

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

OCD - HOBBS
08/28/2020
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM110835
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator EOG RESOURCES INCORPORATED [7377]		8. Lease Name and Well No. MERCILESS 13 FED COM [328894] 701H
3a. Address 1111 BAGBY ST., SKY LOBBY 2, Houston, TX 77002	3b. Phone No. (include area code) (713) 651-7000	9. API Well No. 30-025-47668 WC-025 G-09 S253309P; UPR WC
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWNW / 200 FNL / 638 FWL / LAT 32.1372411 / LONG -103.6349791 At proposed prod. zone SWNW / 2544 FNL / 330 FWL / LAT 32.1162841 / LONG -103.6360163		10. Field and Pool, or Exploratory [98180] PERMIAN/SANDERS-TANK; UPPER WO-
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area SEC 13/T25S/R32E/NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 100 feet		12. County or Parish LEA
16. No of acres in lease 1600		13. State NM
17. Spacing Unit dedicated to this well 480.0		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 33 feet		
19. Proposed Depth 12209 feet / 19786 feet		
20. BLM/BIA Bond No. in file FED: NM2308		
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3481 feet		
22. Approximate date work will start* 06/10/2020		
23. Estimated duration 25 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) JAYNA HOBBS / Ph: (713) 651-7000	Date 12/10/2019
Title Regulatory Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575) 234-5959	Date 07/15/2020
Title Assistant Field Manager Lands & Minerals		
Office Carlsbad Field Office		

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.

GCP Rec 08/28/2020

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(Continued on page 2)

APPROVED WITH CONDITIONS
Approval Date: 07/15/2020

KZ
09/14/2020

*(Instructions 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 I: 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 a new 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

0. SHL: NWNW / 200 FNL / 638 FWL / TWSP: 25S / RANGE: 32E / SECTION: 13 / LAT: 32.1372411 / LONG: -103.6349791 (TVD: 0 feet, MD: 0 feet)

PPP: NWNW / 100 FNL / 330 FWL / TWSP: 25S / RANGE: 32E / SECTION: 13 / LAT: 32.1375114 / LONG: -103.6359744 (TVD: 11944 feet, MD: 11962 feet)

BHL: SWNW / 2544 FNL / 330 FWL / TWSP: 25S / RANGE: 32E / SECTION: 24 / LAT: 32.1162841 / LONG: -103.6360163 (TVD: 12209 feet, MD: 19786 feet)

BLM Point of Contact

Name: Tanja Baca

Title: Land Law Examiner

Phone: (575) 234-5940

Email: tabaca@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
SURFACE USE
CONDITIONS OF APPROVAL**

**Merciless 13 Fed Com
Lease Number NMNM 110835
 NMLC 0071986
 NMNM 015912
 NMNM 110836**

**Well Pads, Central Tank Battery, Access Road,
Buried Flowlines/Gas Lift Lines, Water Line, Gas Line,
Localized Gas Lift, and Electric Line
EOG Resources Inc.**

Table 1: Proposed Wells and Legal Land Descriptions

Well Name	SHL/BHL	Footage N/S	Footage E/W	Sec.; Township; Range
Well Pad 1 Center of Pad: 250' FNL 609' FWL				
Merciless 13 Fed Com #501H	SHL	260' FNL	546' FWL	Section 13; T25S; R32E
	BHL	2,544' FNL	330' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #502H	SHL	260' FNL	579' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	885' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #701H	SHL	200' FNL	638' FWL	Section 13; T25S; R32E
	BHL	2,544' FNL	330' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #721H	SHL	200' FNL	671' FWL	Section 13; T25S; R32E
	BHL	2,544' FNL	660' FWL	Section 24; T25S; R32E
Well Pad 2 Center of Pad: 250' FNL 1,272' FWL				
Merciless 13 Fed Com #702H	SHL	200' FNL	1,255' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	1,010' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #740H	SHL	200' FNL	1,288' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	1,310' FWL	Section 24; T25S; R32E
Well Pad 3 Center of Pad: 250' FNL 2,099' FWL				
Merciless 13 Fed Com #503H	SHL	260' FNL	2,003' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	1,440' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #504H	SHL	260' FNL	2,036' FWL	Section 13; T25S; R32E

	BHL	2,543' FNL	1,995' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #505H	SHL	260' FNL	2,069' FWL	Section 13; T25S; R32E
	BHL	2,542' FNL	2,550' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #703H	SHL	200' FNL	2,129' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	2,129' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #740H	SHL	200' FNL	2,195' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	2,328' FWL	Section 24; T25S; R32E
Merciless 13 Fed Com #722H	SHL	200' FNL	2,162' FWL	Section 13; T25S; R32E
	BHL	2,543' FNL	1,980' FWL	Section 24; T25S; R32E
Well Pad 4 Center of Pad: 339' FNL 2,205' FEL				
Merciless 13 Fed Com #506H	SHL	349' FNL	2,284' FEL	Section 13; T25S; R32E
	BHL	2,542' FNL	1,980' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #507H	SHL	349' FNL	2,251' FEL	Section 13; T25S; R32E
	BHL	2,541' FNL	1,630' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #705H	SHL	289' FNL	2,192' FEL	Section 13; T25S; R32E
	BHL	2,542' FNL	2,329' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #706H	SHL	290' FNL	2,126' FE	Section 13; T25S; R32E
	BHL	2,541' FNL	1,669' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #723H	SHL	290' FNL	2,159' FEL	Section 13; T25S; R32E
	BHL	2,542' FNL	1,980' FEL	Section 24; T25S; R32E
Well Pad 5 Center of Pad: 550' FNL 1,366' FEL				
Merciless 13 Fed Com #741H	SHL	498' FNL	1,359' FEL	Section 13; T25S; R32E
	BHL	2,541' FNL	1,310' FE	Section 24; T25S; R32E
Merciless 13 Fed Com #707H	SHL	512' FNL	1,329' FEL	Section 13; T25S; R32E
	BHL	2,541' FNL	1,010' FEL	Section 24; T25S; R32E
Well Pad 6 Center of Pad: 300' FNL 517' FEL				
Merciless 13 Fed Com #508H	SHL	311' FNL	579' FEL	Section 13; T25S; R32E
	BHL	2,541' FNL	1,075' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #509H	SHL	311' FNL	546' FEL	Section 13; T25S; R32E
	BHL	2,540' FNL	520' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #724H	SHL	251' FNL	487' FEL	Section 13; T25S; R32E
	BHL	2,540' FNL	660' FEL	Section 24; T25S; R32E
Merciless 13 Fed Com #708H	SHL	251' FNL	453' FEL	Section 13; T25S; R32E
	BHL	2,540' FNL	330' FEL	Section 24; T25S; R32E

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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**
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- ☐ **Construction**
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 - Topsoil
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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.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

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.

Avian Power line Protection:

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 power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

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.

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

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

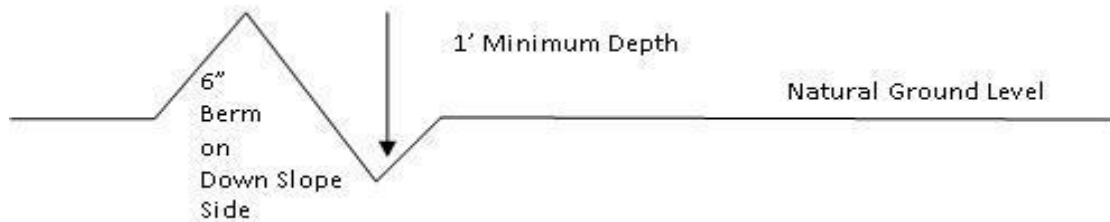
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping 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

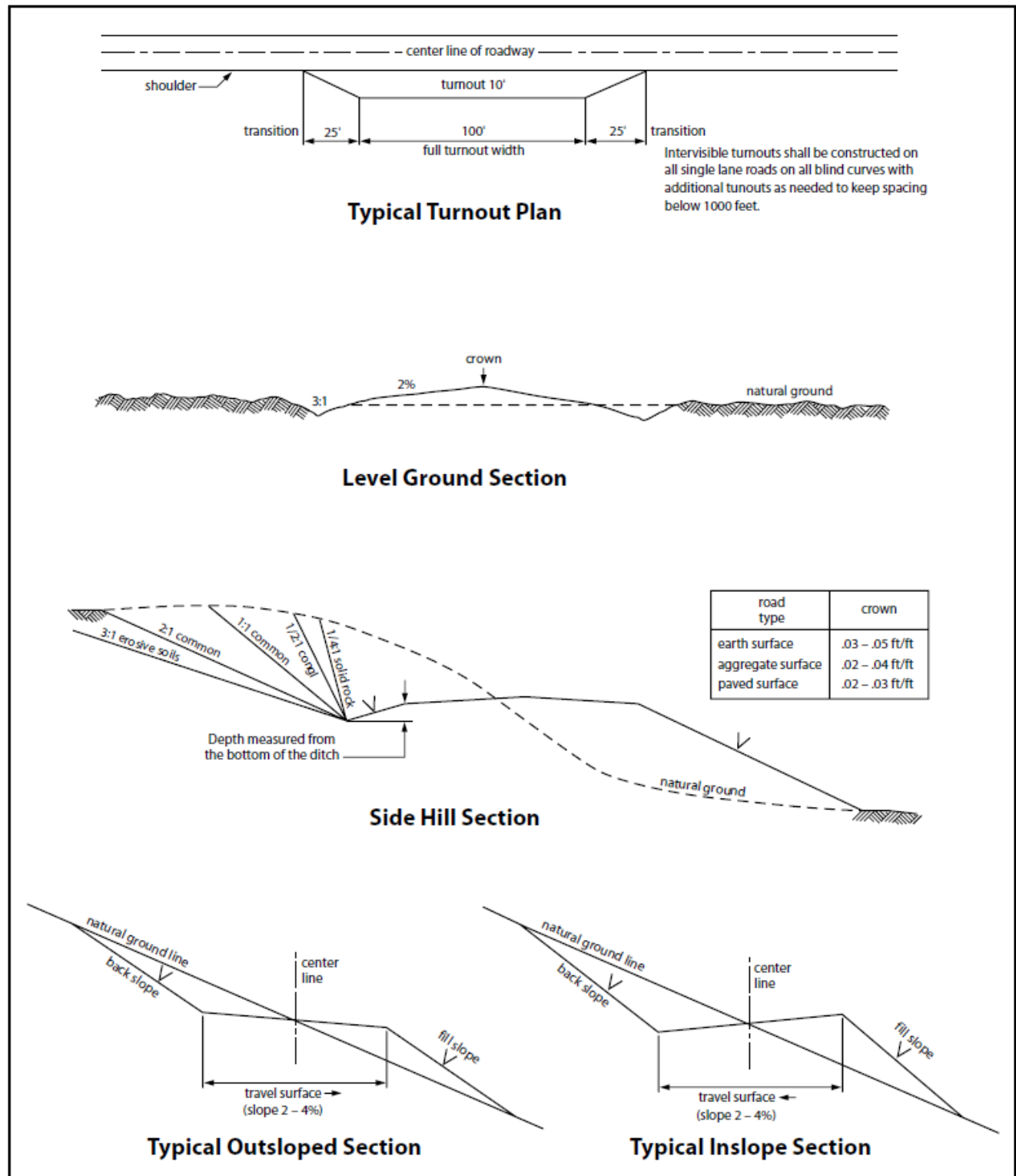


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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.

- | | |
|---|--|
| ☐ seed mixture 1 | ☐ seed mixture 3 |
| ☐ seed mixture 2 | ☐ seed mixture 4 |
| ☒ seed mixture 2/LP | ☐ 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.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) 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 activity of 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. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:
 - a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
 - b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.

- (3) Blasting.
- (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, 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, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the 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 the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. 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.

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. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. 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. Signs will be maintained in a legible condition for the life of the pipeline.

14. 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. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. 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 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.

16. 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, powerline 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.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

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

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG RESOURCES
LEASE NO.:	NMNM110835
WELL NAME & NO.:	MERCILESS 13 FED COM 701H
SURFACE HOLE FOOTAGE:	200'/N & 638'/W
BOTTOM HOLE FOOTAGE:	2544'/N & 330'/W
LOCATION:	Section 13, T.25 S., R.32 E., NMPM
COUNTY:	Lea County, New Mexico

COA

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

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** 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

1. The **9-5/8** inch surface casing shall be set at approximately **1,000** feet (a minimum of **25 feet (Lea 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 **7-5/8** inch intermediate casing is:

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage.

First Stage

- Operator will cement to **7,360** feet with intent to reach the top of Brushy Canyon.

Second Stage

- Operator will perform bradenhead squeeze. Cement to surface. If cement does not circulate see B.1.a, c-d above.

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus. Operator must run Echo-meter to verify fluid top and the volume of displacement fluid above the cement slurry in the annulus.

3. The minimum required fill of cement behind the **5-1/2** 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 **10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) 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.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

JJP07022020

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 2nd 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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources
Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

FORM C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

OCD - HOBBS
08/28/2020
RECEIVED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-47668		² Pool Code 98180	³ Pool Name WC-025 G-09 S253309P; UPR WOLFCAMP
⁴ Property Code 328894	⁵ Property Name MERCILESS 13 FED COM		⁶ Well Number 701H
⁷ OGRID No. 7377	⁸ Operator Name EOG RESOURCES, INC.		⁹ Elevation 3481'

¹⁰Surface Location

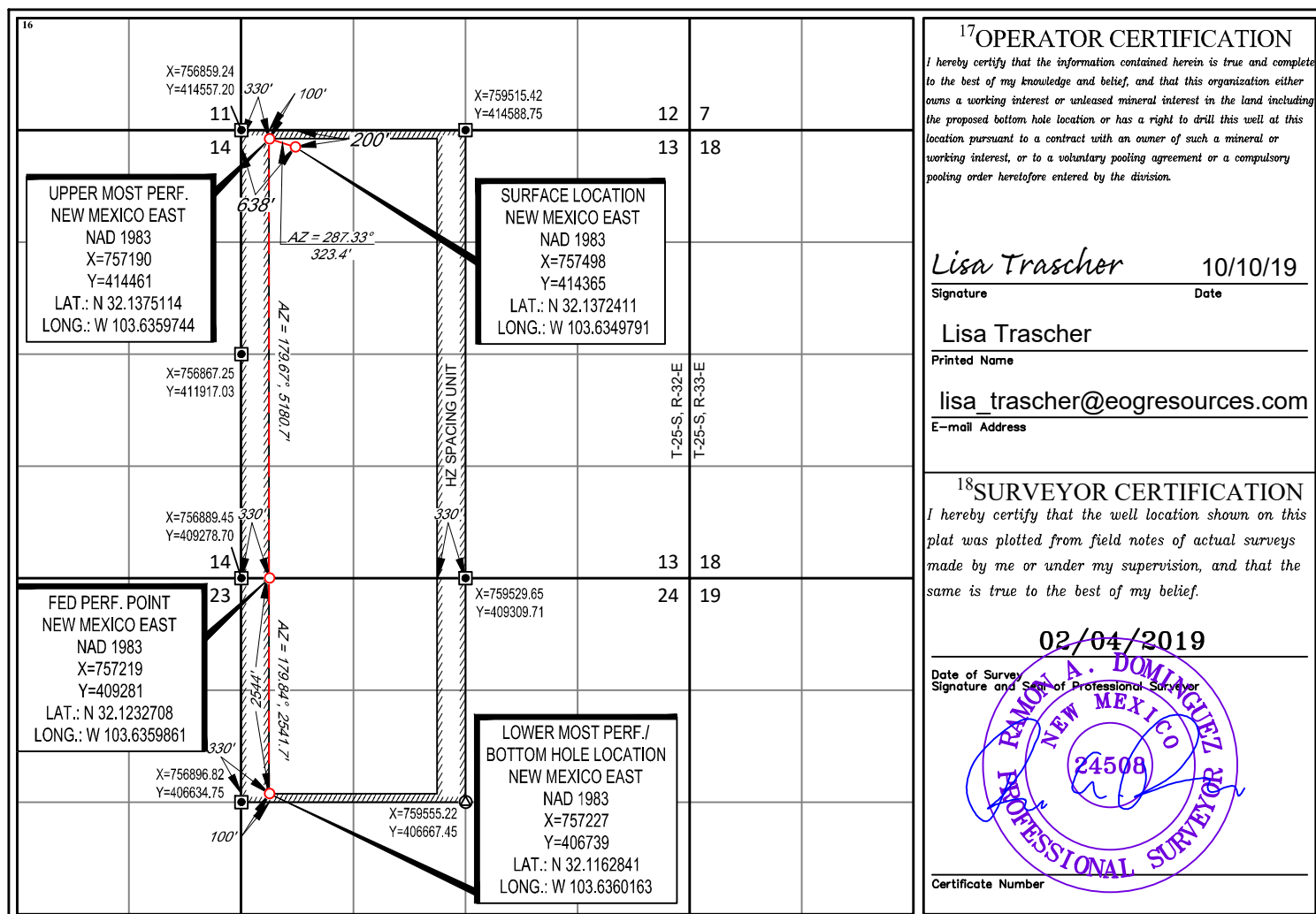
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	13	25-S	32-E	-	200'	NORTH	638'	WEST	LEA

¹¹Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	24	25-S	32-E	-	2544'	NORTH	330'	WEST	LEA

¹² Dedicated Acres 480.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Lisa Trascher 10/10/19
Signature Date

Lisa Trascher
Printed Name
lisa_trascher@eogresources.com
E-mail Address

¹⁸SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true to the best of my belief.

02/04/2019

Date of Survey
Signature and Seal of Professional Surveyor

RAMON A. DOMINGUEZ
NEW MEXICO
24508
PROFESSIONAL SURVEYOR
Certificate Number

Intent ☐ As Drilled ☐

API # **30-025-47668**

Operator Name:	Property Name:	Well Number
----------------	----------------	-------------

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #	Operator Name:	Property Name:	Well Number
-------	----------------	----------------	-------------

MERICESS 13 FED COM #701H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	880'
Tamarisk Anhydrite	936'
Top of Salt	1,200'
Base of Salt	4,620'
Lamar	4,826'
Bell Canyon	4,880'
Cherry Canyon	5,801'
Brushy Canyon	7,360'
Bone Spring Lime	8,800'
Leonard	8,981'
1 st Bone Spring Sand	9,871'
2 nd Bone Spring Shale	10,245'
2 nd Bone Spring Sand	10,391'
3 rd Bone Spring Carb	10,986'
3 rd Bone Spring Sand	11,651'
Wolfcamp	12,091'
TD	12,209'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	5,801'	Oil
Brushy Canyon	7,360'	Oil
1 st Bone Spring Sand	9,871'	Oil
2 nd Bone Spring Shale	10,245'	Oil
2 nd Bone Spring Sand	10,391'	Oil
3 rd Bone Spring Carb	10,986'	Oil
3 rd Bone Spring Sand	11,651'	Oil
Wolfcamp	12,091'	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 9.625" casing at 1,000' and circulating cement back to surface.

MERICESS 13 FED COM #701H

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
12.25"	0' – 1,000'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
8.75"	0' – 11,110'	7.625"	29.7#	HCP-110	FXL	1.125	1.25	1.60
6.75"	0' – 10,610'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,610'–11,110'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60
6.75"	11,110' – 19,786'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60

Variance is requested to waive the centralizer requirements for the 7-5/8" FJ casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 5-1/2" FJ casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive the annular clearance requirements for the 5-1/2" casing by 7-5/8" casing annulus to the proposed top of cement.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement from Onshore Order #2 under the following conditions:

- Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casing strings.
- Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /sk	Slurry Description
1,000' 9-5/8"	850	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	100	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 800')
11,110' 7-5/8"	450	14.2	1.11	1 st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,350')
	1,000	12.7	2.30	2 nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
19,786' 5-1/2"	830	14.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,610')

MERICESS 13 FED COM #701H

Additive	Purpose
Bentonite Gel	Lightweight/Lost circulation prevention
Calcium Chloride	Accelerator
Cello-flake	Lost circulation prevention
Sodium Metasilicate	Accelerator
MagOx	Expansive agent
Pre-Mag-M	Expansive agent
Sodium Chloride	Accelerator
FL-62	Fluid loss control
Halad-344	Fluid loss control
Halad-9	Fluid loss control
HR-601	Retarder
Microbond	Expansive Agent

EOG requests to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (7,360') and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of 1,000 sacks of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. The final cement top will be verified by Echo-meter.

EOG will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

EOG will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-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.

