F/F

Form 3160-3
(June 2015)

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

(H)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM121490

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☑ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
COLGROVE 35 FED COM 703H (315730)

2. Name of Operator
EOG RESOURCES INCORPORATED (7377)

9. API Well No.
30-025-45894

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory (98097)
1111 Bagby Sky Lobby2 Houston TX 77002	(713)651-7000	UPR WOLFCAMP / ~~WC-025 S263327G~~ SANDERS TANK

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface LOT 3 / 2267 FNL / 1970 FWL / LAT 32.0009507 / LONG -103.5452788
At proposed prod. zone NENW / 100 FNL / 1650 FWL / LAT 32.0214202 / LONG -103.5463137

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 35 / T26S / R33E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
22.5 miles	LEA	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
230 feet	1305.2	472.7

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
661 feet	12465 feet / 19784 feet	FED: NM2308

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3320 feet	04/30/2019	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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Star Harrell / Ph: (432)848-9161	03/13/2019

Title
Regulatory Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Christopher Walls / Ph: (575)234-2234	04/26/2019

Title	Office
Petroleum Engineer	CARLSBAD

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

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

GCP Requested 05/01/19
GCP Rec 05/01/19

KZ 05/01/19

APPROVED WITH CONDITIONS

(Continued on page 2)

Approval Date: 04/26/2019

*(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 wen, 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 directionany 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 wen 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 win 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 conects this information to anow 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 Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: LOT 3 / 2267 FNL / 1970 FWL / TWSP: 26S / RANGE: 33E / SECTION: 35 / LAT: 32.0009507 / LONG: -103.5452788 (TVD: 0 feet, MD: 0 feet)
   PPP: LOT 3 / 2418 FNL / 1655 FWL / TWSP: 26S / RANGE: 33E / SECTION: 35 / LAT: 32.0005337 / LONG: -103.5462937 (TVD: 12420 feet, MD: 12538 feet)
   BHL: NENW / 100 FNL / 1650 FWL / TWSP: 26S / RANGE: 33E / SECTION: 26 / LAT: 32.0214202 / LONG: -103.5463137 (TVD: 12465 feet, MD: 19784 feet)

BLM Point of Contact

Name: Katrina Ponder
Title: Geologist
Phone: 5752345969
Email: kponder@blm.gov

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.

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**EOG RESOURCES INCORPORATED**
LEASE NO.:	**NMNM121490**
WELL NAME & NO.:	**COLGROVE 35 FED COM 703H**
SURFACE HOLE FOOTAGE:	**2267'/N & 1970'/W**
BOTTOM HOLE FOOTAGE	**100'/N & 1650'/W**
LOCATION:	**SECTION 35, T26S, R33E, NMPM**
COUNTY:	**LEA**

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **9 5/8"** surface casing shall be set at approximately **950'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
   a. **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
   b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
   c. If cement falls back, remedial cementing will be done prior to drilling out that string.
   d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

2. The minimum required fill of cement behind the **7 5/8"** intermediate casing is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above.

3. The minimum required fill of cement behind the **5-1/2"** production casing is:

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

ALTERNATE CASING DESIGN

4. The **13 3/8"** surface casing shall be set at approximately **950'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
    a. **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
    b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
    c. If cement falls back, remedial cementing will be done prior to drilling out that string.
    d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.
5. The minimum required fill of cement behind the **9 5/8"** first intermediate casing is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above.

6. The minimum required fill of cement behind the **7 5/8"** second intermediate casing is:

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

7. The minimum required fill of cement behind the **5-1/2"** production casing is:

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

BOP BREAK TESTING VARIANCE IS NOT APPROVED.

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 approved to use a 5M annular. The annular must be tested to full working pressure (5000 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 Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, 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.

JJP04112019

GENERAL REQUIREMENTS

1. 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)

   ☒ Chaves and Roosevelt Counties
   Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
   During office hours call (575) 627-0272.
   After office hours call (575)

   ☒ 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 (one log per well pad is acceptable) 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 intergrity 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 intergrity 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. 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.

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. The results of the test shall be reported to the appropriate BLM office.

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. 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.

f. 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. This test shall be performed prior to the test at full stack pressure.

g. 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

1. 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.

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG Resources, Inc.
LEASE NO.:	NMNM121490
WELL NAME & NO.:	703H-Colgrove 35 Fed Com
SURFACE HOLE FOOTAGE:	252'/S & 1970'/W
BOTTOM HOLE FOOTAGE	230'/N & 1650'/W
LOCATION:	Section 35, T.26 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

TABLE OF CONTENTS

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

Approval Date: 04/26/2019

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

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

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

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.

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.

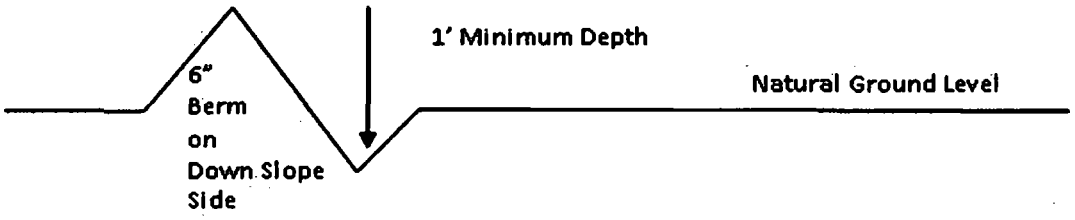
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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:

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

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 3. Redistribute topsoil
2. Construct road 4. Revegetate slopes

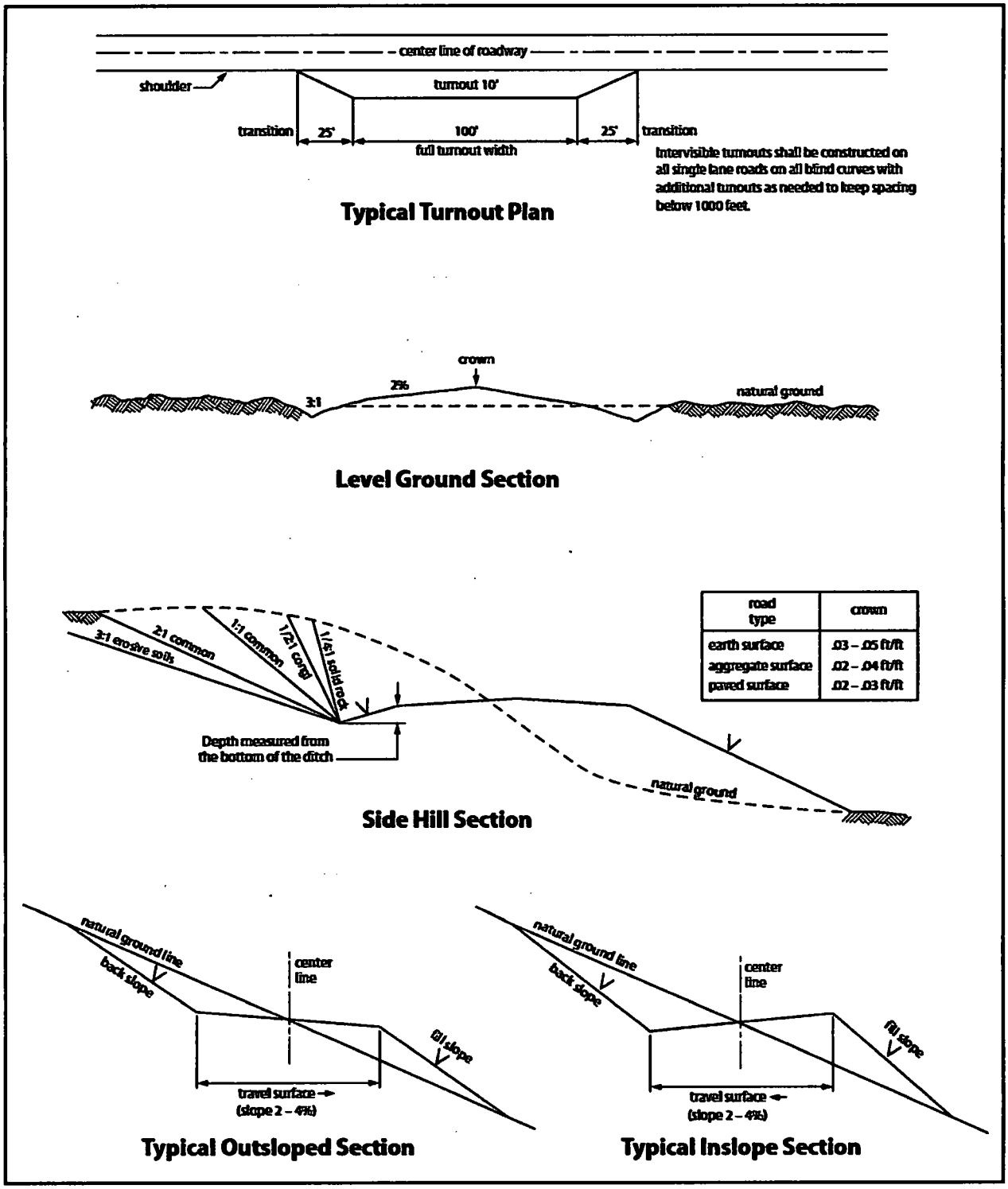


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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).

VRM Facility Requirement
Low-profile tanks not greater than eight-feet-high shall be used.

B. PIPELINES

C. ELECTRIC LINES

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).

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.

Exhibit A-1
Company: EOG Resources
Lease #: NMNM121490
Well name: Colgrove 35 Fed Com 703-708H
November 1, 2016

Seed Mixture for LPC Sand/Shinnery Sites

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 shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall 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). 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. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may 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:

Species	lb/acre
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

Approval Date: 04/26/2019

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

04/26/2019

Operator Certification

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

NAME: Star Harrell **Signed on:** 03/12/2019

Title: Regulatory Specialist

Street Address: 5509 Champions Drive

City: Midland **State:** TX **Zip:** 79702

Phone: (432)848-9161

Email address: Star_Harrell@eogresources.com

Field Representative

Representative Name: James Barwis

Street Address: 5509 Champions Drive

City: Midland **State:** TX **Zip:** 79706

Phone: (432)425-1204

Email address: james_barwis@eogresources.com

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

04/26/2019

APD ID: 10400039880 **Submission Date:** 03/13/2019

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

[redacted]

Show Final Text

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - General

APD ID: 10400039880 **Tie to previous NOS?** **Submission Date:** 03/13/2019

BLM Office: CARLSBAD **User:** Star Harrell **Title:** Regulatory Specialist

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM121490 **Lease Acres:** 1305.2

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** EOG RESOURCES INCORPORATED

Operator letter of designation:

Operator Info

Operator Organization Name: EOG RESOURCES INCORPORATED

Operator Address: 1111 Bagby Sky Lobby2 **Zip:** 77002

Operator PO Box:

Operator City: Houston **State:** TX

Operator Phone: (713)651-7000

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Master Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: COLGROVE 35 FED COM **Well Number:** 703H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WOLFCAMP **Pool Name:** WC-025 S263327G

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** COLGROVE 35 FED COM **Number:** 703H/704H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 22.5 Miles **Distance to nearest well:** 661 FT **Distance to lease line:** 230 FT

Reservoir well spacing assigned acres Measurement: 472.7 Acres

Well plat: COLGROVE_35_FED_COM_703H_C102_COMBO_REVISED_3_28_19_20190328141408.pdf

Well work start Date: 04/30/2019 **Duration:** 25 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD27 **Vertical Datum:** NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2267	FNL	1970	FWL	26S	33E	35	Lot 3	32.0009507	-103.5452788	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 121490	3320	0	0
KOP Leg #1	2468	FNL	1970	FWL	26S	33E	35	Lot 3	32.000282	-103.545767	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 121490	-8655	11984	11975
PPP Leg #1	2418	FNL	1655	FWL	26S	33E	35	Lot 3	32.0005337	-103.5462937	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 121490	-9100	12538	12420

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	100	FNL	1650	FWL	26S	33E	26	Aliquot NENW	32.021402	-103.5463137	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 000296 5A	-9145	19682	12465
BHL Leg #1	100	FNL	1650	FWL	26S	33E	26	Aliquot NENW	32.021402	-103.5463137	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 000296 5A	-9145	19784	12465

APD ID: 10400039880 **Submission Date:** 03/13/2019

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Well Type: OIL WELL **Well Work Type:** Drill

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER	2500	820	820	ANHYDRITE	NONE	No
2	TOP OF SALT	2160	1160	1160	SALT	NONE	No
3	BASE OF SALT	-1460	4780	4780	SALT	NONE	No
4	LAMAR LS	-1710	5030	5030	LIMESTONE	NONE	No
5	BELL CANYON	-1740	5060	5060	SANDSTONE	NATURAL GAS,OIL	Yes
6	CHERRY CANYON	-2765	6085	6085	SANDSTONE	NATURAL GAS,OIL	Yes
7	BRUSHY CANYON	-4440	7760	7760	SANDSTONE	NATURAL GAS,OIL	Yes
8	BONE SPRING LIME	-5925	9245	9245	LIMESTONE	NONE	No
9	BONE SPRING 1ST	-6855	10175	10175	SANDSTONE	NATURAL GAS,OIL	Yes
10	BONE SPRING 2ND	-7360	10680	10680	SANDSTONE	NATURAL GAS,OIL	Yes
11	BONE SPRING 3RD	-8440	11760	11760	SANDSTONE	NATURAL GAS,OIL	Yes
12	WOLFCAMP	-8905	12225	12225	SHALE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M **Rating Depth:** 12465

Equipment: 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 (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with the Onshore Oil and Gas order No. 2. 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. 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. EOG requests permission to allow BOP Break Testing under the following conditions: - After a full BOP test to 100% RWP is conducted on the first well on the pad. - When skidding to drill an intermediate section that does not penetrate into the Wolfcamp. - Full BOP test will be required prior to drilling any production hole.
Requesting Variance? YES

Variance request: Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line). Variance is requested to wave 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 wave 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. Variance is requested to use a 5,000 psi annular BOP with the 10,000 psi BOP stack. 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. EOG Resources also requests approval to implement Casing Design B (pg. 8-9). BLM will be notified of elected design at spud.
Testing Procedure: 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.

Choke Diagram Attachment:

10_M_Choke_Manifold_20190313060953.pdf

Co_Flex_Hose_Certification_20190313080001.pdf

Co_Flex_Hose_Test_Chart_20190313080002.pdf

BOP Diagram Attachment:

10_M_BOP_Diagram_9.675_in_20190313061017.pdf

10_M_BOP_Diagram_13.375_in_20190313061018.pdf

EOG_BLM_10M_Annular_Variance___9.675_in_20190313080037.pdf

EOG_BLM_10M_Annular_Variance___13.375_in_20190313080038.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	12.25	9.625	NEW	API	N	0	950	0	950			950	J-55	40	LTC	1.125	1.25	BUOY	1.6	BUOY	1.6

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
2	PRODUCTION	6.75	5.5	NEW	API	N	0	10800	0	10800			10800	HCP-110	20	OTHER - DWC/C-IS MS	1.125	1.25	BUOY	1.6	BUOY	1.6
3	PRODUCTION	6.75	5.5	NEW	API	N	10800	11300	10800	11300			500	HCP-110	20	OTHER - VAM SFC	1.125	1.25	BUOY	1.6	BUOY	1.6
4	INTERMEDIATE	8.75	7.625	NEW	API	N	0	11300	0	11300			11300	HCP-110	29.7	OTHER - FXL	1.125	1.25	BUOY	1.6	BUOY	1.6
5	PRODUCTION	6.75	5.5	NEW	API	N	11300	19906	11300	12465			8606	HCP-110	20	OTHER - DWC/C-IS MS	1.125	1.25	BUOY	1.6	BUOY	1.6

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Colgrove_35_Fed_Com__703H_Permit_Info_Repermit_3.12.19_20190313061931.pdf

Casing ID: 2 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Please_see_previously_attached_drill_plan_20190313062004.pdf

5.500in_20.00_VST_P110EC_DWC_C_IS_MS_Spec_Sheet_20190313062202.pdf

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Casing Attachments

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Please_see_previously_attached_drill_plan_20190313062033.pdf

7.625in_29.70_P110HC_FXL_20190313062243.pdf

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Please_see_previously_attached_drill_plan_20190313062019.pdf

5.500in_20.00_VST_P110EC_VAM_SFC_20190313062224.pdf

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Please_see_previously_attached_drill_plan_20190313062048.pdf

5.500in_20.00_VST_P110EC_DWC_C_IS_MS_Spec_Sheet_20190313062313.pdf

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Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	N/A	N/A

PRODUCTION	Lead		0	0	0	0	0	0	0	N/A	N/A

SURFACE	Lead		0	750	800	1.73	13.5	1384	25	Class C	Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-Flake (TOC @ Surface)
SURFACE	Tail		750	950	80	1.34	14.8	107	25	Class C	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 750')
INTERMEDIATE	Lead		0	7760	1000	2.3	12.7	2300	25	Class C	(Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
INTERMEDIATE	Tail		7760	11300	450	1.11	14.2	500	25	Class C	Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,760')
PRODUCTION	Lead		0	19906	730	1.31	14.2	956	25	Class H	Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,800')

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: (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.
Describe the mud monitoring system 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.

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
11995	19906	OIL-BASED MUD	10	14							
950	11300	SALT SATURATED	10	10.2							
11300	11995	OIL-BASED MUD	8.7	9.4							
0	950	WATER-BASED MUD	8.6	8.8							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Open-hole logs are not planned for this well.
GR–CCL Will be run in cased hole during completions phase of operations.
List of open and cased hole logs run in the well:

DS

Coring operation description for the well:

None

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 9065 **Anticipated Surface Pressure:** 6322.7

Anticipated Bottom Hole Temperature(F): 181

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Colgrove_35_Fed_Com__703H_H2S_Plan_Summary_20190313064544.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

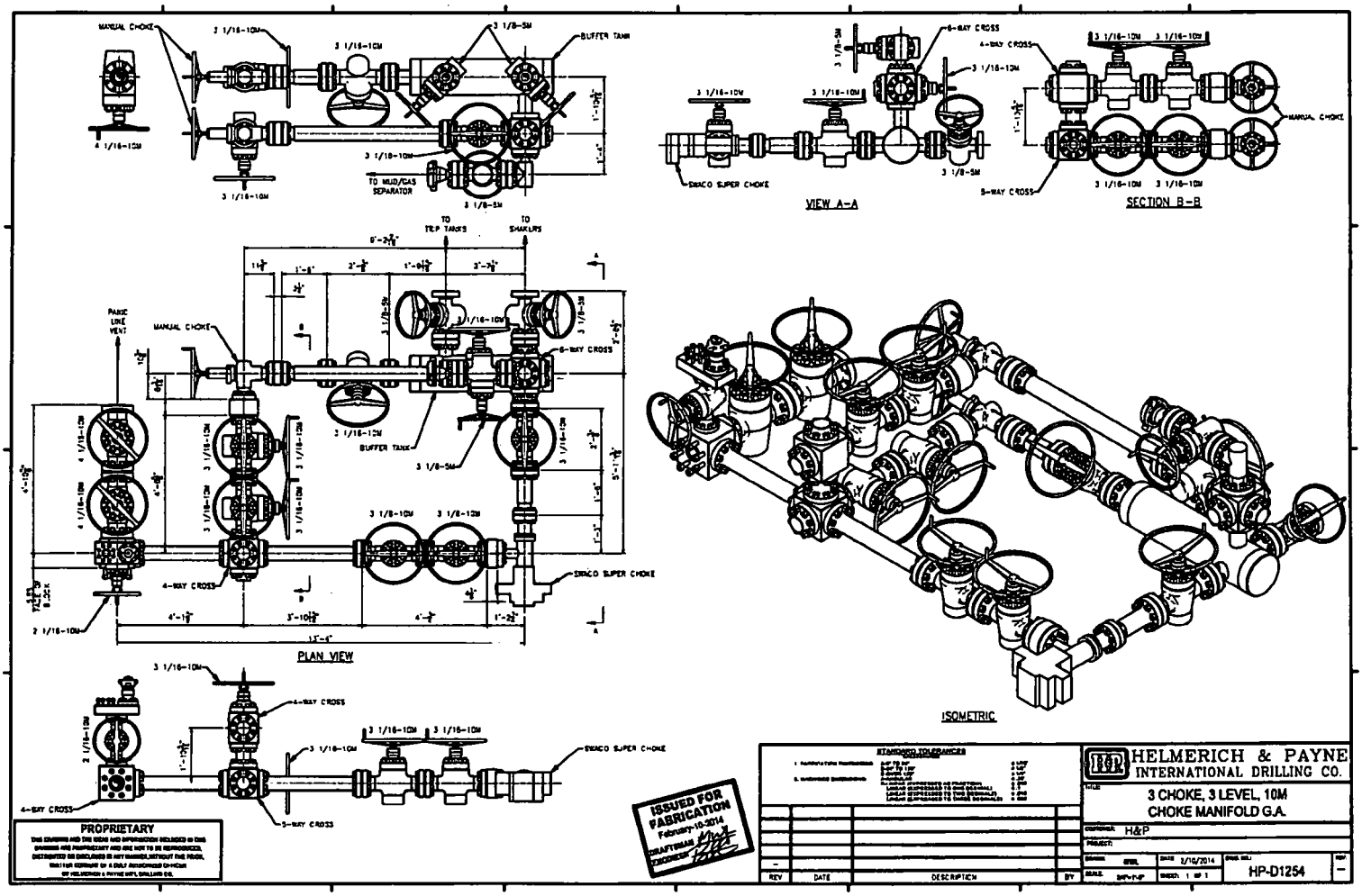
Colgrove_35_Fed_Com__703H_Planning_Report_20190313064619.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Colgrove 35 Fed Com 703H Proposed Wellbore_07-21-2016.pdf
Colgrove 35 Fed Com 703H BLM Plan_07-21-2016.pdf
Co_Flex_Hose_Certification_20190313064732.pdf
Co_Flex_Hose_Test_Chart_20190313064733.pdf
5.500in_20.00_VST_P110EC_DWC_C_IS_MS_Spec_Sheet_20190313064758.pdf
5.500in_20.00_VST_P110EC_VAM_SFC_20190313064759.pdf
7.625in_29.70_P110HC_FXL_20190313064800.pdf
Colgrove_35_Fed_Com__703H_Permit_Info_Repermit_3.12.19_20190313064944.pdf
Wellhead_9.675_in_20190403134229.pdf
Wellhead_13.375_in_20190403134230.pdf

Other Variance attachment:



PROPRIETARY

THIS DRAWING AND THE IDEAS AND INFORMATION INCLUDED IN THIS DRAWING ARE PROPRIETARY AND ARE NOT TO BE REPRODUCED, DISTRIBUTED OR DISCLOSED IN ANY MANNER, WITHOUT THE PRIOR, WRITTEN CONSENT OF A DULY AUTHORIZED OFFICER OF HELMERICH & PAYNE INT'L DRILLING CO.

