

**Conditions of Approval for Conventional Application for Permit to Drill**

**Crossbow 2016 Interim  
Oil and Gas Exploration Project  
supported by Environmental Assessment Section WY-070- EA15-300**

Operator: **EOG Resources, Inc.**

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Field Office: Buffalo Field Office  
Address: 1425 Fort Street  
Buffalo, Wyoming 82834  
Office Telephone Number: 307-684-1100

The spud date will be reported electronically, (see website location above) to the Authorized Officer **24 HOURS BEFORE SPUDDING**, unless otherwise required in site specific conditions of approval.

Spud Notice Site: [http://www.wy.blm.gov/minerals/og/og\\_notices/spud\\_notice.php](http://www.wy.blm.gov/minerals/og/og_notices/spud_notice.php)

**Well List with Surface, Lateral, and Bottom Hole Lease (SHL, BHL).**

<b>Well Pad Name</b>	<b>Pad Status</b>	<b>Well Name</b>	<b>Surface Location</b>	<b>Surface Ownership</b>	<b>Oil and Gas Mineral Ownership</b>
Blade 18 SWSW	Proposed	Blade 41-18H	SWSW S18 T40N R71W	Fee	Federal
		Blade 42-18H			
		Blade 43-18H			
		Blade 450-18H			
		Blade 451-18H			
		Blade 452-18H			
Blade 20 NENE	Proposed	Blade 34-2029H	NENE S20 T40N R71W	Fee	Federal
		Blade 437-2029H			
		Blade 438-2029H			
Blade 21 SENE	Proposed	Blade 4-2128H	SENW S21 T40N R71W	Fee	Federal
		Blade 429-2128H			
		Blade 430-2128H			
Blade 21 SENW	Existing	Blade 32-2128H	SENE S21 T40N R71W	Fee	Federal
		Blade 433-2128H			
		Blade 434-2128H			
Blade 22 NWNW	Proposed	Blade 39-2210H	NWNW S22 T40N R71W	Fee	Federal
		Blade 426-2210H			
		Blade 447-2210H			
Blade 23 NWNW	Proposed	Blade 25-23H	NWNW	Fee	Federal

Well Pad Name	Pad Status	Well Name	Surface Location	Surface Ownership	Oil and Gas Mineral Ownership
		Blade 419-23H	S23 T40N R71W		
		Blade 420-23H			
Mary's Draw 8 SESW	Existing	Mary's Draw 46-0805H	SESW S8 T40N R72W	Fee	Federal
		Mary's Draw 55-08H			
Mary's Draw 8 SWSE	Existing	Mary's Draw 51-08H	SWSE S8 T40N R72W	Fee	Federal
		Mary's Draw 52-0805H			
		Mary's Draw 495-08H			
Mary's Draw 13 SWSE	Existing	Mary's Draw 491-13H	SWSE S13 T40N R72W	Fee	Federal
		Mary's Draw 492-13H			
Mary's Draw 14 SWSW	Proposed	Mary's Draw 53-14H	SWSW S14 T40N R72W	Fee	Federal
		Mary's Draw 54-1426H			
		Mary's Draw 487-14H			
		Mary's Draw 488-14H			
		Mary's Draw 489-1426H			
		Mary's Draw 490-1426H			
Mary's Draw 15 SWSE	Existing	Mary's Draw 493-15H	SWSE S15 T40N R72W	Fee	Federal
		Mary's Draw 494-1527H			
Mary's Draw 16 NENW	Existing	Mary's Draw 27-16H	NENW S16 T40N R72W	State of Wyoming	Federal
		Mary's Draw 424-16H			
		Mary's Draw 432-16H			
Mary's Draw 16 NWNE	Existing	Mary's Draw 433-16H	NWNE S16 T40N R72W	State of Wyoming	Federal
Mary's Draw 22 NWNW	Existing	Mary's Draw 267-2227H	NWNW S22 40N	Fee	Federal

Well Pad Name	Pad Status	Well Name	Surface Location	Surface Ownership	Oil and Gas Mineral Ownership
		Mary's Draw 461-2227H	R72W		
		Mary's Draw 462-2227H			
Mary's Draw 23 NWNE	Existing	Mary's Draw 49-23H	NWNE	Fee	Federal
		Mary's Draw 50-2326H	S23 T40N R72W		
Mary's Draw 24 NWNW	Existing	Mary's Draw 483-24H	NWNW	Fee	Federal
		Mary's Draw 484-24H	S24 T40N R72W		

### Site Specific

#### **Surface**

1. When applicable (FEE FEE FED, refer to Washington Office Instruction Memorandum No. 2009-078 (S:\common\APD Processing\Reference Material\IM's & IB's) -: Prior to spudding of this well, the operator shall provide the BLM a true and complete copy of a document in which the owner of the surface or that owner's representative authorizes the operator to drill a Federal well from the non-Federal lands, and in which the surface owner or representative guarantees the Department of the Interior (Department), including BLM, access to the non-Federal lands to perform all necessary surveys and inspections. If access for any bureau of the Department to the operations and surrounding area for official business related to the approved operations is denied or impeded in any way, the BLM shall order the federally approved operations halted and the Federal well or wells shut in.