MERICESS 13 FED COM #701H

Variance is requested to use a 5,000 psi annular BOP with the 10,000 psi BOP stack.

Pipe rams and 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 intermediate 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 – 1,000'	Fresh - Gel	8.6-8.8	28-34	N/c
1,000' – 11,110'	Brine	10.0-10.2	28-34	N/c
11,110' – 11,741'	Oil Base	8.7-9.4	58-68	N/c - 6
11,741' – 19,786' Lateral	Oil Base	10.0-14.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 11.5 ppg. In order to maintain hole stability, mud weights up to 14.0 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.

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) H₂S 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.

MERICESS 13 FED COM #701H

GR-CCL Will be run in cased hole during completions phase of operations.

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

The estimated bottom-hole temperature (BHT) at TD is 181 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 8,878 psig and a maximum anticipated surface pressure of 6,192 psig (based on 14.0 ppg MW). No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from 7,300' to Intermediate 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.

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 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10,000 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 10,000 psi.

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

MERICESS 13 FED COM #701H

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.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

Casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

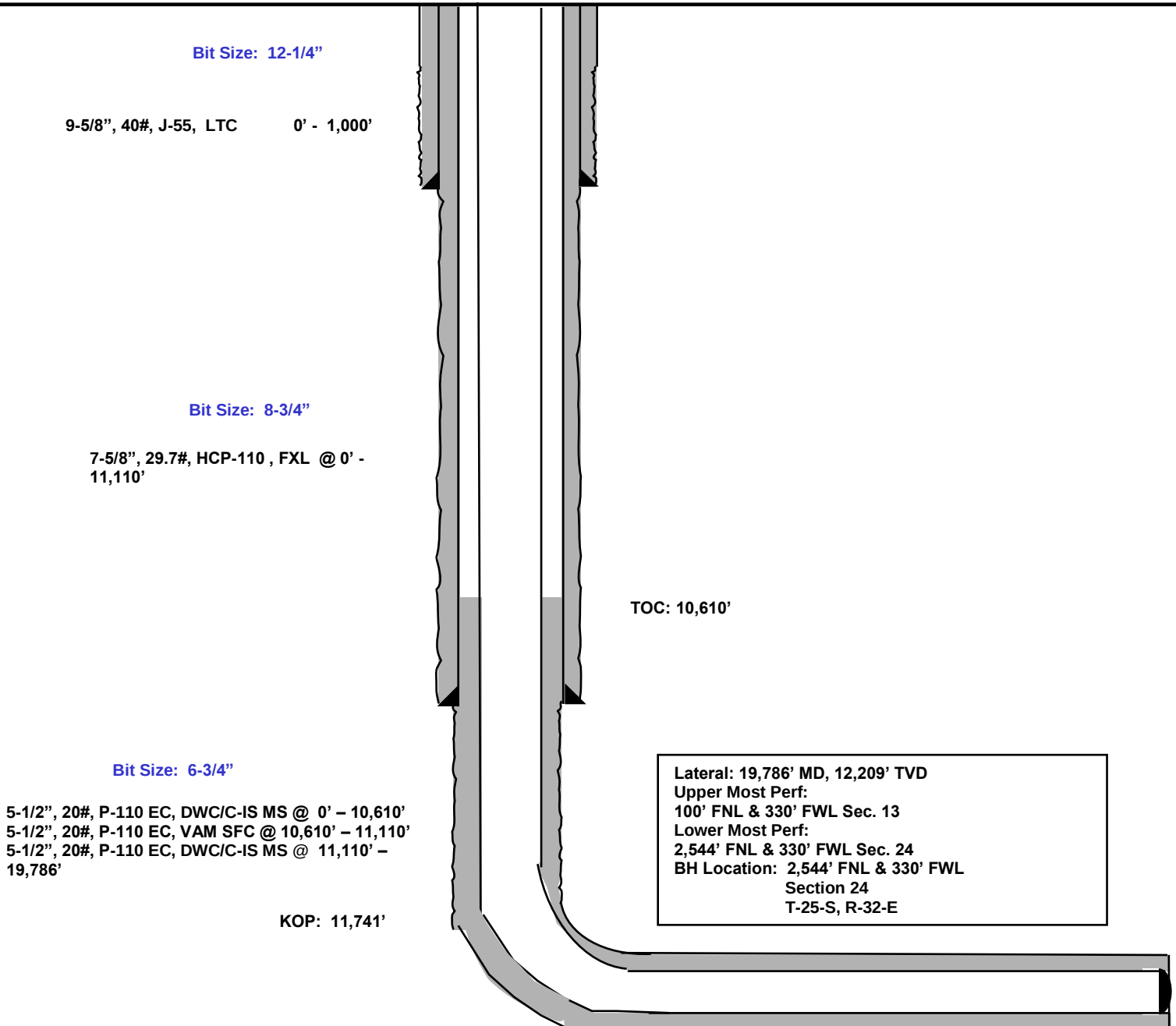
MERICESS 13 FED COM #701H

200' FNL
638' FWL
Section 13
T-25-S, R-32-E

Proposed Wellbore

API: 30-025-*****

KB: 3,506'
GL: 3,481'





EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Merciless 13 Fed Com

#701H

OH

Plan: Plan #0.1

Standard Planning Report

19 November, 2019

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Merciless 13 Fed Com					
Site Position:		Northing:	414,304.00 usft	Latitude:	32° 8' 13.472 N	
From:	Map	Easting:	757,406.00 usft	Longitude:	103° 38' 7.002 W	
Position Uncertainty:		0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.37 °

Well	#701H					
Well Position	+N/-S	61.0 usft	Northing:	414,365.00 usft	Latitude:	32° 8' 14.070 N
	+E/-W	92.0 usft	Easting:	757,498.00 usft	Longitude:	103° 38' 5.928 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,481.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/18/2019	6.71	59.94	47,630.85771053

Design	Plan #0.1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	182.04

Plan Survey Tool Program	Date	11/18/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,785.7 Plan #0.1 (OH)	MWD	
			OWSG MWD - Standard	

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,362.6	3.25	295.36	1,362.6	2.0	-4.2	2.00	2.00	0.00	295.36	
7,206.9	3.25	295.36	7,197.4	144.0	-303.8	0.00	0.00	0.00	0.00	
7,369.6	0.00	0.00	7,360.0	146.0	-308.0	2.00	-2.00	0.00	180.00	
11,741.1	0.00	0.00	11,731.5	146.0	-308.0	0.00	0.00	0.00	0.00	KOP(Merciless 13 FC
11,961.5	26.46	180.00	11,944.2	96.0	-308.0	12.00	12.00	81.65	180.00	FTP(Merciless 13 FC
12,491.1	90.00	179.67	12,208.9	-331.5	-306.3	12.00	12.00	-0.06	-0.37	
17,243.7	90.00	179.67	12,209.0	-5,084.0	-279.0	0.00	0.00	0.00	0.00	Fed PP(Merciless 13
19,785.7	90.00	179.97	12,209.0	-7,626.0	-271.0	0.01	0.00	0.01	89.74	PBHL(Merciless 13 F