ISSUED FOR FABRICATION
February-10-2014
DRAFTSMAN
ENGINEER

STANDARD TOLERANCES

REV	DATE	DESCRIPTION	BY
–			

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

TITLE: 3 CHOKE, 3 LEVEL, 10M CHOKE MANIFOLD G.A.

CUSTOMER: H&P

PROJECT:

DRAWN: STEEL DATE: 2/10/2014 DWG NO: HP-D1254 REV: –

SCALE: 3/8"=1'-0" SHEET: 1 OF 1

Hose Inspection Report

ContiTech Oil & Marine

Customer	Customer Reference #	CBC Reference #	CBC Inspector	Date of Inspection

Hose Manufacturer	

Hose Serial #	Date of Manufacture
Hose I.D.	Working Pressure
Hose Type	Test Pressure
Manufacturing Standard	

Connections

End A:	End B:
•	•
Material:	Material:
Seal Face:	Seal Face:
Length Before Hydro Test: 16'	Length After Hydro test: 16'

Conclusion:

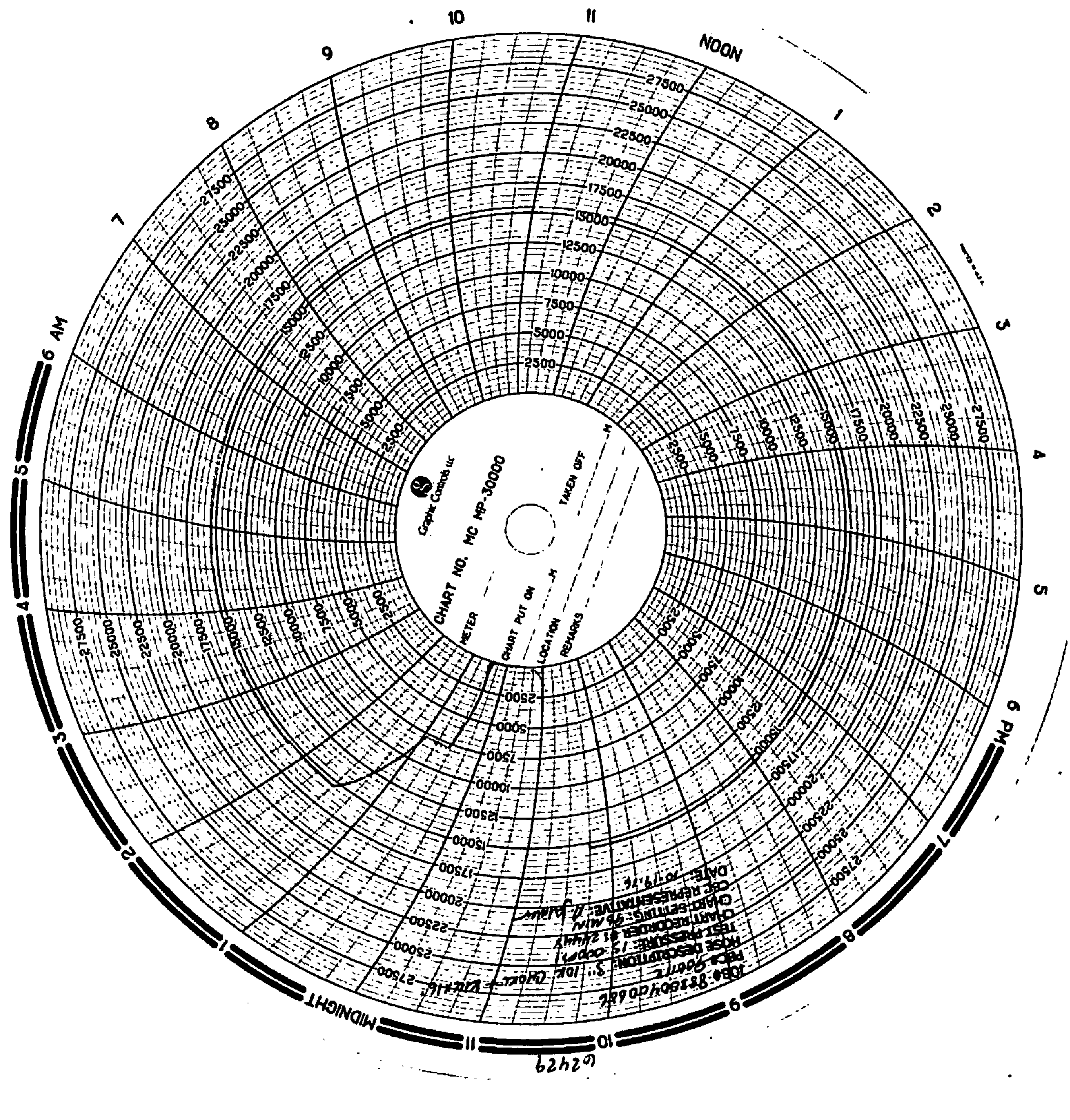
Hose #62429 is suitable for continued service.

Recommendations In general the hose should be inspected on a regular on-going basis. The frequency and degree of the inspection should as a minimum follow these guidelines:

Visual inspection: Every 3 months (or during installation/removal)
Annual: In-situ pressure test
Initial 5 years service: Major inspection
2nd Major inspection: 8 / 10 years of service
(Detailed description of test regime available upon request, ISS-059 Rev 04)

**NOTE: There are a number of critical elements in the hose that cannot be thoroughly checked through standard inspection techniques. Away from dissecting the hose body, the best way to evaluate the condition of the hose is through review of the operating conditions recorded during the hose service life, in particular maximums and peak conditions.

Issued By: **Checked By:** **1 1**
Date: **Date:**



Graphic Controls LLC
CHART NO. MC MP-30000
METER
CHART PUT ON
LOCATION
REMARKS
TAKEN OFF
NOON
6 PM
MIDNIGHT
6 AM
2500
5000
7500
10000
12500
15000
17500
20000
22500
25000
27500
DATE:
CBC REPRESENTATIVE:
CHART SETTING:
TEST RECORDER
TEST PRESSURE:
HOSE DESCRIPTION:
RECA
JOB#

Exhibit 1
EOG Resources
11" 10M PSI BOP Stack

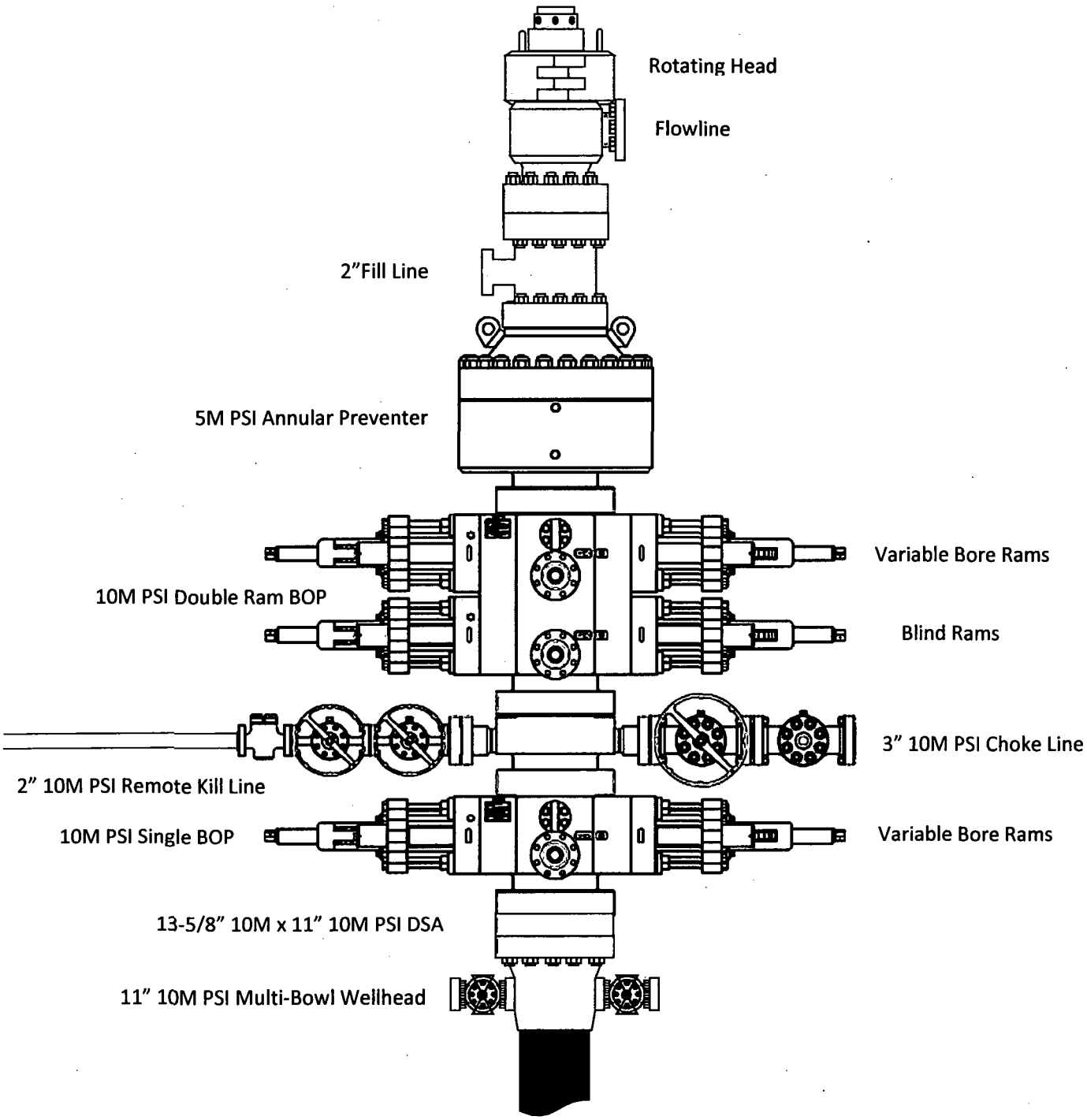
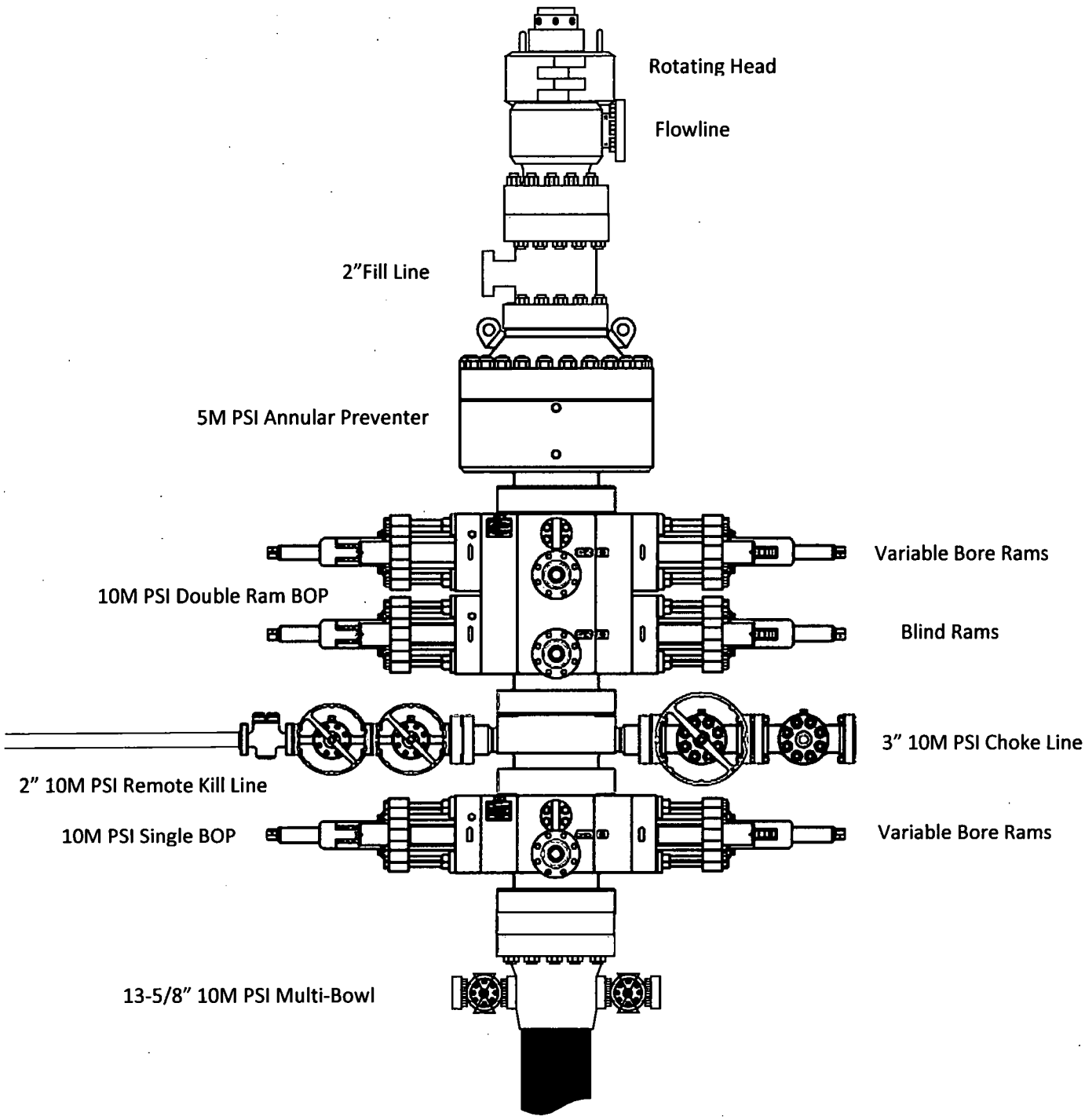


Exhibit 1
EOG Resources
13-5/8" 10M PSI BOP Stack



10,000 PSI BOP Annular
Variance Request

EOG Resources request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOP).

1. Component and Preventer Compatibility Tables

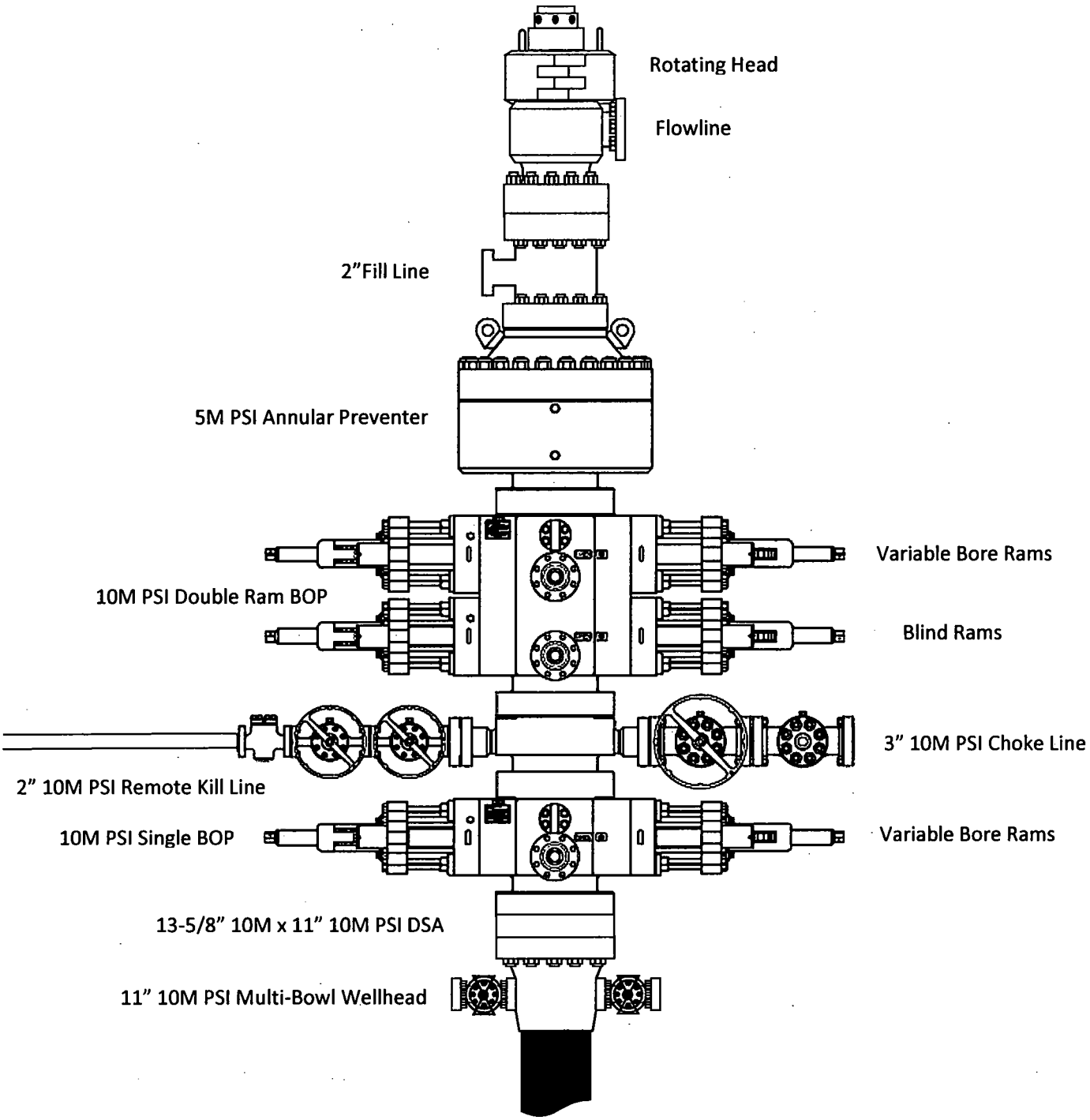
The tables below outlines the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

9-7/8" & 8-3/4" Intermediate Hole Section 10M psi requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
HWDP	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Jars	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
DCs and MWD tools	6.500 – 8.000"	Annular	5M	-	-
Mud Motor	6.750 – 8.000"	Annular	5M	-	-
Intermediate casing	7.625"	Annular	5M	-	-
Open-hole	-	Blind Rams	10M	-	-

6-3/4" Production Hole Section 10M psi requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
HWDP	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
DCs and MWD tools	4.750 – 5.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Mud Motor	4.750 – 5.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Mud Motor	5.500 – 5.750"	Annular	5M	-	-
Production casing	5.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Open-hole	-	Blind Rams	10M	-	-

VBR = Variable Bore Ram

EOG Resources
11" 10M PSI BOP Stack



2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the EOG Resources drilling supervisor's office on location, and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 100% of its RWP.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close
3. Space out drill string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Running Production Casing

1. Sound alarm (alert crew)
2. Stab crossover and full opening safety valve and close
3. Space out string

4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams. (HCR and choke will already be in the closed position.)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA thru Stack

1. PRIOR to pulling last joint of drillpipe thru the stack.
    a. Perform flowcheck, if flowing:
    b. Sound alarm (alert crew)
    c. Stab full opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams.
    e. Shut-in using upper variable bore rams. (HCR and choke will already be in the closed position.)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan

2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
    a. Sound alarm (alert crew)
    b. Stab crossover and full opening safety valve and close
    c. Space out drill string with upset just beneath the upper variable bore rams.
    d. Shut-in using upper variable bore rams. (HCR and choke will already be in the closed position.)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP and SICP

ii. Pit gain
iii. Time

h. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
   a. Sound alarm (alert crew)
   b. If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
   c. If impossible to pick up high enough to pull the string clear of the stack:
   d. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close
   e. Space out drill string with tooljoint just beneath the upper variable bore ram.
   f. Shut-in using upper variable bore ram. (HCR and choke will already be in the closed position.)
   g. Confirm shut-in
   h. Notify toolpusher/company representative
   i. Read and record the following:
      i. SIDPP and SICP
      ii. Pit gain
      iii. Time
   j. Regroup and identify forward plan

10,000 PSI BOP Annular
Variance Request

EOG Resources request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOP).

1. Component and Preventer Compatibility Tables

The tables below outlines the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

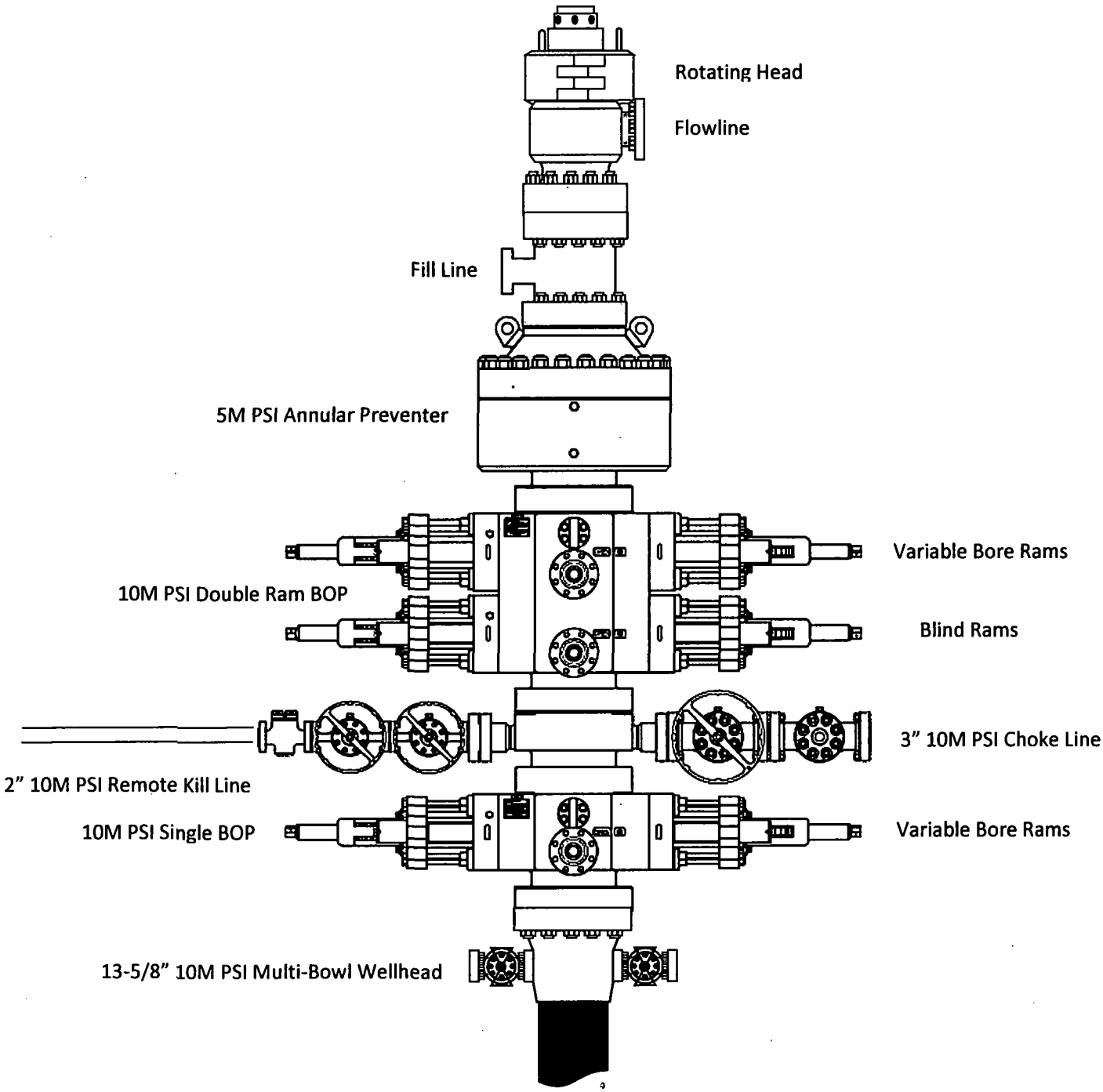
12-1/4" Intermediate Hole Section 10M psi requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
DCs and MWD tools	6.500" – 8.000"	Annular	5M	-	-
Mud Motor	8.000" – 9.625"	Annular	5M	-	-
1st Intermediate casing	9.625"	Annular	5M	-	-
Open-hole	-	Blind Rams	10M	-	-

8-3/4" Intermediate Hole Section 10M psi requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
DCs and MWD tools	6.500" – 8.000"	Annular	5M	-	-
Mud Motor	6.750" – 8.000"	Annular	5M	-	-
2nd Intermediate casing	7.625"	Annular	5M	-	-
Open-hole	-	Blind Rams	10M	-	-

6-3/4" Production Hole Section 10M psi requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
HWDP	4.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
DCs and MWD tools	4.750" – 5.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Mud Motor	4.750" – 5.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Mud Motor	5.500" – 5.750"	Annular	5M	-	-
Production casing	5.500"	Annular	5M	Upper 3.5 - 5.5" VBR Lower 3.5 - 5.5" VBR	10M 10M
Open-hole	-	Blind Rams	10M	-	-

VBR = Variable Bore Ram

EOG Resources
13-5/8" 10M PSI BOP Stack



2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the EOG Resources drilling supervisor's office on location, and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 100% of its RWP.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close
3. Space out drill string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Running Production Casing

1. Sound alarm (alert crew)
2. Stab crossover and full opening safety valve and close
3. Space out string

4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

<u>General Procedure With No Pipe In Hole (Open Hole)</u>

1. Sound alarm (alert crew)
2. Shut-in with blind rams. (HCR and choke will already be in the closed position.)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

<u>General Procedures While Pulling BHA thru Stack</u>

1. PRIOR to pulling last joint of drillpipe thru the stack.
    a. Perform flowcheck, if flowing:
    b. Sound alarm (alert crew)
    c. Stab full opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams.
    e. Shut-in using upper variable bore rams. (HCR and choke will already be in the closed position.)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan

2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
    a. Sound alarm (alert crew)
    b. Stab crossover and full opening safety valve and close
    c. Space out drill string with upset just beneath the upper variable bore rams.
    d. Shut-in using upper variable bore rams. (HCR and choke will already be in the closed position.)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP and SICP

ii. Pit gain
iii. Time

h. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
   a. Sound alarm (alert crew)
   b. If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
   c. If impossible to pick up high enough to pull the string clear of the stack:
   d. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close
   e. Space out drill string with tooljoint just beneath the upper variable bore ram.
   f. Shut-in using upper variable bore ram. (HCR and choke will already be in the closed position.)
   g. Confirm shut-in
   h. Notify toolpusher/company representative
   i. Read and record the following:
      i. SIDPP and SICP
      ii. Pit gain
      iii. Time
   j. Regroup and identify forward plan

EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	820'
Top of Salt	1,160'
Base of Salt / Top Anhydrite	4,780'
Base Anhydrite	5,030'
Lamar	5,030'
Bell Canyon	5,060'
Cherry Canyon	6,085'
Brushy Canyon	7,760'
Bone Spring Lime	9,245'
1st Bone Spring Sand	10,175'
2nd Bone Spring Shale	10,355'
2nd Bone Spring Sand	10,680'
3rd Bone Spring Carb	11,150'
3rd Bone Spring Sand	11,760'
Wolfcamp	12,225'
TD	12,465'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,085'	Oil
Brushy Canyon	7,760'	Oil
1st Bone Spring Sand	10,175'	Oil
2nd Bone Spring Shale	10,355'	Oil
2nd Bone Spring Sand	11,680'	Oil
3rd Bone Spring Carb	11,150'	Oil
3rd Bone Spring Sand	11,760'	Oil
Wolfcamp	12,225'	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 950' and circulating cement back to surface.

EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

4. CASING PROGRAM

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
12.25"	0' – 950'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
8.75"	0' – 11,300'	7.625"	29.7#	HCP-110	FXL	1.125	1.25	1.60
6.75"	0' – 10,800'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,800'– 11,300'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60
6.75"	11,300' – 19,906'	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.

EOG Resources also requests approval to implement Casing Design B (pg. 8-9). BLM will be notified of elected design at spud.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/sk	Slurry Description
950' 9-5/8"	800	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	80	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 750')
11,300' 7-5/8"	450	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,760')
	1,000	12.7	2.30	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
19,906' 5-1/2"	730	14.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,800')

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 (7,760') 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.

EOG requests permission to allow BOP Break Testing under the following conditions:
- After a full BOP test to 100% RWP is conducted on the first well on the pad.

- When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.
- Full BOP test will be required prior to drilling any production hole.

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 – 950'	Fresh - Gel	8.6-8.8	28-34	N/c
950' – 11,300'	Brine	10.0-10.2	28-34	N/c
11,300' – 11,995	Oil Base	8.7-9.4	58-68	N/c - 6
11,995 – 19,906' 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) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

GR–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 9,065 psig and a maximum anticipated surface pressure of 6,322 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.

EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

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.

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.

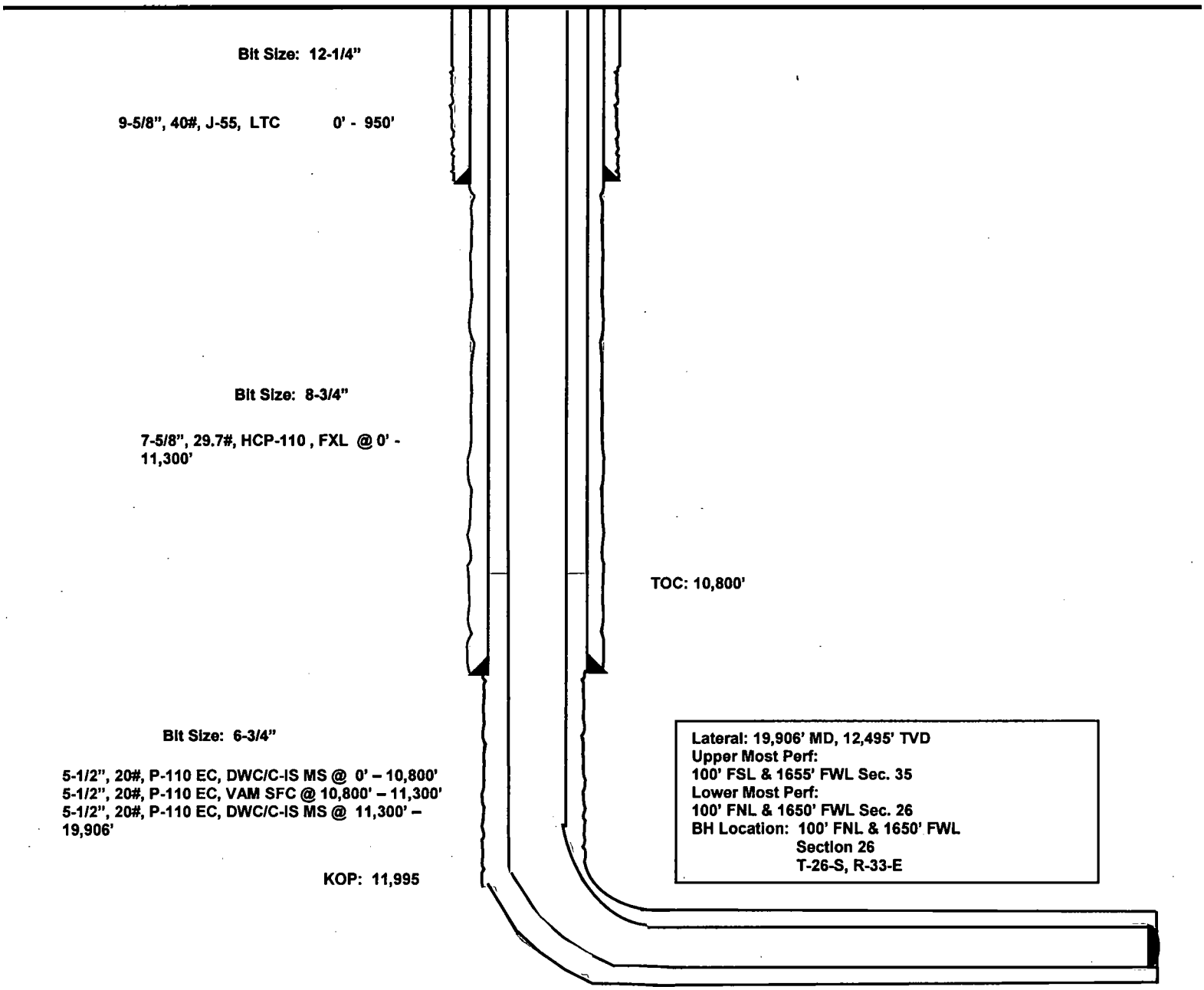
EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

252' FSL
1970' FWL
Section 35
T-26-S, R-33-E

Proposed Wellbore
Design A

API: 30-025-*****

KB: 3,345'
GL: 3,320'



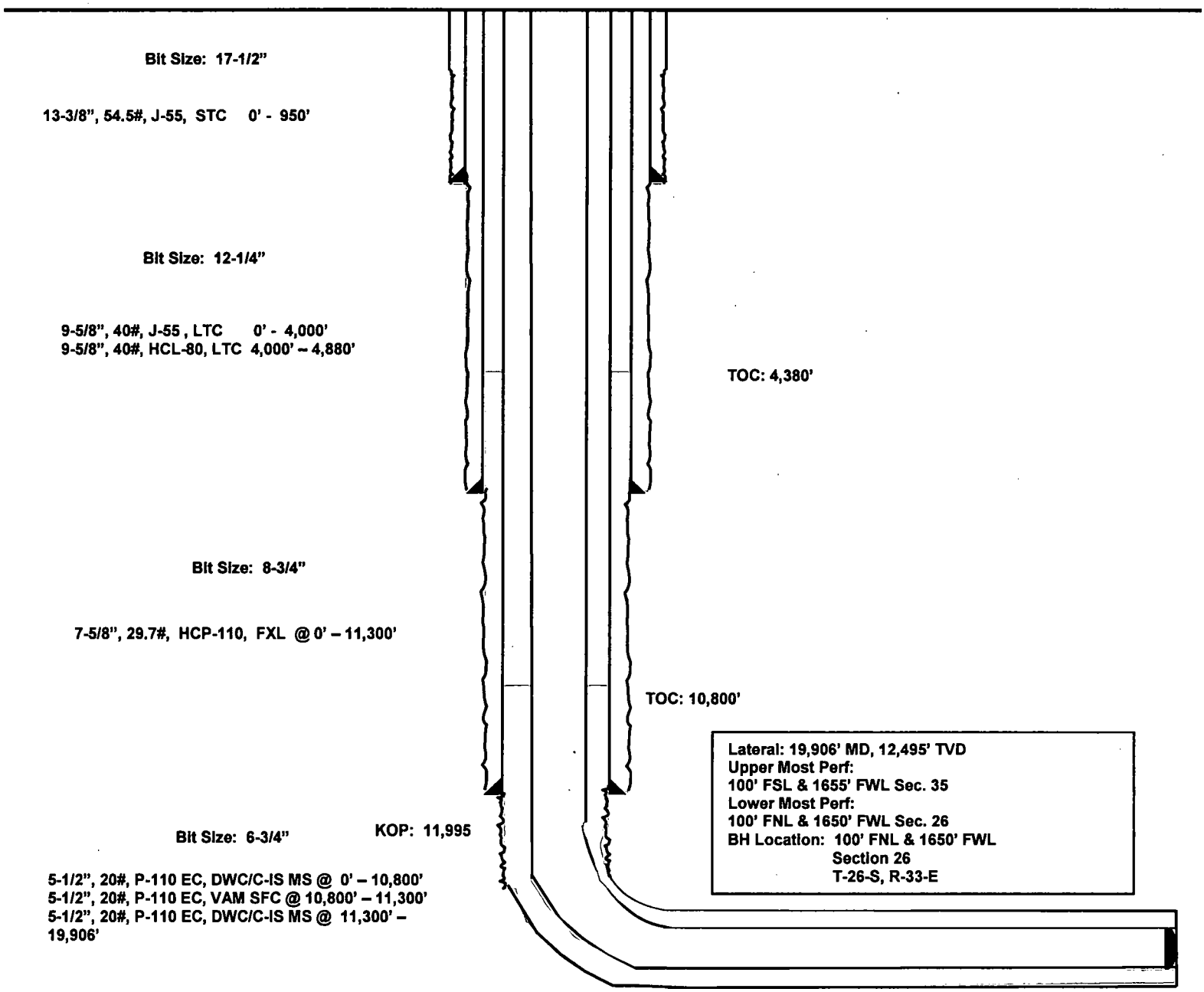
EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

252' FSL
1970' FWL
Section 35
T-26-S, R-33-E

Proposed Wellbore
Design B

API: 30-025-*****

KB: 3,345'
GL: 3,320'



EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

Design B

Casing Program:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
17.5"	0 – 950'	13.375"	54.5#	J-55	STC	1.125	1.25	1.60
12.25"	0 – 4,000'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
12.25"	4,000' – 4,880'	9.625"	40#	HCL-80	LTC	1.125	1.25	1.60
8.75"	0 – 11,300'	7.625"	29.7#	HCP-110	FXL	1.125	1.25	1.60
6.75"	0' – 10,800'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,800'– 11,300'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60
6.75"	11,300' – 19,906'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60

Cement Program:

Depth	No. Sacks	Wt. lb/gal	Yld Ft^3/sk	Slurry Description
950' 13-3/8"	540	13.5	1.74	Lead: Class C + 4.0% Bentonite Gel + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	160	14.8	1.35	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 750')
4,880' 9-5/8"	780	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	310	14.8	1.32	Tail: Class C + 10% NaCl + 3% MagOx (TOC @ 3,900')
11,300' 7-5/8"	200	10.8	3.67	Lead: Class C + 3% CaCl2 + 3% Microbond (TOC @ 4,380')
	100	14.8	2.38	Tail: Class H + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 9,800')
19,906' 5-1/2"	730	14.8	1.31	Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,800')

As a contingency, 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 (7,760') 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.

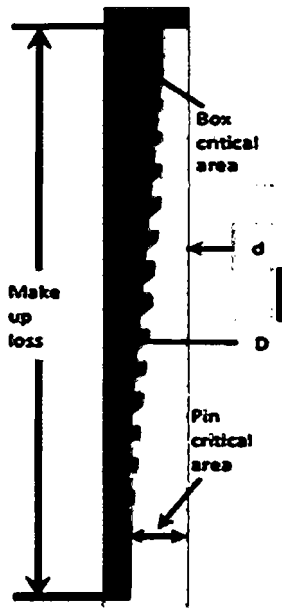
Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 950'	Fresh - Gel	8.6-8.8	28-34	N/c
950' – 4,880'	Brine	10.0-10.2	28-34	N/c
4,880'– 11,300'	Oil Base	8.7-9.4	58-68	N/c - 6
11,300'– 19,906' Lateral	Oil Base	10.0-11.5	58-68	3 - 6

Please see previously attached drill plan.

Metal One Corp. *Metal One*	MO-FXL Connection Data Sheet	Page	MCTP
		Date	3-Nov-16
		Rev.	0

MO-FXL



	Imperial		S.I.	
Pipe Body				
Pipe OD (D)	7 5/8	in	193.68	mm
Actual weight	29.04		43.26	kg/m
Pipe ID (d)	6.875	in	174.63	mm
Drift Dia.	6.750	in	171.45	mm
Connection				
PIN ID	6.875	in	174.63	mm
Thread Taper	1 / 10 (1.2" per ft)			

Performance Properties for Pipe Body

M.I.Y.P. *1	10,760	psi	74.21	MPa

Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body
M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body
*1 Based on VSB P110HC (YS=125~140ksi)

Performance Properties for Connection

Min. Compression Yield	747 kips (70% of S.M.Y.S.)
External Pressure	100% of Collapse Strength

Recommended Torque

Opti.	17,200	ft-lb	23,300	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

Please see previously attached drill plan.

Please see previously attached drill plan.

Please see previously attached drill plan.

EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

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/Escape packs —4 packs shall be stored on the rig floor th 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.
COLGROVE 35 FED COM #703H

- 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.
COLGROVE 35 FED COM #703H

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	
Robert Brosig	Office (432) 686-3737
	Cell (432) 770-0705

Drilling Manager	
Heath Work	Office (432) 686-6716
	Cell (903) 780-1179

Drilling Superintendent	
Jason Fitzgerald	Office (432) 848-9029
	Cell (318) 347-3916

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

EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Colgrove 35 Fed Com
#703H
73349
OH

Plan: Plan #0.1

Standard Planning Report

12 March, 2019

Planning Report

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #703H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3345.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3345.0usft
Site:	Colgrove 35 Fed Com	**North Reference:**	Grid
Well:	#703H	**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	Colgrove 35 Fed Com				
Site Position:		**Northing:**	364,902.00 usft	**Latitude:**	32° 0' 2.718 N
From:	Map	**Easting:**	785,291.00 usft	**Longitude:**	103° 32' 46.899 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.42 °

Well	#703H					
Well Position	**+N/-S**	74.0 usft	**Northing:**	364,976.00 usft	**Latitude:**	32° 0' 3.426 N
	+E/-W	335.0 usft	**Easting:**	785,626.00 usft	**Longitude:**	103° 32' 43.002 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,320.0 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	3/4/2019	6.74	59.84	47,633.40333891

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	357.11

Plan Survey Tool Program **Date** 3/5/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,906.1	Plan #0.1 (OH)	MWD	
				OWSG MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,120.9	2.42	236.99	3,120.9	-1.4	-2.1	2.00	2.00	0.00	236.99	
11,874.5	2.42	236.99	11,866.6	-202.6	-311.9	0.00	0.00	0.00	0.00	
11,995.4	0.00	0.00	11,987.5	-204.0	-314.0	2.00	-2.00	0.00	180.00	KOP(Colgrove 35 FC
12,745.4	90.00	359.54	12,465.0	273.4	-317.8	12.00	12.00	-0.06	359.54	
19,906.1	90.00	359.54	12,465.0	7,434.0	-375.0	0.00	0.00	0.00	0.00	PBHL(Colgrove 35 FC

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #703H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3345.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3345.0usft
Site:	Colgrove 35 Fed Com	**North Reference:**	Grid
Well:	#703H	**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	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	2.00	236.99	3,100.0	-1.0	-1.5	-0.9	2.00	2.00	0.00
3,120.9	2.42	236.99	3,120.9	-1.4	-2.1	-1.3	2.00	2.00	0.00
3,200.0	2.42	236.99	3,199.9	-3.2	-4.9	-3.0	0.00	0.00	0.00
3,300.0	2.42	236.99	3,299.8	-5.5	-8.5	-5.1	0.00	0.00	0.00
3,400.0	2.42	236.99	3,399.7	-7.8	-12.0	-7.2	0.00	0.00	0.00
3,500.0	2.42	236.99	3,499.6	-10.1	-15.6	-9.3	0.00	0.00	0.00
3,600.0	2.42	236.99	3,599.5	-12.4	-19.1	-11.4	0.00	0.00	0.00
3,700.0	2.42	236.99	3,699.4	-14.7	-22.6	-13.5	0.00	0.00	0.00
3,800.0	2.42	236.99	3,799.4	-17.0	-26.2	-15.7	0.00	0.00	0.00
3,900.0	2.42	236.99	3,899.3	-19.3	-29.7	-17.8	0.00	0.00	0.00
4,000.0	2.42	236.99	3,999.2	-21.6	-33.2	-19.9	0.00	0.00	0.00
4,100.0	2.42	236.99	4,099.1	-23.9	-36.8	-22.0	0.00	0.00	0.00
4,200.0	2.42	236.99	4,199.0	-26.2	-40.3	-24.1	0.00	0.00	0.00
4,300.0	2.42	236.99	4,298.9	-28.5	-43.9	-26.2	0.00	0.00	0.00
4,400.0	2.42	236.99	4,398.8	-30.8	-47.4	-28.4	0.00	0.00	0.00
4,500.0	2.42	236.99	4,498.7	-33.1	-50.9	-30.5	0.00	0.00	0.00
4,600.0	2.42	236.99	4,598.6	-35.4	-54.5	-32.6	0.00	0.00	0.00
4,700.0	2.42	236.99	4,698.6	-37.7	-58.0	-34.7	0.00	0.00	0.00
4,800.0	2.42	236.99	4,798.5	-40.0	-61.5	-36.8	0.00	0.00	0.00
4,900.0	2.42	236.99	4,898.4	-42.3	-65.1	-39.0	0.00	0.00	0.00
5,000.0	2.42	236.99	4,998.3	-44.6	-68.6	-41.1	0.00	0.00	0.00
5,100.0	2.42	236.99	5,098.2	-46.9	-72.2	-43.2	0.00	0.00	0.00
5,200.0	2.42	236.99	5,198.1	-49.2	-75.7	-45.3	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #703H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3345.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3345.0usft
Site:	Colgrove 35 Fed Com	**North Reference:**	Grid
Well:	#703H	**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	2.42	236.99	5,298.0	-51.5	-79.2	-47.4	0.00	0.00	0.00
5,400.0	2.42	236.99	5,397.9	-53.8	-82.8	-49.5	0.00	0.00	0.00
5,500.0	2.42	236.99	5,497.8	-56.1	-86.3	-51.7	0.00	0.00	0.00
5,600.0	2.42	236.99	5,597.8	-58.4	-89.9	-53.8	0.00	0.00	0.00
5,700.0	2.42	236.99	5,697.7	-60.7	-93.4	-55.9	0.00	0.00	0.00
5,800.0	2.42	236.99	5,797.6	-63.0	-96.9	-58.0	0.00	0.00	0.00
5,900.0	2.42	236.99	5,897.5	-65.3	-100.5	-60.1	0.00	0.00	0.00
6,000.0	2.42	236.99	5,997.4	-67.6	-104.0	-62.2	0.00	0.00	0.00
6,100.0	2.42	236.99	6,097.3	-69.9	-107.5	-64.4	0.00	0.00	0.00
6,200.0	2.42	236.99	6,197.2	-72.2	-111.1	-66.5	0.00	0.00	0.00
6,300.0	2.42	236.99	6,297.1	-74.5	-114.6	-68.6	0.00	0.00	0.00
6,400.0	2.42	236.99	6,397.0	-76.8	-118.2	-70.7	0.00	0.00	0.00
6,500.0	2.42	236.99	6,497.0	-79.1	-121.7	-72.8	0.00	0.00	0.00
6,600.0	2.42	236.99	6,596.9	-81.4	-125.2	-75.0	0.00	0.00	0.00
6,700.0	2.42	236.99	6,696.8	-83.7	-128.8	-77.1	0.00	0.00	0.00
6,800.0	2.42	236.99	6,796.7	-86.0	-132.3	-79.2	0.00	0.00	0.00
6,900.0	2.42	236.99	6,896.6	-88.3	-135.9	-81.3	0.00	0.00	0.00
7,000.0	2.42	236.99	6,996.5	-90.6	-139.4	-83.4	0.00	0.00	0.00
7,100.0	2.42	236.99	7,096.4	-92.9	-142.9	-85.5	0.00	0.00	0.00
7,200.0	2.42	236.99	7,196.3	-95.2	-146.5	-87.7	0.00	0.00	0.00
7,300.0	2.42	236.99	7,296.2	-97.5	-150.0	-89.8	0.00	0.00	0.00
7,400.0	2.42	236.99	7,396.2	-99.8	-153.5	-91.9	0.00	0.00	0.00
7,500.0	2.42	236.99	7,496.1	-102.1	-157.1	-94.0	0.00	0.00	0.00
7,600.0	2.42	236.99	7,596.0	-104.4	-160.6	-96.1	0.00	0.00	0.00
7,700.0	2.42	236.99	7,695.9	-106.7	-164.2	-98.2	0.00	0.00	0.00
7,800.0	2.42	236.99	7,795.8	-108.9	-167.7	-100.4	0.00	0.00	0.00
7,900.0	2.42	236.99	7,895.7	-111.2	-171.2	-102.5	0.00	0.00	0.00
8,000.0	2.42	236.99	7,995.6	-113.5	-174.8	-104.6	0.00	0.00	0.00
8,100.0	2.42	236.99	8,095.5	-115.8	-178.3	-106.7	0.00	0.00	0.00
8,200.0	2.42	236.99	8,195.4	-118.1	-181.8	-108.8	0.00	0.00	0.00
8,300.0	2.42	236.99	8,295.4	-120.4	-185.4	-111.0	0.00	0.00	0.00
8,400.0	2.42	236.99	8,395.3	-122.7	-188.9	-113.1	0.00	0.00	0.00
8,500.0	2.42	236.99	8,495.2	-125.0	-192.5	-115.2	0.00	0.00	0.00
8,600.0	2.42	236.99	8,595.1	-127.3	-196.0	-117.3	0.00	0.00	0.00
8,700.0	2.42	236.99	8,695.0	-129.6	-199.5	-119.4	0.00	0.00	0.00
8,800.0	2.42	236.99	8,794.9	-131.9	-203.1	-121.5	0.00	0.00	0.00
8,900.0	2.42	236.99	8,894.8	-134.2	-206.6	-123.7	0.00	0.00	0.00
9,000.0	2.42	236.99	8,994.7	-136.5	-210.2	-125.8	0.00	0.00	0.00
9,100.0	2.42	236.99	9,094.6	-138.8	-213.7	-127.9	0.00	0.00	0.00
9,200.0	2.42	236.99	9,194.6	-141.1	-217.2	-130.0	0.00	0.00	0.00
9,300.0	2.42	236.99	9,294.5	-143.4	-220.8	-132.1	0.00	0.00	0.00
9,400.0	2.42	236.99	9,394.4	-145.7	-224.3	-134.2	0.00	0.00	0.00
9,500.0	2.42	236.99	9,494.3	-148.0	-227.8	-136.4	0.00	0.00	0.00
9,600.0	2.42	236.99	9,594.2	-150.3	-231.4	-138.5	0.00	0.00	0.00
9,700.0	2.42	236.99	9,694.1	-152.6	-234.9	-140.6	0.00	0.00	0.00
9,800.0	2.42	236.99	9,794.0	-154.9	-238.5	-142.7	0.00	0.00	0.00
9,900.0	2.42	236.99	9,893.9	-157.2	-242.0	-144.8	0.00	0.00	0.00
10,000.0	2.42	236.99	9,993.8	-159.5	-245.5	-146.9	0.00	0.00	0.00
10,100.0	2.42	236.99	10,093.7	-161.8	-249.1	-149.1	0.00	0.00	0.00
10,200.0	2.42	236.99	10,193.7	-164.1	-252.6	-151.2	0.00	0.00	0.00
10,300.0	2.42	236.99	10,293.6	-166.4	-256.2	-153.3	0.00	0.00	0.00
10,400.0	2.42	236.99	10,393.5	-168.7	-259.7	-155.4	0.00	0.00	0.00
10,500.0	2.42	236.99	10,493.4	-171.0	-263.2	-157.5	0.00	0.00	0.00
10,600.0	2.42	236.99	10,593.3	-173.3	-266.8	-159.7	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #703H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3345.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3345.0usft
Site:	Colgrove 35 Fed Com	**North Reference:**	Grid
Well:	#703H	**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)
10,700.0	2.42	236.99	10,693.2	-175.6	-270.3	-161.8	0.00	0.00	0.00
10,800.0	2.42	236.99	10,793.1	-177.9	-273.8	-163.9	0.00	0.00	0.00
10,900.0	2.42	236.99	10,893.0	-180.2	-277.4	-166.0	0.00	0.00	0.00
11,000.0	2.42	236.99	10,992.9	-182.5	-280.9	-168.1	0.00	0.00	0.00
11,100.0	2.42	236.99	11,092.9	-184.8	-284.5	-170.2	0.00	0.00	0.00
11,200.0	2.42	236.99	11,192.8	-187.1	-288.0	-172.4	0.00	0.00	0.00
11,300.0	2.42	236.99	11,292.7	-189.4	-291.5	-174.5	0.00	0.00	0.00
11,400.0	2.42	236.99	11,392.6	-191.7	-295.1	-176.6	0.00	0.00	0.00
11,500.0	2.42	236.99	11,492.5	-194.0	-298.6	-178.7	0.00	0.00	0.00
11,600.0	2.42	236.99	11,592.4	-196.3	-302.1	-180.8	0.00	0.00	0.00
11,700.0	2.42	236.99	11,692.3	-198.6	-305.7	-182.9	0.00	0.00	0.00
11,800.0	2.42	236.99	11,792.2	-200.9	-309.2	-185.1	0.00	0.00	0.00
11,874.5	2.42	236.99	11,866.6	-202.6	-311.9	-186.6	0.00	0.00	0.00
11,900.0	1.91	236.99	11,892.2	-203.1	-312.7	-187.1	2.00	-2.00	0.00
11,995.4	0.00	0.00	11,987.5	-204.0	-314.0	-187.9	2.00	-2.00	0.00
KOP(Colgrove 35 FC #703H)									
12,000.0	0.56	359.54	11,992.1	-204.0	-314.0	-187.9	12.00	12.00	0.00
12,025.0	3.56	359.54	12,017.1	-203.1	-314.0	-187.0	12.00	12.00	0.00
12,050.0	6.56	359.54	12,042.0	-200.9	-314.0	-184.8	12.00	12.00	0.00
12,075.0	9.56	359.54	12,066.8	-197.4	-314.1	-181.3	12.00	12.00	0.00
12,100.0	12.56	359.54	12,091.3	-192.6	-314.1	-176.5	12.00	12.00	0.00
12,125.0	15.56	359.54	12,115.5	-186.5	-314.1	-170.4	12.00	12.00	0.00
12,150.0	18.56	359.54	12,139.4	-179.2	-314.2	-163.1	12.00	12.00	0.00
12,175.0	21.56	359.54	12,162.9	-170.6	-314.3	-154.6	12.00	12.00	0.00
12,200.0	24.56	359.54	12,185.9	-160.8	-314.3	-144.8	12.00	12.00	0.00
12,225.0	27.56	359.54	12,208.4	-149.8	-314.4	-133.8	12.00	12.00	0.00
12,250.0	30.56	359.54	12,230.2	-137.7	-314.5	-121.7	12.00	12.00	0.00
12,275.0	33.56	359.54	12,251.4	-124.4	-314.6	-108.4	12.00	12.00	0.00
12,300.0	36.56	359.54	12,271.9	-110.1	-314.8	-94.1	12.00	12.00	0.00
12,325.0	39.56	359.54	12,291.6	-94.7	-314.9	-78.7	12.00	12.00	0.00
12,350.0	42.56	359.54	12,310.4	-78.2	-315.0	-62.3	12.00	12.00	0.00
12,375.0	45.56	359.54	12,328.4	-60.9	-315.1	-44.9	12.00	12.00	0.00
12,399.9	48.54	359.54	12,345.3	-42.6	-315.3	-26.7	12.00	12.00	0.00
FTP(Colgrove 35 FC #703H)									
12,400.0	48.56	359.54	12,345.4	-42.6	-315.3	-26.6	12.00	12.00	0.00
12,425.0	51.56	359.54	12,361.5	-23.4	-315.4	-7.5	12.00	12.00	0.00
12,450.0	54.56	359.54	12,376.5	-3.4	-315.6	12.5	12.00	12.00	0.00
12,475.0	57.56	359.54	12,390.4	17.3	-315.8	33.2	12.00	12.00	0.00
12,500.0	60.56	359.54	12,403.3	38.7	-315.9	54.6	12.00	12.00	0.00
12,525.0	63.56	359.54	12,415.0	60.8	-316.1	76.7	12.00	12.00	0.00
12,550.0	66.56	359.54	12,425.5	83.5	-316.3	99.3	12.00	12.00	0.00
12,575.0	69.56	359.54	12,434.9	106.7	-316.5	122.5	12.00	12.00	0.00
12,600.0	72.56	359.54	12,443.0	130.3	-316.7	146.1	12.00	12.00	0.00
12,625.0	75.56	359.54	12,449.9	154.4	-316.9	170.1	12.00	12.00	0.00
12,650.0	78.56	359.54	12,455.5	178.7	-317.1	194.5	12.00	12.00	0.00
12,675.0	81.56	359.54	12,459.8	203.3	-317.3	219.1	12.00	12.00	0.00
12,700.0	84.56	359.54	12,462.8	228.2	-317.5	243.9	12.00	12.00	0.00
12,725.0	87.56	359.54	12,464.5	253.1	-317.7	268.8	12.00	12.00	0.00
12,745.4	90.00	359.54	12,465.0	273.4	-317.8	289.1	12.00	12.00	0.00
12,800.0	90.00	359.54	12,465.0	328.1	-318.2	343.7	0.00	0.00	0.00
12,900.0	90.00	359.54	12,465.0	428.1	-319.0	443.6	0.00	0.00	0.00
13,000.0	90.00	359.54	12,465.0	528.1	-319.8	543.5	0.00	0.00	0.00
13,100.0	90.00	359.54	12,465.0	628.1	-320.6	643.4	0.00	0.00	0.00
13,200.0	90.00	359.54	12,465.0	728.1	-321.4	743.3	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #703H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3345.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3345.0usft
Site:	Colgrove 35 Fed Com	**North Reference:**	Grid
Well:	#703H	**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)
13,300.0	90.00	359.54	12,465.0	828.1	-322.2	843.2	0.00	0.00	0.00
13,400.0	90.00	359.54	12,465.0	928.1	-323.0	943.2	0.00	0.00	0.00
13,500.0	90.00	359.54	12,465.0	1,028.1	-323.8	1,043.1	0.00	0.00	0.00
13,600.0	90.00	359.54	12,465.0	1,128.1	-324.6	1,143.0	0.00	0.00	0.00
13,700.0	90.00	359.54	12,465.0	1,228.1	-325.4	1,242.9	0.00	0.00	0.00
13,800.0	90.00	359.54	12,465.0	1,328.0	-326.2	1,342.8	0.00	0.00	0.00
13,900.0	90.00	359.54	12,465.0	1,428.0	-327.0	1,442.7	0.00	0.00	0.00
14,000.0	90.00	359.54	12,465.0	1,528.0	-327.8	1,542.6	0.00	0.00	0.00
14,100.0	90.00	359.54	12,465.0	1,628.0	-328.6	1,642.5	0.00	0.00	0.00
14,200.0	90.00	359.54	12,465.0	1,728.0	-329.4	1,742.4	0.00	0.00	0.00
14,300.0	90.00	359.54	12,465.0	1,828.0	-330.2	1,842.3	0.00	0.00	0.00
14,400.0	90.00	359.54	12,465.0	1,928.0	-331.0	1,942.3	0.00	0.00	0.00
14,500.0	90.00	359.54	12,465.0	2,028.0	-331.8	2,042.2	0.00	0.00	0.00
14,600.0	90.00	359.54	12,465.0	2,128.0	-332.6	2,142.1	0.00	0.00	0.00
14,700.0	90.00	359.54	12,465.0	2,228.0	-333.4	2,242.0	0.00	0.00	0.00
14,800.0	90.00	359.54	12,465.0	2,328.0	-334.2	2,341.9	0.00	0.00	0.00
14,900.0	90.00	359.54	12,465.0	2,428.0	-335.0	2,441.8	0.00	0.00	0.00
15,000.0	90.00	359.54	12,465.0	2,528.0	-335.8	2,541.7	0.00	0.00	0.00
15,100.0	90.00	359.54	12,465.0	2,628.0	-336.6	2,641.6	0.00	0.00	0.00
15,200.0	90.00	359.54	12,465.0	2,728.0	-337.4	2,741.5	0.00	0.00	0.00
15,300.0	90.00	359.54	12,465.0	2,828.0	-338.2	2,841.4	0.00	0.00	0.00
15,400.0	90.00	359.54	12,465.0	2,928.0	-339.0	2,941.4	0.00	0.00	0.00
15,500.0	90.00	359.54	12,465.0	3,028.0	-339.8	3,041.3	0.00	0.00	0.00
15,600.0	90.00	359.54	12,465.0	3,128.0	-340.6	3,141.2	0.00	0.00	0.00
15,700.0	90.00	359.54	12,465.0	3,228.0	-341.4	3,241.1	0.00	0.00	0.00
15,800.0	90.00	359.54	12,465.0	3,328.0	-342.2	3,341.0	0.00	0.00	0.00
15,900.0	90.00	359.54	12,465.0	3,428.0	-343.0	3,440.9	0.00	0.00	0.00
16,000.0	90.00	359.54	12,465.0	3,528.0	-343.8	3,540.8	0.00	0.00	0.00
16,100.0	90.00	359.54	12,465.0	3,628.0	-344.6	3,640.7	0.00	0.00	0.00
16,200.0	90.00	359.54	12,465.0	3,728.0	-345.4	3,740.6	0.00	0.00	0.00
16,300.0	90.00	359.54	12,465.0	3,828.0	-346.2	3,840.5	0.00	0.00	0.00
16,400.0	90.00	359.54	12,465.0	3,928.0	-347.0	3,940.5	0.00	0.00	0.00
16,500.0	90.00	359.54	12,465.0	4,028.0	-347.8	4,040.4	0.00	0.00	0.00
16,600.0	90.00	359.54	12,465.0	4,128.0	-348.6	4,140.3	0.00	0.00	0.00
16,700.0	90.00	359.54	12,465.0	4,228.0	-349.4	4,240.2	0.00	0.00	0.00
16,800.0	90.00	359.54	12,465.0	4,328.0	-350.2	4,340.1	0.00	0.00	0.00
16,900.0	90.00	359.54	12,465.0	4,427.9	-351.0	4,440.0	0.00	0.00	0.00
17,000.0	90.00	359.54	12,465.0	4,527.9	-351.8	4,539.9	0.00	0.00	0.00
17,100.0	90.00	359.54	12,465.0	4,627.9	-352.6	4,639.8	0.00	0.00	0.00
17,200.0	90.00	359.54	12,465.0	4,727.9	-353.4	4,739.7	0.00	0.00	0.00
17,300.0	90.00	359.54	12,465.0	4,827.9	-354.2	4,839.6	0.00	0.00	0.00
17,400.0	90.00	359.54	12,465.0	4,927.9	-355.0	4,939.6	0.00	0.00	0.00
17,500.0	90.00	359.54	12,465.0	5,027.9	-355.8	5,039.5	0.00	0.00	0.00
17,600.0	90.00	359.54	12,465.0	5,127.9	-356.6	5,139.4	0.00	0.00	0.00
17,700.0	90.00	359.54	12,465.0	5,227.9	-357.4	5,239.3	0.00	0.00	0.00
17,800.0	90.00	359.54	12,465.0	5,327.9	-358.2	5,339.2	0.00	0.00	0.00
17,900.0	90.00	359.54	12,465.0	5,427.9	-359.0	5,439.1	0.00	0.00	0.00
18,000.0	90.00	359.54	12,465.0	5,527.9	-359.8	5,539.0	0.00	0.00	0.00
18,100.0	90.00	359.54	12,465.0	5,627.9	-360.6	5,638.9	0.00	0.00	0.00
18,200.0	90.00	359.54	12,465.0	5,727.9	-361.4	5,738.8	0.00	0.00	0.00
18,300.0	90.00	359.54	12,465.0	5,827.9	-362.2	5,838.8	0.00	0.00	0.00
18,400.0	90.00	359.54	12,465.0	5,927.9	-363.0	5,938.7	0.00	0.00	0.00
18,500.0	90.00	359.54	12,465.0	6,027.9	-363.8	6,038.6	0.00	0.00	0.00
18,600.0	90.00	359.54	12,465.0	6,127.9	-364.6	6,138.5	0.00	0.00	0.00

Database:	EDM 5000.14	**Local Co-ordinate Reference:**	Well #703H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3345.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3345.0usft
Site:	Colgrove 35 Fed Com	**North Reference:**	Grid
Well:	#703H	**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	359.54	12,465.0	6,227.9	-365.4	6,238.4	0.00	0.00	0.00
18,800.0	90.00	359.54	12,465.0	6,327.9	-366.2	6,338.3	0.00	0.00	0.00
18,900.0	90.00	359.54	12,465.0	6,427.9	-367.0	6,438.2	0.00	0.00	0.00
19,000.0	90.00	359.54	12,465.0	6,527.9	-367.8	6,538.1	0.00	0.00	0.00
19,100.0	90.00	359.54	12,465.0	6,627.9	-368.6	6,638.0	0.00	0.00	0.00
19,200.0	90.00	359.54	12,465.0	6,727.9	-369.4	6,737.9	0.00	0.00	0.00
19,300.0	90.00	359.54	12,465.0	6,827.9	-370.2	6,837.9	0.00	0.00	0.00
19,400.0	90.00	359.54	12,465.0	6,927.9	-371.0	6,937.8	0.00	0.00	0.00
19,500.0	90.00	359.54	12,465.0	7,027.9	-371.8	7,037.7	0.00	0.00	0.00
19,600.0	90.00	359.54	12,465.0	7,127.9	-372.6	7,137.6	0.00	0.00	0.00
19,700.0	90.00	359.54	12,465.0	7,227.9	-373.4	7,237.5	0.00	0.00	0.00
19,800.0	90.00	359.54	12,465.0	7,327.9	-374.2	7,337.4	0.00	0.00	0.00
19,906.1	90.00	359.54	12,465.0	7,434.0	-375.0	7,443.5	0.00	0.00	0.00
PBHL(Colgrove 35 FC #703H)									

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(Colgrove 35 FC #7	0.00	0.00	11,987.5	-204.0	-314.0	364,772.00	785,312.00	32° 0' 1.430 N	103° 32' 46.666 W
- plan hits target center									
- Polygon									
Point 1			11,987.5	50.0	-40.0	364,822.00	785,272.00		
Point 2			11,987.5	50.0	40.0	364,822.00	785,352.00		
Point 3			11,987.5	-30.0	40.0	364,742.00	785,352.00		
Point 4			11,987.5	-30.0	-40.0	364,742.00	785,272.00		
FTP(Colgrove 35 FC #7(	0.00	0.00	12,465.0	-154.0	-314.0	364,822.00	785,312.00	32° 0' 1.924 N	103° 32' 46.662 W
- plan misses target center by 163.5usft at 12399.9usft MD (12345.3 TVD, -42.6 N, -315.3 E)									
- Point									
PBHL(Colgrove 35 FC #	90.00	359.54	12,465.0	7,434.0	-375.0	372,410.00	785,251.00	32° 1' 17.016 N	103° 32' 46.728 W
- plan hits target center									
- Rectangle (sides W60.0 H0.0 D7,588.4)									

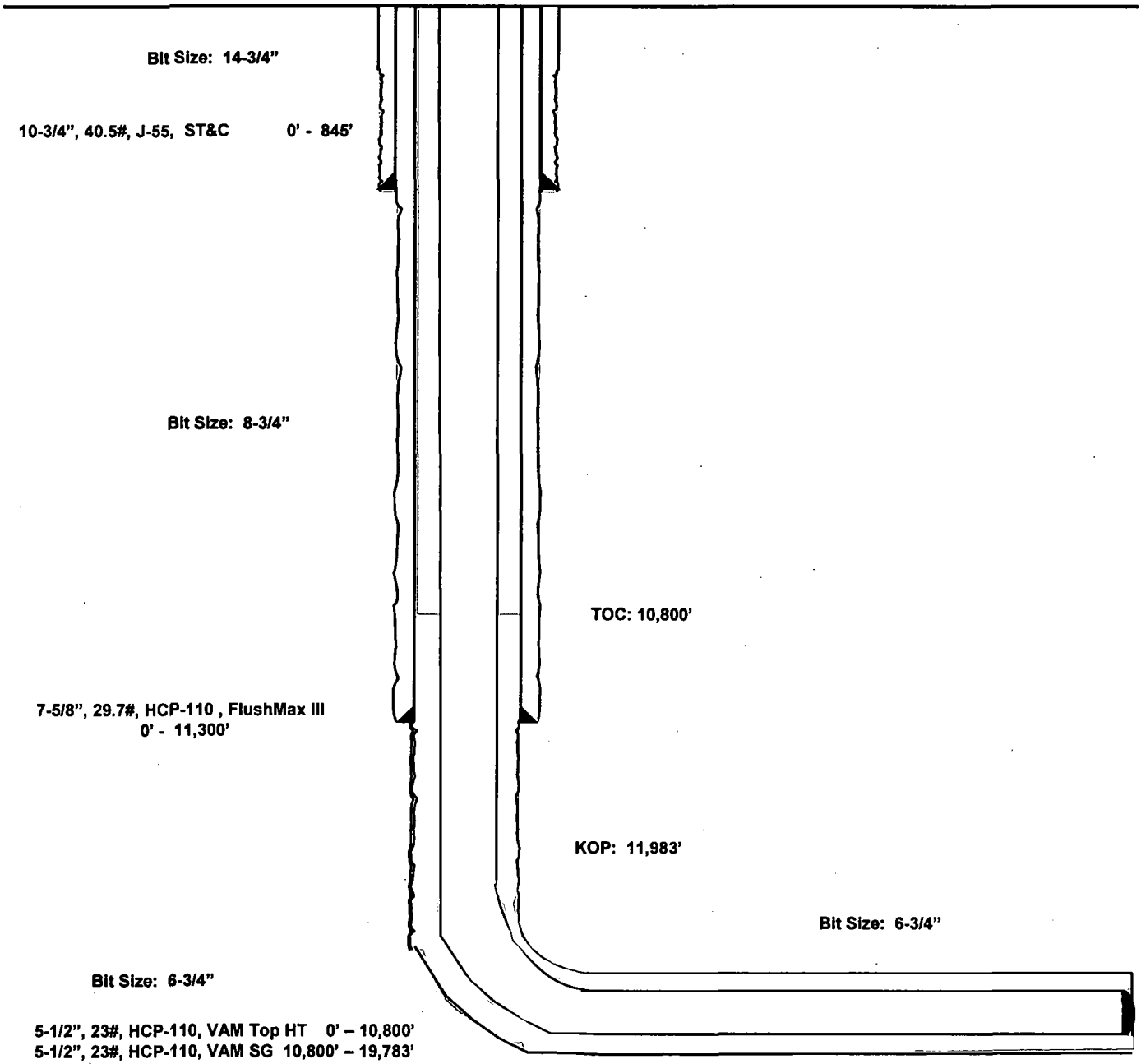
Colgrove 35 Fed Com #703H

Lea County, New Mexico
Proposed Wellbore

252' FSL
1970' FWL
Section 35
T-26-S, R-33-E

API: 30-025-*****

KB: 3,345'
GL: 3,320'



Lateral: 19,783' MD, 12,465' TVD
Upper Most Perf:
330' FSL & 1655' FWL Sec. 35
Lower Most Perf:
330' FNL & 1650' FWL Sec. 26
BH Location: 230' FNL & 1650' FWL
Section 26
T-26-S, R-33-E

EOG RESOURCES, INC.
COLGROVE 35 FED COM NO. 703H

1. GEOLOGIC NAME OF SURFACE FORMATION:
Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	820'
Top of Salt	1,160'
Base of Salt / Top Anhydrite	4,780'
Base Anhydrite	5,030'
Lamar	5,030'
Bell Canyon	5,060'
Cherry Canyon	6,085'
Brushy Canyon	7,760'
Bone Spring Lime	9,245'
1st Bone Spring Sand	10,175'
2nd Bone Spring Shale	10,355'
2nd Bone Spring Sand	10,680'
3rd Bone Spring Carb	11,150'
3rd Bone Spring Sand	11,760'
Wolfcamp	12,225'
TD	12,465'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,085'	Oil
Brushy Canyon	7,760'	Oil
1st Bone Spring Sand	10,175'	Oil
2nd Bone Spring Shale	10,355'	Oil
2nd Bone Spring Sand	11,680'	Oil
3rd Bone Spring Carb	11,150'	Oil
3rd Bone Spring Sand	11,760'	Oil
Wolfcamp	12,225'	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 10.75" casing at 845' and circulating cement back to surface.

EOG RESOURCES, INC.
COLGROVE 35 FED COM NO. 703H

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
14.75"	0 – 845'	10.75"	40.5#	J55	STC	1.125	1.25	1.60
8.75"	0' – 11,300'	7.625"	29.7#	HCP-110	FlushMax III	1.125	1.25	1.60
6.75"	0' – 10,800'	5.5"	23#	HCP-110	VAM Top HT	1.125	1.25	1.60
6.75"	10,800'-19,783'	5.5"	23#	HCP-110	VAM SG	1.125	1.25	1.60

Variance is requested to wave 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 wave 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.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/ft	Mix Water Gal/sk	Slurry Description
10-3/4" 845'	325	13.5	1.73	9.13	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	6.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
7-5/8" 11,300'	250	14.8	1.38	6.48	Class C + 5% Gypsum + 3% CaCl2
	2000	14.8	1.38	6.48	Class C + 5% Gypsum + 3% CaCl2
	550	14.4	1.20	4.81	50:50 Class H:Poz + 0.25% CPT20A + 0.40% CPT49 + 0.20% CPT35 + 0.80% CPT16A + 0.25% CPT503P
5-1/2" 19,783'	725	14.1	1.26	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17 (TOC @ 10,800')

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 (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 3500/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 3500/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

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

A hydraulically operated choke will be installed prior to drilling out of the 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 – 845'	Fresh - Gel	8.6-8.8	28-34	N/c
845' – 11,300'	Brine	8.8-10.0	28-34	N/c
11,300' – 19,783' Lateral	Oil Base	10.0-11.5	58-68	3 - 6

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) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

GR–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 182 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 7454 psig. 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.

11. WELLHEAD:

A multi-bowl wellhead system will be utilized.

After running the 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 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 5000 psi.

EOG RESOURCES, INC.
COLGROVE 35 FED COM NO. 703H

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo FBD100 Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

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

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

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. Prior to running the intermediate casing, the rams will be changed out to accommodate the 7-5/8" casing. The bonnet seals will be tested to 1500 psi. After installing the intermediate casing the casing rams will be removed and replaced with variable bore rams. The remaining BOPE will not be retested after installing the intermediate casing.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

Wellhead drawing Attached.

Hose Inspection Report

ContiTech Oil & Marine

Customer	Customer Reference #	CBC Reference #	CBC Inspector	Date of Inspection

Hose Manufacturer	

Hose Serial #	Date of Manufacture
Hose I.D.	Working Pressure
Hose Type	Test Pressure
Manufacturing Standard	

Connections

End A:	End B:
•	•
Material:	Material:
Seal Face:	Seal Face:
Length Before Hydro Test: 16'	Length After Hydro test: 16'

Conclusion:

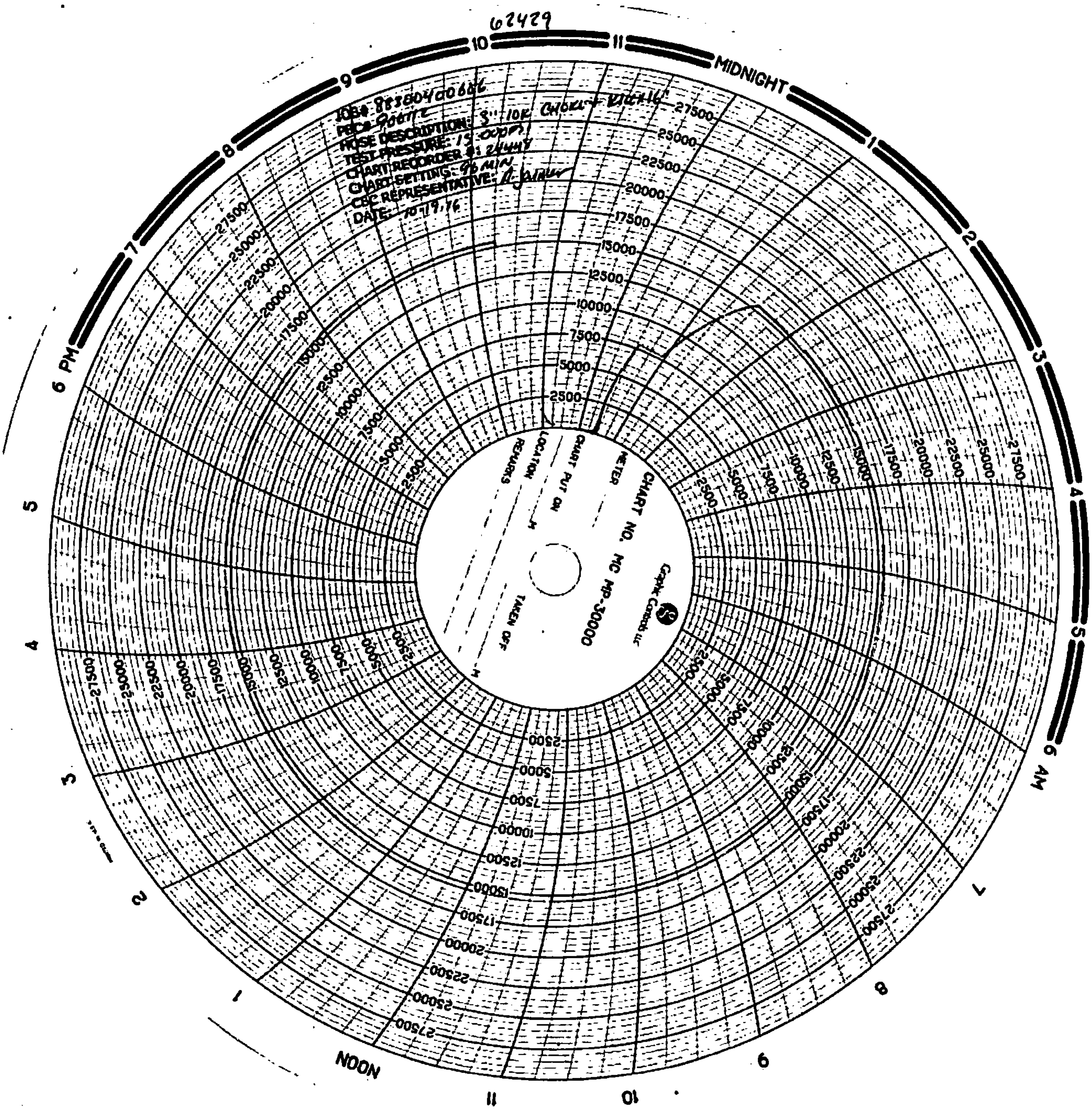
Hose #62429 is suitable for continued service.

Recommendations In general the hose should be inspected on a regular on-going basis. The frequency and degree of the inspection should as a minimum follow these guidelines:

Visual inspection: Every 3 months (or during installation/removal)
Annual: In-situ pressure test
Initial 5 years service: Major inspection
2nd Major inspection: 8 / 10 years of service
(Detailed description of test regime available upon request, ISS-059 Rev 04)

**NOTE: There are a number of critical elements in the hose that cannot be thoroughly checked through standard inspection techniques. Away from dissecting the hose body, the best way to evaluate the condition of the hose is through review of the operating conditions recorded during the hose service life, in particular maximums and peak conditions.

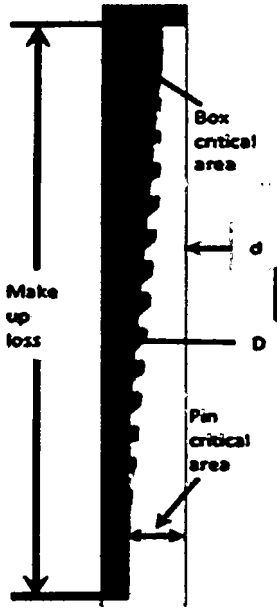
Issued By: **Checked By:** **1 1**
Date: **Date:**



62429
JOB#
HOSE DESCRIPTION:
TEST PRESSURE:
CHART RECORDER #:
CHART SETTING: 96 MIN
CBC REPRESENTATIVE:
DATE:
MIDNIGHT
6 AM
NOON
6 PM
CHART NO. MC MP-30000
Graphic Controls LLC
METER
CHART PUT ON
TAKEN OFF
LOCATION
REMARKS

Metal One Corp. *Metal One*	MO-FXL Connection Data Sheet	Page	MCTP
		Date	3-Nov-16
		Rev.	0

MO-FXL



	Imperial		S.I.	
Pipe Body				
Pipe OD (D)	7 5/8	in	193.68	mm
Actual weight	29.04		43.26	kg/m
Pipe ID (d)	6.875	in	174.63	mm
Drift Dia.	6.750	in	171.45	mm
Connection				
PIN ID	6.875	in	174.63	mm
Thread Taper	1 / 10 (1.2" per ft)			

Performance Properties for Pipe Body

M.I.Y.P. *1	10,760	psi	74.21	MPa

Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body
M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body
*1 Based on VSB P110HC (YS=125~140ksi)

Performance Properties for Connection

Min. Compression Yield	747 kips (70% of S.M.Y.S.)
External Pressure	100% of Collapse Strength

Recommended Torque

Opti.	17,200	ft-lb	23,300	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	820'
Top of Salt	1,160'
Base of Salt / Top Anhydrite	4,780'
Base Anhydrite	5,030'
Lamar	5,030'
Bell Canyon	5,060'
Cherry Canyon	6,085'
Brushy Canyon	7,760'
Bone Spring Lime	9,245'
1st Bone Spring Sand	10,175'
2nd Bone Spring Shale	10,355'
2nd Bone Spring Sand	10,680'
3rd Bone Spring Carb	11,150'
3rd Bone Spring Sand	11,760'
Wolfcamp	12,225'
TD	12,465'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,085'	Oil
Brushy Canyon	7,760'	Oil
1st Bone Spring Sand	10,175'	Oil
2nd Bone Spring Shale	10,355'	Oil
2nd Bone Spring Sand	11,680'	Oil
3rd Bone Spring Carb	11,150'	Oil
3rd Bone Spring Sand	11,760'	Oil
Wolfcamp	12,225'	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 950' and circulating cement back to surface.

4. CASING PROGRAM

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
12.25"	0' – 950'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
8.75"	0' – 11,300'	7.625"	29.7#	HCP-110	FXL	1.125	1.25	1.60
6.75"	0' – 10,800'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,800'– 11,300'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60
6.75"	11,300' – 19,906'	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.

EOG Resources also requests approval to implement Casing Design B (pg. 8-9). BLM will be notified of elected design at spud.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/sk	Slurry Description
950' 9-5/8"	800	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	80	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 750')
11,300' 7-5/8"	450	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,760')
	1,000	12.7	2.30	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
19,906' 5-1/2"	730	14.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,800')

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 (7,760') 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.

EOG requests permission to allow BOP Break Testing under the following conditions:
- After a full BOP test to 100% RWP is conducted on the first well on the pad.

- When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.
- Full BOP test will be required prior to drilling any production hole.

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 – 950'	Fresh - Gel	8.6-8.8	28-34	N/c
950' – 11,300'	Brine	10.0-10.2	28-34	N/c
11,300' – 11,995	Oil Base	8.7-9.4	58-68	N/c - 6
11,995 – 19,906' 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) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

GR–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 9,065 psig and a maximum anticipated surface pressure of 6,322 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.

EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

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.

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.

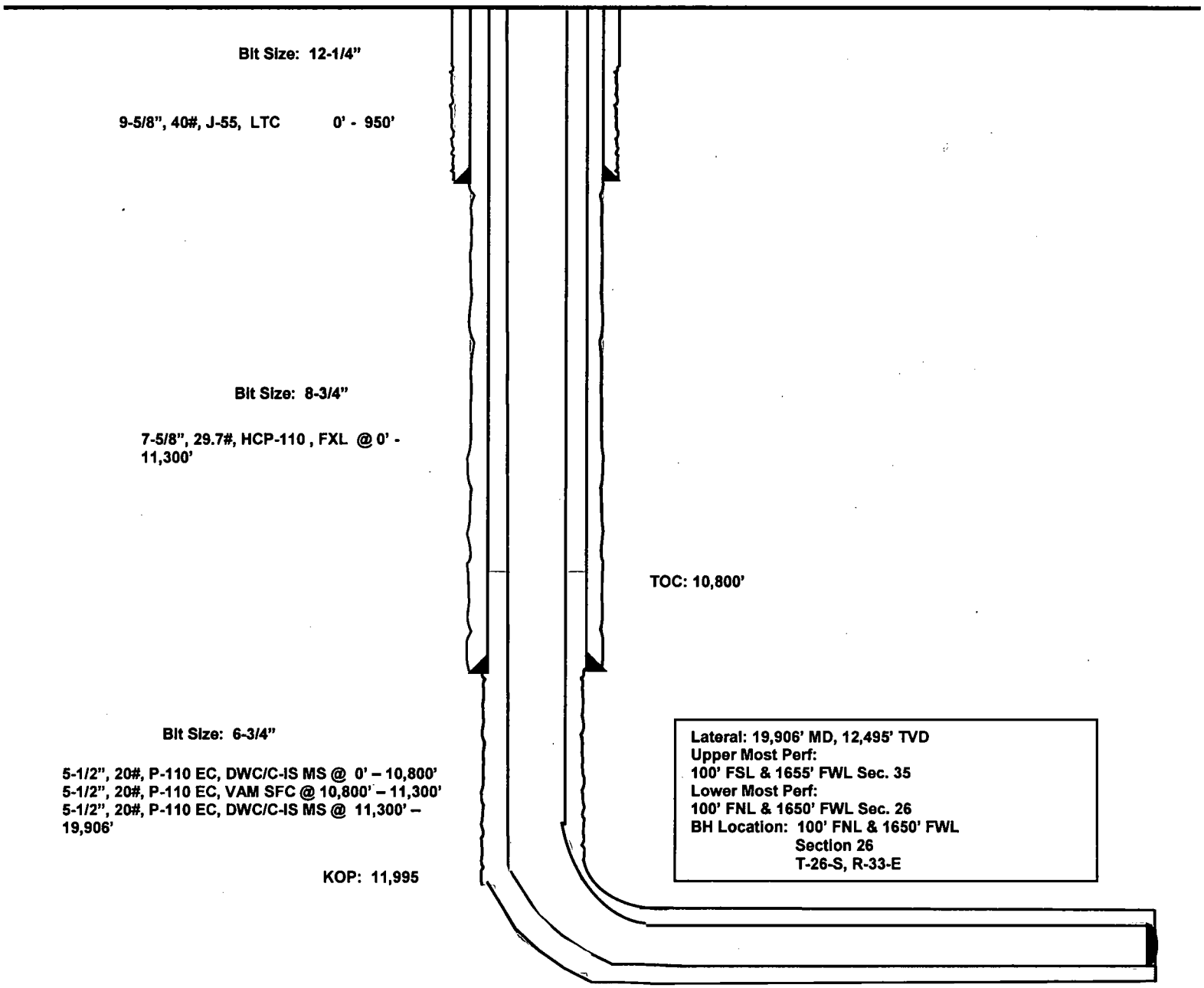
EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

252' FSL
1970' FWL
Section 35
T-26-S, R-33-E

Proposed Wellbore
Design A

API: 30-025-*****

KB: 3,345'
GL: 3,320'



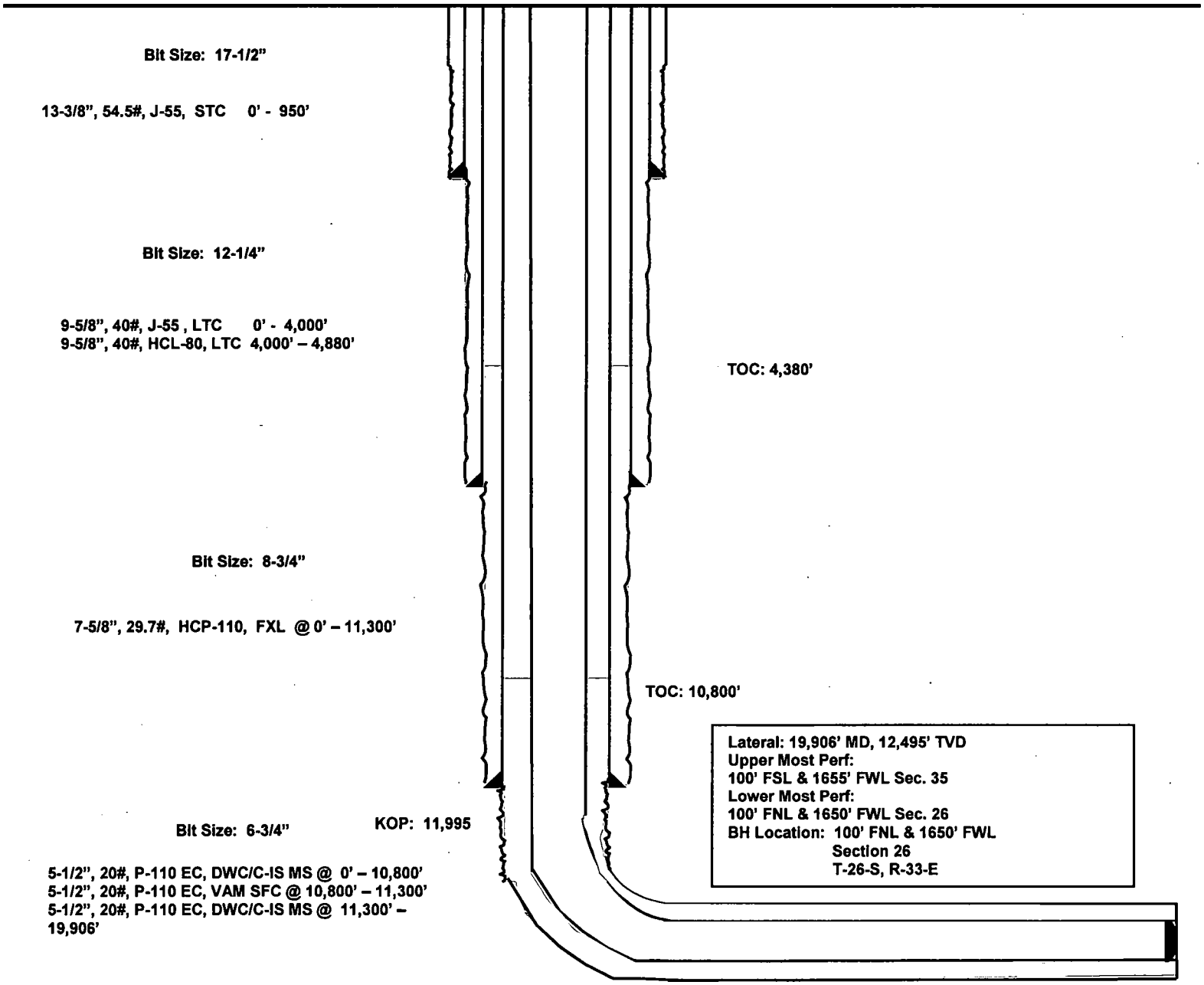
EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

252' FSL
1970' FWL
Section 35
T-26-S, R-33-E

Proposed Wellbore
Design B

API: 30-025-*****

KB: 3,345'
GL: 3,320'



EOG RESOURCES, INC.
COLGROVE 35 FED COM #703H

Design B

Casing Program:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
17.5"	0 – 950'	13.375"	54.5#	J-55	STC	1.125	1.25	1.60
12.25"	0 – 4,000'	9.625"	40#	J-55	LTC	1.125	1.25	1.60
12.25"	4,000' – 4,880'	9.625"	40#	HCL-80	LTC	1.125	1.25	1.60
8.75"	0 – 11,300'	7.625"	29.7#	HCP-110	FXL	1.125	1.25	1.60
6.75"	0' – 10,800'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,800'– 11,300'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60
6.75"	11,300' – 19,906'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60

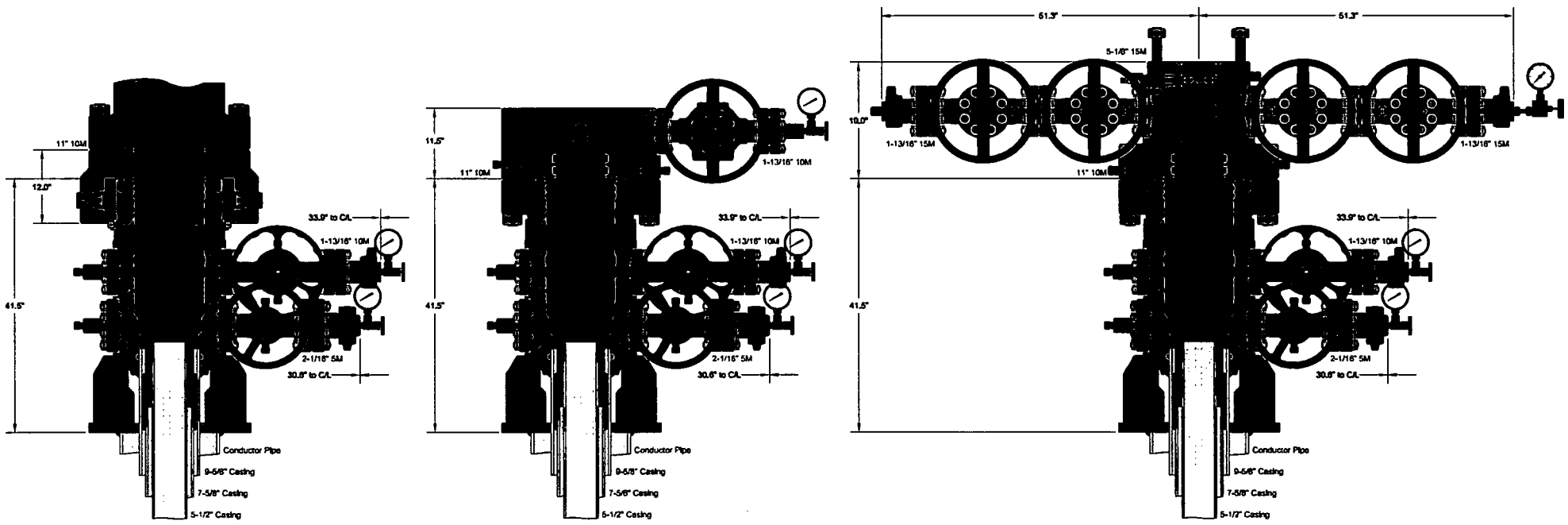
Cement Program:

Depth	No. Sacks	Wt. lb/gal	Yld Ft^3/sk	Slurry Description
950' 13-3/8"	540	13.5	1.74	Lead: Class C + 4.0% Bentonite Gel + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	160	14.8	1.35	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 750')
4,880' 9-5/8"	780	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	310	14.8	1.32	Tail: Class C + 10% NaCl + 3% MagOx (TOC @ 3,900')
11,300' 7-5/8"	200	10.8	3.67	Lead: Class C + 3% CaCl2 + 3% Microbond (TOC @ 4,380')
	100	14.8	2.38	Tail: Class H + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 9,800')
19,906' 5-1/2"	730	14.8	1.31	Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 10,800')

As a contingency, 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 (7,760') 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.

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 950'	Fresh - Gel	8.6-8.8	28-34	N/c
950' – 4,880'	Brine	10.0-10.2	28-34	N/c
4,880'– 11,300'	Oil Base	8.7-9.4	58-68	N/c - 6
11,300'– 19,906' Lateral	Oil Base	10.0-11.5	58-68	3 - 6



ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

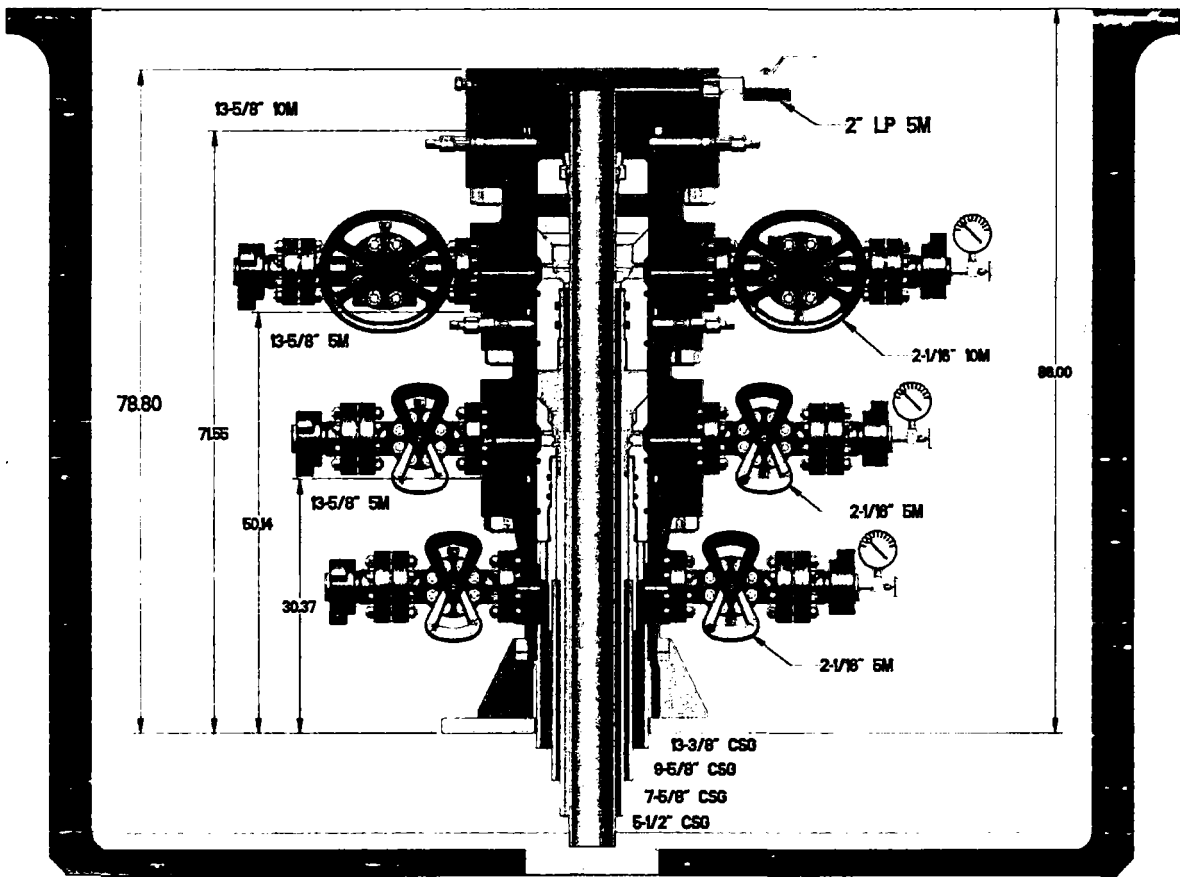
EOG RESOURCES DELAWARE

20" x 9-5/8" x 7-5/8" x 5-1/2" MBU-T-SF SOW Wellhead System With 11" 10M x 5-1/8" 15M CMT-DBLHPS-SB Tubing Head, Mandrel Hangers, Quick Connect Drilling Adapter And TA Cap

DRAWN	DLE	23OCT18
APPRV		
DRAWING NO.	HBE0000010	

eog resources

FBD-100 WELLHEAD SYSTEM



EOG RESOURCES 13-3/8" X 9-5/8" X 7-5/8" X 5-1/2" FBD100 WELLHEAD SYSTEM	DWN.	EA	12/28/17	DRAWING No. WH-17731
	CHK.			
	APPR.			
		BY	DATE	

WH-17063 | Commonspace | X | WH-17731 | WH-17731

APD ID: 10400039880 **Submission Date:** 03/13/2019

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Well Type: OIL WELL **Well Work Type:** Drill

[redacted]

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Colgrove 35 Fed Com 703H exhibit 2_07-18-2016.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Colgrove 35 Fed Com 703H exhibit 2B_07-18-2016.pdf

New road type: RESOURCE

Length: 4247 Feet **Width (ft.):** 24

Max slope (%): 2 **Max grade (%):** 20

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 24

New road access erosion control: Newly constructed or reconstructed roads will be constructed as outlined in the BLM "Gold Book" and to meet the standards of the anticipated traffic flow and all anticipated weather requirements as needed. Construction will include ditching, draining, crowning and capping or sloping and dipping the roadbed as necessary to provide a well-constructed and safe road. We plan to grade and water twice a year.

New road access plan or profile prepared? NO

New road access plan attachment:

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: 6" of Compacted Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: An adequate amount of topsoil/root zone will be stripped by dozer from the proposed well location and stockpiled along the side of the well location as depicted on the well site diagram / survey plat.

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: No drainage crossings

Road Drainage Control Structures (DCS) description: N/A

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Colgrove 35 Fed Com 703H exhibit 3_07-18-2016.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description:

Production Facilities map:

SK_COLGROVE_EXHIBIT5_REV2_07-18-2016.pdf

Colgrove 35 Fed Com PL_07-18-2016.pdf

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: OTHER **Water source type:** RECYCLED

Describe type:

Source latitude: **Source longitude:**

Source datum:

Water source permit type: WATER RIGHT

Source land ownership: STATE

Water source transport method: PIPELINE,TRUCKING

Source transportation land ownership: STATE

Water source volume (barrels): 720000 **Source volume (acre-feet):** 92.80303

Source volume (gal): 30240000

Water source and transportation map:

Colgrove 35 Fed Com Water Source Map_08-10-2016.docx

Water source comments: We plan to use 4, 4-inch poly lines to supply water for drilling. 1, 12-inch lay flat hose will be used to supply water for the frac.
New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Caliche utilized for the drilling pad will be obtained either from an existing approved mineral pit, or by benching into a hill, which will allow the pad to be level with existing caliche from the cut, or extracted by "Flipping" the well location. A mineral material permit will be obtained from BLM prior to excavating any caliche on Federal Lands. Amount will vary for each pad.
Construction Materials source location attachment:

Caliche Map_07-12-2016.docx

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill fluids and produced oil and water from the well during drilling and completion operations will be stored safely and disposed of properly in an NMOCD approved disposal facility. Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly. Human waste and grey water will be properly contained of and disposed of properly. After drilling and completion operations; trash, chemicals, salts, frac sand, and other waste material will be removed and disposed of properly at a state approved disposal facility.
Amount of waste: 0 barrels

Waste disposal frequency : Daily

Safe containment description: Steel Tanks

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL
Disposal type description:

Disposal location description: Trucked to NMOCD approved disposal facility

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Are you storing cuttings on location? YES

Description of cuttings location Closed Loop System. Drill cuttings will be disposed of into steel tanks and taken to an NMOCD approved disposal facility.

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Colgrove 35 Fed Com 703H exhibit 2A_07-18-2016.pdf

Colgrove 35 Fed Com 703H exhibit 2B_07-18-2016.pdf

Comments: Exhibit 2A & Exhibit 2B

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** COLGROVE 35 FED COM

Multiple Well Pad Number: 703H/704H

Recontouring attachment:

Drainage/Erosion control construction: Proper erosion control methods will be used on the area to control erosion, runoff, and siltation of the surrounding area.

Drainage/Erosion control reclamation: The interim reclamation will be monitored periodically to ensure that vegetation has reestablished and that erosion is controlled.

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Well pad proposed disturbance (acres): 0	**Well pad interim reclamation (acres):** 4.029	**Well pad long term disturbance (acres):** 3.122
Road proposed disturbance (acres): 0	**Road interim reclamation (acres):** 2.3399	**Road long term disturbance (acres):** 2.3399
Powerline proposed disturbance (acres): 0	**Powerline interim reclamation (acres):** 0	**Powerline long term disturbance (acres):** 0
Pipeline proposed disturbance (acres): 0	**Pipeline interim reclamation (acres):** 0.9731405	**Pipeline long term disturbance (acres):** 0.9731405
Other proposed disturbance (acres): 0	**Other interim reclamation (acres):** 0	**Other long term disturbance (acres):** 0
Total proposed disturbance: 0	**Total interim reclamation:** 7.3420405	**Total long term disturbance:** 6.4350405

Disturbance Comments: All Interim and Final reclamation is planned to be within 6 months. Interim must be within 6 months of completion and final within 6 months of abandonment plugging. Dual pad operations may alter timing.

Reconstruction method: In areas planned for interim reclamation, all the surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads. Areas planned for interim reclamation will be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.

Topsoil redistribution: Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts and fills. To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.

Soil treatment: Re-seed according to BLM standards. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, and that erosion is controlled.

Existing Vegetation at the well pad: Grass, forbs, and small woody vegetation, such as mesquite will be excavated as the topsoil is removed. Large woody vegetation will be stripped and stored separately and respreads evenly on the site following topsoil respreading. Topsoil depth is defined as the top layer of soil that contains 80% of the roots. In areas to be heavily disturbed, the top 6 inches of soil material, will be stripped and stockpiled on the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils.

Existing Vegetation at the well pad attachment:

Colgrove 35 Fed Com 703H exhibit 2B_07-18-2016.pdf

Existing Vegetation Community at the road: All disturbed areas, including roads, pipelines, pads, will be recontoured to the contour existing prior to the initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: All disturbed areas, including roads, pipelines, pads, will be recontoured to the contour existing prior to the initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: All disturbed areas, including roads, pipelines, pads, will be recontoured to the contour existing prior to the initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Seed Type	Pounds/Acre

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Star **Last Name:** Harrell

Phone: (432)848-9161 **Email:** star_harrell@eogresources.com

Seedbed prep:

Seed BMP:

Seed method:

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, erosion is controlled, and free of noxious weeds. Weeds will be treated if found.
Weed treatment plan attachment:

Monitoring plan description: Reclamation will be completed within 6 months of well plugging. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, erosion is controlled, and free of noxious weeds.
Monitoring plan attachment:

Success standards: N/A

Pit closure description: NA

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: EOG RESOURCES INCORPORATED

Well Name: COLGROVE 35 FED COM **Well Number:** 703H

Fee Owner: Oliver Kiehne **Fee Owner Address:** P.O. Box 135 Orla, TX 79770

Phone: (575)399-9281 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Surface use agreement in place.

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: OnSite meeting conducted 4/26/16

Use a previously conducted onsite? NO

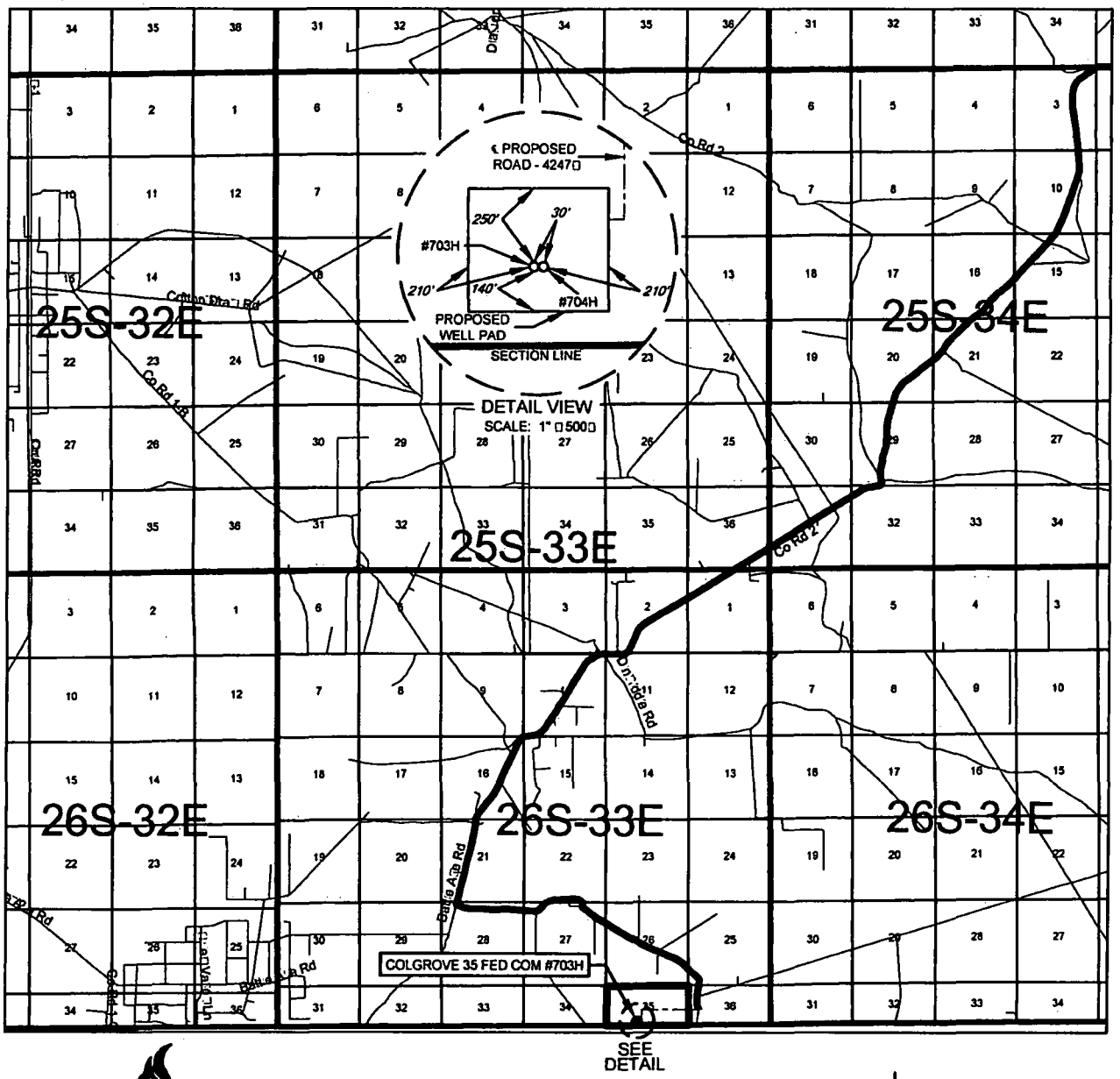
Previous Onsite information:

Other SUPO Attachment

Colgrove 35 Fed Com 703H L&E_07-18-2016.pdf
Colgrove 35 Fed Com 703H deficiency letter response_08-10-2016.pdf
Colgrove 35 Fed Com 703H Well Site Diagram_07-21-2016.pdf
Colgrove 35 Fed Com 703H exhibit 2C_07-18-2016.pdf
Colgrove 35 Fed Com 703H exhibit 2B_07-18-2016.pdf

EXHIBIT 2

VICINITY MAP



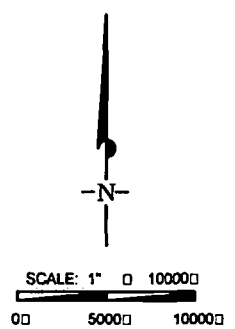
eog resources, Inc.

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H

SECTION 35 TWP 26-S RGE 33-E SURVEY N.M.P.M.
COUNTY LEA STATE NM
DESCRIPTION 252'FSL & 1970'FWL

DISTANCE & DIRECTION

FROM INT. OF NM-18 N. & NM-128, GO WEST ON NM-128 ±14.1 MILES, THENCE SOUTHWEST (LEFT) ON BATTLE AXE RD. ±17.1 MILES, THENCE EAST (LEFT) ON LEASE RD. ±3.0 MILES, THENCE SOUTH (RIGHT) ON A PROPOSED RD. ±4247 FEET TO A POINT ±283 FEET NORTHEAST OF THIS LOCATION.



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TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 197 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
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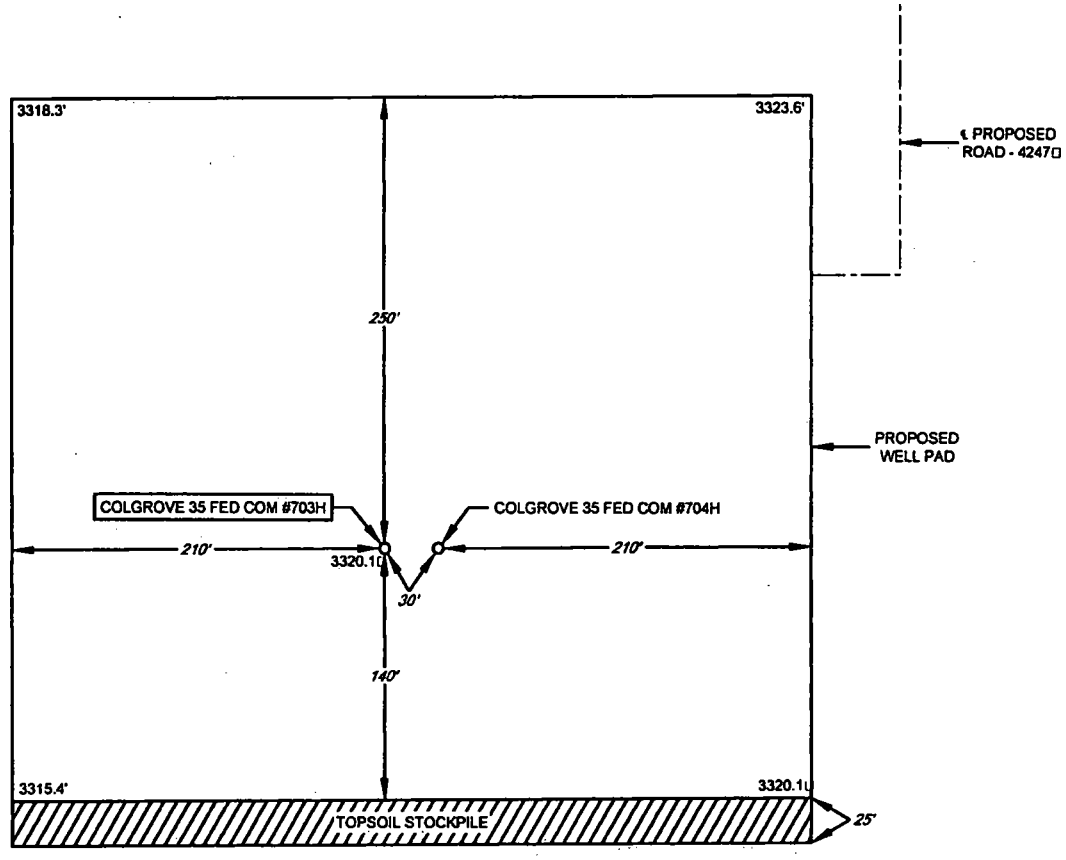
EXHIBIT 2B

eog resources, inc.

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" □ 100□



SECTION LINE

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H
#703H LATITUDE N 32.0008253 #703H LONGITUDE W 103.5448152

LEGEND

EXISTING ROAD
SECTION LINE
PROPOSED ROAD

-N-

SCALE: 1" □ 100□
0□ 50□ 100□

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ORIGINAL DOCUMENT SIZE: 8.5" X 11"

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EXHIBIT 3

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

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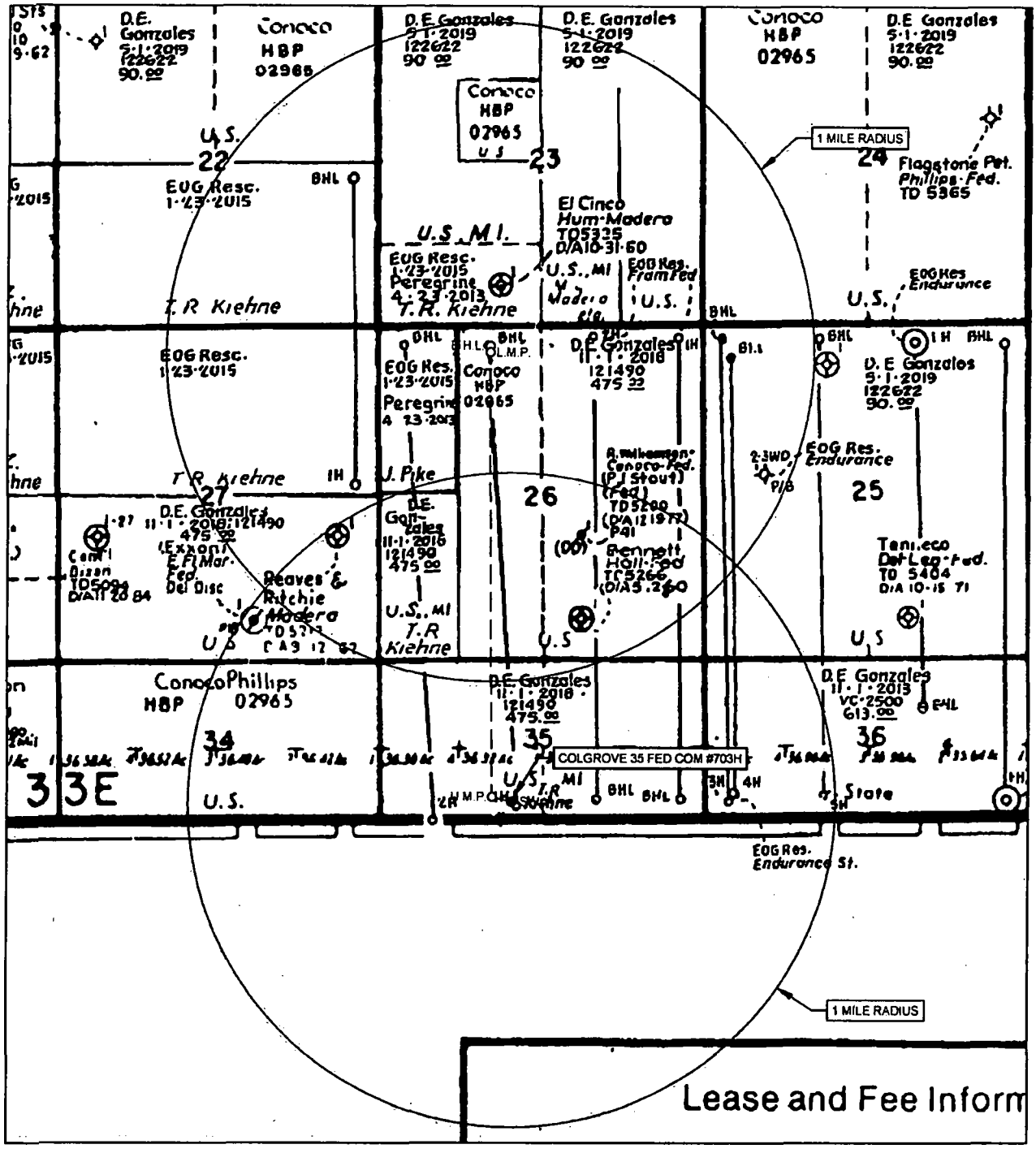

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H

SCALE: NTS

#703H LATITUDE N 32.0008253 #703H LONGITUDE W 103.5448152

-N-

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S:\SURVEY\EOG_MIDLAND\COLGROVE_35_FED_COM\FINAL_PRODUCTS\LO_COLGROVE35FEDCOM_703H_REV1.DWG 5/11/2018 2:02:45 PM ocasion

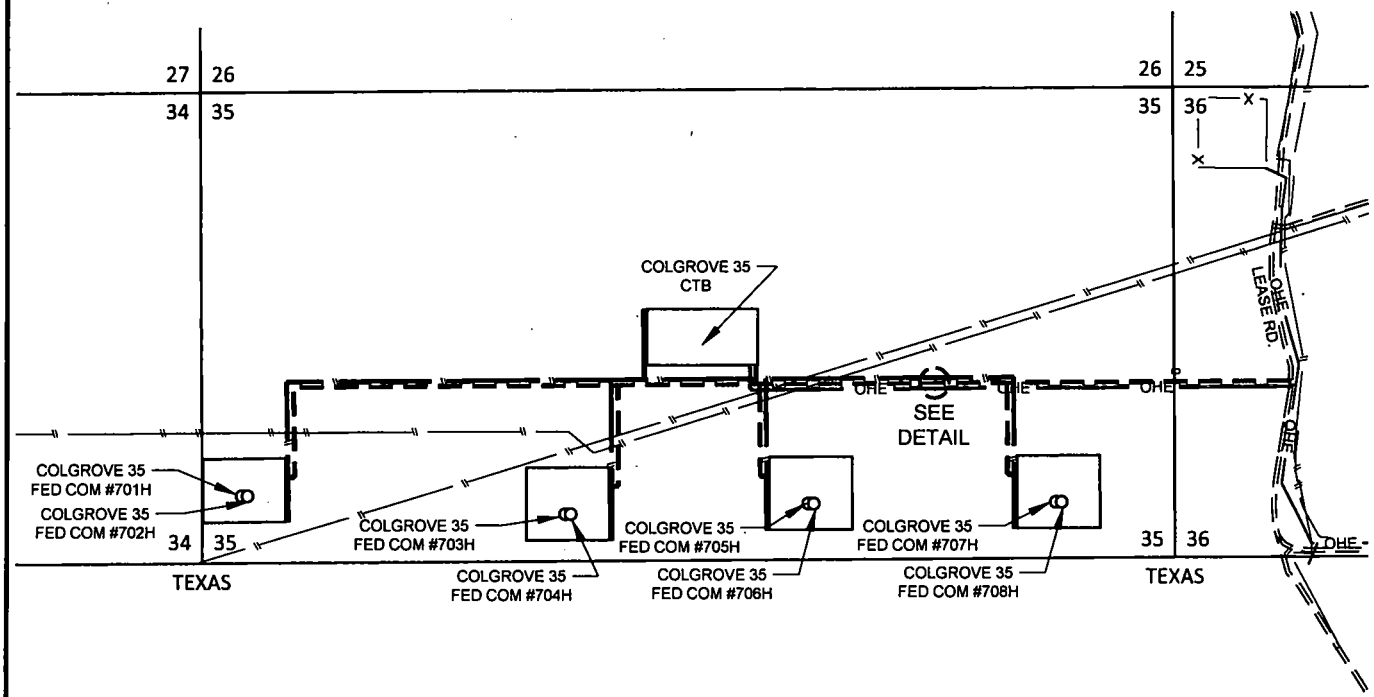
EXHIBIT 5

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

COLGROVE
INFRASTRUCTURE MAP

-N-

SCALE: 1" = 1000'
0' 500' 1000'



LEASE ROAD
-TOTAL FOOTAGE 7,722 FT

LEASE RD.

TO COLGROVE 35 FED COM #707H & #708H.....2,084 FT

COLGROVE 35 FED COM #705H & #706H.....3,428 FT

TO COLGROVE 35 FED COM #703H & #704H.....4,247 FT

COLGROVE 35 FED COM #701H & #702H.....5,946 FT

COLGROVE 35 CTB.....3,011 FT

OHE ELECTRIC LINE
-TOTAL FOOTAGE 3,090 FT

FLOW LINE
-TOTAL FOOTAGE 7,542 FT

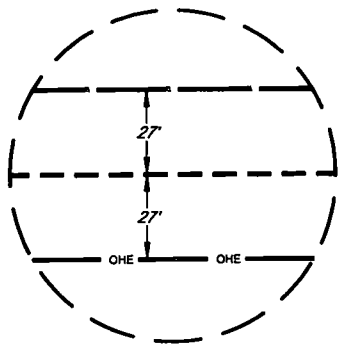
COLGROVE 35 CTB

COLGROVE 35 FED COM #701H & #702H.....3,062 FT

TO COLGROVE 35 FED COM #703H & #704H.....1,413 FT

TO COLGROVE 35 FED COM #705H & #706H.....1,843 FT

TO COLGROVE 35 FED COM #707H & #708H.....3,188 FT



DETAIL VIEW
NOT TO SCALE

eog resources, inc.

COLGROVE INFRASTRUCTURE MAP	REVISION:	
	MML	04/22/16
	MML	05/02/16
DATE: 04/20/16		
FILE: SK_COLGROVE_EXHIBIT5_REV2		
DRAWN BY: MML		
SHEET : 1 OF 1		

S:\SURVEY\EOG_MIDLAND\COLGROVE_35_FED_COM\FINAL_PRODUCTS\SKETCH\SK_COLGROVE_EXHIBIT5_REV2.DWG 5/2/2016 8:32:28 AM mlewin

PROPOSED NEW PIPELINES:

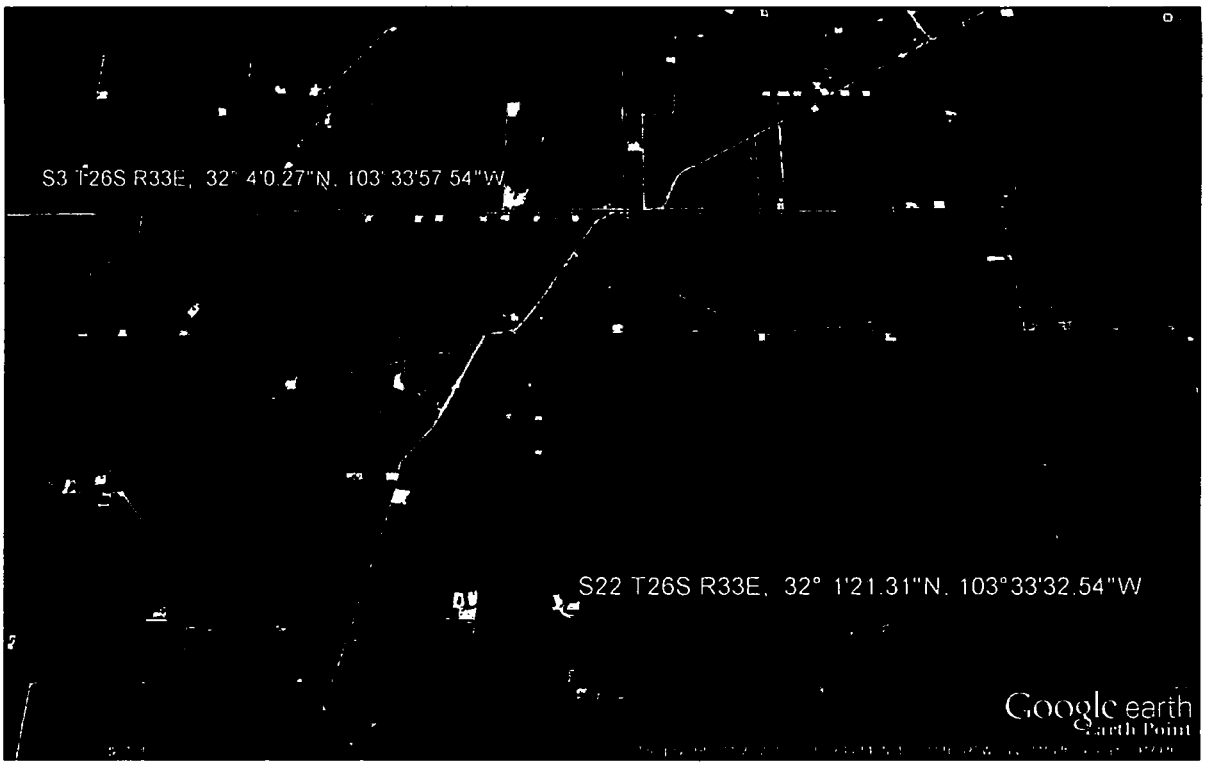
Do New Proposed Pipelines need BLM ROW? ☐ Yes ☒ No

Type		Product	Size	PSI	Material	Ditch Width
Buried ☒	Surface ☐	2 Gas Lifts	3"		Flex Steel	4 ft
Buried ☒	Surface ☐	2 Flowlines	4"		Poly	4 ft
Buried ☐	Surface ☐	Oil	____	____	Steel / Poly	____ft
Buried ☐	Surface ☐	Prod Water	____	____	Steel / Poly	____ft
Buried ☐	Surface ☐	Prod Water	____	____	Steel / Poly	____ft

Will we apply for an electric line with this APD? ☒ Yes ☐ No

Will we apply for an electric line in the future by sundry? ☐ Yes ☒ No

Colgrove 35 Fed Com Water Source Map
Sec 35, T26S, R35
Lea County, NM

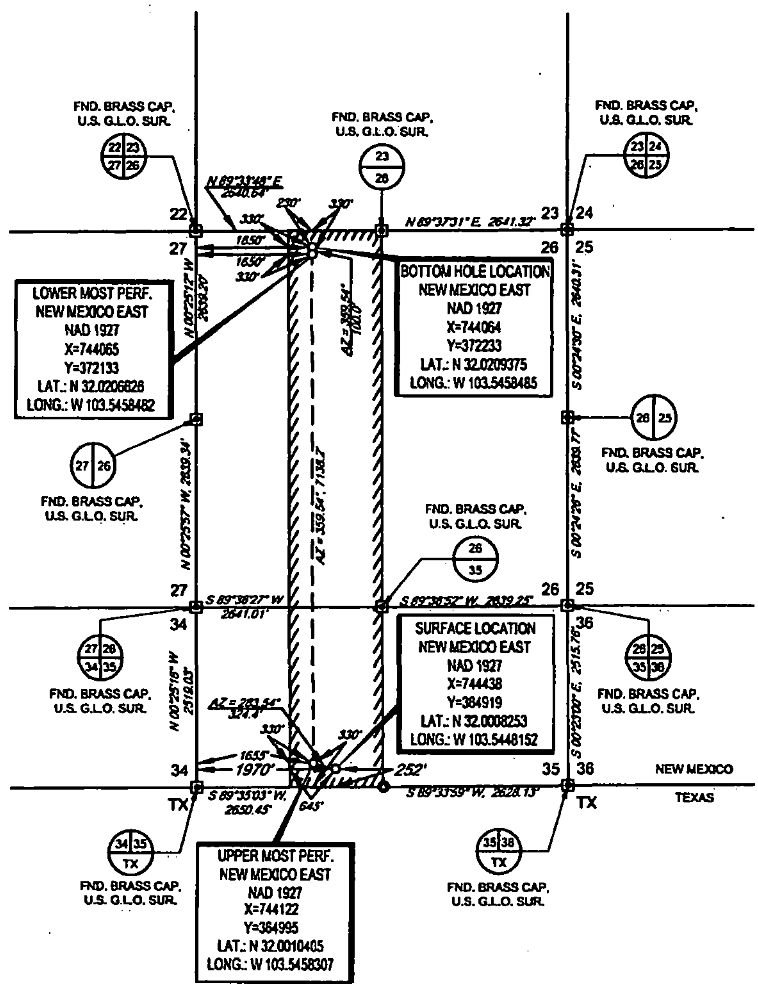


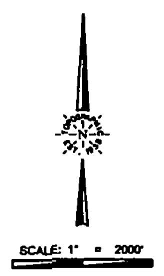
Caliche Source Coordinates for material used in construction.
Lea County, New Mexico

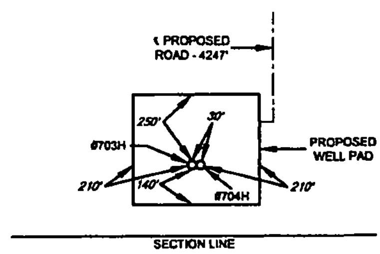
eog resources, inc.

EXHIBIT 2A

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO







DETAIL VIEW
SCALE: 1" = 500'

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H

SECTION 35 TWP 26-S RGE 33-E SURVEY N.M.P.M.
COUNTY LEA STATE NM
DESCRIPTION 252' FSL & 1970' FWL

DISTANCE & DIRECTION

FROM INT. OF NM-18 N. & NM-128, GO WEST ON NM-128 ±14.1 MILES, THENCE SOUTHWEST (LEFT) ON BATTLE AXE RD. ±17.1 MILES, THENCE EAST (LEFT) ON LEASE RD. ±3.0 MILES, THENCE SOUTH (RIGHT) ON A PROPOSED RD. ±4247 FEET TO A POINT ±283 FEET NORTHEAST OF THIS LOCATION.

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MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Michael Blake Brown, P.S. No. 18329
MAY 16, 2016

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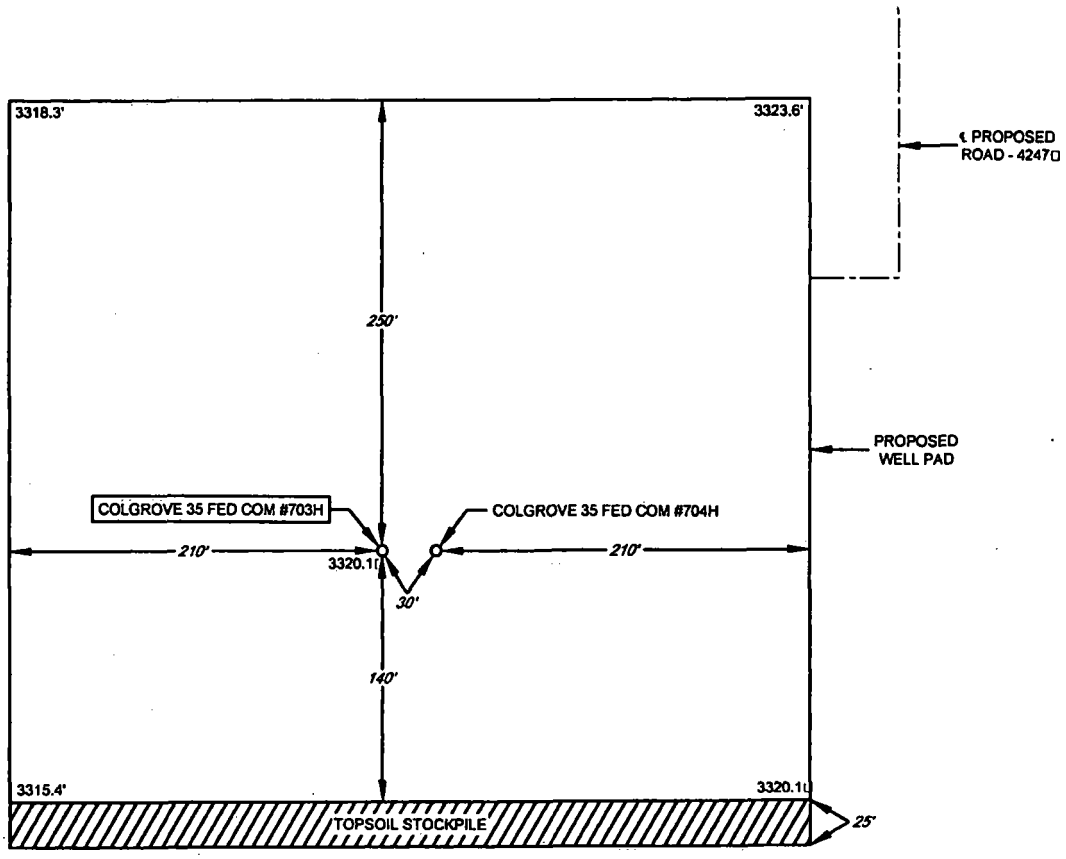
EXHIBIT 2B

eog resources, inc.

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



SECTION LINE

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H
#703H LATITUDE N 32.0008253 #703H LONGITUDE W 103.5448152

LEGEND

- EXISTING ROAD
- SECTION LINE
- PROPOSED ROAD

N

SCALE: 1" = 100'
0' 50' 100'

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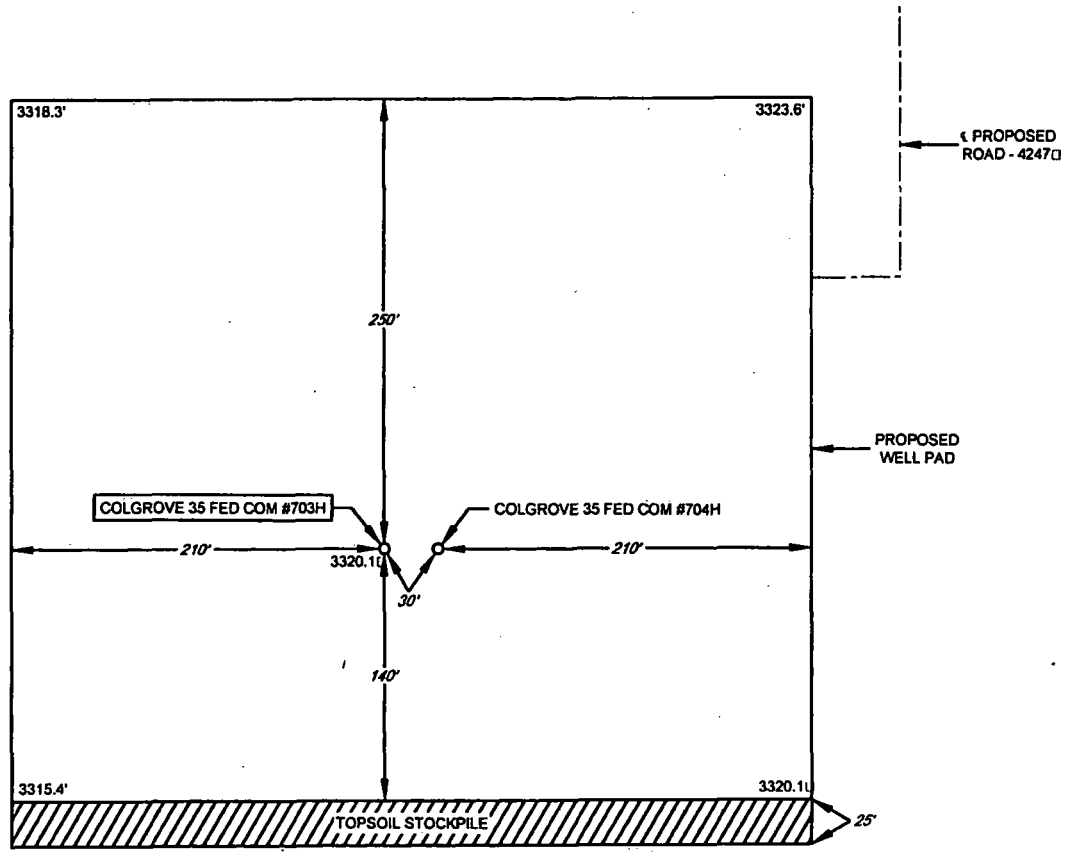
ORIGINAL DOCUMENT SIZE: 8.5" X 11"

EXHIBIT 2B

eog resources, inc.

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



SECTION LINE

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H
#703H LATITUDE N 32.0008253 #703H LONGITUDE W 103.5448152

LEGEND

- EXISTING ROAD
- SECTION LINE
- PROPOSED ROAD

N

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0' 50' 100'

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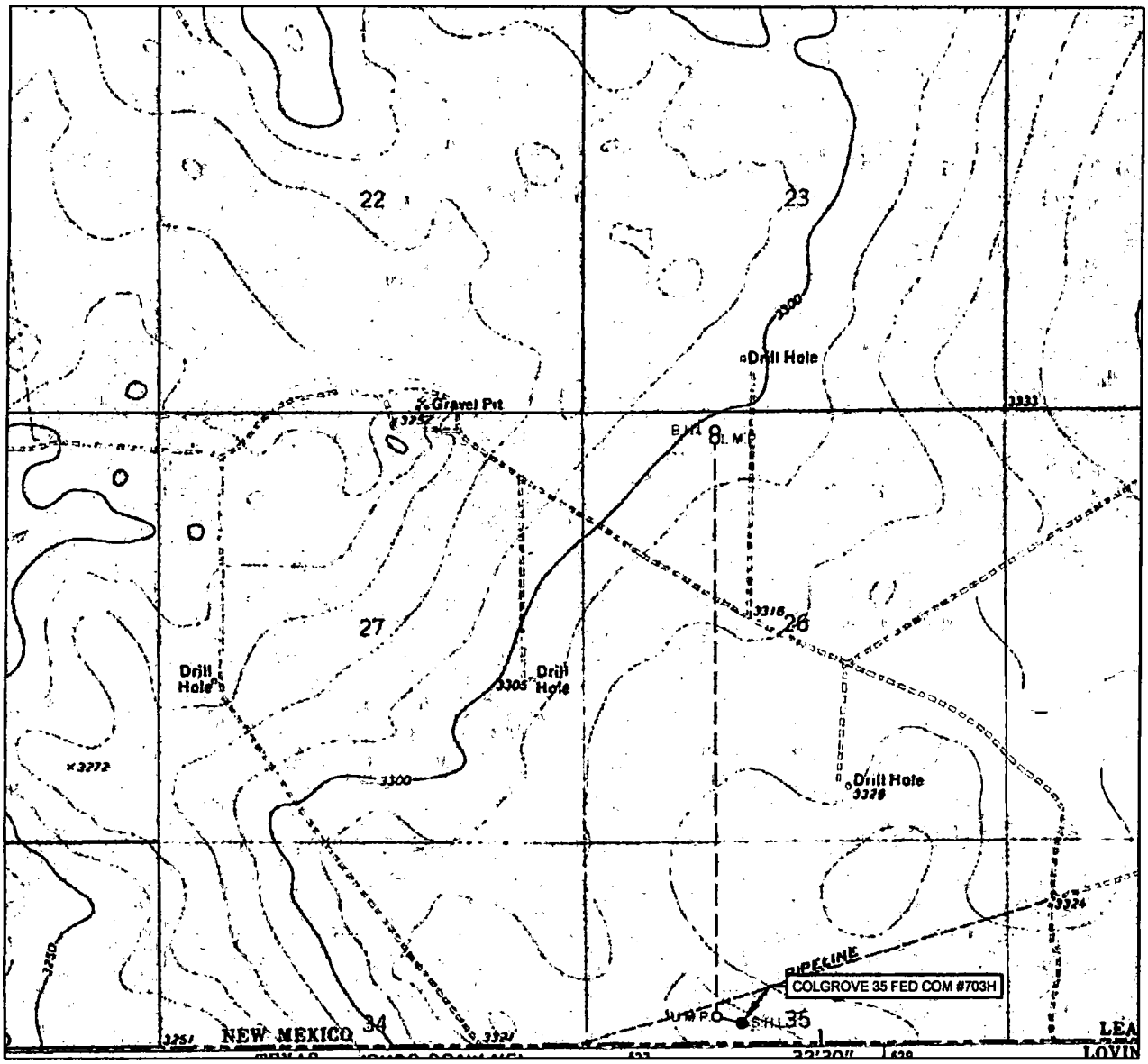
LOCATION & ELEVATION VERIFICATION MAP



eog resources, Inc.

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H

SECTION 35 TWP 26-S RGE 33-E SURVEY N.M.P.M.
COUNTY LEA STATE NM ELEVATION 3320□
DESCRIPTION 252□FSL & 1970□FWL

LATITUDE N 32.0008253 LONGITUDE W 103.5448152

-N-

SCALE: 1" □ 2000□

0□ 1000□ 2000□

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
HOBBS FIELD STATION FIELD OFFICE
414 W. Taylor
Hobbs, NM 88240
blm_nm_hfs_apd@blm.gov

In Reply To:
3160
[NMNM121490]

08/09/2016

Attn: Stan Wagner
EOG RESOURCES INC
1111 Bagby Sky Lobby2
Houston, TX 77002

Re: Receipt and Acceptability of Application for Permit to Drill (APD)
FEDERAL - NMNM121490

Well Name / Number:	**COLGROVE 35 FED COM / 703H**
Legal Description:	T26S, R33E, SEC 35, LOT 3
County, State:	LEA, NM
Date APD Received:	07/25/2016

Dear Operator:

The BLM received your Application for Permit to Drill (APD), for the referenced well, on 07/25/2016. The BLM reviewed the APD package pursuant to part III.B.2 of Onshore Oil and Gas Order No.1 and it is:

1. ☑ Incomplete/Deficient (*The BLM cannot process the APD until you submit the identified items within 45 calendar days of the date of this notice or the BLM will return your APD.*)

- ☐ Well Plat
- ☑ Drilling Plan
- ☑ Surface Use Plan of Operations (SUPO)
  - ☐ Certification of Private Surface Owner Access Agreement
- ☐ Bonding
- ☐ Onsite (The BLM has scheduled the onsite to be on)
  This requirement is exempt of the 45-day timeframe to submit deficiencies. This requirement will be satisfied on the date of the onsite.
- ☑ Other

[*Please See Addendum for further clarification of deficiencies*]

2. ☑ Missing Necessary Information (*The BLM can start, but cannot complete the analysis until you submit the identified items. This is an early notice and the BLM will restate this in a 30-day deferral letter, if you have not submitted the information at that time. You will have two (2) years from the date of the deferral to submit this information or the BLM will deny your APD.*)

[***Please See Addendum for further clarification of deficiencies***]

NOTE: The BLM will return your APD package to you, unless you correct all deficiencies identified above (item 1) within 45 calendar days.

- The BLM will not refund an APD processing fee or apply it to another APD for any returned APD.

Extension Requests:

- If you know you will not be able to meet the 45-day timeframe for reasons beyond your control, you must submit a written request through email/standard mail for extension prior to the 45th calendar day from this notice, **09/23/2016.**

- The BLM will consider the extension request if you can demonstrate your diligence (providing reasons and examples of why the delay is occurring beyond your control) in attempting to correct the deficiencies and can provide a date by which you will correct the deficiencies. If the BLM determines that the request does not warrant an extension, the BLM will return the APD as incomplete after the 45 calendar days have elapsed.

    - The BLM will determine whether to grant an extension beyond the required 45 calendar days and will document this request in the well file. If you fail to submit deficiencies by the date defined in the extension request, the BLM will return the APD.

APDs remaining Incomplete:

- If the APD is still not complete, the BLM will notify you and allow 10 additional business days to submit a written request to the BLM for an extension. The request must describe how you will address all outstanding deficiencies and the timeframe you request to complete the deficiencies.

    - The BLM will consider the extension request if you can prove your diligence (providing reasons and examples of why the delay is occurring) in attempting to correct the deficiencies and you can provide a date by which you will correct the deficiencies. If the BLM determines that the request does not warrant an additional extension, the BLM will return the APD as incomplete.

If you have any questions, please contact Alana Baker at (575) 234-5922.

Sincerely,

George Mac Donell
Field Manager

cc: Official File

ADDENDUM - Incomplete/Deficient Clarifications

Adjudication Comments

- Adjudicator additional information:
Please DO NOT submit paper copies of corrections for electronic submissions. All corrections must be submitted electronically via AFMSS.

Surface Comments

✓ - Location and Type of Water Supply Deficiency:
Please explain how the Endurance Frac Pond will be utilized for the Colgrove wells, either in writing or by a map. Endurance Frac Pond to 707_708 Waterline.pdf needs to be connected to Colgrove wells or removed.

- Plans for Surface Reclamation Deficiency:
✓ All Interim reclamation must be within 6 months. Interim within 6 months of completion. Please update language in APD.

- SUPO Review: APD additional necessary information are inadequate and/or incomplete
List 2-3 sources for caliche. Caliche source map attached.

Engineering Comments

- Casing design information is inadequate and/or incomplete
✓ 1. Mean sea level is entered incorrectly on AFMSS 2, on every top of mean sea level should be elevation, which is 3320 ft. On every bottom setting for depth MSL it should be calculated using the top setting depth MSL (3320 ft) minus the TVD.

- Cementing design information is inadequate and/or incomplete
✓ 1. Require the top of cement (top of segment in cement section) depths for all casing strings

✓ 2. On all strings the top of tail cements should be equal to bottom of lead cement

✓ 3. On the intermediate cement there are 2 leads on the attachment, so on AFMSS 2, you can combined the leads and keep them separate on the attachment

4. On production cement, there is 2 leads on AFMSS 2 that are identical, the attachment shows only one lead so the extra lead on AFMSS 2 should be removed. System will not allow.

Exhibit 4

EOG Resources

Colgrove 35 Fed Com #703H

Well Site Diagram

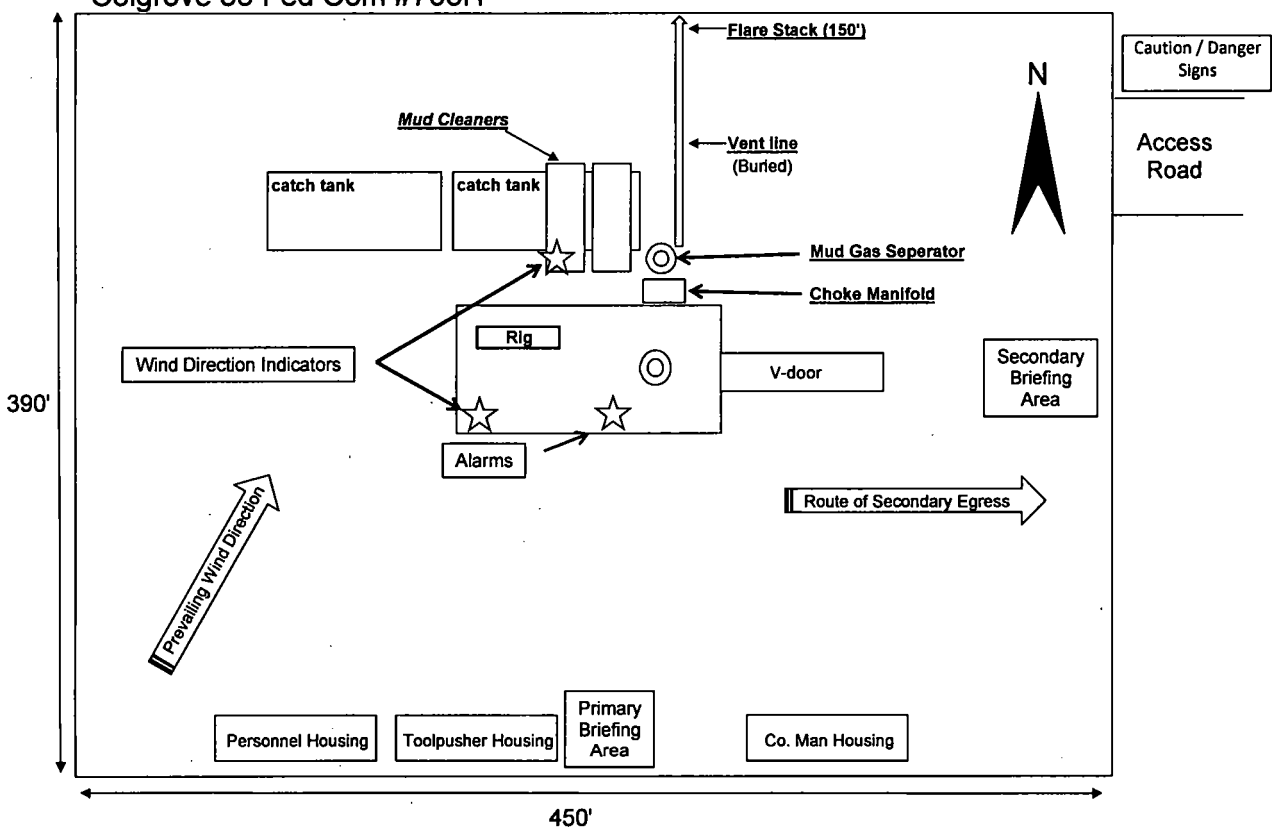
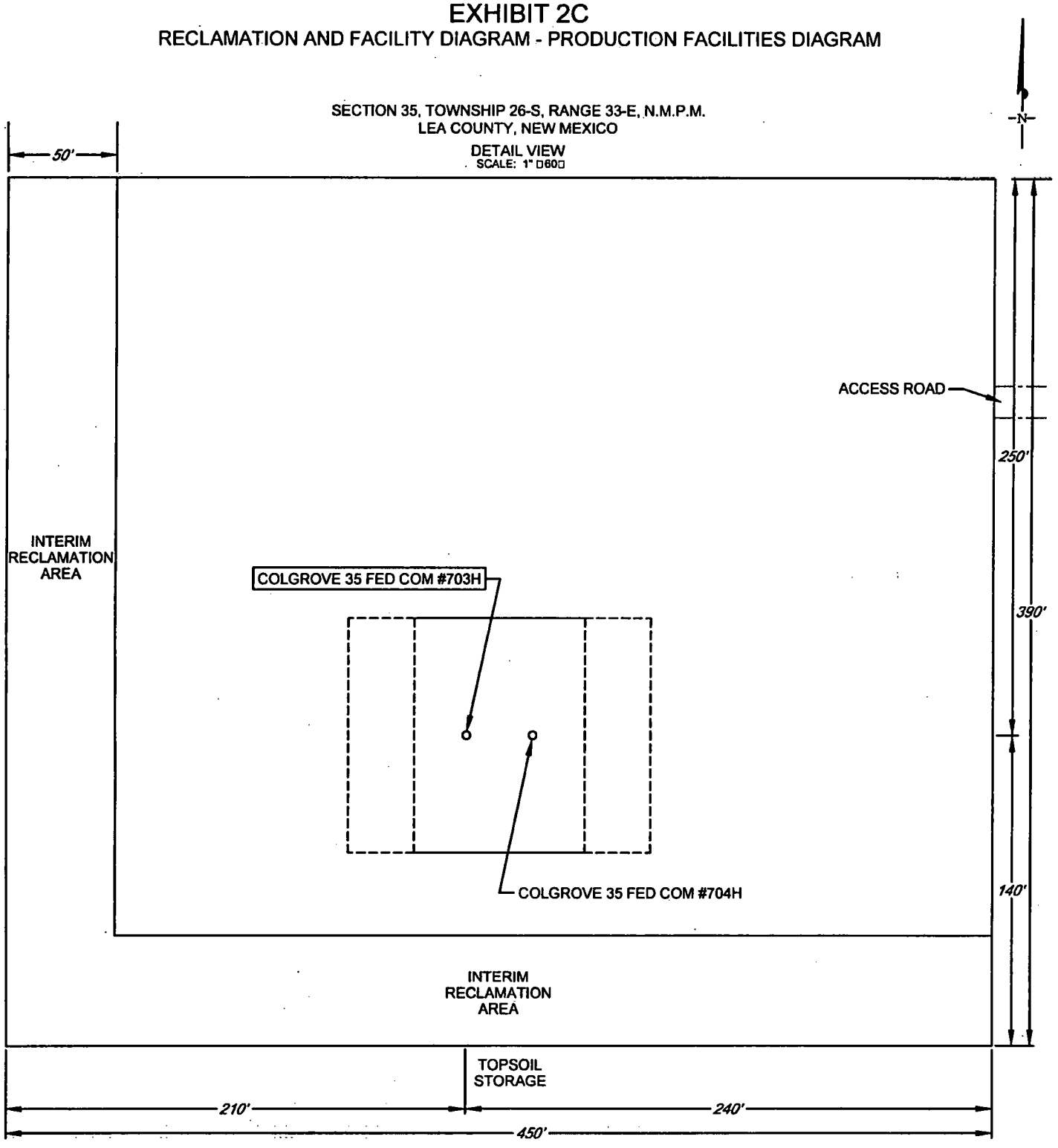


EXHIBIT 2C

RECLAMATION AND FACILITY DIAGRAM - PRODUCTION FACILITIES DIAGRAM

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" □60□



LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H

#703H LATITUDE N 32.0008253 #703H LONGITUDE W 103.5448152

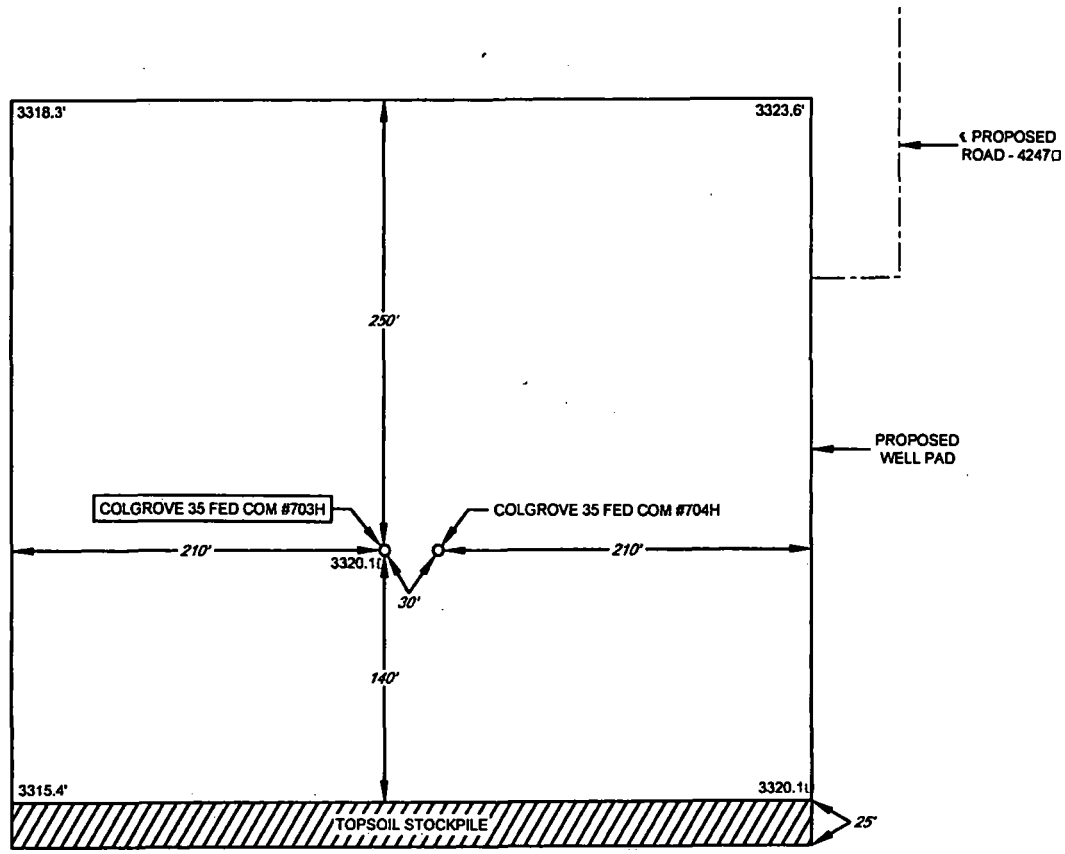
S:\SURVEY\EOG_MIDLAND\COLGROVE_35_FED_COM\FINAL_PRODUCTS\LO_COLGROVE35FEDCOM_703H.DWG 5/9/2016 8:46:39 AM cossom

EXHIBIT 2B

eog resources, inc.

SECTION 35, TOWNSHIP 26-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



SECTION LINE

LEASE NAME & WELL NO.: COLGROVE 35 FED COM #703H

#703H LATITUDE N 32.0008253 #703H LONGITUDE W 103.5448152

LEGEND

- EXISTING ROAD
- SECTION LINE
- PROPOSED ROAD

N

SCALE: 1" = 100'

0' 50' 100'

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1927, U.S. SURVEY FEET

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY EOG RESOURCES, INC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

PWD Data Report

04/26/2019

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

04/26/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: NM2308

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: