PM <sub>2.5</sub>	24-hour	2009/2010	19.5 <sup>2</sup>	35.0
		2010/2011	23.6 <sup>2</sup>	
		2009/2010	16.3 <sup>3</sup>	
		2010/2011	17.8 <sup>3</sup>	
	Annual	2009/2010	7.3 <sup>2</sup>	15.0
		2010/2011	12.3 <sup>2</sup>	

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

Pollutant	Averaging Period	Year	Concentration ( $\mu\text{g}/\text{m}^3$ )	Applicable NAAQS <sup>1</sup> ( $\mu\text{g}/\text{m}^3$ )
Ozone	8-hour	2009/2010	6.3 <sup>3</sup>	75 <sup>5</sup>
		2010/2011	9.4 <sup>3</sup>	
		2009/2010	117.0 <sup>2,5</sup>	
		2010/2011	116.0 <sup>2,5</sup>	
		2009/2010	98.0 <sup>3,5</sup>	
		2010/2011	100.0 <sup>3,5</sup>	

<sup>1</sup>Source: Environmental Protection Agency (EPA) Air Quality System data archives website, 2010, Utah Department of Air Quality (UDAQ) 2010.

<sup>2</sup>Ouray Monitoring Station Data (EPA AQS Database). 2009/2010 data period = 7/30/09 to 6/30/2010. 20010/2011 period = 7/1/2010 to 6/30/2011.

<sup>3</sup>Redwash Monitoring Station Data (EPA AQS Database). 2009/2010 data period = 7/30/09 to 6/30/2010. 20010/2011 period = 7/1/2010 to 6/30/2011.

<sup>4</sup>Wamsutter Monitoring Station Data (EPA AQS Database).

<sup>5</sup>Ozone is measured in parts per billion (ppb).

<sup>6</sup>The 24-hour and annual SO<sub>2</sub> NAAQS have been revoked and replaced with the 1-hour standard (75 FR 35520-35603, June 22, 2010).

<sup>7</sup>The annual PM<sub>10</sub> NAAQS of 50  $\mu\text{g}/\text{m}^3$  was revoked by EPA on September 21, 2006. See FR Volume 71, Number 200, October 17, 2006.

Two year-round air quality-monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). The monitors were certified as Federal Reference Monitors in fall of 2011. These monitors can be used to make NAAQS compliance determinations. 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 and 2011). 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 Volatile Organic Compounds (VOCs)), can create intense episodes of ozone. This phenomenon has also been observed in similar locations in Wyoming. It did not occur in January through March 2012 due to lack of snow cover. 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 replicate winter ozone formation reliably. 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 season, 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.



Hazardous Air Pollutants (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. Refer to Section 3.2 in the Gasco Final EIS (BLM 2012a) for additional information on air quality conditions relevant to the Project Area.

### **3.2.3 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 National Oceanic and Atmospheric Administration (NOAA) and *National Aeronautics and Space Administration (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 2009 analysis of the Regional Climate Impacts prepared by the U.S. Global Change Research Program (USGCRP) 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. Refer to Section 3.2.3.1.5 in the Gasco Final EIS (BLM 2012a) for more information on climate change.

## **3.3 INVASIVE PLANTS/NOXIOUS WEEDS, SOILS, AND VEGETATION**

Soils are clay loams with a very low percentage of rock. The terrain is low rolling hills, with the well pads located on hilltops and in valleys. The vegetation noted during the onsite include: consists of a mixture of grasses, forbs, and shrubs: black greasewood, scarlet globemallow, Wyoming big sage, galleta grass, prickly pear cactus, mat saltbush, horsebrush, broom snakeweed, squirreltail grass, yellow rabbitbrush, cheatgrass, Russian thistle and halogeton.

## **3.4 PLANTS: THREATENED, ENDANGERED, PROPOSED, OR CANDIDATE**

### **3.4.1 Uinta Basin hookless cactus (*Sclerocactus wetlandicus*)**

Uinta Basin hookless cactus is a perennial herb and a member of the cactus family. It is federally listed as threatened and is endemic to the Uinta Basin. It consists of a perennial succulent shoot, solitary or rarely branching, globose, ovoid or cylindrical. Individuals are usually 3 to 9 centimeters in diameter and 4 to 12 centimeters tall. Each spine cluster, areoles,

usually consists of one large (15 to 29 millimeters) central spine, three to four lateral central spines and six to ten radial spines. From late April to May, Uinta Basin hookless cactus produces 2.5 to 5-centimeter high pink to violet flowers.

The ecological amplitude of Uinta Basin hookless cactus is wide, being found from clay badlands up to the pinyon-juniper habitat. The preferred habitat occurs on river benches, valley slopes, and rolling hills consisting of xeric, fine textured, clay soils, derived from the Duchesne River, Green River, Mancos, and Uinta formations, overlain with a pavement of large, smooth, rounded cobble. The typical plant community in Uinta Basin hookless cactus habitat is the salt desert shrub community.

The proposed project is located entirely within an area that the US Fish and Wildlife Service (USFWS) has identified as being potential habitat Uinta Basin hookless cactus. During September 2011 and April 2012, SWCA Environmental Consultants surveyed the proposed project to a distance of 300 feet from the edge of the proposed surface disturbance. During these surveys no plants were identified.

### 3.5 WILDLIFE: MIGRATORY BIRDS INCLUDING RAPTORS

All raptors, mountain plovers, migratory birds, and their nests are protected from take or disturbance under the Bald Eagle and Golden Eagle Protection Act (BEGEPA) of 1940 (16 U.S.C., 668-668d, 54 Stat. 250) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C., 703 et seq.). These laws were implemented for the protection of avian species. Unless permitted by regulations, it is unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any species covered under these Acts. In addition, Executive Order 13186 sets forth the responsibilities of federal agencies to further implement the provisions of these Acts 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 protected avian species.

31-21G-9-19 is within the buffer of an unknown nest type. In recent years, burrowing owls have also been observed foraging and nesting in areas adjacent to the proposed 13-18G-9-19 and 23-18G-9-19. The 13-18G-9-19 and 23-18G-9-19 are also within known nesting habitat for mountain plover.

Migratory bird species commonly associated with the sagebrush-steppe community that may inhabit the project area are identified in **Table 3-2**. Those species classified as High-Priority birds by Utah Partners in Flight (Parrish et al 2002) are denoted by an asterisk (\*). Without conducting comprehensive migratory bird surveys, it is not known if these species are present or not. Species listed below are based on GIS reviews, and a field review during onsite inspections.

**Table 3-2 Migratory Bird Species Commonly Associated with the Sagebrush-steppe Community<sup>1</sup>**

Common Name	Scientific Name
Mountain bluebird*	<i>Sialia currucoides</i>
Grasshopper sparrow*	<i>Ammodramus savannarum</i>
Brewer's sparrow*	<i>Spizella breweri</i>
Sage sparrow*	<i>Amphispiza belli</i>
Sage thrasher*	<i>Oreoscoptes montanus</i>

Table 3-2 Migratory Bird Species Commonly Associated with the Sagebrush-steppe Community<sup>1</sup>

Common Name	Scientific Name
Green-tailed towhee*	<i>Pipilo chlorurus</i>
Horned lark	<i>Eremophila alpestris</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Western kingbird	<i>Tyrannus verticalis</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Western meadowlark	<i>Sturnella neglecta</i>

<sup>1</sup>Source: Parrish et al 2002

\*Utah Partners-in-Flight (UPIF) priority bird species.

### 3.6 WILDLIFE: NON-USFWS DESIGNATED

#### 3.6.1 White-tailed Prairie Dog

The white-tailed prairie dog (WTPD) is a Wildlife Species of Concern throughout Utah. The main threat to WTPD populations has been the introduction of sylvatic plague. Other threats include habitat loss, conversion of land to agriculture, and federal and state sponsored eradication campaigns. Recreational shooting pressure is capable of reducing prairie dog numbers on a local scale, in conjunction with outbreaks of sylvatic plague. Active colonies are located on and adjacent to 13-18G-9-19 and 23-18G-9-19.

#### 3.6.2 Special Status Fish

This project would remove water from the Green River or White River in order to drill the wells and hydrostatically pressure test the pipelines. There are three special status fish species that are endemic to the Colorado River Basin, including the Green River: roundtail chub (*Gila robusta*), flannelmouth sucker (*Catostomus latipinnis*), and bluehead sucker (*Catostomus discobolus*). 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.

### 3.7 WILDLIFE: THREATENED, ENDANGERED, PROPOSED OR CANDIDATE

#### 3.7.1 Colorado River Fish Species

This project would remove water for the Green River or White River in order to drill the wells and hydrostatically pressure test the pipelines. The U.S. Fish and Wildlife Service (USFWS) has identified four federally listed fish species historically associated with the Upper Colorado River Basin, including the Green River, as being within the project area: Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). 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).

## 4.0 ENVIRONMENTAL IMPACTS

### 4.1 INTRODUCTION

The potential direct, indirect, and cumulative impacts from Alternative A (the Proposed Action) and Alternative B (No Action Alternative) are discussed in the following sections of Chapter 4.