#### Wildlife

##### **Raptors**

1. This action occurs within ½ mile of a raptor nest(s). Surface disturbing and/or disruptive activity will not be allowed from **February 1<sup>st</sup>** – **July 31<sup>st</sup>** within these areas. The duration of this annual seasonal restriction may be shortened or lengthened based on the fledging chronology of the chicks in an active nest. This seasonal restriction would be in effect annually for the duration of the life of this action or any subsequent activities associated with the approval of this action. The 1/2 mile restriction may be reduced to 1/4 mile depending on the species occupying the nest in accordance with the *Record of Decision and Approved Casper Resource Management Plan* approved in December, 2007. This stipulation in no way relieves the operator from their responsibility to comply with all aspects of Federal Laws such as the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

This affects the following well pads and associated wells and infrastructure:

- Blade 18 SWSW well pad, including wells Blade 41-18H, Blade 42-18H, Blade 43-18H, Blade 450-18H, Blade 451-18H, Blade 452-18H; and proposed access road and corridor within SWSW Section 18, T40N/R71W.

- Blade 20 NENE well pad, including wells Blade 34-2029H, Blade 437-2029H, Blade 438-2029H; and proposed access road and corridor within NENE Section 20, T40N/R71W.
  - Blades 23 NWNW well pad, including wells Blade 25-23H, Blade 419-23H, Blade 420-23H; proposed access road and corridor within NWNW Section 23, T40N/R71W.
  - Mary's Draw 14 SWSW well pad, including wells Mary's Draw 53-14H, Mary's Draw 54-1426H, Mary's Draw 487-14H, Mary's Draw 488-14H, Mary's Draw 489-1426H, Mary's Draw 490-1426H; proposed access road and corridor within SWSW Section 14 T40N/R72W.
2. To avoid collision and electrocution of raptors and other avifauna, power lines on federal surface will be constructed in accordance with standards outlined in the Avian Protection Plan Guidelines (APLIC and USFWS 2005).

### **Mountain Plover**

1. This action occurs within ¼ mile of suitable Mountain plover breeding and nesting habitat. Surface disturbing and/or disruptive activity will not be allowed from April 10<sup>th</sup> – July 10<sup>th</sup> within these areas. This affects the following well pads and associated wells and infrastructure:
- Blade 18 SWSW well pad, including wells Blade 41-18H, Blade 42-18H, Blade 43-18H, Blade 450-18H, Blade 451-18H, Blade 452-18H; and proposed access road and corridor within SWSW Section 18, T40N/R71W.
  - Mary's Draw 15 SWSE well pad, including Mary's Draw 493-15H, Mary's Draw 494-1527H; proposed access road and corridor within SWSE Section 15 T40N/R72W.

### **Prairie Dogs**

1. A prairie dog town/complex or burrows have been identified in close proximity to the proposed project. The presence of prairie dogs warrants a Controlled Surface Use (CSU) stipulation mandating that surface-disturbing and disruptive activities should be designed in a manner that avoids prairie dog towns and complexes. Should this be impractical for the project objective, contact the Bureau of Land Management Wildlife Biologist to discuss a project design that will have the least amount of impact to prairie dogs.

This will affect the following wells and associated infrastructure:

- Mary's Draw 15 SWSE well pad, including Mary's Draw 493-15H, Mary's Draw 494-1527H; proposed access road and corridor within SWSE Section 15 T40N/R72W.

### **Grassland Obligate Species**

1. Vegetation in the area is comprised primarily of grassland habitats. Surface disturbance should be minimized to the greatest extent possible to prevent the loss of grassland obligate species' habitat.

### **Sensitive Plant Species**

1. GIS data indicates the area has the potential for the occurrence of a BLM sensitive plant species, specifically Ute ladies'-tresses and Barr's milkvetch within the project area. The likelihood has been established based on nearby observations or suitable soil composition, elevation and precipitation zone. Particularly ideal habitat for this species should be avoided and disturbances should be minimized in order to avoid unnecessary habitat loss.

