

RECEIVED

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Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018UNITED STATES ~~DISTRICT OF ARIZONA~~ **DISTRICT OF ARIZONA**  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC0029435B
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator EOG RESOURCES INCORPORATED		8. Lease Name and Well No. PICARD FEDERAL 3H 326502
3a. Address 1111 Bagby Sky Lobby2 Houston TX 77002	3b. Phone No. (include area code) (713)651-7000	9. API Well No. 30-015-46454
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWSW / 1981 FSL / 700 FWL / LAT 32.8616959 / LONG -103.914498 At proposed prod. zone NWSW / 2062 FSL / 100 FWL / LAT 32.861957 / LONG -103.9336458		10. Field and Pool, or Exploratory CEDAR LAKE, GLORIETA-YESO / GLOR
11. Sec., T. R. M. or Blk. and Survey or Area SEC 6 / T17S / R31E / NMP		12. County or Parish EDDY
13. State NM		14. Distance in miles and direction from nearest town or post office*
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 700 feet	16. No of acres in lease 1885	17. Spacing Unit dedicated to this well 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 100 feet	19. Proposed Depth 4775 feet / 10167 feet	20. BLM/BIA Bond No. in file FED: NM2308
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3730 feet	22. Approximate date work will start* 07/01/2019	23. Estimated duration 60 days
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |  |   |
|--|---|
| 1. Well plat certified by a registered surveyor.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature (Electronic Submission)	Name (Printed/Typed) Yolanda Maese / Ph: (575)748-4329	Date 01/10/2019
Title SR OPERATIONS ASSISTANT		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 11/15/2019
Title Assistant Field Manager Lands & Minerals CARLSBAD		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS

Approval Date: 11/15/2019

\*(Instructions on page 2)

RUP 12-3-19

(Continued on page 2)

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM 1:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## Additional Operator Remarks

### Location of Well

1. SHL: NWSW / 1981 FSL / 700 FWL / TWSP: 17S / RANGE: 31E / SECTION: 6 / LAT: 32.8616959 / LONG: -103.914498 ( TVD: 0 feet, MD: 0 feet )  
PPP: NESE / 2308 FSL / 100 FEL / TWSP: 17S / RANGE: 30E / SECTION: 1 / LAT: 32.86259 / LONG: -103.9171021 ( TVD: 4764 feet, MD: 5083 feet )  
BHL: NWSW / 2062 FSL / 100 FWL / TWSP: 17S / RANGE: 30E / SECTION: 1 / LAT: 32.861957 / LONG: -103.9336458 ( TVD: 4775 feet, MD: 10167 feet )

### BLM Point of Contact

Name: Priscilla Perez

Title: Legal Instruments Examiner

Phone: 5752345934

Email: pperez@blm.gov

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## Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>EOG RESOURCES INC</b>
<b>LEASE NO.:</b>	<b>NMLC0029435B</b>
<b>WELL NAME &amp; NO.:</b>	<b>PICARD FEDERAL 3H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>1981'/S &amp; 700'/W</b>
<b>BOTTOM HOLE FOOTAGE:</b>	<b>2062'/S &amp; 100'/W</b>
<b>LOCATION:</b>	<b>Section 6, T.17 S., R.31 E., NMPM</b>
<b>COUNTY:</b>	<b>EDDY County, New Mexico</b>

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input type="checkbox"/> Unit

### A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Grayburg** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

### B. CASING

#### Primary Casing Design

1. The 13-3/8 inch surface casing shall be set at approximately **400** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

completing the cement job.

- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 7 X 5 ½ inch production casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

#### Alternate Casing Design

3. The 13-3/8 inch surface casing shall be set at approximately **400 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
- e. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - f. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - g. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - h. If cement falls back, remedial cementing will be done prior to drilling out that string.
4. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

5. The minimum required fill of cement behind the **7 X 5 ½** inch production casing is:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

### **C. PRESSURE CONTROL**

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

**JJP10042019**

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)  
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.



A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including

lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

Well Pad 1

Picard Fed Com #1H

Surface Hole Location: 711' FSL & 296' FWL, Section 06, T. 17 S., R. 31 E.

Bottom Hole Location: 510' FSL & 100' FWL, Section 01, T. 17 S., R 30 E.

Picard Fed Com #2H

Surface Hole Location: 961' FSL & 297' FWL, Section 06, T. 17 S., R. 31 E.

Bottom Hole Location: 1386' FSL & 100' FWL, Section 01, T. 17 S., R 30 E.

Riker Fed Com #4H

Surface Hole Location: 761' FSL & 296' FWL, Section 06, T. 17 S., R. 31 E.

Bottom Hole Location: 510' FSL & 100' FWL, Section 01, T. 17 S., R 30 E.