### 4.2 PROPOSED ACTION DIRECT AND INDIRECT IMPACTS

#### 4.2.1 Air Quality and Greenhouse Gases

##### 4.2.1.1 Air Quality

The BLM conducted a comprehensive air quality analysis as part of the Gasco Final EIS (BLM 2012a). The air quality analysis incorporated the planned Gasco development and a prepared set of emissions data for project modeling, including project development alternatives and reasonably foreseeable development. Those emissions data were incorporated into the modeling system for the project base year, and used to predict potential impacts on visibility, acid deposition, and air quality, including ozone. The analysis identified potential impacts on resources and characterizes the major source or source groups that contribute to those impacts. Under the selected alternative in the Gasco ROD (BLM 2012b) infill development in the Gasco PA is not expected to result in exceedences of NAAQS. Refer to Section 4.2 in the Gasco Final EIS (BLM 2012a) for more information on potential air quality impacts.

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**. 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.

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

Pollutant	Development	# of Wells	Total for Development	Production	# of Wells	Total for Production	Total
NO <sub>x</sub>	3.8	6	22.8	0.12	58	6.96	29.76
CO	2.2	6	13.2	0.11	58	6.38	19.58
VOC	0.1	6	0.6	4.9	58	284.2	284.8
SO <sub>2</sub>	0.005	6	0.03	0.0043	58	0.2494	0.2794
PM <sub>10</sub>	1.7	6	10.2	0.11	58	6.38	16.58
PM <sub>2.5</sub>	0.4	6	2.4	0.025	58	1.45	3.85
Benzene	0.0022	6	0.0132	0.044	58	2.552	2.5652
Toluene	0.0016	6	0.0096	0.103	58	5.974	5.9836
Ethylbenzene	0.00034	6	0.00204	0.005	58	0.29	0.29204
Xylene	0.0011	6	0.0066	0.076	58	4.408	4.4146

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

Pollutant	Development	# of Wells	Total for Development	Production	# of Wells	Total for Production	Total
n-Hexane	0.00017	6	0.00102	0.145	58	8.41	8.41102
Formaldehyde	0.013	6	0.078	0.00008645	58	0.0050141	0.0830141

<sup>1</sup> Emissions include 6 producing well 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. Small amounts of HAPs are emitted by construction equipment. 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. The primary sources of HAPs are from oil storage tanks. Road dust (PM<sub>10</sub> and PM<sub>2.5</sub>) would also be produced by vehicles servicing the wells.

#### **4.2.1.2 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.

#### **4.2.1.3 Mitigation Measures**

The BLM did not identify any additional site-specific mitigation measures during preparation of this EA beyond those listed in Appendix B Table B-2 of the Gasco ROD (BLM 2012b).

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

Direct and indirect impacts to soils and vegetation include mixing of soil horizons, soil compaction, short-term loss of topsoil and site productivity, loss of soil/topsoil through erosion, clearing of vegetation, invasion and establishment of introduced, undesired plant species. Loss of soil/topsoil in disturbed areas would reduce the re-vegetation 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. The severity of these invasions would depend on the success of reclamation and re-vegetation, and the degree and success of noxious weed control efforts.

Under the Proposed Action, reclamation would occur on 100 percent of the pit disturbance. Existing 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.

#### **4.2.2.1 Mitigation Measures**

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

#### **4.2.3 Plants: Threatened, Endangered, Proposed, or Candidate**

##### **4.2.3.1 Uinta Basin hookless cactus (*Sclerocactus wetlandicus*)**

As there are no individuals within the proposed surface disturbance area, no direct physical damage will occur to Uinta Basin hookless cactus individuals as a result of the Proposed Action.

Possible dispersed direct and indirect negative impacts which may result from implementation of the Proposed Action include: loss of suitable habitat, habitat modification by invasive weed species which may compete with individuals, accidental spray or drift of herbicides used during invasive plant control, and the deposition of fugitive dust vehicle traffic on unpaved roads. Due to these indirect negative impacts the Proposed Action warrants a **“may affect, is not likely to adversely affect”** determination for Uinta Basin hookless cactus. The proposed project falls within the scope of the Section 7 consultation conducted for the Gasco Natural Gas Field Development EIS, therefore, consultation is completed for this project.

##### **4.2.3.2 Discovery Stipulation**

Reinitiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for Uinta Basin hookless cactus is anticipated as a result of project activities.

#### **4.2.4 Wildlife: Migratory Birds Including Raptors**

Implementation of the Proposed Action would have minimal impacts to mountain plover, raptors or migratory bird species as there is no new disturbance. Impacts would be short term and would occur during drilling and until reclamation efforts are successful in accordance with the Reclamation Plan. Other potential impacts to raptors and migratory bird species could include: poaching, collisions with vehicles, and indirect disturbance from human activity (including harassment, displacement, and noise). If activities occur in the spring during the nesting season of most migratory birds, impacts would be greater than if development occurred late summer through late winter. Impacts during the spring could include nest abandonment, reproductive failure, displacement, and destruction of nests. However, as raptor stipulations identified below would be applied in areas of documented raptor nesting these impacts would be minimized or completely mitigated.

##### **4.2.4.1 Mitigation Measures**

The proposed 13-18G-9-19 and 23-18G-9-19 are within 0.25 mile of burrowing owl habitat. If drilling is proposed from March 1-August 31, then a nesting survey will be conducted by a qualified biologist according to protocol. If no nests are located, then permission to proceed may be granted by the BLM Authorized Officer. If a nest is located, then the timing restriction will remain in effect.

The proposed 13-18G-9-19 and 23-18G-9-19 are within mountain plover habitat. If drilling is proposed from May 1 to June 15, then a survey will be conducted by a qualified biologist. Permission to proceed may be granted in accordance with the "USFWS Mountain Plover Survey Guidelines (March 2002) protocol.

#### **4.2.5 Wildlife: Non-USFWS Designated**

##### ***4.2.5.1 White-tailed Prairie Dog***

Under the Proposed Action, the Proposed Action could potentially increase mortality of WTPD's as project activities would increase both traffic and visitation to the project area. In addition to direct human-caused mortality, WTPD's could also be affected through exposure to spills or other sources of petroleum products. As traffic volumes and project-related activities increase, adjacent habitats may be avoided due to human presence and noise. Habitat quality for these species can also be degraded by the introduction of noxious and invasive weeds. 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 burrow development. Reclamation efforts as identified in the Reclamation Plan would help minimize or mitigate these impacts.

##### ***4.2.5.2 Special Status Fish***

The analysis for the three special status fish species excluding USFWS designated species is the same as the analysis for threatened, endangered or candidate animal species(see below); therefore, the same mitigation measures apply. It is not anticipated that the proposed action would result in the listing any fish species.

#### **4.2.6 Wildlife: Threatened, Endangered, Proposed or Candidate**

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

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.

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 flow regimes that favor nonnative fishes.

The potential exists for water intake structures placed in the Upper Colorado River Drainage System (flowing rivers and streams) to result in mortality to eggs, larvae, young-of-the-year, and juvenile life stages. BLM and their applicants would minimize this potential by following the conservation measures listed below. Key habitat components for foraging or cover may be removed or altered due to equipment, including decreased water quantity for aquatic species from dewatering during low flow periods.

The proposed action would result in a water depletion based on removal of water from the Upper Colorado River Drainage System for construction and drilling operations. Therefore, the proposed action will have a *“may affect, likely to adversely affect”* determination for the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. The proposed project is within the scope of the Final Biological Opinion of the Kerr McGee Oil & Gas Onshore LP’s proposed Greater Natural Buttes Environmental Impact Statement/Biological Assessment. Therefore, consultation for depletion on this project has already been completed.

#### **4.2.6.2 Conservation Measures**

- The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a BLM and Service approved location is best.
- If the pump head is located in the river channel where larval fish are known to occur, the following measures apply:
  - a. do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval fishes;
  - b. limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (April 1 to August 31); and
  - c. limit the amount of pumping, to the greatest extent possible, during the pre-dawn hours as larval drift studies indicate that this is a period of greatest daily activity.
- Screen all pump intakes with 3/32 inch mesh material.
- Approach velocities for intake structures will follow the National Marine Fisheries Service’s document “Fish Screening Criteria for Anadromous Salmonids”. For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity will not exceed 0.33 feet per second (ft/s).
- Report any fish impinged on the intake screen to the Service (801.975.3330) and the Utah Division of Wildlife Resources:
  - Northeastern Region
  - 318 North Vernal Ave, Vernal, UT 84078
  - Phone: (435) 781-9453

### **4.3 NO ACTION ALTERNATIVE DIRECT AND INDIRECT IMPACTS**

#### **4.3.1 Air Quality and Green House Gases**

Under the No Action Alternative, Gasco would not drill the proposed gas wells or develop the associated pipelines and infrastructure. Effects on ambient air quality would continue at present levels from existing oil and gas development in the region and other emission producing sources. Refer to Section 4.2 in the Gasco Final EIS (BLM 2012a) for additional information on potential air quality impacts under the No Action Alternative.

#### **4.3.2 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 activities associated with proposed action. Invasive plants/noxious weeds would remain at current levels. 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, fishing bird watching, and sightseeing.

#### **4.3.3 Plants: Threatened, Endangered, Proposed, or Candidate**

##### ***4.3.3.1 Uinta Basin hookless cactus (Sclerocactus wetlandicus)***

Under the No Action Alternative, there would be no direct disturbance or indirect effects to Uinta Basin hookless cactus or its associated habitat. The current well pads with their existing weeds would continue to exist. Weed control would be implemented as specified in the existing well approval. Current land use trends in the area would continue, including increased industrial development, increased off-highway vehicles (OHV) traffic, and increased recreation use.

#### **4.3.4 Wildlife: Migratory Birds Including Raptors**

Under the no action alternative, there would be no direct disturbance or indirect effects to mountain plovers, burrowing owls, or other raptors and migratory birds. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sightseeing.

#### **4.3.5 Wildlife: Non-USFWS Designated**

##### ***4.3.5.1 White-tailed Prairie Dog***

Under the no action alternative, there would be no direct disturbance or indirect effects to white tailed prairie dog. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sightseeing.

##### ***4.3.5.2 Special Status Fish***

Under the no action alternative, there would be no direct disturbance or indirect effects to special status fish species. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sightseeing.

#### **4.3.6 Wildlife: Threatened, Endangered, Proposed or Candidate**

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

Under the no action alternative, there would be no direct disturbance or indirect effects to threatened, endangered, or candidate, species from the proposed wells. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sightseeing.

### **4.4 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 would be defined in the section for each individual resource.

#### 4.4.1 Air Quality and Green House Gases

The CIAA for air quality is the Uinta Basin, which is bounded by higher terrain on all sides, which results in similar climate and dispersion conditions for pollutants in the CIAA. 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 Air Quality Technical Support Document, which is the most recent regional air model information available for the Uinta Basin, and the Greater Natural Buttes (GNB) Final EIS (BLM 2012c) section 4.18.3.1, are incorporated by reference and summarized below. The GNB Final EIS (BLM 2012a) 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 6 summarizes the 2006 Uinta Basin emissions as well as the incremental impact of this project's alternatives. As indicated in **Table 4-3**, the Proposed Action comprises a small percentage of the Uinta Basin emissions summary.

**Table 4-3. 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	29.76	19.58	0.2794 SO <sub>2</sub>	3.85 - PM <sub>2.5</sub> 16.58 - PM <sub>10</sub>	284.8
No Action	0	0	0	0	0

Source: 2012 Greater Natural Buttes Final EIS Table 5.3-1.

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 were anticipated;
- Less than 1 percent would be contributed to the acid deposition in Class I areas, and 4.3 percent at the Flaming Gorge Class II area;
- Acid deposition impacts at sensitive lakes would be below the USFS screening threshold; and,
- Ozone levels would be below the current ozone standard of 75 parts per billion (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.

#### **4.4.2 Invasive Plants/Noxious Weeds, Soils, and Vegetation**

The cumulative impacts for this proposed action are the same as the cumulative impacts analyzed in Section 4.18.3.12 of the Gasco EIS and include the introduction or spread of noxious weeds under both alternatives. The Proposed Action would not add new surface disturbance. The No Action Alternative would not result in an accumulation of impacts.

#### **4.4.3 Plants: Threatened, Endangered, Proposed, or Candidate**

##### ***4.4.3.1 Uinta Basin hookless cactus (Sclerocactus wetlandicus)***

The Cumulative Impact Area is the area delineated by the USFWS as potential habitat for Uinta Basin hookless cactus, which covers approximately 540,030 acres on BLM, Ute tribal, State of Utah, and privately held lands. Cumulative impacts include dust impacts to plants, and plant and pollinator habitat destruction. Surface disturbance is a good indicator of the extent of these cumulative impacts.

Within the CIAA, there are eight active approved field development NEPA documents, Newfield Production Company's Castle Peak and Eightmile Flat Oil and Gas Expansion EIS (40,475 acres of 64,000 acre project in CIAA), EOG Resources, Inc. North Chapita Natural Gas Well Development Project EA (7,785 acres of the 10,920 acre project area is in the CIAA), Enduring Resources, LLC's West Bonanza Area Natural Gas Well Development Project EA (263 acres of the 24,813 acre project area is in the CIAA), Gasco Production Company's Natural Gas Field Development EIS (102,389 acres of the 236,165 acre project area is in the CIAA), Kerr-McGee Oil & Gas Onshore LP's Greater Natural Buttes Project EIS (88,882 acres of the 162,911 acre project area is in the CIAA), QEP Energy Company's Greater Deadman Bench Oil and Gas Producing Region EIS (10,585 acres of the 98,785 acre project area is in the CIAA), EOG Resources, Inc. Chapita Wells-Stagecoach EIS (18,489 acres of the 31,872 acre project area is in the CIAA), and Bill Barrett Corporation's West Tavaputs Plateau Natural Gas Full Field Development Plan EIS (26,045 acres of the 137,930 acre project area is in the CIAA). In total approximately 24,208 acres of surface disturbance was authorized across the analysis areas of these documents. If the disturbance is relatively uniform throughout these project areas, then approximately 10,339 acres of surface disturbance has occurred or will occur within the CIAA (1.9% of the CIAA).

Within the CIAA there also are numerous oil and natural gas wells that do not tie to either of these NEPA documents. As of 6/25/2012, there are 548 abandoned oil and gas locations outside of the scope of the field development documents. Using the assumption contained within the Greater Uinta Basin Cumulative Impacts Technical Support Document, 2,791 acres of the CIAA were disturbed some point in the past and are in various stages of reclamation (0.5% of the CIAA). There are currently 4,415 well pads that serve as platforms for actively producing wells

not permitted under these documents. Using the above assumption, this has resulted in 18,254 acres of surface disturbance (3.4% of the CIAA). Finally, 380 wells are currently proposed that do not tier to these documents that will result in 1,638 acres of surface disturbance (0.3% of the CIAA).

Currently proposed field developments, if all approved as proposed (either the estimated disturbance presented in the agency preferred alternative, in the applicant proposed alternative if the agency preferred alternative has not been selected, or an estimate of 5-acres of disturbance per well if an estimate is not yet available) would result in 25,472 acres of surface disturbance throughout the entirety of the project areas. If it assumed that disturbance would be relatively uniform throughout, then there will be about 11,232 acres of disturbance with the CIAA due the projects (2.1% of the CIAA). Thus, in total 44,254 acres (8.2% of the CIAA) have been or will be disturbed within the CIAA due to energy development activities. Within the CIAA, there are approximately 1,903 miles of roads. The Proposed Action would add not add new surface disturbance. The No Action alternative would not result in an additional accumulation of impacts.

Due to inclusions of areas of unsuitable habitat within the potential habitat area, the total acreage of suitable habitat is less than 540,030 acres. However, a complete survey of suitable habitat has not been performed and thus the amount of suitable habitat has not been quantified. Impacts to the species from past, current, and reasonably foreseeable actions may be greater or smaller than those described for the total area depending upon the exact distribution of actions relative to suitable habitat.

#### **4.4.4 Wildlife: Non-USFWS Designated; Migratory Birds and Raptors; and Threatened, Endangered, or Candidate Species**

The CIAA is the Vernal RMP area. Cumulative impacts are incorporated by reference to section 4.18.3.15 of the Gasco EIS. Cumulative impacts include decreased available cover, carrying capacity, foraging opportunities, breeding habitat, and habitat productivity for white-tailed prairie dog, mountain plover, burrowing owl, and migratory birds. 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 not add new surface disturbance. The No Action Alternative would not result in an accumulation of impacts.

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

The CIAA for this resource is the Colorado River system. Cumulative impacts are incorporated by reference to Section 4.18.3.11 of the Gasco EIS. 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. The Proposed Action would add 10.5 acre-feet for the drilling and completion of all 6 wells. The No Action Alternative would not result in an accumulation of impacts.

## 5.0 CONSULTATION AND PUBLIC INVOLVEMENT

### 5.1 CONSULTATION

#### 5.1.1 Endangered Species Act Section 7

Formal Section 7 consultation was completed for Gasco EIS by the US Fish and Wildlife Service and the Bureau of Land Management, Vernal Field Office. On December 22, 2011 a Biological Opinion was received that concurred with the “*may affect, likely to adversely affect*” determination for the four Colorado River fish and their designated critical habitat and for *Sclerocactus wetlandicus* (Uinta Basin hookless cactus). This project falls within the scope of the EIS consultation, therefore consultation for the water depletion impacts to the four Colorado River fish and their designated critical habitat and for *Sclerocactus wetlandicus* is complete.

#### 5.1.2 National Historic Preservation Act Section 106

Consultations with the Utah State Historic Preservation Office were initiated on July 31, 2012, with the BLM determination of No Historic Properties Affected. SHPO Concurred with the BLM’s determination on August 8, 2012.

