

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

5. Lease Serial No.
NMNM118727

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

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

1. Type of Well Oil Well Gas Well Other

8. Well Name and No.
ORRTANNA 20 FED 701H

2. Name of Operator EOG RESOURCES INCORPORATED
Contact: STAN WAGNER
E-Mail: stan_wagner@eogresources.com

9. API Well No.
30-025-42936-00-X1

3a. Address
MIDLAND, TX 79702

3b. Phone No. (include area code)
Ph: 432-686-3689

10. Field and Pool, or Exploratory
WILDCAT

HOBBS OCD

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 20 T26S R33E SWSW 220FSL 950FWL

MAY 05 2016

11. County or Parish, and State
LEA COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

RECEIVED

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Change to Original APD
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

EOG Resources requests an amendment to our approved APD for this well to reflect changes in the intermediate cement design, production casing design, and requests approval for multi-bowl wellhead utilization.

Specific details regarding these changes are attached.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #337694 verified by the BLM Well Information System
For EOG RESOURCES INCORPORATED, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 04/27/2016 (16PP0604SE)**

Name (Printed/Typed) STAN WAGNER	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 04/27/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <i>Kevin Bennett</i>	Title <i>Petroleum Engineer</i>	Date <i>4/29/2016</i>
Conditions of approval, if any, are attached. Approval of this notice 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.		Office <i>Carlsbad field office</i>

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

KZ

MAY 06 2016

WJ

**EOG RESOURCES, INC.
ORRTANNA 20 FED NO. 701H**

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	783'
Top of Salt	1,138'
Base of Salt / Top Anhydrite	4,843'
Lamar	4,843'
Bell Canyon	4,883'
Cherry Canyon	5,763'
Brushy Canyon	7,573'
Bone Spring Lime	9,003'
1 st Bone Spring Sand	10,000'
2 nd Bone Spring Lime	10,360'
2 nd Bone Spring Sand	10,520'
3 rd Bone Spring Sand	11,650'
Wolfcamp	12,060'
TD	12,280'

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

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	5,763'	Oil
Brushy Canyon	7,573'	Oil
1 st Bone Spring Sand	10,000'	Oil
2 nd Bone Spring Lime	10,360'	Oil
2 nd Bone Spring Sand	10,520'	Oil
3 rd Bone Spring Sand	11,650'	Oil
Wolfcamp	12,060'	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 875' and circulating cement back to surface.

**EOG RESOURCES, INC.
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4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
14.75"	0 - 875'	10.75"	40.5#	J55	STC	1.125	1.25	1.60
9.875"	0-8,000'	7.625"	29.7#	HCP-110	LTC	1.125	1.25	1.60
8.75"	8,000' - 10,900'	7.625"	29.7#	HCP-110	Ultra FJ	1.125	1.25	1.60
6.75"	0'-11,000'	5.5"	23#	P-110EC	VAM SG	1.125	1.25	1.60
6.75"	11,000' - 17,052'	5"	23.2#	T-95	NSCC	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. Centralizers will be placed in the 9-7/8" hole interval at least one every third joint.

Centralizers will be run one per joint on 5" casing.

Cementing Program: SEE COA

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Mix Water Gal/sk	Slurry Description
10-3/4" 875	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" 10,900'	<u>780</u>	9.0	<u>2.86</u>	11.14	D195 LiteFill (Beads) + 0.50% Retarder + D046 Antifoam
	<u>522</u>	13.5	<u>1.55</u>	7.47	50:50 Class H:Poz + 0.10% D065 + 0.20% D112 + 10% D154 + 2.0% D174 + 0.40% D800
5-1/2" x 5" 17,052'	<u>575</u>	14.1	<u>1.26</u>	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17

LOW CEMENT
SEE COA

EXTREMELY LOW CEMENT
SEE COA

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.

RA tracer (Iridium 192 or Scandium 46) will be utilized in the Intermediate Lead and Tail cement. The RA tracer will be kept at 4,000' or lower, to prevent circulating tagged cement to surface

EOG RESOURCES, INC.
ORRTANNA 20 FED NO. 701H

SEE
COA

SEE
COA

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 5000/ 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 5000/ 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 - 875'	Fresh - Gel	8.6-8.8	28-34	N/c
875' - 10,900'	Brine	8.8-10.0	28-34	N/c
10,900' - 17,052' 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.

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7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are planned for this well as follows:

Triple Combo from 10,900' to surface casing point
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 179 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 7343 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

SEE
COA

EOG RESOURCES, INC.
ORRTANNA 20 FED NO. 701H

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5000 psi.

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.

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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.

Orrtanna 20 Fed #701H

Lea County, New Mexico

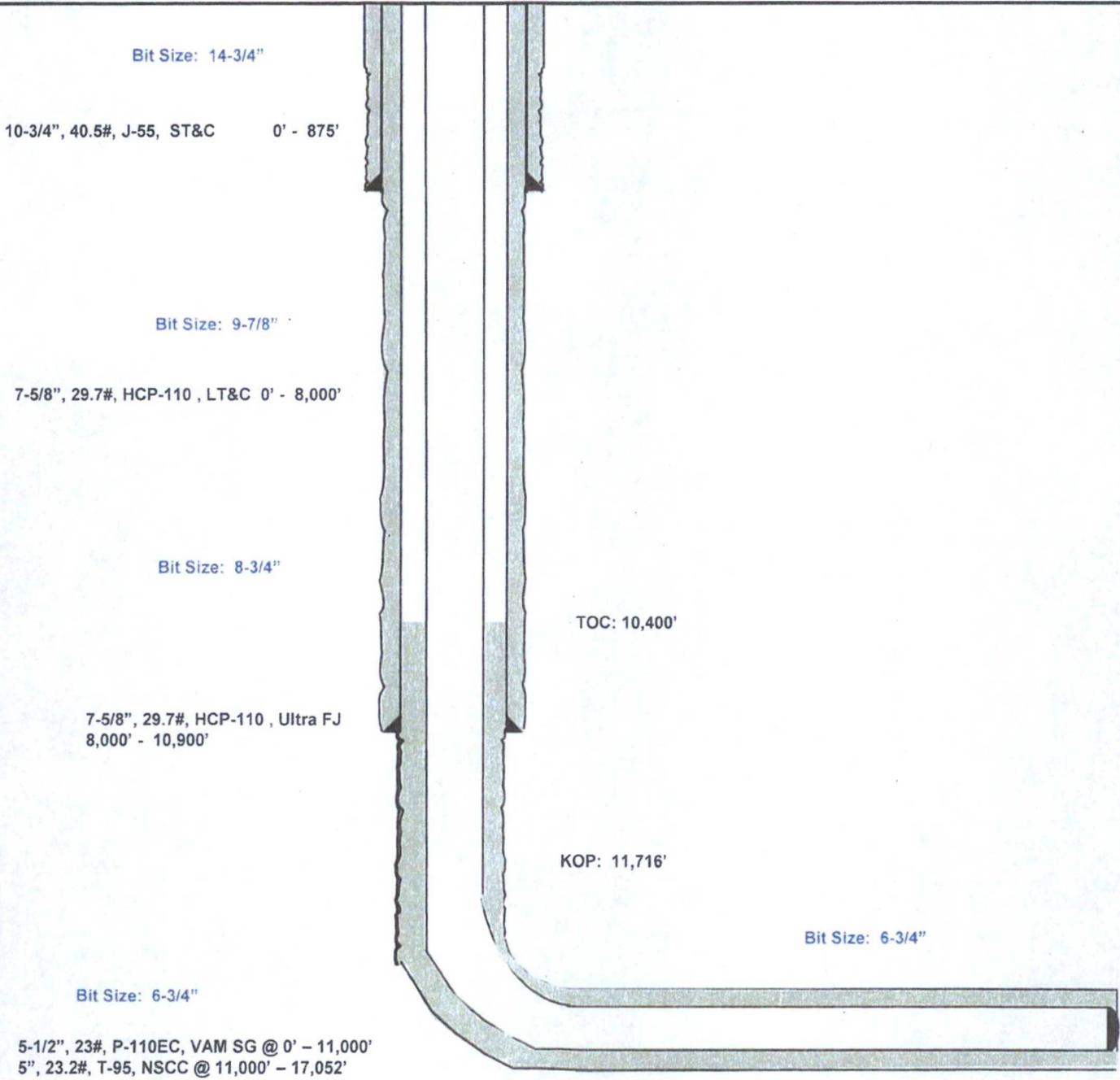
Proposed Wellbore

Revised 4/27/16

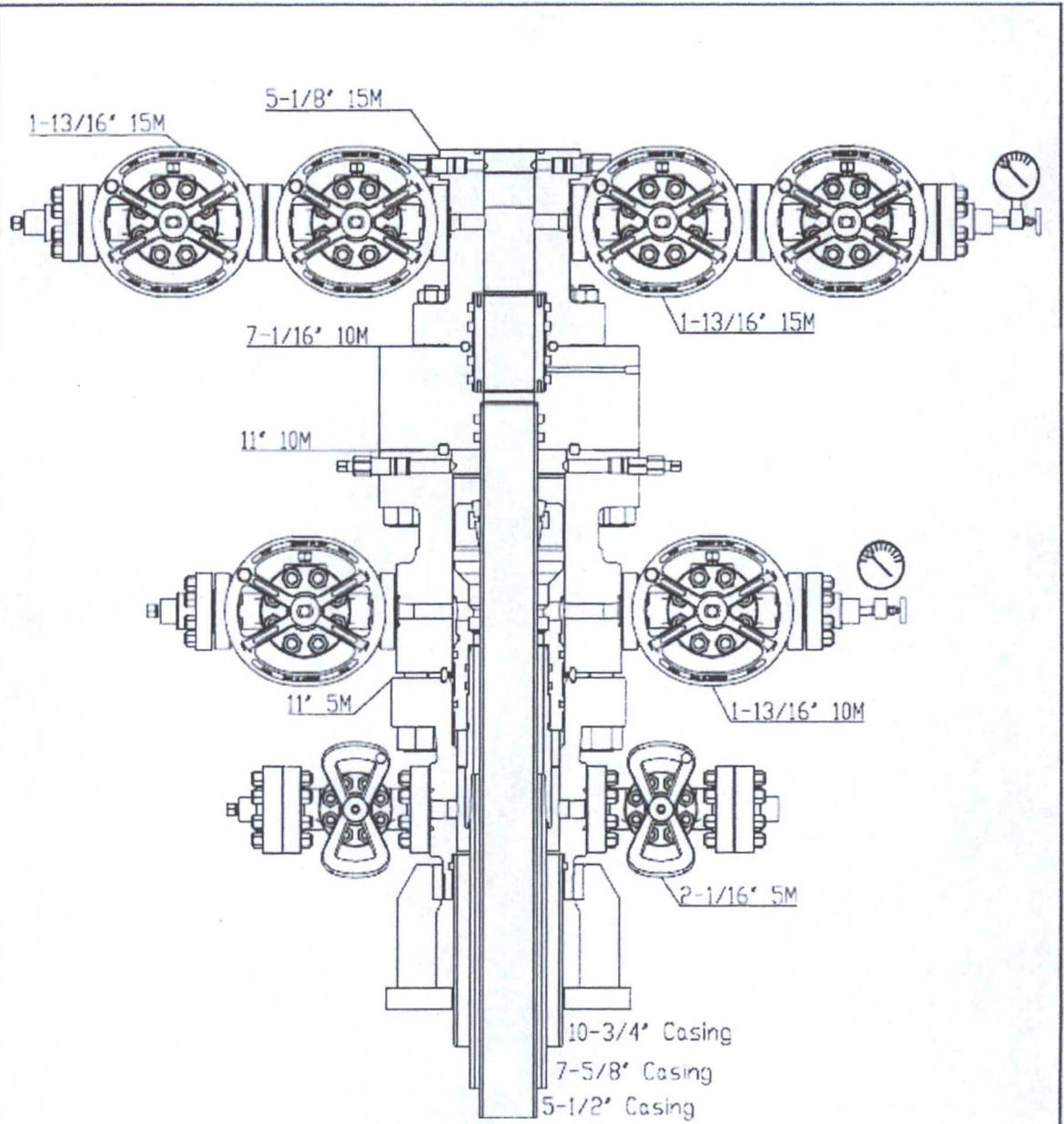
API: 30-025-42936

220' FSL
950' FWL
Section 20
T-26-S, R-33-E

KB: 3,248'
GL: 3,218'



Lateral: 17,052' MD, 12,280' TVD
Upper Most Perf:
330' FSL & 330' FWL Sec. 20
Lower Most Perf:
330' FNL & 330' FWL Sec. 20
BH Location: 230' FNL & 330' FWL
Section 20
T-26-S, R-33-E



*CONCEPT QUOTE DRAWING

EOG RESOURCES

10-3/4" X 7-5/8" X 5-1/2"
 FBD-100 WELLHEAD SYSTEM
 QUOTE # - 93482

DWN	BAY	1/28/16
CHK		
APP		
	BY	DATE



Worldwide Expertise - Global Strength

DRAWING NO
 WH-15848

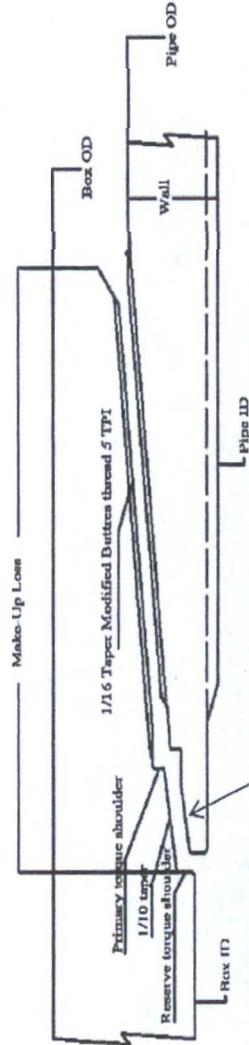
Pipe Description				
Size	Weight	Wall	Grade	Connection
5.000"	23.20#	0.478"	T-95	NS-CC

Performance Properties	
Yield (x 1000 lbs.)	645
Internal Pressure (psi)	15890
Collapse (psi)	16430
Tension (x 1000 lbs.)	659
Compression (x 1000 lbs.)	659

Connection Dimensions	
Pipe ID	4.044"
Pin ID	4.160"
Coupling ID	4.145"
Coupling OD	5.720"
Special Clearance	5.407"
Coupling Length	9.976"
Pin Lc Length	2.008"
Drift Diameter	3.919"

Make-Up									
Torque Min. (ft. lbs.)	4800	Torque Opt. (ft. lbs.)	5400	Torque Max (ft. lbs.)	6100	MakeUp Loss	4.690"	MakeUp Speed	10 rpm Max

Recommended Thread Compound: API Modified Running Compound, such as Best-of-Life 72733



Download the CDS Manual.



OD: 5 1/2 | Weight / Wall: 23.00# / 0.415 | Grade origin: API & Enhanced | Grade: P110 EC | Connection: VAM® SG | Option: Regular | Drift Type: API Drift | Min. Wall Thickness: 87.5%

Metric Imperial

[Display Datasheet](#) [Reset Criteria](#)

Issued on: 26 Apr 2016



Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
5 1/2 in.	23.00 lb/ft	0.415 in.	P110 EC	4.545 in.	VAM® SG

PIPE PROPERTIES

Nominal OD	5.500 in
Nominal ID	4.670 in
Nominal Cross Section Area	6.630 sqin
Grade Type	High Yield
Min. Yield Strength	125 ksi
Max. Yield Strength	140 ksi
Min. Ultimate Tensile Strength	135 ksi

CONNECTION PROPERTIES

Connection Type	Premium integral semi-flush
Connection OD (nom)	5.721 in
Connection ID (nom)	4.603 in
Make-up Loss	6.503 in
Tension Efficiency	90 % of pipe
Compression Efficiency	63 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	70 % of pipe

CONNECTION PERFORMANCES

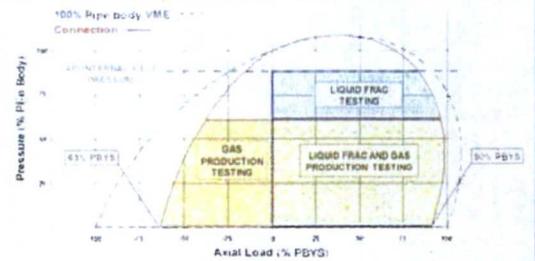
Tensile Yield Strength	746 klb
Compression Resistance	527 klb
Internal Yield Pressure	16510 psi
External Pressure Resistance	11354 psi
Max. Bending with Sealability	40 °/100 ft

FIELD TORQUE VALUES

Min. Make-up torque	9100 ft.lb
Opt. Make-up torque	11200 ft.lb
Max. Make-up torque	13300 ft.lb
Maximum Torque with Sealability	14500 ft.lb

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Orrtanna 20 Fed 701H
30-025-42936
EOG Resources, Inc
Surface Location: Sec. 20, T. 26S, R. 33E
Conditions of Approval

See below for the changes in the Conditions of Approval for the Drilling Section.
More specifically cement requirements for behind the intermediate and production casing, and pressure control.

DRILLING

1. The minimum required fill of cement behind the 7 5/8 inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
Additional cement may be required since excess was calculated to be 23%.

If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

Formation below the 7 5/8 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Variance is granted for centralizers in the production interval per the drilling program.

2. The minimum required fill of cement behind the 5 1/2 inch production casing is:

- Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to negative 2% - Additional cement shall be required.**

4. 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.

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 53.
2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Operator has proposed a **multi-bowl wellhead assembly**. This assembly (BOPE/BOPE) will 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 **5000 (5M) psi**.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.
 - c. 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.
 - d. Manufacturer representative shall install the test plug for the initial and all BOP testing.
 - e. **Prior to running the intermediated casing, the rams will be changed out to accommodate the 7-5/8" casing. After installing the intermediate casing the casing rams will be removed and replaced with variable bore rams.**
4. Operator has broken a seal on the BOP stack therefore per Onshore Oil and Gas Order No. 2 **the entire BOP stack shall be tested prior to drilling out the intermediated casing.**
 - a. A solid steel body pack-off will be utilized after running & cementing the intermediate casing. After installation of the pack-off and lower flange will be pressure tested to 5000 psi.

- b. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - 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 if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
 - g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the 3rd **Bone Springs** 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.

KGR 04292016