Riker Fed Com #5H

Surface Hole Location: 911' FSL & 297' FWL, Section 06, T. 17 S., R. 31 E.

Bottom Hole Location: 1386' FSL & 100' FWL, Section 01, T. 17 S., R 30 E.

Well Pad 2

Picard Fed Com #3H

Surface Hole Location: 1981' FSL & 700' FWL, Section 06, T. 17 S., R. 31 E.

Bottom Hole Location: 2062' FSL & 100' FWL, Section 01, T. 17 S., R 30 E.

Riker Fed Com #6H

Surface Hole Location: 1951' FSL & 700' FWL, Section 06, T. 17 S., R. 31 E.

Bottom Hole Location: 2060' FSL & 100' FWL, Section 01, T. 17 S., R 30 E.

**TABLE OF CONTENTS**

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**

- Lesser Prairie-Chicken Timing Stipulations
- Ground-level Abandoned Well Marker
- Hydrology

- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits

- Well Pads
- Roads
- ☐ **Road Section Diagram**
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## **V. SPECIAL REQUIREMENT(S)**

### **Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:**

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period.

Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted.

Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

**Ground-level Abandoned Well Marker to avoid raptor perching:** Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

### **Hydrology:**

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.



## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

## **F. EXCLOSURE FENCING (CELLARS & PITS)**

### **Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

## **G. ON LEASE ACCESS ROADS**

### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### **Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

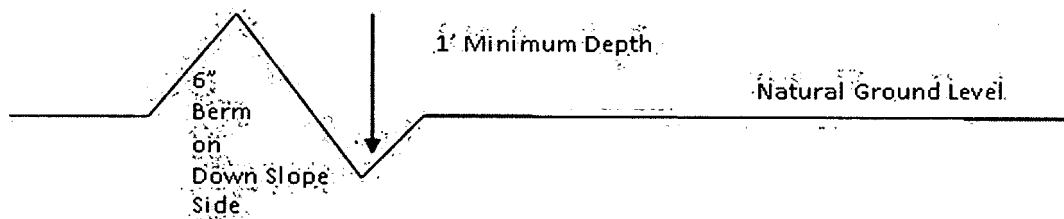
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out sloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### **Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### **Cattle guards**

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

### **Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

### Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

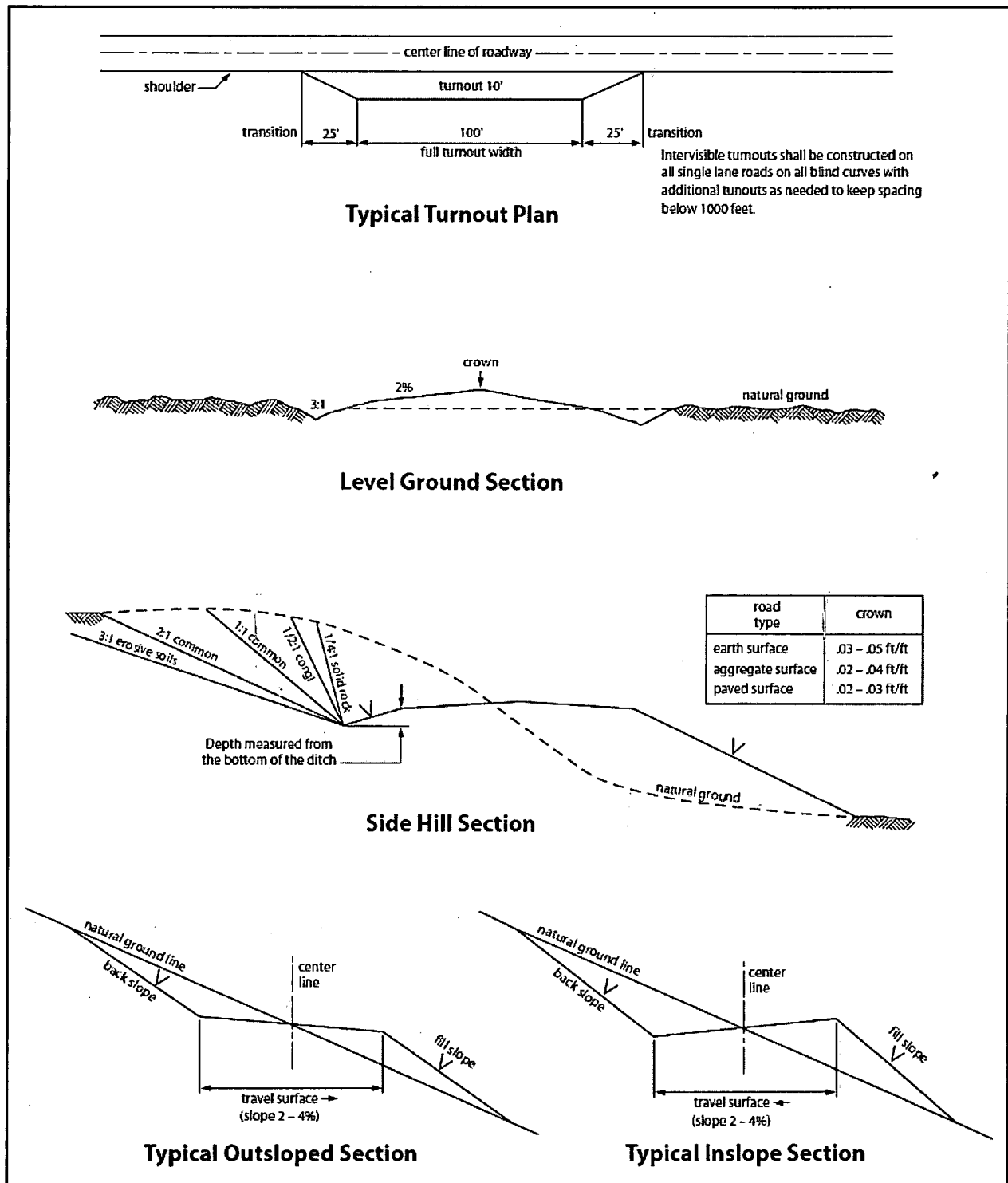


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## **VII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

### **B. PIPELINES**

#### **BURIED PIPELINE STIPULATIONS**

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.



5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:
  - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 30 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
  - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
  - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |  |  |
|--|--|
| <input type="checkbox"/> seed mixture 1                | <input type="checkbox"/> seed mixture 3          |
| <input type="checkbox"/> seed mixture 2                | <input type="checkbox"/> seed mixture 4          |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps,

ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

### **C. ELECTRIC LINES**

#### **STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES**

**A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant

cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

## **VIII. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

### Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

**EOG RESOURCES, INC.  
PICARD FEDERAL NO. 3H**

**1. GEOLOGIC NAME OF SURFACE FORMATION:**

Permian

**2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:**

Rustler	350'
Tansill	1,325'
Yates	1,465'
Seven Rivers	1,725'
Queen	2,330'
Grayburg	2,750'
San Andres	3,060'
Glorieta	4,565'
Yeso	4,580'
TD	10,167'

**3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:**

Rustler	350'	Fresh Water, Oil
Grayburg	2,750'	Oil
San Andres	3,060'	Oil
Glorieta	4,565'	Oil
Yeso	4,580'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 13.375" casing at 400' and circulating cement back to surface.

**4. CASING PROGRAM - NEW**

EOG Resources requests approval of a contingency hole size and intermediate 9 5/8" casing string if water flow risk is deemed to be high. We request to have a contingency plan approved to drill out with either a 12 1/4" hole if water flow risk is high and the option to drill out with 8 3/4" if the water flow risk is determined to be low. Please see below for primary and contingency request.

**Primary Hole & Casing String:**

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF <sub>min</sub> Collapse	DF <sub>min</sub> Burst	DF <sub>min</sub> Tension
17.5"	0'-400'	13.375"	48#	H-40/J-55	STC	1.125	1.25	1.60
8.75"	0'-4,935'	7"	29#	L-80	BTC	1.125	1.25	1.60
8.75"	4,935'-10,167'	5 1/2"	17#	L-80	BTC	1.125	1.25	1.60



**EOG RESOURCES, INC.  
PICARD FEDERAL NO. 3H**

**Contingency Hole & Casing String:**

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF <sub>min</sub> Collapse	DF <sub>min</sub> Burst	DF <sub>min</sub> Tension
17.5"	0'-400'	13.375"	48#	H-40/ J-55	STC	1.125	1.25	1.60
12.25"	0' -100'	9.625	40#	J-55	LTC	1.125	1.25	1.60
12.25"	100' - 3,300'	9.625	36#	J-55	LTC	1.125	1.25	1.60
12.25"	3,300' - 3,500'	9.625	40#	J-55	LTC	1.125	1.25	1.60
8.75"	0' - 4,935'	7"	29#	L-80	BTC	1.125	1.25	1.60
8.75"	4,935'-10,167'	5 1/2"	17#	L-80	BTC	1.125	1.25	1.60

**Cementing Program:**

Note: Cement volumes based on bit size plus at least 100% excess on surface, 100% excess in Contingency Intermediate and 35% excess in production string.

**Primary Cement Design:**

Depth	No. Sacks	Wt. lb/gal	Yld Ft <sup>3</sup> /ft	Volume Ft <sup>3</sup>	Slurry Description
400'	415	14.8	1.34	95	Tail: Class 'C' + 2%PF1(Calcium Chloride) (100% excess)
10167'	405	11.9	2.47	178	Lead: Class 50/50 PozC + 5%PF44(BWOW)(Salt) + 10% PF20(Bentonite Gel) +.2%PF153(Anti Settling Agent( + 3#/sk OF42(Kolseal) + 0.125#/sk PF29 (celloflake) + 0.4#/sk PF45 (Defoamer) (TOC @ Surface) 35% Excess
	1205	13	1.48	318	Tail: Class PVL + 1.3% PF44(BWOW)(Salt) + 5% PF174 (Expanding Cement) + 0.5% PF606 (Fluid Loss) + 0.1% PF153 (Anti Settling Agent) + 0.4#/sk PF45 (Defoamer) 35% Excess.

**Contingency Cement Design:**

Depth	No. Sacks	Wt. lb/gal	Yld Ft <sup>3</sup> /ft	Volume Ft <sup>3</sup>	Slurry Description
400'	415	14.8	1.34	95	Tail: Class 'C' + 2%PF1(Calcium Chloride) (100% excess)
3500'*	1075	12.8	1.79	343	Lead: 35:65 Poz C + .02 gal/sk Anti Foam + 1% Extender + .13 lb/sk Lost Circulation (TOC @ Surface)
	200	14.8	1.33	47	Tail: Class C + 0.13% Anti Foam
10167'	160	11.9	2.47	70	Lead: Class 50/50 PozC + 5%PF44(BWOW)(Salt) + 10% PF20(Bentonite Gel) +.2%PF153(Anti Settling Agent( + 3#/sk OF42(Kolseal) + 0.125#/sk PF29 (celloflake) + 0.4#/sk PF45 (Defoamer) (TOC @ 500' into previous casing string) 35% Excess
	1205	13	1.48	318	Tail: Class PVL + 1.3% PF44(BWOW)(Salt) + 5% PF174 (Expanding Cement) + 0.5% PF606 (Fluid Loss) + 0.1% PF153 (Anti Settling Agent) + 0.4#/sk PF45 (Defoamer) 35% Excess

\*Cement will be done in 2 stages if water flow is encountered. DV Tool placement will be placed above water flow depth. Cement volumes will be adjusted accordingly.



**EOG RESOURCES, INC.  
PICARD FEDERAL NO. 3H**

**5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:**

A variance is requested to use a co-flex line between the BOP and choke manifold, dependent on rig selection (instead of using a steel line). Certification and specs are attached.

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a double rams with blind rams & pipe rams preventer (3,000 psi WP) and an annular preventer (3,000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 3,000/ 250 psig and the annular preventer to 1,500/ 250 psig. The surface casing will be tested to 1200 psi for 30 minutes.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the surface casing shoe.

**6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:**

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 400'	Fresh Water	8.6-8.8	28-32	N/c
400' – 3,500'* Vertical	Brine	9.2-10.2	32-34	N/c
3,500' – 10,167' Vertical/Curve/Lateral	Cut Brine	8.8-9.4	30-34	N/c
*Reflects the contingency mud system if contingency plan is followed if not the next line will be utilized out from under surface				

The highest mud weight needed to balance formation is expected to be 10.2 ppg. In order to maintain hole stability, mud weights up to 10.2 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

**EOG RESOURCES, INC.  
PICARD FEDERAL NO. 3H**

**7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:**

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H<sub>2</sub>S monitoring and detection equipment will be utilized from surface casing point to TD.

**8. LOGGING, TESTING AND CORING PROGRAM:**

Open-hole logs are not planned for this well.

GR-Directional surveys will be run in open hole during drilling phase of operations.

**9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:**

The estimated bottom-hole temperature (BHT) at TD is 110 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 2533 psig (based on 10.2 ppg MW). Hydrogen sulfide has been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from spud to surface casing point.

**10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:**

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

- (A) EOG Resources requests the option to contract a Surface Rig to drill, set surface casing, and cement on the subject well. After WOC 8 hours or 500 psi compressive strength (whichever is greater), the Surface Rig will move off so the wellhead can be installed. A welder will cut the casing to the proper height and weld on the wellhead (both "A" and "B" sections). The weld will be tested to 1000 psi. All valves will be closed and a wellhead cap will be installed (diagram attached). If the timing between rigs is such that EOG Resources would not be able to preset the surface, the Primary Rig will MIRU and drill the well in its entirety per the APD.

**EOG RESOURCES, INC.  
PICARD FEDERAL NO. 3H**

**11. WELLHEAD:**

A multi-bowl wellhead system will be utilized.

After running the 9-5/8" surface casing, a 9 5/8" BOP/BOPE system with a minimum working pressure of 3,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 3,000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 3,000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo HES Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

**12. VERTICAL WELL OFFSET:**

EOG Resources is aware of the vertical wells listed below in the immediate vicinity of our planned lateral. We plan to take all precautions to avoid collision with the well and are aware of the risk. The wells are owned by EOG Resources.

API 30-015- 41003 Jackson B #57 1-17S-30E 2210 FSL 330 FWL  
API 30-015-42215 Jackson B #75 1-17S-30E 2310 FSL 1650 FWL  
Riker Federal #6H (planned horizontal on same pad)



## **EOG Resources - Artesia**

**Eddy County (NAD83)**

**Picard**

**Picard Federal #3H**

**Lateral**

**Plan: Plan #1**

## **Standard Planning Report**

**31 December, 2018**

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Picard Federal #3H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3748.000usft. (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3748.000usft. (Planning Rig)
Site:	Picard	North Reference:	Grid
Well:	Picard Federal #3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Project	Eddy County (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Picard			
Site Position:		Northing:	669,943.00 usft	Latitude: 32° 50' 27.290 N
From:	Map	Easting:	677,443.00 usft	Longitude: 103° 53' 24.634 W
Position Uncertainty:	0.000 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.24 °

Well	Picard Federal #3H			
Well Position	+N/-S	7,603.000 usft	Northing:	677,546.00 usft
	+E/-W	-7,500.000 usft	Easting:	669,943.00 usft
Position Uncertainty		0.000 usft	Wellhead Elevation:	3,748.000 usft
			Ground Level:	3,730.000 usft

Wellbore	Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/20/2018	7.01	60.57	48,129.56742867

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.000
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.000	0.000	0.000	270.000

Plan Survey Tool Program	Date	11/20/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.000	10,166.580	Plan #1 (Lateral)	MWD
				OWSG MWD - Standard

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	
400.000	0.00	0.000	400.000	0.000	0.000	0.00	0.00	0.00	0.00	
2,954.364	0.00	0.000	2,954.364	0.000	0.000	0.00	0.00	0.00	0.00	
4,454.364	30.00	301.000	4,386.758	197.676	-328.988	2.00	2.00	0.00	301.00	
4,859.577	60.00	270.000	4,673.263	251.687	-600.514	9.00	7.40	-7.65	-48.63	
4,934.577	60.00	270.000	4,710.763	251.687	-665.466	0.00	0.00	0.00	0.00	
5,185.579	90.00	267.177	4,774.999	245.359	-905.045	12.00	11.95	-1.12	-5.63	
10,166.580	90.00	267.177	4,775.000	0.000	-5,880.000	0.00	0.00	0.00	0.00	[PF#3H]BHL1

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Picard Federal #3H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3748.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3748.000usft (Planning Rig)
Site:	Picard	North Reference:	Grid
Well:	Picard Federal #3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.00
100.000	0.00	0.000	100.000	0.000	0.000	0.000	0.00	0.00	0.00
200.000	0.00	0.000	200.000	0.000	0.000	0.000	0.00	0.00	0.00
300.000	0.00	0.000	300.000	0.000	0.000	0.000	0.00	0.00	0.00
400.000	0.00	0.000	400.000	0.000	0.000	0.000	0.00	0.00	0.00
500.000	0.00	0.000	500.000	0.000	0.000	0.000	0.00	0.00	0.00
600.000	0.00	0.000	600.000	0.000	0.000	0.000	0.00	0.00	0.00
700.000	0.00	0.000	700.000	0.000	0.000	0.000	0.00	0.00	0.00
800.000	0.00	0.000	800.000	0.000	0.000	0.000	0.00	0.00	0.00
900.000	0.00	0.000	900.000	0.000	0.000	0.000	0.00	0.00	0.00
1,000.000	0.00	0.000	1,000.000	0.000	0.000	0.000	0.00	0.00	0.00
1,100.000	0.00	0.000	1,100.000	0.000	0.000	0.000	0.00	0.00	0.00
1,200.000	0.00	0.000	1,200.000	0.000	0.000	0.000	0.00	0.00	0.00
1,300.000	0.00	0.000	1,300.000	0.000	0.000	0.000	0.00	0.00	0.00
1,400.000	0.00	0.000	1,400.000	0.000	0.000	0.000	0.00	0.00	0.00
1,500.000	0.00	0.000	1,500.000	0.000	0.000	0.000	0.00	0.00	0.00
1,600.000	0.00	0.000	1,600.000	0.000	0.000	0.000	0.00	0.00	0.00
1,700.000	0.00	0.000	1,700.000	0.000	0.000	0.000	0.00	0.00	0.00
1,800.000	0.00	0.000	1,800.000	0.000	0.000	0.000	0.00	0.00	0.00
1,900.000	0.00	0.000	1,900.000	0.000	0.000	0.000	0.00	0.00	0.00
2,000.000	0.00	0.000	2,000.000	0.000	0.000	0.000	0.00	0.00	0.00
2,100.000	0.00	0.000	2,100.000	0.000	0.000	0.000	0.00	0.00	0.00
2,200.000	0.00	0.000	2,200.000	0.000	0.000	0.000	0.00	0.00	0.00
2,300.000	0.00	0.000	2,300.000	0.000	0.000	0.000	0.00	0.00	0.00
2,400.000	0.00	0.000	2,400.000	0.000	0.000	0.000	0.00	0.00	0.00
2,500.000	0.00	0.000	2,500.000	0.000	0.000	0.000	0.00	0.00	0.00
2,600.000	0.00	0.000	2,600.000	0.000	0.000	0.000	0.00	0.00	0.00
2,700.000	0.00	0.000	2,700.000	0.000	0.000	0.000	0.00	0.00	0.00
2,800.000	0.00	0.000	2,800.000	0.000	0.000	0.000	0.00	0.00	0.00
2,900.000	0.00	0.000	2,900.000	0.000	0.000	0.000	0.00	0.00	0.00
2,954.364	0.00	0.000	2,954.364	0.000	0.000	0.000	0.00	0.00	0.00
3,000.000	0.91	301.000	2,999.998	0.187	-0.312	0.312	2.00	2.00	0.00
3,100.000	2.91	301.000	3,099.937	1.906	-3.172	3.172	2.00	2.00	0.00
3,200.000	4.91	301.000	3,199.699	5.420	-9.021	9.021	2.00	2.00	0.00
3,300.000	6.91	301.000	3,299.162	10.726	-17.851	17.851	2.00	2.00	0.00
3,400.000	8.91	301.000	3,398.205	17.816	-29.650	29.650	2.00	2.00	0.00
3,500.000	10.91	301.000	3,496.707	26.681	-44.405	44.405	2.00	2.00	0.00
3,600.000	12.91	301.000	3,594.548	37.312	-62.098	62.098	2.00	2.00	0.00
3,700.000	14.91	301.000	3,691.610	49.696	-82.707	82.707	2.00	2.00	0.00
3,800.000	16.91	301.000	3,787.773	63.816	-106.207	106.207	2.00	2.00	0.00
3,900.000	18.91	301.000	3,882.921	79.656	-132.570	132.570	2.00	2.00	0.00
4,000.000	20.91	301.000	3,976.937	97.197	-161.762	161.762	2.00	2.00	0.00
4,100.000	22.91	301.000	4,069.708	116.416	-193.750	193.750	2.00	2.00	0.00
4,200.000	24.91	301.000	4,161.119	137.292	-228.493	228.493	2.00	2.00	0.00
4,300.000	26.91	301.000	4,251.061	159.798	-265.949	265.949	2.00	2.00	0.00
4,400.000	28.91	301.000	4,339.423	183.907	-306.073	306.073	2.00	2.00	0.00
4,454.364	30.00	301.000	4,386.758	197.676	-328.988	328.988	2.00	2.00	0.00
4,500.000	32.85	295.313	4,425.706	208.849	-349.965	349.965	9.00	6.24	-12.46
4,550.000	36.21	290.042	4,466.901	219.714	-376.112	376.112	9.00	6.74	-10.54
4,600.000	39.78	285.576	4,506.304	229.075	-405.411	405.411	9.00	7.13	-8.93
4,650.000	43.49	281.742	4,543.673	236.876	-437.682	437.682	9.00	7.42	-7.67
4,700.000	47.31	278.407	4,578.778	243.067	-472.725	472.725	9.00	7.65	-6.67
4,750.000	51.22	275.462	4,611.402	247.612	-510.325	510.325	9.00	7.82	-5.89
4,800.000	55.20	272.826	4,641.343	250.480	-550.250	550.250	9.00	7.95	-5.27



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Site:	Picard	North Reference:	Grid
Well:	Picard Federal #3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,850.000	59.22	270.435	4,668.418	251.656	-592.253	592.253	9.00	8.05	-4.78	
4,859.577	60.00	270.000	4,673.263	251.687	-600.514	600.514	9.00	8.10	-4.54	
4,900.000	60.00	270.000	4,693.474	251.687	-635.522	635.522	0.00	0.00	0.00	
4,934.577	60.00	270.000	4,710.763	251.687	-665.466	665.466	0.00	0.00	0.00	
4,950.000	61.84	269.794	4,718.258	251.663	-678.945	678.945	12.00	11.94	-1.34	
4,975.000	64.83	269.474	4,729.476	251.519	-701.283	701.283	12.00	11.95	-1.28	
5,000.000	67.82	269.170	4,739.515	251.248	-724.174	724.174	12.00	11.95	-1.22	
5,025.000	70.80	268.879	4,748.347	250.849	-747.555	747.555	12.00	11.95	-1.17	
5,050.000	73.79	268.598	4,755.948	250.324	-771.363	771.363	12.00	11.95	-1.12	
5,075.000	76.78	268.325	4,762.298	249.675	-795.532	795.532	12.00	11.95	-1.09	
5,100.000	79.77	268.059	4,767.378	248.902	-819.995	819.995	12.00	11.95	-1.06	
5,125.000	82.76	267.798	4,771.175	248.009	-844.686	844.686	12.00	11.96	-1.04	
5,150.000	85.75	267.540	4,773.679	246.997	-869.537	869.537	12.00	11.96	-1.03	
5,175.000	88.74	267.284	4,774.883	245.870	-894.479	894.479	12.00	11.96	-1.02	
5,185.579	90.00	267.177	4,774.999	245.359	-905.045	905.045	12.00	11.96	-1.02	
5,200.000	90.00	267.177	4,774.999	244.648	-919.449	919.449	0.00	0.00	0.00	
5,300.000	90.00	267.177	4,774.999	239.722	-1,019.327	1,019.327	0.00	0.00	0.00	
5,400.000	90.00	267.177	4,774.999	234.797	-1,119.206	1,119.206	0.00	0.00	0.00	
5,500.000	90.00	267.177	4,774.999	229.871	-1,219.084	1,219.084	0.00	0.00	0.00	
5,600.000	90.00	267.177	4,774.999	224.945	-1,318.963	1,318.963	0.00	0.00	0.00	
5,700.000	90.00	267.177	4,774.999	220.019	-1,418.842	1,418.842	0.00	0.00	0.00	
5,800.000	90.00	267.177	4,774.999	215.093	-1,518.720	1,518.720	0.00	0.00	0.00	
5,900.000	90.00	267.177	4,774.999	210.167	-1,618.599	1,618.599	0.00	0.00	0.00	
6,000.000	90.00	267.177	4,774.999	205.241	-1,718.477	1,718.477	0.00	0.00	0.00	
6,100.000	90.00	267.177	4,774.999	200.315	-1,818.356	1,818.356	0.00	0.00	0.00	
6,200.000	90.00	267.177	4,774.999	195.389	-1,918.235	1,918.235	0.00	0.00	0.00	
6,300.000	90.00	267.177	4,774.999	190.464	-2,018.113	2,018.113	0.00	0.00	0.00	
6,400.000	90.00	267.177	4,774.999	185.538	-2,117.992	2,117.992	0.00	0.00	0.00	
6,500.000	90.00	267.177	4,774.999	180.612	-2,217.870	2,217.870	0.00	0.00	0.00	
6,600.000	90.00	267.177	4,774.999	175.686	-2,317.749	2,317.749	0.00	0.00	0.00	
6,700.000	90.00	267.177	4,774.999	170.760	-2,417.628	2,417.628	0.00	0.00	0.00	
6,800.000	90.00	267.177	4,774.999	165.834	-2,517.506	2,517.506	0.00	0.00	0.00	
6,900.000	90.00	267.177	4,774.999	160.908	-2,617.385	2,617.385	0.00	0.00	0.00	
7,000.000	90.00	267.177	4,774.999	155.982	-2,717.263	2,717.263	0.00	0.00	0.00	
7,100.000	90.00	267.177	4,774.999	151.056	-2,817.142	2,817.142	0.00	0.00	0.00	
7,200.000	90.00	267.177	4,774.999	146.131	-2,917.021	2,917.021	0.00	0.00	0.00	
7,300.000	90.00	267.177	4,775.000	141.205	-3,016.899	3,016.899	0.00	0.00	0.00	
7,400.000	90.00	267.177	4,775.000	136.279	-3,116.778	3,116.778	0.00	0.00	0.00	
7,500.000	90.00	267.177	4,775.000	131.353	-3,216.656	3,216.656	0.00	0.00	0.00	
7,600.000	90.00	267.177	4,775.000	126.427	-3,316.535	3,316.535	0.00	0.00	0.00	
7,700.000	90.00	267.177	4,775.000	121.501	-3,416.414	3,416.414	0.00	0.00	0.00	
7,800.000	90.00	267.177	4,775.000	116.575	-3,516.292	3,516.292	0.00	0.00	0.00	
7,900.000	90.00	267.177	4,775.000	111.649	-3,616.171	3,616.171	0.00	0.00	0.00	
8,000.000	90.00	267.177	4,775.000	106.723	-3,716.049	3,716.049	0.00	0.00	0.00	
8,100.000	90.00	267.177	4,775.000	101.797	-3,815.928	3,815.928	0.00	0.00	0.00	
8,200.000	90.00	267.177	4,775.000	96.872	-3,915.807	3,915.807	0.00	0.00	0.00	
8,300.000	90.00	267.177	4,775.000	91.946	-4,015.685	4,015.685	0.00	0.00	0.00	
8,400.000	90.00	267.177	4,775.000	87.020	-4,115.564	4,115.564	0.00	0.00	0.00	
8,500.000	90.00	267.177	4,775.000	82.094	-4,215.442	4,215.442	0.00	0.00	0.00	
8,600.000	90.00	267.177	4,775.000	77.168	-4,315.321	4,315.321	0.00	0.00	0.00	
8,700.000	90.00	267.177	4,775.000	72.242	-4,415.200	4,415.200	0.00	0.00	0.00	
8,800.000	90.00	267.177	4,775.000	67.316	-4,515.078	4,515.078	0.00	0.00	0.00	
8,900.000	90.00	267.177	4,775.000	62.390	-4,614.957	4,614.957	0.00	0.00	0.00	
9,000.000	90.00	267.177	4,775.000	57.464	-4,714.835	4,714.835	0.00	0.00	0.00	

Database:	EDM 5000.14	Local Co-ordinate Reference:	Well Picard Federal #3H
Company:	EOG Resources - Artesia	TVD Reference:	KB @ 3748.000usft (Planning Rig)
Project:	Eddy County (NAD83)	MD Reference:	KB @ 3748.000usft (Planning Rig)
Site:	Picard	North Reference:	Grid
Well:	Picard Federal #3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,100.000	90.00	267.177	4,775.000	52.539	-4,814.714	4,814.714	0.00	0.00	0.00
9,200.000	90.00	267.177	4,775.000	47.613	-4,914.593	4,914.593	0.00	0.00	0.00
9,300.000	90.00	267.177	4,775.000	42.687	-5,014.471	5,014.471	0.00	0.00	0.00
9,400.000	90.00	267.177	4,775.000	37.761	-5,114.350	5,114.350	0.00	0.00	0.00
9,500.000	90.00	267.177	4,775.000	32.835	-5,214.228	5,214.228	0.00	0.00	0.00
9,600.000	90.00	267.177	4,775.000	27.909	-5,314.107	5,314.107	0.00	0.00	0.00
9,700.000	90.00	267.177	4,775.000	22.983	-5,413.986	5,413.986	0.00	0.00	0.00
9,800.000	90.00	267.177	4,775.000	18.057	-5,513.864	5,513.864	0.00	0.00	0.00
9,900.000	90.00	267.177	4,775.000	13.131	-5,613.743	5,613.743	0.00	0.00	0.00
10,000.000	90.00	267.177	4,775.000	8.206	-5,713.621	5,713.621	0.00	0.00	0.00
10,100.000	90.00	267.177	4,775.000	3.280	-5,813.500	5,813.500	0.00	0.00	0.00
10,166.580	90.00	267.177	4,775.000	0.000	-5,880.000	5,880.000	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
[PF#3H]UMP1	0.00	0.000	4,775.000	250.000	-801.000	677,796.00	669,142.00	32° 51' 45.328 N	103° 55' 1.569 W
- plan misses target center by 11.198usft at 5082.924usft MD (4764.046 TVD, 249.443 N, -803.257 E)									
- Point									
[PF#3H]BHL1	0.00	0.000	4,775.000	0.000	-5,880.000	677,546.00	664,063.00	32° 51' 43.048 N	103° 56' 1.127 W
- plan hits target center									
- Point									

1100

Project: Eddy County (NAD83)  
Site: Picard  
Well: Picard Federal #3H  
Wellbore: Lateral  
Design: Plan #1  
Ground Elevation 3730.000  
Northing 677546.00  
Easting 669943.00  
KB @ 3748.000usft (Planning Rig)

PROJECT DETAILS: Eddy County (NAD83)

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.000
2	400.000	0.00	0.000	400.000	0.000	0.000	0.00	0.00	0.000
3	2954.364	0.00	0.000	2954.364	0.000	0.000	0.00	0.00	0.000
4	4454.364	30.00	301.000	4386.758	197.676	-328.988	2.00	301.00	328.988
5	4859.577	60.00	270.000	4673.263	251.687	-600.514	9.00	-48.63	600.514
6	4934.577	60.00	270.000	4710.763	251.687	-665.466	0.00	0.00	665.466
7	5185.579	90.00	267.177	4775.000	245.359	-905.045	12.00	-5.63	905.045
8	10166.581	90.00	267.177	4775.000	0.0095880	0.000	0.00	0.00	5880.000

Azimuths to Grid North  
True North: -0.23°  
Magnetic North: 6.78°  
Magnetic Field  
Strength: 48129.6snT  
Dip Angle: 60.57°  
Date: 11/20/2018  
Model: IGRF2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
[PF#3H]BHL1	4775.000	0.000	-5880.000	677546.00	664063.00
- plan hits target center					
[PF#3H]JUMP1	4775.000	250.000	-801.000	677796.00	669142.00
- plan misses target center by 11.198usft at 5082.924usft MD (4764.046 TVD, 249.443 N, -803.257 E)					