#### 5.1.3 Native American Tribes

Tribal consultations were conducted under the Greater Monument Butte EIS in December of 2010. No Traditional Cultural Properties are identified within the area of potential effect. The proposed project will not hinder access to or use of Native American religious sites.

### 5.2 PUBLIC INVOLVEMENT

#### 5.2.1 Summary of Public Participation

The Proposed Action was posted to the Utah BLM’s Environmental Notification Bulletin Board on 8/23/2012. A 15- day public comment period was held from October 25, 2012 through November 9, 2012. One public comment letter was received from Southern Utah Wilderness Alliance. Comments and responses are included in the following table.

Table 5-1. Comments and Responses

Comment	Response
Air Quality Expert Identifies Deficiencies in the Gasco EIS.	This comment is redundant to comments made on the Gasco DEIS and FEIS, and were previously responded to in Appendix P of the Gasco FEIS and Table 4 of the Gasco ROD.
BLM’s NEPA Requirement to Consider Air Quality Impacts.	This comment cites several case laws but fails to identify any substantive deficiencies in the Gasco EA.
Ozone Background	This comment is background information on ozone that fails to identify any substantive deficiencies in the Gasco EA
The BLM has long known that ozone pollution is a problem in the Uinta Basin	This comment alleges that BLM approves development without meaningfully addressing ozone. However, an adaptive management plan was developed in the Gasco FEIS which incorporates the best available mitigation measures as well as strategies for response to future ozone NAAQS

Table 5-1. Comments and Responses

Comment	Response
<p>Gasco EIS Indicates that Development will Exceed Federal Air Quality Standards</p>	<p>exceedance episodes, nonattainment, or modeling data.</p> <p>This comment states that BLM is obligated under the Clean Air Act to conform with state implementation plans and, by extension, to not cause or contribute to any new violation. However, no state or federal implementation plans exist for the Uinta Basin because the area is not currently in non-attainment. However, due to previous years monitoring data regarding the ozone standard, an adaptive management plan was developed in the Gasco FEIS which incorporates the best available mitigation measures as well as strategies for response to future ozone NAAQS exceedance episodes, nonattainment, or modeling data.</p> <p>This comment also alleges that incorrect background information is used in the Gasco EIS analysis. This comment is redundant to a comment made on the Gasco DEIS, and was previously responded to in Appendix P of the Gasco FEIS.</p>
<p>Air quality analysis inadequacies prevent the BLM from fully considering, disclosing, and understanding the air pollution problems of this project – the use of meteorological data from Canyonlands</p>	<p>This comment is redundant to a comment made on the Gasco DEIS, and was previously responded to in Appendix P of the Gasco FEIS.</p>
<p>Project specific analyses, including this one, ignore cumulative air quality impacts</p>	<p>This comment states that the Gasco EIS required new ozone analysis at the project specific stage, which applies to this project. However, the analysis requirement cited is a part of the adaptive management strategy, which has not yet been triggered by any one of the four potential triggers itemized in the FEIS.</p> <p>The rest of this comment is actually a comment on a different document, which is out of the scope of this EA.</p>
<p>Reliance on UBAQS is inappropriate</p>	<p>This EA does not reference the UBAQS study. As stated, it incorporates data from both the Gasco study and the Greater Natural Buttes study.</p>
<p>Ozone analysis has not been updated even though the RFD has tripled</p>	<p>This EA relies upon the Greater Natural Buttes study for cumulative air quality analysis, which is the latest air quality study in the Uinta Basin, and which did take into account an updated RFD.</p>
<p>The Gasco EIS Understates the likely impacts from this development</p>	<p>This comment alleges that the Gasco EA does not reference the Gasco EIS COAs related to air quality. However, the referenced measures are identified as mitigation measures in section 4.2.1.3 of the EA.</p>
<p>Water Quality</p>	<p>This comment alleges that the six proposed wells will result in a violation of water quality standards due to the potential for increased sedimentation. However, no new surface disturbance is proposed as a part of this project, since all six wells will be directionally drilled from an existing well pad.</p> <p>The remainder of this comment is redundant to a comment made on the Gasco DEIS, and was previously responded to in Appendix P of the Gasco FEIS.</p>

### 5.3 LIST OF PREPARERS

Table 5-2. List of Preparers

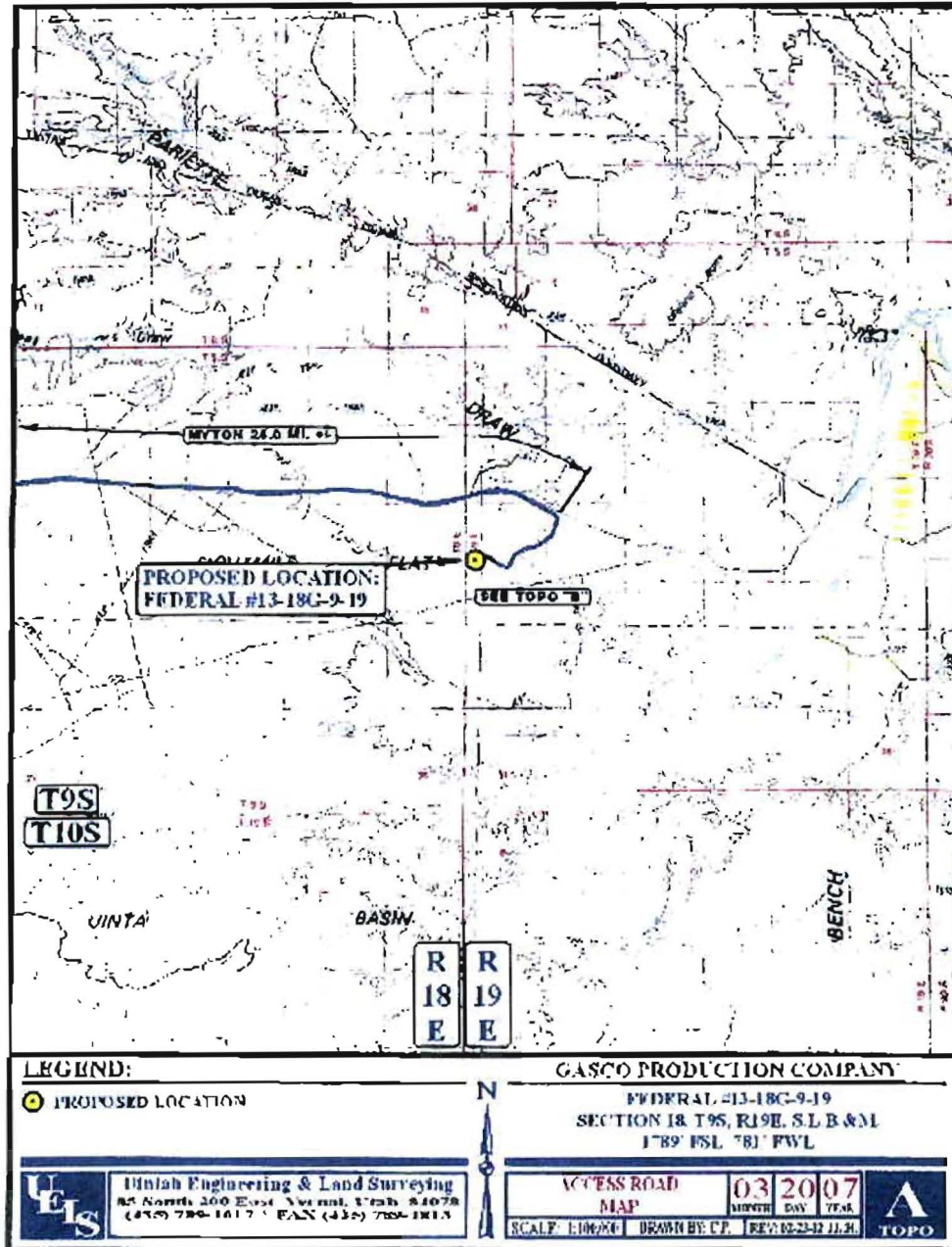
Name	Title	Responsible for the Following Section(s) of this Document
Bill Civish	Natural Resource Specialist Environmental Scientist	Chapters 1 & 2 Chapters 3 & 4: Air Quality & Greenhouse Gas Emissions, Invasive Plants/Noxious Weeds, Soils & Vegetation
Daniel Emmett	Wildlife Biologist	Wildlife: Migratory Birds(including raptors), Wildlife: Non-USFWS Designated, Threatened, Endangered, Proposed or Candidate
Aaron Roe	Botanist	Plants: Threatened, Endangered, Proposed, or Candidate