## **Migratory Birds**

1. Habitat removal is prohibited during the migratory bird nesting season (May 1 – Aug 1) unless a nesting survey performed by a biologist confirms an absence of nesting birds in the disturbance area. This stipulation applies to all 5 well pads included in the well list above and the associated infrastructure.
  - a. Results of the nesting survey must be submitted in writing to a Casper BLM biologist prior to commencement of activities.
  - b. If the survey shows an absence of nesting birds, then habitat can be removed within 10 days of the survey. After 10 days a new survey is required.
  - c. If the survey shows nesting birds are present within the habitat that will be removed, then the activity will be delayed until nestlings have fledged.
  - d. Exceptions for alternate timelines or specific activities will be evaluated by a BLM biologist on a case by case basis.

If surveys will be conducted, the operator will follow “2013 Sage-brush BLM Sensitive Migratory Bird Nest Search Protocol” found at the following web address:

[http://www.blm.gov/wy/st/en/field\\_offices/Bufalo/wildlife.html](http://www.blm.gov/wy/st/en/field_offices/Bufalo/wildlife.html).

2. Migratory birds shall be effectively excluded from all facilities that pose a mortality risk, including, but not limited to, heater treaters, flare stacks, and secondary containment where escape may be difficult or wildlife toxicants are present.

## **STANDARD**

### **Paleontological**

1. The operator shall immediately notify the BLM Authorized Officer of any paleontological resources discovered as a result of operations under this authorization. The operator shall suspend all activities in the vicinity of such discovery until notified to proceed by the Authorized Officer and shall protect the discovery from damage or looting. The operator may not be required to suspend all operations if activities can be adjusted to avoid further impacts to a discovered locality or be continued elsewhere. The Authorized Officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the Authorized Officer after consulting with the operator. Within 10 days, the operator shall be allowed to continue construction through the site, or will be given the choice of either (1) following the Authorized Officer’s instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (2) following the Authorized Officer’s instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area (IM 2009-011 I.B.4.a).
2. When applicable: The operator shall have a BLM permitted paleontologist monitor all surface-disturbing activities during construction of the access road and well pad.

### **Archaeological**

1. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the Authorized Officer

(AO) of the BLM Casper Field Office. Within five working days the AO will inform the operator as to: (1) whether the materials appear eligible for the National Register of Historic Places; (2) the mitigation measures the operator shall likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and, (3) a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the finds of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator shall then be allowed to resume construction measures.

### **Geologic**

1. When applicable: All wells processed through the Casper Field Office shall meet the following logging requirements:
  - a. Calibrated gamma ray log scaled in API units from total depth to surface, with a repeat section over hydrocarbon producing zones. Maximum logging speed 3,600 ft. /hour in open hole and 2,000 ft. /hour in cased hole.
  - b. Multiple depth-of-investigation resistivity log from surface casing to total depth (TD) or kick off point, plus a compensated density-neutron log over potential hydrocarbon producing zones. This logging suite is often referred to as a triple combo. A pulsed neutron log may be substituted for a triple combo if a suitable quality triple combo log exists within one-half mile. Substitution of a pulsed neutron log for open hole logs will not be approved for an exploratory well.
  - c. For all logs, Log ASCII Standard (LAS) files shall to be provided to BLM. If a pulsed neutron log is permitted in lieu of open-hole logs, LAS files for both the field print and processed data shall to be provided to the BLM.
  - d. A cement bond log shall be run if the well is cased and perforated for production, injection, or disposal. The logged interval should extend from TD to 200 ft. above the top of cement, or to the surface.
2. When applicable: The operator may request a variance from the Logging Requirements when the following conditions are met. In all cases, a variance request in the form of a Sundry Notice must be submitted.
  - a. When multiple boreholes shall be drilled from the same pad, after the logging requirements have been met for the first borehole and if subsequent boreholes are not substantially deeper in vertical depth, then a variance request may be granted on the remaining boreholes.
  - b. If it can be shown that the logs from a borehole within 1,500 feet exist to meet the requirements, a variance may be granted for the compensated density-neutron and multiple depth of investigation resistivity logs, requiring only the calibrated gamma ray log.
  - c. If it can be shown that an adequate triple combo logs from a borehole within 2,640 feet (1/2 mile) exist to meet the requirements, a variance may be granted for the subject well, allowing an adequately processed pulsed neutron log instead of a triple combo.

### **Drilling Operations**

1. Verbal notification shall be given to the Authorized Officer at least 24 hours before formation tests, BOP tests, running & cementing casing, and drilling over lease expiration dates.
2. Notify the Casper Field Office (307) 261-7600 to schedule a PRE SPUD Meeting, between the operator and the PET assigned to the well for inspection and regulation compliance.
3. Any changes to the approved drilling plan shall be approved by the BLM Casper Field Office Petroleum Engineer prior to being implemented.
4. The operator shall install an identification sign consistent with the requirements of 43 CFR 3162.6 immediately upon or before the completion of the well pad construction operations. All wells, whether

drilling, producing, suspended, or abandoned shall be identified in accordance with 43 CFR3162.6. There shall be a sign or marker with the name of the operator, the lease serial number, the well number, and the surveyed description of the well.

5. All Blow Out Prevention Equipment (BOPE) tests shall include a 5 minute low pressure test between 250 psi and 500 psi with no drop in pressure with the only exception being the chokes. The chokes are only required to have the high pressure test held for a minimum length of time necessary to verify their functional integrity.
6. All Blow Out Prevention Equipment (BOPE) rated 5M or greater shall be isolated from the casing and tested to stack working pressure. All Blow Out Prevention Equipment (BOPE) tests shall be performed by a suitable test pump, not the rig-mud pumps and recorded on a chart. The chart shall be submitted to the Casper Field Office.
7. Low test on Blow Out Prevention Equipment (BOPE) shall be performed and passed before moving onto the high test for each component.
8. If there are indications of inadequate primary cementing of the surface, intermediate, or production casing strings; such as but not limited to no returns to surface, cement channeling, fallback or mechanical failure of equipment, the operator shall evaluate the adequacy of the cementing operation. If the evaluation indicates inadequate cementing, the operator shall contact a BLM Casper Field Office Petroleum Engineer for approval of remedial cementing work.
9. The adequacy of any remedial cementing operations shall be verified by a cement bond log (CBL) or an alternate method approved by the Authorized Officer (AO). All remedial work shall be completed and verified prior to drilling out the casing shoe or perforating the casing for purposes other than remedial cementing.
10. The cement mix water used must be of adequate quality so as not to degrade the setting properties of the cement. Any water that does not meet municipal quality water standards shall be tested by mixing the water and cement in a lab and comparing the results to the municipal quality water mix results. If the results show that the cement qualities are not the same or greater, than the non-municipal water shall not be used for mixing cement in the well.
11. All oil and gas operations shall be conducted in a manner to prevent the pollution of all freshwater resources. All fresh waters and waters of present or probable future value for domestic, municipal, commercial, stock or agricultural purposes will be confined to their respective strata and shall be adequately protected. Special precautions will be taken to guard against any loss of artesian water from the strata in which it occurs and the contamination of fresh water by objectionable water, oil, condensate, gas or other deleterious substance to such fresh water.
12. The operator shall report encounters of all non-oil & gas mineral resources (such as Gilsonite, tar sands, oil shale, trona, etc.) to the Field Office, in writing, within 5 working days of each encounter. Each report shall include the well name/number, well location, date and depth (from KB or GL) of encounter, vertical footage of the encounter and, the name of the person making the report (along with a telephone number) should the Field Office need to obtain additional information.
13. No well abandonment operations shall be commenced without the prior approval of the Authorized Officer. In the case of newly drilled dry holes or failures, and in emergency situations, oral approval shall be obtained from the Casper Field Office petroleum engineer. A notice of Intention to Abandon (form

#3160-5) shall be filed with the Authorized Officer within fifteen (15) days following the granting of oral approval to plug and abandon the well.

14. Pursuant to NTL-4A, lessees and operators are authorized to vent/flare gas during initial well evaluation tests, not exceeding a period of thirty (30) days or the production of cumulative fifty (50) mmcf of gas, whichever occurs first. An application must be filed with the Authorized Officer, and approval received, for any flaring/venting of gas beyond the initial thirty (30) day or otherwise authorized test period. If approved, the operator shall meter the amount of gas flared using the following guidelines: Onshore Oil and Gas Order No.5, Measurement of Gas Oil & Gas Leases within the Jurisdiction of the Wyoming State Office – (NTL 2004-1). The operator shall pay royalties to ONRR for the volume of gas flared using code 08.
15. Within sixty (60) days following construction of a new tank battery, a site facility diagram of the battery depicting actual conditions and piping shall be submitted to the Authorized Officer. Facility diagrams shall be filed within sixty (60) days after existing facilities are modified.
16. A progress report shall be filed a minimum of once a month starting with the month the well was spud and continuing until the well is completed. The report shall be filed by the 25th of each month on a Sundry Notice (Form 3160-5). The report shall include the spud date, casing information such as size, grade, weight, hole size, and setting depth, amount and type of cement used, top of cement, depth of cementing tools, casing test method, intervals tested, perforated, acidized, fractured and results obtained and the dates all work was done.