



**Peterson Ridge 01-20H  
SWSE, Section 20-T8N-R80W  
Jackson County, Colorado  
Lease COC65607**

***SURFACE USE PLAN***

EOG Resources, Inc.'s (EOG) conventional oil/gas well is located 9.4 miles west, then south from Walden, Colorado. The proposed well is located on Federal surface. Title to the oil and gas mineral interest is Federal owned and is administered by the Bureau of Land Management.

Drilling will determine whether oil and gas production could be established. Unproductive drill hole will be plugged and abandoned as soon as evaluation of the production intervals is conclusive.

The proposed well location requires construction of a proposed access road. The total surface disturbance associated with the construction of this location and access road is approximately 4.283 acres. This calculation includes disturbance associated with the well pad, the spoil and topsoil storage areas, and the construction equipment and vehicle disturbance. The proposed access road will be constructed to meet the standards of the anticipated traffic flow and all-weather requirements. Construction will include ditching, draining, graveling, and crowning of the roadbed.

**1. EXISTING ROADS:**

Refer to the attached maps for location of existing access roads.

Existing roads will be maintained in the same or better conditions as existed prior to the commencement of operations. Maintenance of the road to the proposed location will continue until final abandonment and reclamation of the well.

**2. ACCESS ROADS TO BE CONSTRUCTED:**

- A. The access road will be approximately 548' in length crowned and ditched with water turnouts installed as necessary to provide for proper drainage along the access road routes and in accordance EOG's Stormwater Management Plan.
- B. Roads will be, and constructed with a 4:1 slope for ditches. The access road has a 40-foot ROW w/18 foot running surface. See attached Topo B.
- C. CMPs and rip rap will be used as necessary.
- D. Maximum grade of the new access road will be 8 percent.
- E. No turnouts will be required.
- F. Road drainage crossings shall be of the typical dry creek drainage crossing type.

- G. No bridges, or major cuts and fills will be required.
- H. The access road will be dirt surface.
- I. A cattle guard will be installed at the fence crossing (unless requested otherwise by the authorized officer).
- J. A 40-foot permanent right-of-way is requested. In the event that commercial production is established from the subject well, the access roads will be surfaced to an average minimum depth (after compaction) of six inches with two inch minus pit run gravel or crushed rock, if and/or as required by the Authorized Officer. These surfacing material(s) will be purchased from a contractor having a permitted source of materials within the general area.
- K. No additional storage areas will be needed for storing equipment, stockpiling, or vehicle parking.

All travel will be confined to existing access road rights-of-way.

New or reconstructed roads will be centerlined – flagged at time of location staking. Access roads and surface disturbing activities will conform to standards outlined in the Bureau of Land Management and Forest Service publication: Surface Operating Standards for Oil and Gas Exploration and Development, Fourth Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

The road shall be constructed/upgraded to meet the standards of the anticipated traffic flow and all-weather road requirements. Construction/upgrading shall include ditching, draining, graveling, crowning, and capping the roadbed as necessary to provide a well-constructed safe road. Prior to upgrading, the road shall be cleared of any snow cover and allowed to dry completely. Traveling off the 40-foot right-of-way will not be allowed. Road drainage crossings shall be of the typical dry creek drainage crossing type. Crossings shall be designed so they will not cause siltation or accumulation of debris in the drainage crossing nor shall the drainages be blocked by the roadbed. Erosion of drainage ditches by runoff water shall be prevented by diverting water off at frequent intervals by means of cutouts. Upgrading shall not be allowed during muddy conditions. Should mud holes develop, they shall be filled in and detours around them avoided.

As operator, EOG Resources, Inc. shall be responsible for all maintenance on cattleguards, or gates associated with this oil and/or gas operation.

The entire length of the proposed well pad and access road are located within lease and will not require a federal right-of-way.

A representative with EOG Resources, Inc. will notify the Bureau of Land Management at least 48 hours prior to the start of construction.

### **3. LOCATION OF EXISTING WELLS WITHIN A ONE-MILE RADIUS:**

See attached map (Topo C) showing all wells within a one-mile radius.

**4. LOCATION OF EXISTING AND/OR PROPOSED PRODUCTION FACILITIES:**

See Figure #4 *Reclamation Diagram* for proposed production facility layout at a 1" – 60' scale and the areas of the well pad not required for production that will be reclaimed.

All production facilities will be located on the disturbed portion of the well pad and at a minimum of 25 feet from the toe of the back slope.

All permanent (on site six months or longer) aboveground structures constructed or installed on location and not subject to safety requirements will be painted Carlsbad Canyon (2.5Y 6/2).

Containment berms will be constructed completely around production facilities designed to hold fluids (i.e., production tanks, produced water tanks, and/or heater/treater). The containment berms will be constructed of compacted subsoil, be sufficiently impervious, hold 110 percent of the capacity of the largest tank, and be independent of the back cut.

EOG Resources, Inc. will request authorization for disposal of produced water from the referenced well to the following location:

Fourmile Creek Recycling Facility, P.O. Box 307, Craig, CO 81626

Water will be trucked over existing roads. The referenced source is DEQ approved.

All safety measures have been considered in the design, construction, operation, and maintenance of the facility. EOG Resources, Inc will have a designated representative present during construction. Any accidents to persons or property on federal lands will immediately be reported to the authorized officer.

**5. LOCATION AND TYPE OF WATER SUPPLY:**

Water for drilling will be obtained from approved municipal source in Walden and/or from existing water rights on Evans and Haworth lands located in Jackson County, Colorado. No water supply well will be drilled.

The water will be transported on the access road via truck by an approved commercial water hauler.

**6. SOURCE OF CONSTRUCTION MATERIALS:**

Any construction materials that may be required for surfacing of the drill pad and access road will be obtained from a contractor having a permitted source of materials within the general area. Gravel for the referenced well will be 2" minus gravel obtained from the Thomas Pit located within Section 1, T8N, R61W (47755 Weld County Road 96), a licensed contractor.

No construction materials will be removed from Federal or Indian lands without prior approval from the appropriate surface management agency.

**7. METHODS OF HANDLING WASTE DISPOSAL:**

Cuttings and drilling fluids from water based mud will be contained within the closed loop system. Dry cuttings will be temporarily stored in a cuttings pit and be contained within a 3' bermed area and lined with a 16 mil liner, in one corner of the pad. The cuttings will be tested and cleared to be buried on-site in the cuttings pit. Further discussion on the Closed Loop System is discussed below in Section 9 - Well Site Layout.

Fracture stimulation fluids and produced water will be flowed back into above ground tanks and hauled to a DEQ authorized disposal site (Fourmile Creek Recycling Facility, P.O. Box 307, Craig, CO 81626).

Portable, self-contained chemical toilets will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents thereof disposed of in an approved sewage disposal facility. All state and local laws and regulations pertaining to disposal of human and solid waste will be complied with.

All garbage and non-flammable waste materials will be contained in a self-contained, portable dumpster or trash cage. Upon completion of operations, or as needed, the accumulated trash will be transported to a state approved waste disposal site. No trash will be placed in the cuttings pit.

Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage will be cleaned up and removed from the location. No potentially adverse materials or substances will be left on the location. Any open pits will be fenced during drilling operations and said fencing will be maintained until such time as the pits have been backfilled.

EOG Resources, Inc. maintains a file, per 29 CFR 1910.1200 (g) containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which are used during the course of construction, drilling, completion, and production operations for this project. Hazardous materials (substances) which may be found at the site may include drilling mud and cementing products which are primarily inhalation hazards, fuels (flammable and/or combustible), materials that may be necessary for well completion/ stimulation activities such as flammable or combustible substances and acids/gels (corrosives). The opportunity for Superfund Amendments and Reauthorization Act (SARA) listed Extremely Hazardous Substances (EHS) at the site is generally limited to proprietary treating chemicals. All hazardous and EHS and commercial preparations will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment.

**8. ANCILLARY FACILITIES:**

None anticipated.

## **9. WELL SITE LAYOUT:**

### **A. General Information:**

See the attached diagrams, *Figure #2* and *Figure #3*, showing the proposed drill pad cross sections and cut and fills in relation to topographic features as well as access onto the pad and soil stockpiles.

All equipment and vehicles will be confined to the approved disturbed areas of this APD (i.e., access road, well pad, and spoil and topsoil storage areas).

If necessary, in order to divert surface runoff, a drainage ditch will be constructed around the upslope side of the well site.

The fill section of the pad that supports the drilling rig and any other heavy equipment will be compacted.

### **B. Closed Loop System:**

The closed loop system will consist of a bermed area (see location layout) for the containment of drill cuttings, and five to six (5-6) 500 BBL tanks for the containment of drilling and 35 to 70 500 BBL tanks for completion fluids.

The dry cuttings pits will be lined with a 16 mil liner that has a permeability less than  $10^{-7}$  cm/sec and have a burst strength equal to or exceeding 300 pounds per square inch (psi) or puncture strength of 160 psi or greater and grab tensile strength of 150 psi or greater. The liner will be resistant to deterioration by hydrocarbons.

The closed loop system will be constructed in a way that minimizes the accumulation of surface precipitation runoff into the cuttings containment area. This may be accomplished by appropriate placement of subsoil/topsoil storage areas and/or construction of berms or ditches

The closed loop system will be fenced on three sides during drilling operations and the fourth side will be fenced after the drilling rig moves off the location. This fence will be either: (1) woven wire at least 28 inches high and within 4 inches of ground surface with 2 strands of barbed wire above the woven wire with 10 inch spacing, or (2) at least 4 strands of barbed wire spaced, starting from the ground, at approximately 6, 8, 10, and 12 inch intervals.

Siphons, catchments, drip pans, and absorbent pads will be installed to keep hydrocarbons produced by the drilling and/or completion rigs from entering the closed loop system. Hydrocarbons and contaminated pads will be disposed of in accordance with Wyoming DEQ requirements.

## **10. PLANS FOR RECLAMATION OF THE SURFACE:**

### **Interim Reclamation:**

Rat and mouse holes will be filled and compacted from bottom to top immediately after release of the drilling rig from the location.

Topsoil from the berms and/or storage piles will be spread along the road's cut and fill slopes. Drainage ditches or culverts will not be blocked with topsoil and associated organic matter. The topsoil areas will be seeded as stated below. The unused area of the pad will be recontoured and topsoil spread six inches deep. The area on the contour will be ripped one foot deep using ripper teeth set on one foot centers.

EOG will, promptly after completion of drilling operations (depending on seasonal/weather constraints), reseed the entire drill pad and access road using a drill equipped with a depth regulator, resulting in reclamation of the drillsite to approximately 0.25 acres. All seed will be drilled on the contour. The seed will be planted between one-quarter and one-half inch deep. Where drilling is not possible (i.e., too steep, rocky, etc), the seed will be broadcast and the area raked or chained to cover the seed. If the seed mixture is broadcast, the rate listed below will be doubled. EOG will seed with certified or registered seed mixture per BLM recommendation and application rates will be used:

Seed Mixture	Drilled Rate (lbs./acre PLS)
Western wheatgrass	2.97
Thickspike wheatgrass	2.13
Bluebunch wheatgrass	2.51
Sheep fescue	.62
Alfalfa var. Ladak	.73
Big Sagebrush	.06

\*Pure live seed (PLS) formula: percent of purity of seed mixture times percent germination of seed mixture equals portion of seed mixture that is PLS.

Seeding will be done between September 1 to November 15, (before ground freeze) after completion, or as early as possible the following Spring to take advantage of available ground moisture.

**Final Reclamation:**

Prior to final abandonment reclamation work, a Sundry Notice will be submitted to the Authorized Officer for approval.

Configuration of the re-shaped topography will be returned, as near as possible, to the original condition. Cut and fill slopes will be 3 to 1 or less. All topsoil will be re-stripped from interim reclamation and redistributed over the entire location. The entire location will be scarified 12" deep at 8" intervals. Water bars will be constructed at 8% grade. The entire location and access road will be re-seeded with the recommended seed mixture

Monitoring will be conducted by a qualified Operator representative (in coordination with the BLM) following initial rehabilitation work. Monitoring areas will be re-examined at the end of the first growing season. Results will be documented in a report to the BLM. Problem areas identified during monitoring will receive follow-up rehabilitation/erosion control measures.

The seeding shall be repeated until a satisfactory stand, as determined by the Authorized Officer, is obtained.

**11. SURFACE OWNERSHIP:**

Surface ownership of the proposed well site and access road route is as follows:

Bureau of Land Management  
Kremmling, CO

**12. OTHER INFORMATION:**

All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice of Lessees. The operator is fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Construction activity will not be conducted using frozen or saturated soils material or during periods when watershed damage is likely to occur.

If the existing access road, proposed access road, and proposed pad are dry during construction, drilling, and completion activities, water will be applied to help facilitate compaction during construction and to minimize soil loss as a result of wind erosion.

Weeds will be controlled on disturbed areas within the exterior limits of the access road and well pad. The control methods shall be in accordance with guidelines established by the EPA, BLM, state, and local authorities. Approval will be obtained from the Authorized Officer prior to use of pesticides.

A Class III archeological survey for the proposed access road will be conducted and submitted.

**Lessee or Operator's Representative and Certification:**

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of State and Federal Laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 26th day of August, 2011,

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