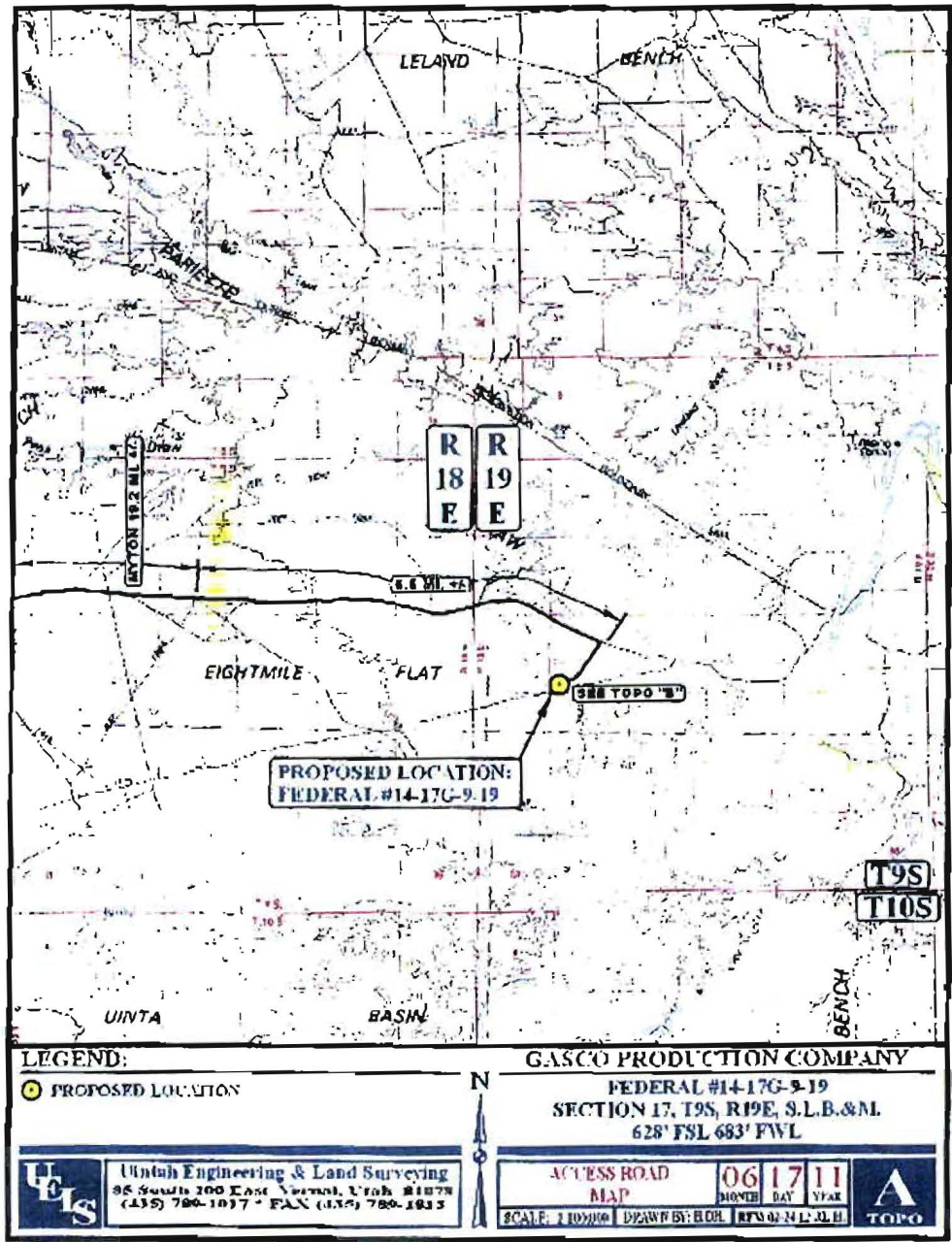
### 6.0 REFERENCES CITED

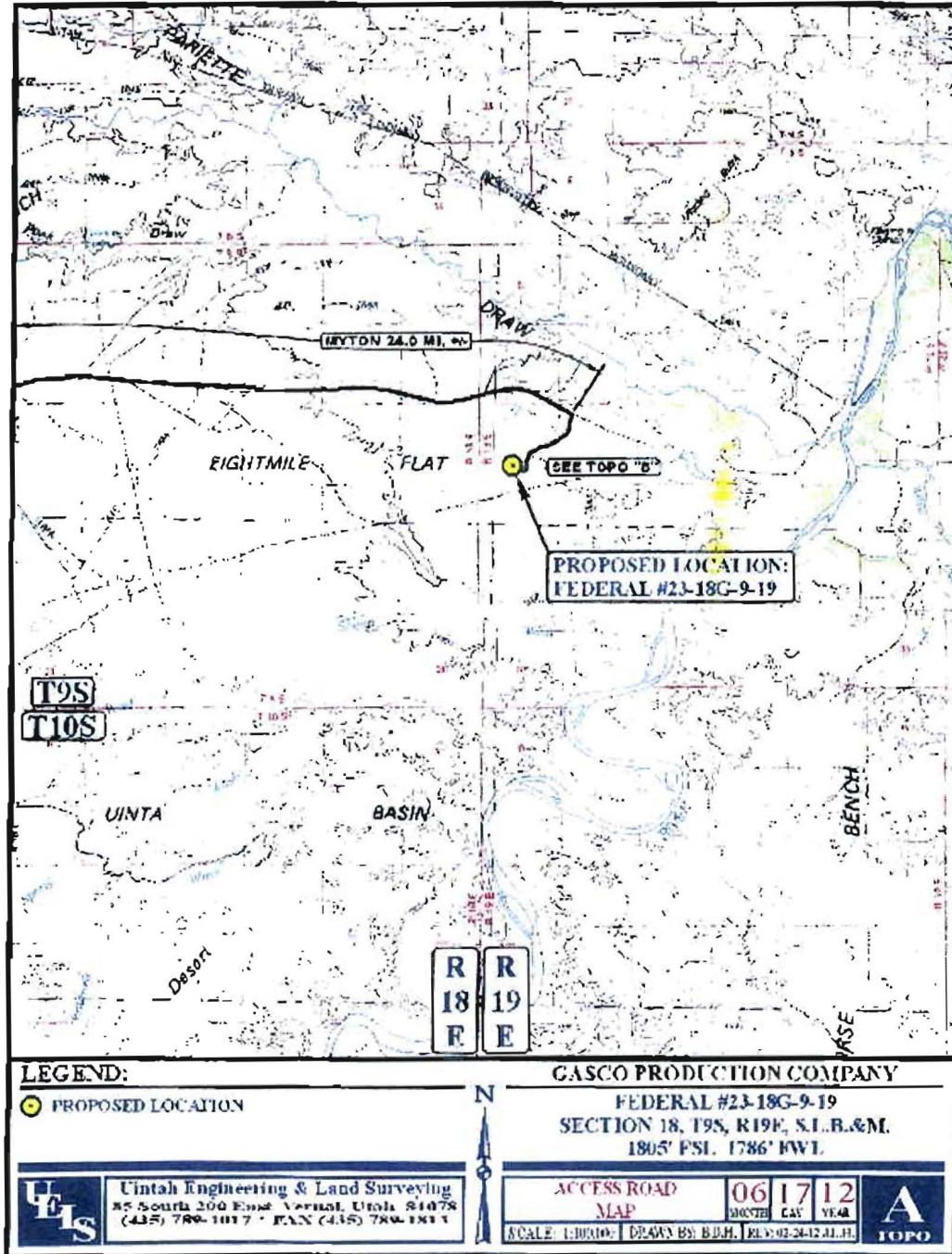
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- BLM. 2012b. Record of Decision for the GASCO Energy Inc. Uinta Basin Natural Gas Development Project. June 2012.
- BLM. 2012c. Final Environmental Impact Statement for the GGreater Natural Buttes Project. March 2012.
- BLM. 2008. Vernal Field Office Resource Management Plan and Record of Decision, U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.
- 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.
- British Meteorological Office (BMO). 2009. British Meteorological Office's Hadley Centre, 2009. Accessed January 2009 at <http://www.metoffice.gov.uk/climatechange/science/monitoring/>.
- Parrish, J.R., F.P. Howe and R.E. Norvell. 2002. Utah Partners in Flight Avian Conservation Strategy Version 2.0. Utah Partners in Flight Program, Utah Division of Wildlife Resources, 1594 West North Temple, Salt Lake City, Utah 84116. UDWR Publication Number 02-27. i – xiv + 302 pp.
- Uintah County. 2011. Uintah County General Plan, as amended.
- U.S. Fish & Wildlife Service (USFWS). 1994. Final Rule: Determination of Critical Habitat for the Colorado River Endangered Fishes: Razorback sucker, Colorado squawfish, Humpback chub, and Bonytail chub. Federal Register 59: 13375-13400.

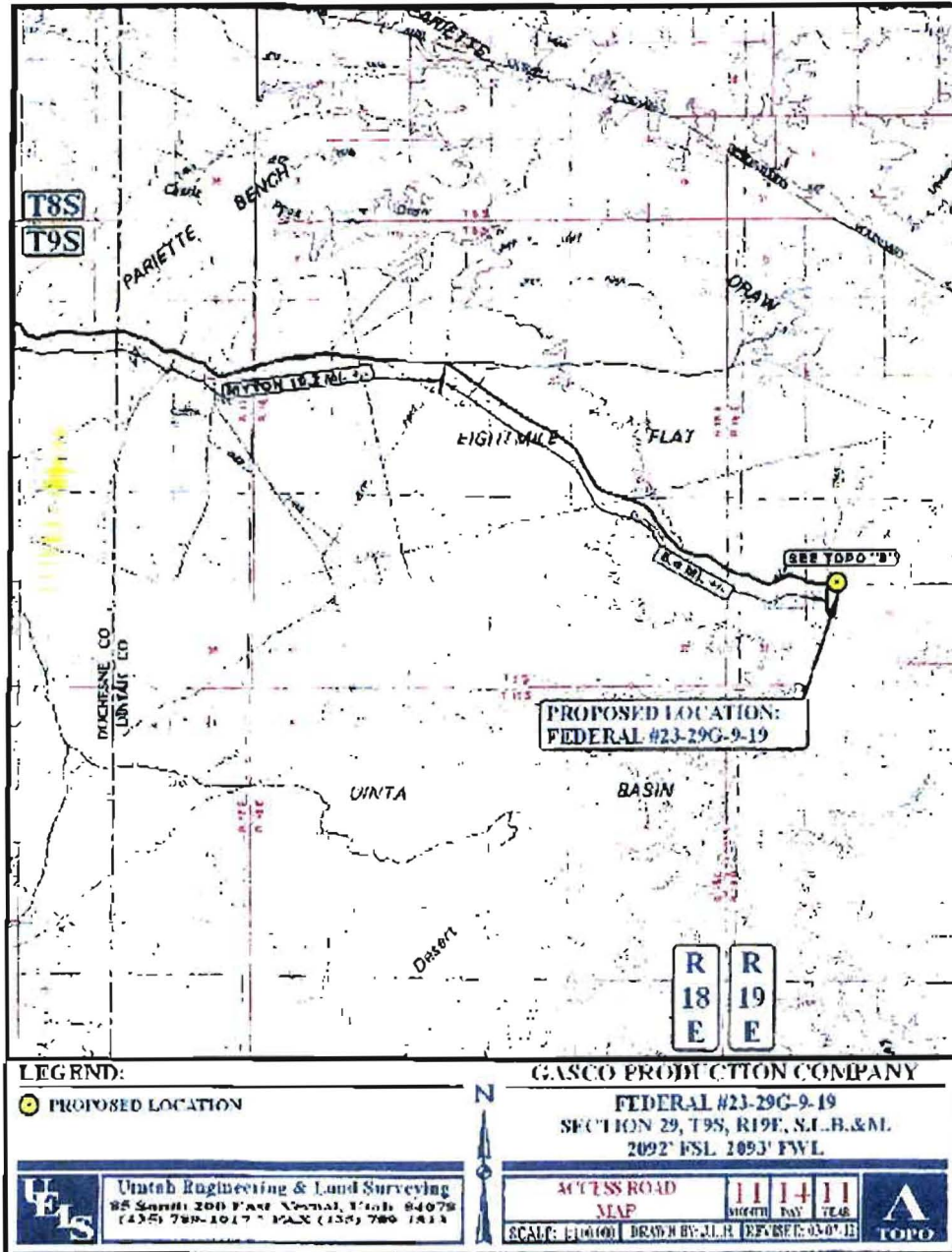


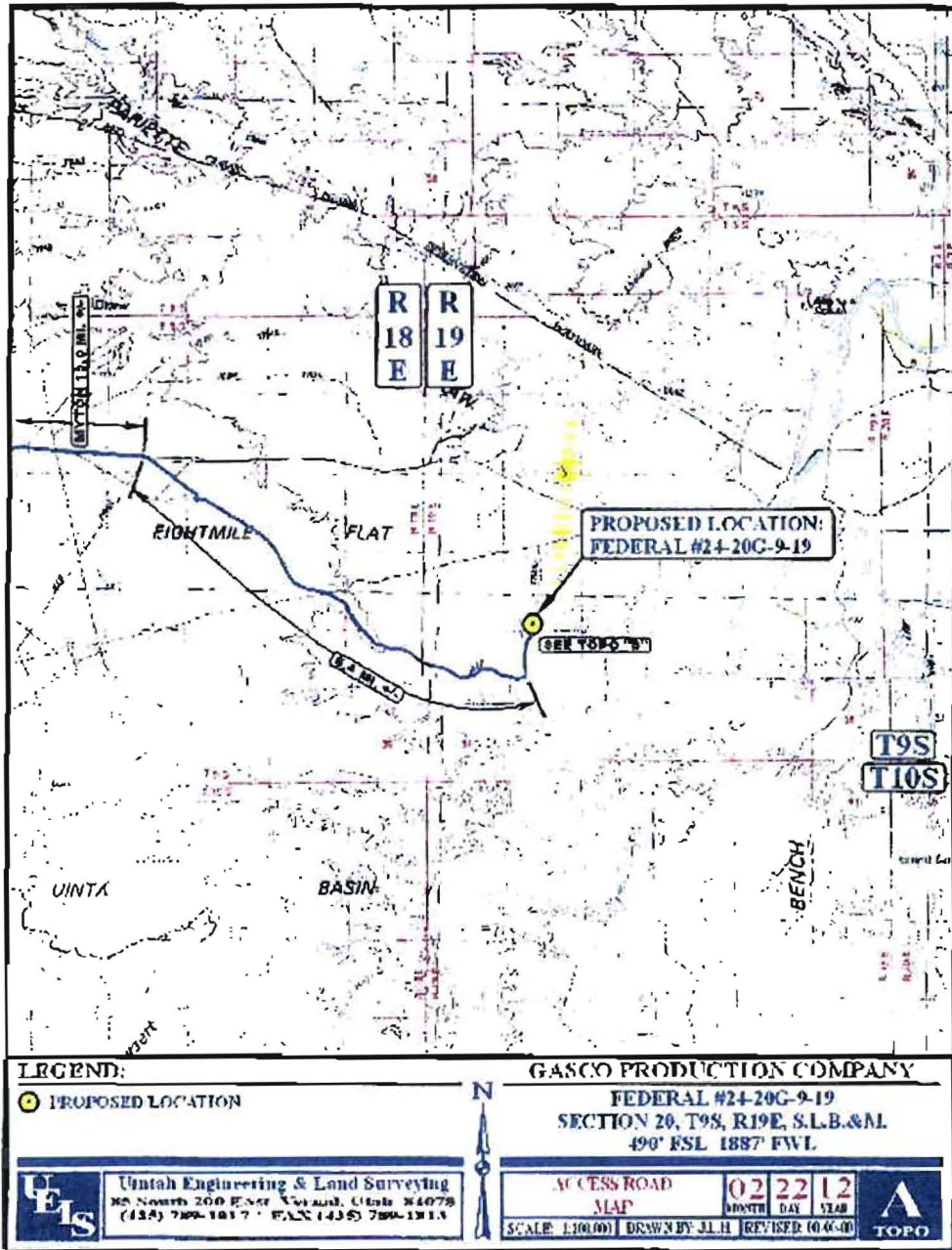
# APPENDIX A: PROJECT AREA MAPS

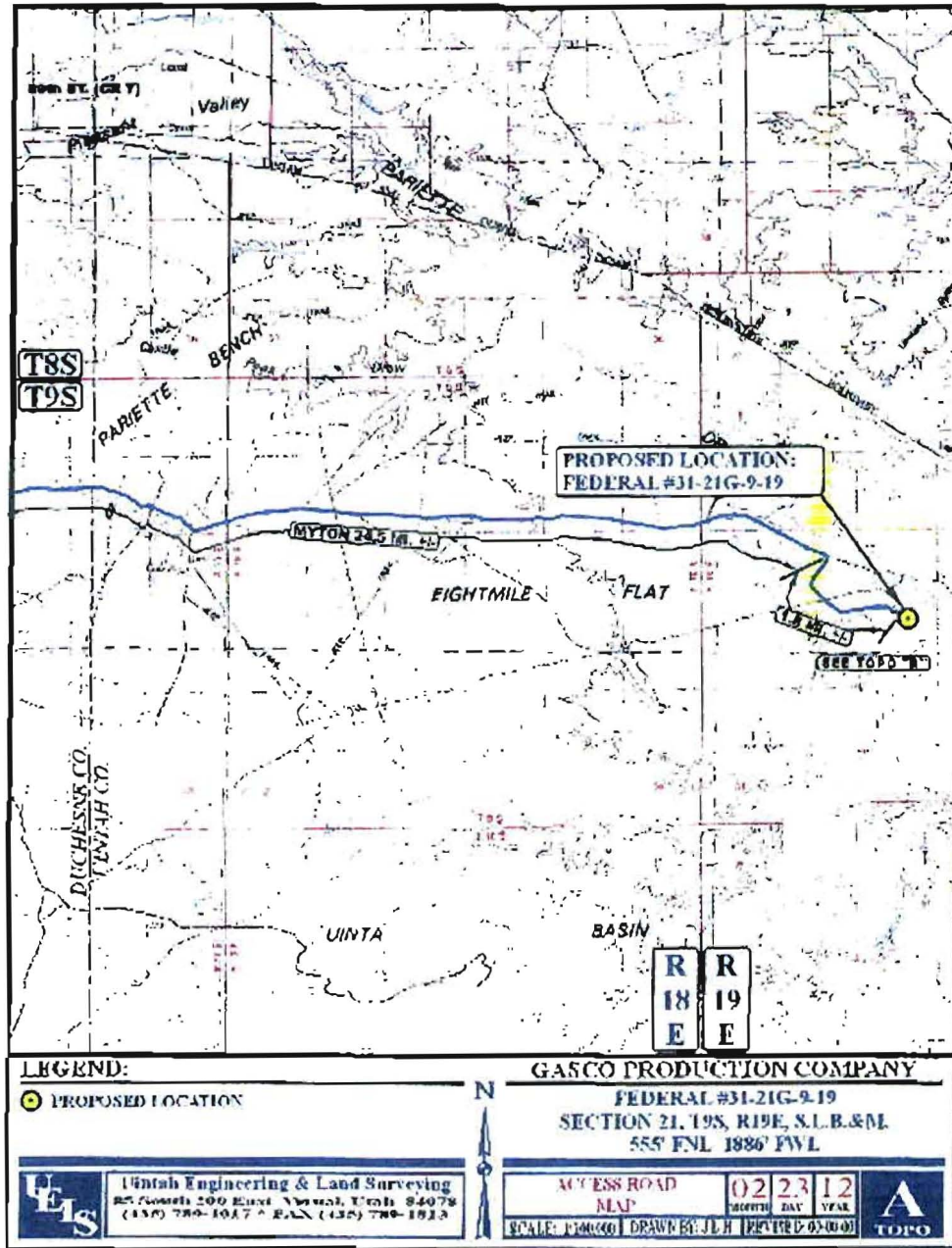












## APPENDIX B: INTERDISCIPLINARY TEAM CHECKLIST

**Project Title:** GASCO Proposes To Develop Sections 17, 18, 20, 21 & 29 of T9S R19E for Oil.

**NEPA Log Number:** DOI-BLM-UT-G010-2012-0282

**File/Serial Number:** UTU-16544, 76262, 75090 & 78433

**Project Leader:** Bill Civish

**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.	Bill Civish	08/28/12
NP	BLM Natural Areas	None Present as per GIS layer review and RMP/ROD Review	Bill Civish	08/28/12
NI	Cultural: Archaeological Resources	No cultural resources eligible for inclusion into the NRHP were identified within the APE of the proposed project	Cameron Cox	08/28/12
NP	Cultural: Native American Religious Concerns	No Traditional Cultural Properties are identified within the APE. The proposed project will not hinder access to or use of Native American religious sites.	Cameron Cox	08/28/12
NP	Designated Areas: Areas of Critical Environmental Concern	None Present as per GIS layer review and RMP/ROD Review	Bill Civish	08/28/12
NP	Designated Areas: Wild and Scenic Rivers	None Present as per GIS layer review and RMP/ROD Review	Bill Civish	08/28/12
NP	Designated Areas: Wilderness Study Areas	None Present as per GIS layer review and RMP/ROD Review	Bill Civish	08/28/12
NI	Environmental Justice	No minority or economically disadvantaged communities or populations would be	Bill Civish	08/28/12

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		disproportionately adversely affected by the proposed action or alternatives.		
NP	Farmlands (prime/unique)	No prime or unique farmlands as designated by the NRCS exist in the proposed project area. Therefore this resource is not present.	Bill Civish	08/28/12
NI	Fuels/Fire Management	No fuel management activities planned for the project area. The proposed project would not conflict with fire management activities.	Bill Civish	08/28/12
NI	Geology/Minerals/Energy Production	<p>Known gilsonite veins trend through this region in sections 17, 18 &amp; 21 of the project area. The nearest is an inactive mine about 2 miles to the southwest. If gilsonite is encountered during drilling, please report that information to BLM VFO. The depth and thickness of the vein is important information that should be provided to BLM. Operator must notify any active Gilsonite operation within 2 miles of the location 48 hours prior to any blasting for this well.</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" would assure that the project would not adversely affect Gilsonite, oil shale, or tar sand deposits. Due to the state-of-the-art drilling and wells completion techniques, the possibility of adverse degradation of tar sand or oil shale deposits by the proposed action would be negligible.</p> <p>Wells 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>	Andrew McCormick	8/29/2012
PI	Invasive Plants/Noxious Weeds, Soils & Vegetation	<p>Existing disturbance would be re-contoured and reseeded during reclamation.</p> <p>The existing well pads provide suitable habitat for the establishment and spread of non-native plant species. Operator would control invasive species along roads, pipeline corridors, and on well pads, as discussed in Chapter 2.</p>	Bill Civish	08/28/12
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 would be authorized under beneficial use of their lease. No existing land uses would be changed or modified by	Katie Nash	09/18/12

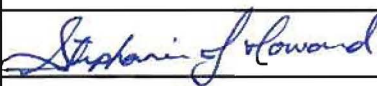



Determination	Resource/Issue	Rationale for Determination	Signature	Date
		the implementation of the proposed action; therefore there would be no adverse effect.		
NI	Lands with Wilderness Characteristics (LWC)	None Present as per 2008 Vernal RMP ROD and GIS layer review.	Bill Civish	08/28/12
NI	Livestock Grazing & Rangeland Health Standards	The proposed action would only have an indirect impact to grazing and range land health of the Wetlands Allotment. The proposal does not anticipate surface disturbance but by nature increased industrial activity in the grazing allotment could impact forage or forage quality. However the proposal is consistent with multiple use of the area and consistent with other energy development that has been permitted upon the Field Office.	Stan Olmstead	9/18/2012
NI	Paleontology	No new surface disturbance therefore, no impact.	Betty Gamber	9/17/2012
NI	Plants: BLM Sensitive	<p>The following UT BLM sensitive plant species are present in the same or an adjacent subwatershed as the proposed project: Graham's catseye and <i>Yucca sterilis</i>.</p> <ul style="list-style-type: none"> <li>As the Green River formation is not present in the vicinity of the proposed project, there is no potential habitat for Graham's catseye in the vicinity of the proposed project.</li> <li>Sandy soils in the vicinity of the proposed project may provide suitable habitat for <i>Yucca sterilis</i>. However, no populations are present in the vicinity of the proposed project. Given the clonal nature species the potential for future establishment is negligible.</li> </ul>	Aaron Roe	8/30/2012
PI	Plants: Threatened, Endangered, Proposed, or Candidate	<p>The following federally listed, proposed, or candidate plant species are present in the same or an adjacent subwatershed as the proposed project: shrubby reed-mustard (<i>Schoenocrambe suffrutescens</i>), clay reed-mustard (<i>Schoenocrambe argillacea</i>), Pariette cactus (<i>Sclerocactus brevispinus</i>), Uinta Basin hookless cactus (<i>Sclerocactus wetlandicus</i>), and Graham's penstemon (<i>Penstemon grahamii</i>).</p> <ul style="list-style-type: none"> <li>As the Green River formation is not present in the vicinity of the proposed project, there is no potential habitat for shrubby reed-mustard in the vicinity of the proposed project.</li> <li>As the contact zone between the Green River and Uinta formation is not present in the vicinity of the proposed project, there is no potential habitat for clay reed-mustard in the vicinity of the proposed project.</li> <li>The proposed project is located outside of the potential range of Pariette cactus.</li> <li>The proposed project is located within the potential habitat polygon for Uinta Basin hookless cactus.</li> <li>As the Green River formation is not present in the vicinity of the proposed project, there</li> </ul>	Aaron Roe	8/30/12

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		is no potential habitat for Graham's penstemon in the vicinity of the proposed project.		
NP	Plants: Wetland/Riparian	No riparian sites are inventoried at or in the vicinity of the project area. Based on site visits to the area and confirmed by Field Office data from GIS information.	Bill Civish	08/28/12
NI	Recreation	Motorized use is designated as limited to designated roads and trails as per Vernal RMP 2008. The use of the area is primarily from the oil and gas industry; recreational use of ATV's is limited to existing routes only.	Bill Civish	08/28/12
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 Uintah Basin.	Bill Civish	08/28/12
NI	Visual Resources	VRM Class III identified, project would meet class III objectives.	Bill Civish	08/28/12
NI	Wastes (hazardous/solid)	Hazardous materials above reportable quantities will not be produced by drilling or completing proposed well(s) or constructing the pipelines/facilities. The term "hazardous materials" as used here means: (1) any substance, pollutant, or containment listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended 42 U.S.C 9601 et seq., and the regulations issued under CERCLA; and (2) any hazardous waste as defined in RCRA of 1976, as amended. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing any well.  Trash and other waste would be contained in appropriate containers and then disposed in approved locations.	Bill Civish	08/28/12
NI	Water: Floodplains	24-20G-9-19 and 31-21G-9-19 are near but not in the Eight-Mile Flat floodplain. No HUD inventoried or non-HUD inventoried flood plains would be disturbed by the expansion of the well locations. This project is not expected to negatively impact flood plains.	Bill Civish	08/28/12
NI	Water: Groundwater Quality	Compliance with "Onshore Oil and Gas Order No. 2," 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	8/17/2012
NI	Water: Hydrologic Conditions (stormwater)	The proposed construction of the well locations and development of the access roads would alter the topography of the area to a small degree and change surface water flow patterns. 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	Bill Civish	08/28/12

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		exempted energy development from stormwater requirements.		
NI	Water: Surface Water Quality	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 negative to surface waters because of the spill prevention control and counter measures plan. The site is in an upland area and more than 0.25 mile from perennial waters.	Bill Civish	08/28/12
NI	Water: Waters of the U.S.	Waters of the U.S.(the Green River and associated riparian areas) per USGS topographic map and GIS data review are within 1 mile of the 24-20G-9-19 and 31-21G-9-19. GASCO will comply with the closed-loop drilling COA listed in the GASCO EIS. The company would avoid impacting the Waters of the U.S. by complying with the Nation Wide Permit #12.	Bill Civish	08/28/12
NP	Wild Horses	No herd areas or herd management areas are present in the project area per BLM GIS database.	Bill Civish	08/28/12
PI	Wildlife: Migratory Birds (including raptors)	Burrowing owl and mountain plover habitat is present.	Daniel Emmett	9/06/2012
PI	Wildlife: Non-USFWS Designated	Water would be used for this proposed project so sensitive fish species need to be analyzed.	Daniel Emmett	9/06/2012
PI	Wildlife: Threatened, Endangered, Proposed or Candidate	Water would be used for this proposed project so T&E fish species need to be analyzed.  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	9/06/2012
NP	Woodlands/Forestry	None Present as per Vernal Field Office RMP/ROP and GIS database	Bill Civish	08/28/12

**FINAL REVIEW:**

Reviewer Title	Signature	Date	Comments
Environmental Coordinator		11/14/12	
Authorized Officer		11-16-2012	

# FINDING OF NO SIGNIFICANT IMPACT

## Environmental Assessment

DOI-BLM-UT-G010-2012-0282

Gasco Production Company Proposes To Develop Sections 17, 18, 20, 21 and 29  
of T9S R19E for Oil

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### FINDING OF NO SIGNIFICANT IMPACT:

“Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that the Gasco proposal to develop sections 17, 18, 20, 21 and 29 of T9S R19E for Oil, as described in the proposed action alternative of DOI-BLM-UT-G010-2012-0282 will not have a significant effect on the human environment. An environmental impact statement is therefore not required.”

  
\_\_\_\_\_  
Authorized Officer

NOV 16 2012

\_\_\_\_\_  
Date

**DECISION RECORD**  
**Environmental Assessment**  
**DOI-BLM-UT-G010-2012-0282**

Gasco Production Company Proposes To Develop Sections 17, 18, 20, 21 and 29  
of T9S R19E for Oil

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**DECISION RECORD:**

It is my decision to authorize Gasco to develop sections 17, 18, 20, 21 and 29 of T9S R19E, as described in the proposed action alternative of DOI-BLM-UT-G010-2012-0282.

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

**Summary of the Selected Alternative:**

GASCO proposes to develop sections 18, 18, 20, 21 & 29 of T9S R19E by drilling 6 oil wells from 6 existing well pads. No new roads or pipelines would be built. No new Rights-of-ways are needed for this project.

**Mitigation and Conditions of Approval**

- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower 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 new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NOx per horsepower-hour.
- The following would be used as standard operating procedures: Green completion or controlled VOC emissions methods with 90% efficiency for Oil or Gas Atmospheric Storage Tanks, VOC Venting controls or flaring, Glycol Dehydration and Amine Unites, Well Completion, Re-Completion, Venting, and Planned Blowdown Emissions.
- All reclamation activities will comply with the Green River Reclamation Guidelines
- All vehicles and equipment shall be cleaned either through power-washing, or other approved method, if the vehicles or equipment were previously operated outside the Uinta Basin, to prevent weed seed introduction.
- All disturbance areas shall be monitored for noxious weeds annually, for a minimum of three growing seasons following completion of project or until desirable vegetation is established
- Noxious and invasive weeds will be controlled by the proponent throughout the area of project disturbance.
- Noxious weeds will be inventoried and reported to BLM in the annual reclamation report. Where an integrated pest management program is applicable, coordination has been undertaken with the state and local management program (if existing). A copy of the pest management plan will be submitted for each project.

- A pesticide use proposal (PUP) will be obtained for the project, by the proponent if applicable.

To maintain compliance with current cactus survey protocols, the following measures will be required

1. If construction does not occur within 4 years of the original survey date, new 100% clearance surveys will be required.
2. Prior to construction within 4 years of the original survey date, a spot check survey will be required during the year of construction. Gasco and their respective 3<sup>rd</sup> party surveyor will refer to the current *Sclerocactus* Spot Check Survey Methods, to determine site specific survey distances and intensity levels.
3. Spot check reports will be reported to the BLM and the US Fish and Wildlife Service.
4. Construction will not commence until written approval is received from the BLM

*Discovery Stipulation:* Reinitiating of section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for Uinta Basin hookless cactus is anticipated as a result of project activities.

- If it is anticipated that construction or drilling will occur during the given timing restriction, a BLM or qualified biologist shall be notified to conduct surveys for raptors. Depending upon the results of the surveys, permission to proceed may or may not be granted by the Authorized Officer.
- The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a BLM and Service approved location is best.
- If the pump head is located in the river channel where larval fish are known to occur, the following measures apply:
  - a. do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval fishes;
  - b. limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (April 1 to August 31); and
  - c. limit the amount of pumping, to the greatest extent possible, during the pre-dawn hours as larval drift studies indicate that this is a period of greatest daily activity.
- Screen all pump intakes with 3/32 inch mesh material.
- Approach velocities for intake structures will follow the National Marine Fisheries Service's document "Fish Screening Criteria for Anadromous Salmonids". For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity will not exceed 0.33 feet per second (ft/s).
- Report any fish impinged on the intake screen to the Service (801.975.3330) and the Utah Division of Wildlife Resources:
  - Northeastern Region
  - 318 North Vernal Ave, Vernal, UT 84078
  - Phone: (435) 781-9453
- Gasco can only use the following water source:
  - Permit # 41-3530

**Rationale for the Decision:**

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

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 proposed project is consistent with the *Uintah County General Plan, 2011-as amended* (County plan) that encompasses the location of the proposed wells. In general, the plan indicates support for development proposals such as the Proposed Action through the plan's emphasis on multiple-use public land management practices, responsible use and optimum utilization.

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.

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.

Onsite visits were conducted by Vernal Field Office Personnel. The onsite inspection reports do not indicate that any other locations be proposed for analysis.

**Summary of Public Involvement Efforts and Public Response**


The Proposed Action was posted to the Utah BLM's Environmental Notification Bulletin Board on 8/23/2012. A public comment period has been requested.

**Appeals:**

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

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

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

  
\_\_\_\_\_  
Authorized Officer

**NOV 16 2012**  
\_\_\_\_\_  
Date



***SURFACE USE PROGRAM***  
***CONDITIONS OF APPROVAL (COA's)***  
**GASCO Production Company**  
**DOI-BLM-UT-G010-2012-0282**

- GASCO must comply with mitigation measures listed in Appendix B Table B-2 of the GASCO Record of Decision.
- 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.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NO<sub>x</sub> per horsepower-hour.
- The following would be used as standard operating procedures: Green completion or controlled VOC emissions methods with 90% efficiency for Oil or Gas Atmospheric Storage Tanks, VOC Venting controls or flaring, Glycol Dehydration and Amine Unites, Well Completion, Re-Completion, Venting, and Planned Blowdown Emissions.
- All reclamation activities will comply with the Green River Reclamation Guidelines
- All vehicles and equipment shall be cleaned either through power-washing, or other approved method, if the vehicles or equipment were previously operated outside the Uinta Basin, to prevent weed seed introduction.
- All disturbance areas shall be monitored for noxious weeds annually, for a minimum of three growing seasons following completion of project or until desirable vegetation is established
- Noxious and invasive weeds will be controlled by the proponent throughout the area of project disturbance.
- Noxious weeds will be inventoried and reported to BLM in the annual reclamation report. Where an integrated pest management program is applicable, coordination has been undertaken with the state and local management program (if existing). A copy of the pest management plan will be submitted for each project.
- A pesticide use proposal (PUP) will be obtained for the project, by the proponent if applicable.
- A permitted paleontologist is to be present to monitor construction at all well pads during all surface disturbing activities: examples include the following; building of the well pad, access road, and pipelines.

To maintain compliance with current cactus survey protocols, the following measures will be required

1. If construction does not occur within 4 years of the original survey date, new 100% clearance surveys will be required.
2. Prior to construction within 4 years of the original survey date, a spot check survey will be required during the year of construction. KMG and their respective 3<sup>rd</sup> party surveyor will refer to the current *Sclerocactus* Spot Check Survey Methods, to determine site specific survey distances and intensity levels.