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	2.00	295.36	1,300.0	0.7	-1.6	-0.7	2.00	2.00	0.00
1,362.6	3.25	295.36	1,362.6	2.0	-4.2	-1.8	2.00	2.00	0.00
1,400.0	3.25	295.36	1,399.9	2.9	-6.1	-2.7	0.00	0.00	0.00
1,500.0	3.25	295.36	1,499.7	5.3	-11.2	-4.9	0.00	0.00	0.00
1,600.0	3.25	295.36	1,599.5	7.7	-16.3	-7.2	0.00	0.00	0.00
1,700.0	3.25	295.36	1,699.4	10.2	-21.5	-9.4	0.00	0.00	0.00
1,800.0	3.25	295.36	1,799.2	12.6	-26.6	-11.7	0.00	0.00	0.00
1,900.0	3.25	295.36	1,899.0	15.0	-31.7	-13.9	0.00	0.00	0.00
2,000.0	3.25	295.36	1,998.9	17.5	-36.9	-16.1	0.00	0.00	0.00
2,100.0	3.25	295.36	2,098.7	19.9	-42.0	-18.4	0.00	0.00	0.00
2,200.0	3.25	295.36	2,198.6	22.3	-47.1	-20.6	0.00	0.00	0.00
2,300.0	3.25	295.36	2,298.4	24.8	-52.2	-22.9	0.00	0.00	0.00
2,400.0	3.25	295.36	2,398.2	27.2	-57.4	-25.1	0.00	0.00	0.00
2,500.0	3.25	295.36	2,498.1	29.6	-62.5	-27.4	0.00	0.00	0.00
2,600.0	3.25	295.36	2,597.9	32.1	-67.6	-29.6	0.00	0.00	0.00
2,700.0	3.25	295.36	2,697.8	34.5	-72.7	-31.9	0.00	0.00	0.00
2,800.0	3.25	295.36	2,797.6	36.9	-77.9	-34.1	0.00	0.00	0.00
2,900.0	3.25	295.36	2,897.4	39.3	-83.0	-36.4	0.00	0.00	0.00
3,000.0	3.25	295.36	2,997.3	41.8	-88.1	-38.6	0.00	0.00	0.00
3,100.0	3.25	295.36	3,097.1	44.2	-93.3	-40.9	0.00	0.00	0.00
3,200.0	3.25	295.36	3,197.0	46.6	-98.4	-43.1	0.00	0.00	0.00
3,300.0	3.25	295.36	3,296.8	49.1	-103.5	-45.4	0.00	0.00	0.00
3,400.0	3.25	295.36	3,396.6	51.5	-108.6	-47.6	0.00	0.00	0.00
3,500.0	3.25	295.36	3,496.5	53.9	-113.8	-49.9	0.00	0.00	0.00
3,600.0	3.25	295.36	3,596.3	56.4	-118.9	-52.1	0.00	0.00	0.00
3,700.0	3.25	295.36	3,696.1	58.8	-124.0	-54.3	0.00	0.00	0.00
3,800.0	3.25	295.36	3,796.0	61.2	-129.1	-56.6	0.00	0.00	0.00
3,900.0	3.25	295.36	3,895.8	63.6	-134.3	-58.8	0.00	0.00	0.00
4,000.0	3.25	295.36	3,995.7	66.1	-139.4	-61.1	0.00	0.00	0.00
4,100.0	3.25	295.36	4,095.5	68.5	-144.5	-63.3	0.00	0.00	0.00
4,200.0	3.25	295.36	4,195.3	70.9	-149.7	-65.6	0.00	0.00	0.00
4,300.0	3.25	295.36	4,295.2	73.4	-154.8	-67.8	0.00	0.00	0.00
4,400.0	3.25	295.36	4,395.0	75.8	-159.9	-70.1	0.00	0.00	0.00
4,500.0	3.25	295.36	4,494.9	78.2	-165.0	-72.3	0.00	0.00	0.00
4,600.0	3.25	295.36	4,594.7	80.7	-170.2	-74.6	0.00	0.00	0.00
4,700.0	3.25	295.36	4,694.5	83.1	-175.3	-76.8	0.00	0.00	0.00
4,800.0	3.25	295.36	4,794.4	85.5	-180.4	-79.1	0.00	0.00	0.00
4,900.0	3.25	295.36	4,894.2	88.0	-185.5	-81.3	0.00	0.00	0.00
5,000.0	3.25	295.36	4,994.1	90.4	-190.7	-83.6	0.00	0.00	0.00
5,100.0	3.25	295.36	5,093.9	92.8	-195.8	-85.8	0.00	0.00	0.00
5,200.0	3.25	295.36	5,193.7	95.2	-200.9	-88.0	0.00	0.00	0.00

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

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)
5,300.0	3.25	295.36	5,293.6	97.7	-206.1	-90.3	0.00	0.00	0.00
5,400.0	3.25	295.36	5,393.4	100.1	-211.2	-92.5	0.00	0.00	0.00
5,500.0	3.25	295.36	5,493.2	102.5	-216.3	-94.8	0.00	0.00	0.00
5,600.0	3.25	295.36	5,593.1	105.0	-221.4	-97.0	0.00	0.00	0.00
5,700.0	3.25	295.36	5,692.9	107.4	-226.6	-99.3	0.00	0.00	0.00
5,800.0	3.25	295.36	5,792.8	109.8	-231.7	-101.5	0.00	0.00	0.00
5,900.0	3.25	295.36	5,892.6	112.3	-236.8	-103.8	0.00	0.00	0.00
6,000.0	3.25	295.36	5,992.4	114.7	-241.9	-106.0	0.00	0.00	0.00
6,100.0	3.25	295.36	6,092.3	117.1	-247.1	-108.3	0.00	0.00	0.00
6,200.0	3.25	295.36	6,192.1	119.5	-252.2	-110.5	0.00	0.00	0.00
6,300.0	3.25	295.36	6,292.0	122.0	-257.3	-112.8	0.00	0.00	0.00
6,400.0	3.25	295.36	6,391.8	124.4	-262.5	-115.0	0.00	0.00	0.00
6,500.0	3.25	295.36	6,491.6	126.8	-267.6	-117.3	0.00	0.00	0.00
6,600.0	3.25	295.36	6,591.5	129.3	-272.7	-119.5	0.00	0.00	0.00
6,700.0	3.25	295.36	6,691.3	131.7	-277.8	-121.8	0.00	0.00	0.00
6,800.0	3.25	295.36	6,791.2	134.1	-283.0	-124.0	0.00	0.00	0.00
6,900.0	3.25	295.36	6,891.0	136.6	-288.1	-126.2	0.00	0.00	0.00
7,000.0	3.25	295.36	6,990.8	139.0	-293.2	-128.5	0.00	0.00	0.00
7,100.0	3.25	295.36	7,090.7	141.4	-298.3	-130.7	0.00	0.00	0.00
7,206.9	3.25	295.36	7,197.4	144.0	-303.8	-133.1	0.00	0.00	0.00
7,300.0	1.39	295.36	7,290.4	145.6	-307.2	-134.6	2.00	-2.00	0.00
7,369.6	0.00	0.00	7,360.0	146.0	-308.0	-135.0	2.00	-2.00	0.00
7,400.0	0.00	0.00	7,390.4	146.0	-308.0	-135.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,490.4	146.0	-308.0	-135.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,590.4	146.0	-308.0	-135.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,690.4	146.0	-308.0	-135.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,790.4	146.0	-308.0	-135.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,890.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,000.0	0.00	0.00	7,990.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,090.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,190.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,290.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,390.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,490.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,590.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,690.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,790.4	146.0	-308.0	-135.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,890.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,000.0	0.00	0.00	8,990.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,090.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,190.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,290.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,390.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,500.0	0.00	0.00	9,490.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,590.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,690.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,790.4	146.0	-308.0	-135.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,890.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,000.0	0.00	0.00	9,990.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,100.0	0.00	0.00	10,090.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,190.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,290.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,400.0	0.00	0.00	10,390.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,500.0	0.00	0.00	10,490.4	146.0	-308.0	-135.0	0.00	0.00	0.00

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

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)
10,600.0	0.00	0.00	10,590.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,700.0	0.00	0.00	10,690.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,800.0	0.00	0.00	10,790.4	146.0	-308.0	-135.0	0.00	0.00	0.00
10,900.0	0.00	0.00	10,890.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,000.0	0.00	0.00	10,990.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,100.0	0.00	0.00	11,090.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,200.0	0.00	0.00	11,190.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,300.0	0.00	0.00	11,290.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,400.0	0.00	0.00	11,390.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,500.0	0.00	0.00	11,490.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,600.0	0.00	0.00	11,590.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,700.0	0.00	0.00	11,690.4	146.0	-308.0	-135.0	0.00	0.00	0.00
11,741.1	0.00	0.00	11,731.5	146.0	-308.0	-135.0	0.00	0.00	0.00
11,750.0	1.07	180.00	11,740.4	145.9	-308.0	-134.9	12.00	12.00	0.00
11,775.0	4.07	180.00	11,765.4	144.8	-308.0	-133.8	12.00	12.00	0.00
11,800.0	7.07	180.00	11,790.3	142.4	-308.0	-131.3	12.00	12.00	0.00
11,825.0	10.07	180.00	11,815.0	138.6	-308.0	-127.6	12.00	12.00	0.00
11,850.0	13.07	180.00	11,839.5	133.6	-308.0	-122.6	12.00	12.00	0.00
11,875.0	16.07	180.00	11,863.7	127.3	-308.0	-116.3	12.00	12.00	0.00
11,900.0	19.07	180.00	11,887.5	119.8	-308.0	-108.8	12.00	12.00	0.00
11,925.0	22.07	180.00	11,910.9	111.0	-308.0	-100.0	12.00	12.00	0.00
11,950.0	25.07	180.00	11,933.8	101.0	-308.0	-90.0	12.00	12.00	0.00
11,961.5	26.46	180.00	11,944.2	96.0	-308.0	-85.0	12.00	12.00	0.00
11,975.0	28.07	179.98	11,956.2	89.8	-308.0	-78.8	12.00	12.00	-0.16
12,000.0	31.07	179.94	11,977.9	77.5	-308.0	-66.5	12.00	12.00	-0.14
12,025.0	34.07	179.91	11,999.0	64.0	-308.0	-53.1	12.00	12.00	-0.12
12,050.0	37.07	179.89	12,019.3	49.5	-307.9	-38.5	12.00	12.00	-0.10
12,075.0	40.07	179.87	12,038.8	33.9	-307.9	-23.0	12.00	12.00	-0.09
12,100.0	43.07	179.85	12,057.5	17.3	-307.9	-6.4	12.00	12.00	-0.08
12,125.0	46.07	179.83	12,075.4	-0.2	-307.8	11.1	12.00	12.00	-0.07
12,150.0	49.07	179.81	12,092.2	-18.7	-307.8	29.6	12.00	12.00	-0.06
12,175.0	52.07	179.80	12,108.1	-38.0	-307.7	48.9	12.00	12.00	-0.06
12,200.0	55.07	179.79	12,122.9	-58.1	-307.6	69.0	12.00	12.00	-0.05
12,225.0	58.07	179.77	12,136.7	-78.9	-307.5	89.8	12.00	12.00	-0.05
12,250.0	61.07	179.76	12,149.4	-100.5	-307.5	111.4	12.00	12.00	-0.05
12,275.0	64.07	179.75	12,160.9	-122.7	-307.4	133.5	12.00	12.00	-0.04
12,300.0	67.07	179.74	12,171.2	-145.4	-307.3	156.3	12.00	12.00	-0.04
12,325.0	70.07	179.73	12,180.4	-168.7	-307.2	179.5	12.00	12.00	-0.04
12,350.0	73.07	179.72	12,188.3	-192.4	-307.0	203.2	12.00	12.00	-0.04
12,375.0	76.07	179.71	12,194.9	-216.5	-306.9	227.3	12.00	12.00	-0.04
12,400.0	79.07	179.70	12,200.3	-240.9	-306.8	251.7	12.00	12.00	-0.04
12,425.0	82.07	179.69	12,204.4	-265.6	-306.7	276.3	12.00	12.00	-0.04
12,450.0	85.07	179.68	12,207.2	-290.4	-306.5	301.1	12.00	12.00	-0.03
12,475.0	88.07	179.68	12,208.7	-315.4	-306.4	326.1	12.00	12.00	-0.03
12,491.1	90.00	179.67	12,208.9	-331.5	-306.3	342.1	12.00	12.00	-0.03
12,500.0	90.00	179.67	12,208.9	-340.4	-306.2	351.0	0.00	0.00	0.00
12,600.0	90.00	179.67	12,208.9	-440.4	-305.7	451.0	0.00	0.00	0.00
12,700.0	90.00	179.67	12,208.9	-540.4	-305.1	550.9	0.00	0.00	0.00
12,800.0	90.00	179.67	12,208.9	-640.4	-304.5	650.8	0.00	0.00	0.00
12,900.0	90.00	179.67	12,208.9	-740.4	-304.0	750.7	0.00	0.00	0.00
13,000.0	90.00	179.67	12,208.9	-840.4	-303.4	850.6	0.00	0.00	0.00
13,100.0	90.00	179.67	12,209.0	-940.4	-302.8	950.5	0.00	0.00	0.00
13,200.0	90.00	179.67	12,209.0	-1,040.4	-302.2	1,050.5	0.00	0.00	0.00
13,300.0	90.00	179.67	12,209.0	-1,140.4	-301.7	1,150.4	0.00	0.00	0.00

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

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)
13,400.0	90.00	179.67	12,209.0	-1,240.4	-301.1	1,250.3	0.00	0.00	0.00
13,500.0	90.00	179.67	12,209.0	-1,340.4	-300.5	1,350.2	0.00	0.00	0.00
13,600.0	90.00	179.67	12,209.0	-1,440.4	-299.9	1,450.1	0.00	0.00	0.00
13,700.0	90.00	179.67	12,209.0	-1,540.4	-299.4	1,550.0	0.00	0.00	0.00
13,800.0	90.00	179.67	12,209.0	-1,640.4	-298.8	1,649.9	0.00	0.00	0.00
13,900.0	90.00	179.67	12,209.0	-1,740.4	-298.2	1,749.9	0.00	0.00	0.00
14,000.0	90.00	179.67	12,209.0	-1,840.4	-297.6	1,849.8	0.00	0.00	0.00
14,100.0	90.00	179.67	12,209.0	-1,940.4	-297.1	1,949.7	0.00	0.00	0.00
14,200.0	90.00	179.67	12,209.0	-2,040.4	-296.5	2,049.6	0.00	0.00	0.00
14,300.0	90.00	179.67	12,209.0	-2,140.4	-295.9	2,149.5	0.00	0.00	0.00
14,400.0	90.00	179.67	12,209.0	-2,240.4	-295.3	2,249.4	0.00	0.00	0.00
14,500.0	90.00	179.67	12,209.0	-2,340.4	-294.8	2,349.3	0.00	0.00	0.00
14,600.0	90.00	179.67	12,209.0	-2,440.4	-294.2	2,449.3	0.00	0.00	0.00
14,700.0	90.00	179.67	12,209.0	-2,540.4	-293.6	2,549.2	0.00	0.00	0.00
14,800.0	90.00	179.67	12,209.0	-2,640.3	-293.0	2,649.1	0.00	0.00	0.00
14,900.0	90.00	179.67	12,209.0	-2,740.3	-292.5	2,749.0	0.00	0.00	0.00
15,000.0	90.00	179.67	12,209.0	-2,840.3	-291.9	2,848.9	0.00	0.00	0.00
15,100.0	90.00	179.67	12,209.0	-2,940.3	-291.3	2,948.8	0.00	0.00	0.00
15,200.0	90.00	179.67	12,209.0	-3,040.3	-290.7	3,048.8	0.00	0.00	0.00
15,300.0	90.00	179.67	12,209.0	-3,140.3	-290.2	3,148.7	0.00	0.00	0.00
15,400.0	90.00	179.67	12,209.0	-3,240.3	-289.6	3,248.6	0.00	0.00	0.00
15,500.0	90.00	179.67	12,209.0	-3,340.3	-289.0	3,348.5	0.00	0.00	0.00
15,600.0	90.00	179.67	12,209.0	-3,440.3	-288.4	3,448.4	0.00	0.00	0.00
15,700.0	90.00	179.67	12,209.0	-3,540.3	-287.9	3,548.3	0.00	0.00	0.00
15,800.0	90.00	179.67	12,209.0	-3,640.3	-287.3	3,648.2	0.00	0.00	0.00
15,900.0	90.00	179.67	12,209.0	-3,740.3	-286.7	3,748.2	0.00	0.00	0.00
16,000.0	90.00	179.67	12,209.0	-3,840.3	-286.1	3,848.1	0.00	0.00	0.00
16,100.0	90.00	179.67	12,209.0	-3,940.3	-285.6	3,948.0	0.00	0.00	0.00
16,200.0	90.00	179.67	12,209.0	-4,040.3	-285.0	4,047.9	0.00	0.00	0.00
16,300.0	90.00	179.67	12,209.0	-4,140.3	-284.4	4,147.8	0.00	0.00	0.00
16,400.0	90.00	179.67	12,209.0	-4,240.3	-283.8	4,247.7	0.00	0.00	0.00
16,500.0	90.00	179.67	12,209.0	-4,340.3	-283.3	4,347.6	0.00	0.00	0.00
16,600.0	90.00	179.67	12,209.0	-4,440.3	-282.7	4,447.6	0.00	0.00	0.00
16,700.0	90.00	179.67	12,209.0	-4,540.3	-282.1	4,547.5	0.00	0.00	0.00
16,800.0	90.00	179.67	12,209.0	-4,640.3	-281.5	4,647.4	0.00	0.00	0.00
16,900.0	90.00	179.67	12,209.0	-4,740.3	-281.0	4,747.3	0.00	0.00	0.00
17,000.0	90.00	179.67	12,209.0	-4,840.3	-280.4	4,847.2	0.00	0.00	0.00
17,100.0	90.00	179.67	12,209.0	-4,940.3	-279.8	4,947.1	0.00	0.00	0.00
17,200.0	90.00	179.67	12,209.0	-5,040.3	-279.3	5,047.0	0.00	0.00	0.00
17,243.7	90.00	179.67	12,209.0	-5,084.0	-279.0	5,090.7	0.00	0.00	0.00
17,300.0	90.00	179.68	12,209.0	-5,140.3	-278.7	5,147.0	0.01	0.00	0.01
17,400.0	90.00	179.69	12,209.0	-5,240.3	-278.1	5,246.9	0.01	0.00	0.01
17,500.0	90.00	179.70	12,209.0	-5,340.3	-277.6	5,346.8	0.01	0.00	0.01
17,600.0	90.00	179.71	12,209.0	-5,440.3	-277.1	5,446.7	0.01	0.00	0.01
17,700.0	90.00	179.72	12,209.0	-5,540.3	-276.6	5,546.6	0.01	0.00	0.01
17,800.0	90.00	179.74	12,209.0	-5,640.3	-276.1	5,646.5	0.01	0.00	0.01
17,900.0	90.00	179.75	12,209.0	-5,740.3	-275.7	5,746.5	0.01	0.00	0.01
18,000.0	90.00	179.76	12,209.0	-5,840.3	-275.2	5,846.4	0.01	0.00	0.01
18,100.0	90.00	179.77	12,209.0	-5,940.3	-274.8	5,946.3	0.01	0.00	0.01
18,200.0	90.00	179.78	12,209.0	-6,040.3	-274.4	6,046.2	0.01	0.00	0.01
18,300.0	90.00	179.79	12,209.0	-6,140.3	-274.1	6,146.2	0.01	0.00	0.01
18,400.0	90.00	179.81	12,209.0	-6,240.3	-273.7	6,246.1	0.01	0.00	0.01
18,500.0	90.00	179.82	12,209.0	-6,340.3	-273.4	6,346.0	0.01	0.00	0.01
18,600.0	90.00	179.83	12,209.0	-6,440.3	-273.1	6,445.9	0.01	0.00	0.01

Database:	EDM	Local Co-ordinate Reference:	Well #701H
Company:	EOG Resources - Midland	TVD Reference:	KB = 25 @ 3506.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25 @ 3506.0usft
Site:	Merciless 13 Fed Com	North Reference:	Grid
Well:	#701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

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)	
18,700.0	90.00	179.84	12,209.0	-6,540.3	-272.8	6,545.9	0.01	0.00	0.01	
18,800.0	90.00	179.85	12,209.0	-6,640.3	-272.5	6,645.8	0.01	0.00	0.01	
18,900.0	90.00	179.86	12,209.0	-6,740.3	-272.3	6,745.7	0.01	0.00	0.01	
19,000.0	90.00	179.88	12,209.0	-6,840.3	-272.1	6,845.6	0.01	0.00	0.01	
19,100.0	90.00	179.89	12,209.0	-6,940.3	-271.9	6,945.6	0.01	0.00	0.01	
19,200.0	90.00	179.90	12,209.0	-7,040.3	-271.7	7,045.5	0.01	0.00	0.01	
19,300.0	90.00	179.91	12,209.0	-7,140.3	-271.5	7,145.4	0.01	0.00	0.01	
19,400.0	90.00	179.92	12,209.0	-7,240.3	-271.4	7,245.4	0.01	0.00	0.01	
19,500.0	90.00	179.94	12,209.0	-7,340.3	-271.2	7,345.3	0.01	0.00	0.01	
19,600.0	90.00	179.95	12,209.0	-7,440.3	-271.1	7,445.2	0.01	0.00	0.01	
19,700.0	90.00	179.96	12,209.0	-7,540.3	-271.1	7,545.2	0.01	0.00	0.01	
19,785.7	90.00	179.97	12,209.0	-7,626.0	-271.0	7,630.8	0.01	0.00	0.01	

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
KOP(Merciless 13 FC#7 - plan hits target center - Point	0.00	0.00	11,731.5	146.0	-308.0	414,511.00	757,190.00	32° 8' 15.535 N	103° 38' 9.499 W	
FTP(Merciless 13 FC#7C - plan hits target center - Point	0.00	0.00	11,944.2	96.0	-308.0	414,461.00	757,190.00	32° 8' 15.040 N	103° 38' 9.502 W	
PBHL(Merciless 13 FC# - plan hits target center - Point	0.00	0.00	12,209.0	-7,626.0	-271.0	406,739.00	757,227.00	32° 6' 58.625 N	103° 38' 9.653 W	
Fed PP(Merciless 13 FC - plan hits target center - Point	0.00	0.00	12,209.0	-5,084.0	-279.0	409,281.00	757,219.00	32° 7' 23.779 N	103° 38' 9.555 W	

Hydrogen Sulfide Plan Summary

- A. All personnel shall receive proper H₂S training in accordance with Onshore Order III.C.3.a.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:

- Well control equipment
 - a. Flare line 150' from wellhead to be ignited by flare gun.
 - b. Choke manifold with a remotely operated choke.
 - c. Mud/gas separator

- Protective equipment for essential personnel.

Breathing apparatus:

- a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- b. Work/Escapes packs — 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- c. Emergency Escape Packs — 4 packs shall be stored in the doghouse for emergency evacuation.

Auxiliary Rescue Equipment:

- a. Stretcher
- b. Two OSHA full body harness
- c. 100 ft 5/8 inch OSHA approved rope
- d. 1-20# class ABC fire extinguisher

- H₂S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.

(Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
 - a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - c. Two wind socks will be placed in strategic locations, visible from all angles.

EOG RESOURCES, INC.
MERCILESS 13 FED COM #701H

- **Mud program:**
The mud program has been designed to minimize the volume of H₂S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H₂S bearing zones.
- **Metallurgy:**
All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
- **Communication:**
Communication will be via cell phones and land lines where available.

EOG RESOURCES, INC.
MERCILESS 13 FED COM #701H

Emergency Assistance Telephone List

PUBLIC SAFETY: **911 or**

Lea County Sheriff's Department	(575) 396-3611
Rod Coffman	
Fire Department:	
Carlsbad	(575) 885-3125
Artesia	(575) 746-5050
Hospitals:	
Carlsbad	(575) 887-4121
Artesia	(575) 748-3333
Hobbs	(575) 392-1979
Dept. of Public Safety/Carlsbad	(575) 748-9718
Highway Department	(575) 885-3281
New Mexico Oil Conservation	(575) 476-3440
U.S. Dept. of Labor	(575) 887-1174

EOG Resources, Inc.

EOG / Midland	Office (432) 686-3600
---------------	-----------------------

Company Drilling Consultants:

Jett Dueitt	Cell (432) 230-4840
Blake Burney	

Drilling Engineer

Steve Munsell	Office (432) 686-3609
	Cell (432) 894-1256

Drilling Manager

Aj Dach	Office (432) 686-3751
	Cell (817) 480-1167

Drilling Superintendent

Jason Townsend	Office (432) 848-9209
	Cell (210) 776-5131

H&P Drilling

H&P Drilling	Office (432) 563-5757
H&P 415 Drilling Rig	Rig (432) 230-4840

Tool Pusher:

Johnathan Craig	Cell (817) 760-6374
Brad Garrett	

Safety

Brian Chandler (HSE Manager)	Office (432) 686-3695
	Cell (817) 239-0251

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

OCD - HOBBS
08/28/2020
RECEIVED

GAS CAPTURE PLAN

Date: 10/01/2019

☒ Original Operator & OGRID No.: EOG Resources, Inc. 7377
☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or	Comments
Merciless 13 Fed Com 701H	30-025-***** 30-025-47668	D-13-25S-32E	200' FNL & 638' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 702H	30-025-*****	D-13-25S-32E	200' FNL & 1255' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 703H	30-025-*****	C-13-25S-32E	200' FNL & 2129' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 704H	30-025-*****	C-13-25S-32E	200' FNL & 2195' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 705H	30-025-*****	B-13-25S-32E	289' FNL & 2192' FEL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 706H	30-025-*****	B-13-25S-32E	290' FNL & 2126' FEL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 707H	30-025-*****	B-13-25S-32E	512' FNL & 1329' FEL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 708H	30-025-*****	A-13-25S-32E	251' FNL & 453' FEL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 721H	30-025-*****	D-13-25S-32E	200' FNL & 671' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 722H	30-025-*****	C-13-25S-32E	200' FNL & 2162' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 723H	30-025-*****	B-13-25S-32E	290' FNL & 2159' FEL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 724H	30-025-*****	A-13-25S-32E	251' FNL & 487' FEL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 740H	30-025-*****	D-13-25S-32E	200' FNL & 1288' FWL	±3500	None Planned	APD Submission
Merciless 13 Fed Com 741H	30-025-*****	B-13-25S-32E	498' FNL & 1359' FEL	±3500	None Planned	APD Submission

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to **Lucid Energy, Enterprise & Regency Field Services** and will be connected to **EOG Resources** low/high pressure gathering system located in Lea County, New Mexico. **EOG Resources** provides (periodically) to **Lucid Energy, Enterprise & Regency Field Services** a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, **EOG Resources** and **Lucid Energy, Enterprise & Regency Field Services** have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at **Lucid Energy, Enterprise & Regency Field Services** Processing Plant

located in Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on **Lucid Energy, Enterprise & Regency Field Services** system at that time. Based on current information, it is **EOG Resources'** belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines