Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

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

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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMLC029415A

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
PARTITION 13 FED MD 6H

2. Name of Operator
BURNETT OIL COMPANY INC
Contact: LESLIE GARVIS
E-Mail: lgarvis@burnettoil.com

9. API Well No.
30-015-43552-00-X1

3a. Address
801 CHERRY STREET UNIT 9
FORT WORTH, TX 76102-6881

3b. Phone No. (include area code)
Ph: 817.583.8730

10. Field and Pool or Exploratory Area
FREN

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 24 T17S R31E NWNW 330FNL 990FWL

11. County or Parish, State
EDDY COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original A PD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 recomplete 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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Burnett Oil is requesting the following changes to the original previously approved APD:

1. Change well name to Partition 13 Fed MD 6H
2. Change well from vertical to horizontal
SHL: 330' FNL, 990' FWL, Unit D, Sec 24, T17S, R31E
BHL: 290' FNL, 990' FWL, Unit D, Sec 13, T17S, R31E
*See Plat for FTP, KOP & LTP
2. Change DV Tool Depth from 5400? to 4700?
2. Change 13 3/8 Surface casing from 48# H40 to 48# J-55 ST&C
3. Change 9 5/8? Intermediate casing from #36 J-55 LT&C to #36 J-55 ST&C
4. Change Casing depth as follows:
a. 9 5/8? Intermediate 0?-2000?

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 26 2017

RECEIVED

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #370407 verified by the BLM Well Information System
For BURNETT OIL COMPANY INC, sent to the Carlsbad
Committed to AFMSS for processing by DEBORAH MCKINNEY on 03/27/2017 (17DLM1103SE)

Name *(Printed/Typed)* LESLIE GARVIS — Title REGULATORY MANAGER

Signature (Electronic Submission) — Date 03/20/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 09/20/2017

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 Carlsbad

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.

(Instructions on page 2)

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

KP 9-28-17

Additional data for EC transaction #370407 that would not fit on the form

32. Additional remarks, continued

b. 7? Production 0?-4800?
c. 5 ?? Production 4800?-TD
5. Change well head from Larkin to Cactus MBU-LR Wellhead System
6. Change to 3000psi BOPE 13 5/8?x 13 5/8? x5K ? DSA 5K to 3K ? BOPE 3K

Documents Attached
1. Revised C-102
2. Revised Drilling Plan
3. Revised HZ Drilling Plan
4. New BOP Diagram
5. Cactus Wellhead Equipment Info
6. Casing API Inspection Info

BURNETT OIL CO., INC.

DRILLING PLAN
Partition 13 Fed NC 6H
HORIZONTAL FREN GLORIETA YESO WELL

1. **Geological Name of Surface Formation with Estimated Depth:**

Geological Name	Estimate Top	Anticipated Fresh Water, Oil or Gas
Alluvium	Surface	There is no fresh water here
Anhydrite	539'	
Salt	728'	
Base Salt	1749'	
Yates	1909'	
Seven Rivers	2258'	Oil
Queen	2883'	Oil
Grayburg	3291'	Oil
San Andres	3639'	Oil
Glorieta	5141'	Oil
Yeso	5220'	Oil
Total Depth	Refer to APD	

No other formations are expected to yield fresh water, oil or gas in measurable volumes. There is no groundwater in the immediate vicinity where we will be drilling. We will set 13-3/8" casing @ +/-720' in the Anhydrite above the salt and circulate cement to surface.

We will set 9-5/8" intermediate casing at +/-2,000' and circulate cement to surface. All intervals will be isolated by setting 7" x 5-1/2" casing to total depth and circulating cement from +/-4,800' to above the base of the 9-5/8" intermediate casing shoe.

2. **Casing Program: (ALL CASING WILL BE NEW API APPROVED MATERIAL.)**

(MW = 10 PPG IN DESIGN FACTOR CALCULATIONS.)

a. Design Safety Factors:

Type	Hole Size	Depth Interval	OD CSG	Weight	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
Conductor	24"	0-90'	20"	Contractor	Discretion	----------	----------	----------	----------
Surface	17-1/2"	0-~~720'~~ 710	13-3/8"	48#	ST&C	J-55	1.125	1.00	1.80
Intermediate	12-1/4"	0'-2000'	9-5/8"	36#	ST&C	J-55	1.125	1.00	1.80
Production	8-1/2"	0'-4800'	7"	26#	LT&C	L-80	1.125	1.00	1.80
	8-1/2"	4800'-10450'	5-1/2"	17#	LT&C	L-80	1.125	1.00	1.80

b. Surface Casing Info

The proposed 13-3/8" casing setting depth is +/- 720' based on cross sections which show the estimated top of the rustler and top of salt. Drilling times will be plotted to find the hard section just above the salt. A mud logger will be on location to evaluate drill and cutting samples as long as circulation is maintained. If salt is penetrated, it will be obvious by the sudden increase in water salinity and surface casing will then be set above the top of salt. Our highly experienced drilling personnel have drilled many wells in this area and are able to easily identify the hard streak on the top of the salt.

c. Intermediate casing

We will run 9-5/8" intermediate casing to +/-2,000' and circulate cement to surface to get the Salt section behind pipe.

d. Production casing

We will run 7" x 5-1/2" production casing with a DV Tool at the bottom of the 7" (4700' +/-), then a crossover from 7" to 5-1/2" (4800' –TD). There will be no cement in the lateral, only from the stage tool and up hole into the intermediate casing with top of cement reaching approximately 1,500'.

Burnett proposes to run a multiple packer system on the 5-1/2" production casing which will cross over into the 7" casing string (no cement in the lateral). An external isolation packer will be set at or a few feet inside the lease offset limit with an additional external isolation packer set just above the Glorieta. No completion perforations or ports will be placed between the Glorieta isolation packer and the cement stage tool.

3. Cementing Program

BLM to be notified prior to all cementing and tag operations in order to observe the operation if desired.

a. 13 3/8" Surface Casing:

- Cement to surface
- 20 bbls fresh water spacer at 8.4 lbm/gal.
- Lead: 330 sx ExtendaCem – CZ 0.1250 lbm Poly-E-Flake. Fluid weight 13.5 lbm/gal, slurry yield 1.745 ft3/sx, total mixing fluid 9.18 gal/sx.
- Tail: 340 sx HalCem 2% Calcium Chloride – flake, fluid weight 14.8 lbm/gal, slurry yield 1.347 ft3/sx, total mixing fluid 6.39 gal/sx.

If cement does not circulate to surface, BLM will be notified of same, and advised of the plan to bring the cement to surface so BLM may witness tagging and cementing. If surface pressures when circulating indicate cement is low in the annulus, temperature survey results will be reviewed with BLM representative to determine the remediation needed.

b. 9 5/8" Intermediate Casing:

- Cement to surface
- Lead: 475 sx ExtendaCem – CZ 0.1250 lbm Poly-E-Flake, Fluid weight 13.5 lbm/gal, slurry yield 1.745 ft3/sx, total mixing fluid 9.2 gal/sx.
- Tail: 205 sx HalCem fluid weight 14.8 lbm/gal, slurry yield 1.326 ft3/sx, total mixing fluid 6.34 gal/sx.

c. 7" & 5 1/2" Production Casing:

- Displace mud from lateral with fresh water.
- Open DV Tool and pump the following cement. Lead: 255 sx EconoCem – C, 0.1250 lbm Poly-E-Flake, 0.25 lbm D-Air 5000, fluid weight 11.9 lbm/gal, slurry yield 2.464 ft3/sx, total mixing fluid 14.24 gal/sx.
- Tail: 170 sx Halcem, 0.50% LAP-1, 0.25 lbm D-Air 5000, 0.40% CFR-3, 0.10% HR-800, fluid weight 14.8 lbm/gal, slurry yield 1.33 ft3/sx, total mixing fluid 6.29 gal/sx.

The above cement volumes may be revised pending the caliper measurement from the open hole logs. **Casing/cementing design is to bring cement inside the intermediate casing to approximately 1,500'.**

4. Pressure Control Equipment:

The blowout prevention equipment (BOPE) shown in the attached diagram will consist of a 3000 PSI Hydril Unit (annular) with hydraulic closing equipment. The equipment will comply with Onshore Order #2 and will be tested to 3,000 psi and maintained for at least ten (10) minutes. The 13 3/8" drilling head will be installed on the surface casing and in use continuously until total depth is reached. An independent testing company will be used for the testing. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 3000 PSI WP rating.

Burnett is requesting to keep the Mud/Gas Separator on location but only connect if/when needed

5. Auxiliary Well Control and Monitoring Equipment:

a. A Kelly cock will be in the drill string at all times.

b. A full opening drill pipe stabbing valve with the appropriate connections will be on the rig floor at all times.

c. Hydrogen Sulfide detection and breathing equipment will be installed and in operation at a drilling depth of 1800' (which is more than 500' above top of Grayburg) and will remain until production casing is cemented.

d. An H2S compliance package will be on all sites while drilling.

6. Proposed Mud Circulation System (Closed Loop System)

Depth	Mud Wt	Vis	Fluid Loss	Type System
0' - 720'	8.4 - 9.5		NC	Fresh Water
720' - 2000' MD	10.0 max		NC	Brine Water
2000' – TD MD	10.0 max		NC	Brine Water

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Pason equipment will be used to monitor the mud system.

7. Logging, Coring and Testing program:

a. No cores or DSTs are planned at this time.

b. A mud logger will be on the well from 200' to TD.

c. No open hole logs will be run.

8. Potential Hazards:

No abnormal pressures or temperatures are expected. Lost circulation is expected in the surface hole and not expected in the production hole. Water flows can occur periodically at various depths in the production hole. All personnel will be familiar with the safe operation of the equipment being used to drill this well. The maximum anticipated bottom hole pressure is 2386#. This is based upon the following formula of .445 x BH ft. estimate. The anticipated bottom hole temperature is 105°F. This is based upon logs of drilled wells surrounding this well.

There is known H2S in this area. In the event that it is necessary to follow the H2S plan, a remote choke will be installed as required in Onshore Order 6. Refer to the attached H2S plan for details.

9. Anticipated Start Date and Duration of Operation

Road and location construction will begin after BLM has approved the APD and has approved the start of the location work. Anticipated spud date will be as soon as the location building work has been completed and the drilling rig is available to move to the location. Move in operations and drilling is expected to take approximately 25 days. If production casing is run, an additional 90 days would be required to complete the well and install the necessary surface equipment (pumping unit, electricity, flowline and storage facility) in order to place the well on production.

Burnett Oil Co., Inc.

Burnett Oil Company, INC
Project: Eddy County, NM
Site: Sec.24, T.17 S., R. 31 E.
Well: Partition 13 FED MD 6H
Wellbore: Wellbore #1
Plan: Plan #4 (Partition 13 FED MD 6H/Wellbore #1)

INTEGRITY *Directional Services*

PROJECT DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

T G M
Azimuths to Grid North
True North: -0.27°
Magnetic North: 6.88°
Magnetic Field
Strength: 48303.4snT
Dip Angle: 60.58°
Date: 2/2/2017
Model: IGRF2015

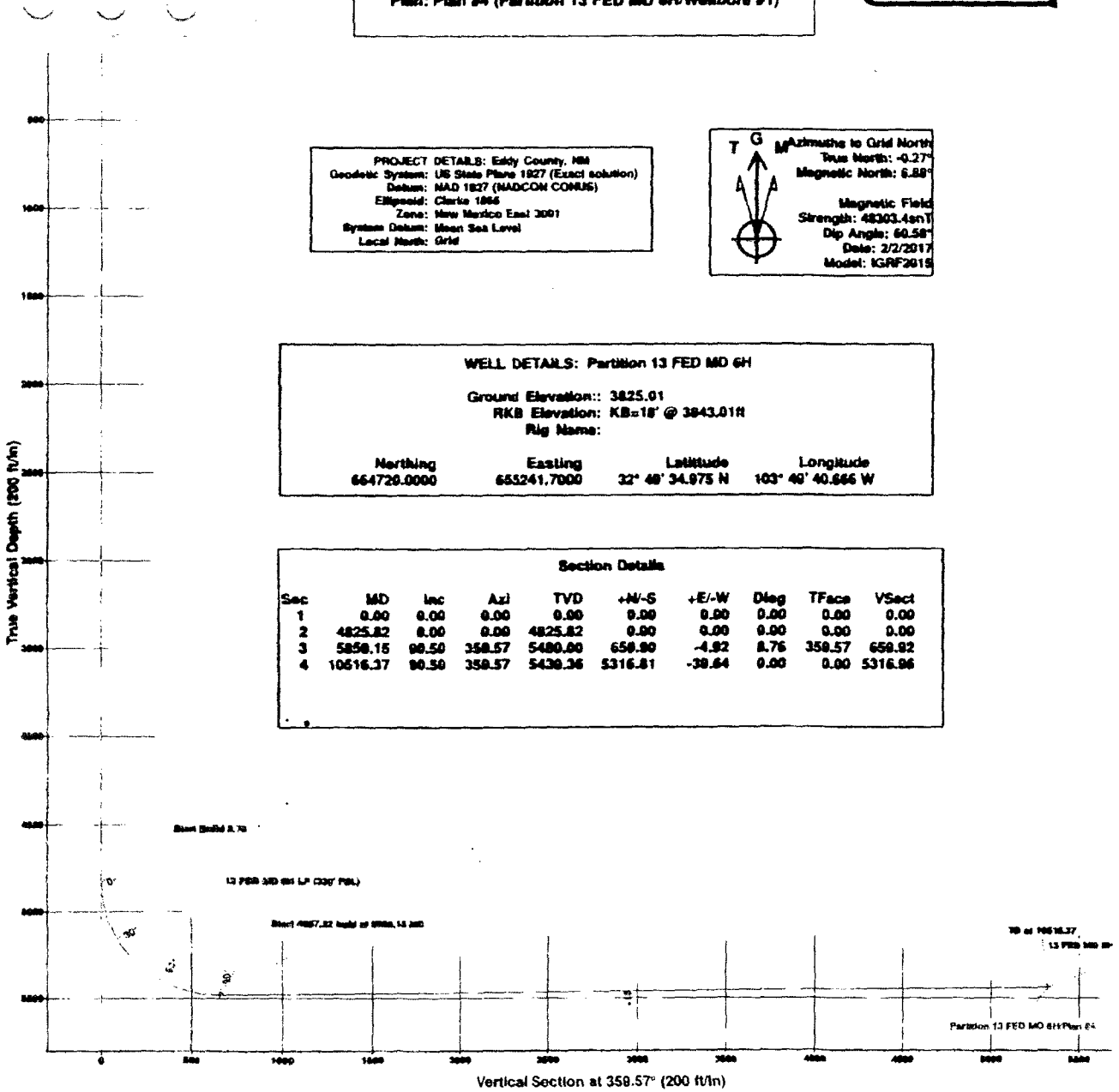
WELL DETAILS: Partition 13 FED MD 6H

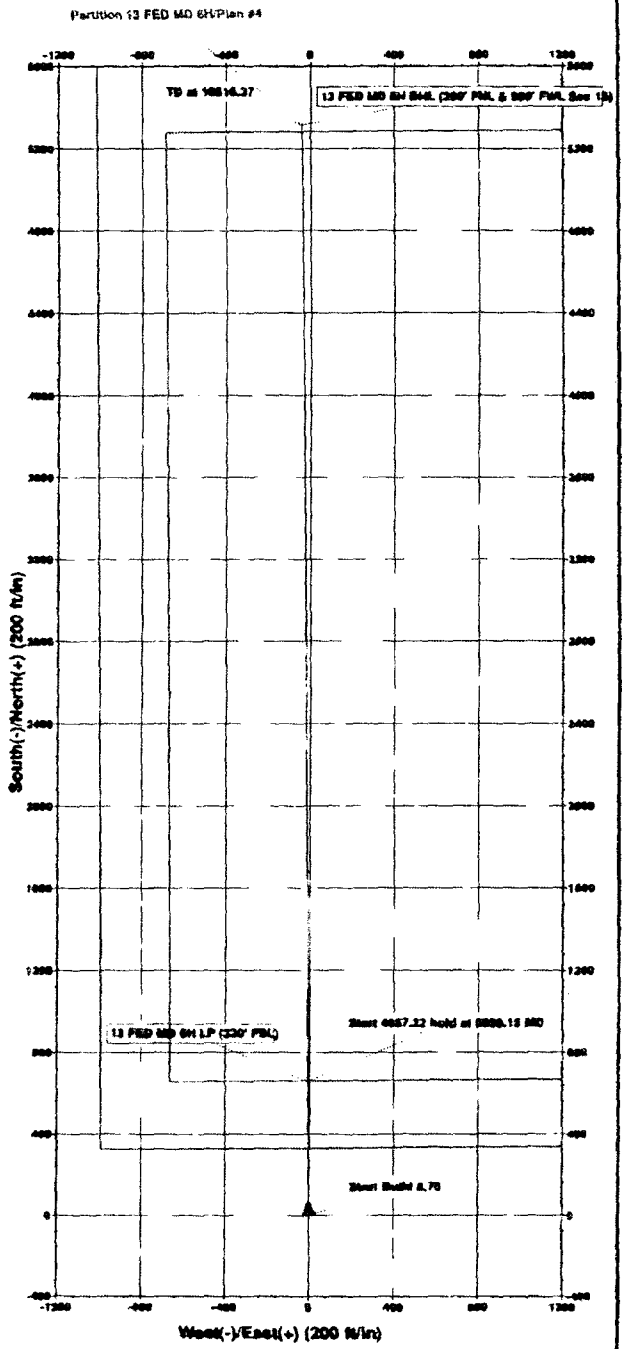
Ground Elevation:: 3825.01
RKB Elevation: KB=18' @ 3843.01ft
Rig Name:

Northing	Easting	Latitude	Longitude
664720.0000	655241.7000	32° 48' 34.975 N	103° 49' 40.666 W

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4825.82	0.00	0.00	4825.82	0.00	0.00	0.00	0.00	0.00
3	5858.15	90.50	358.57	5480.00	658.90	-4.92	8.76	358.57	658.92
4	10616.37	90.50	358.57	5439.36	5316.81	-39.64	0.00	0.00	5316.96





Burnett Oil Company, INC

Eddy County, NM
Sec.24, T.17 S., R. 31E.
Partition 13 FED MD 6H

Wellbore #1

Plan: Plan #4

Standard Survey Report

07 March, 2017

INTEGRITY
Directional Services

Integrity Directional Services, LLC

Burnett Oil Co., Inc.

Survey Report

INTEGRITY Directional Services

Company:	Burnett Oil Company, INC	**Local Co-ordinate Reference:**	Well Partition 13 FED MD 6H
Project:	Eddy County, NM	**TVD Reference:**	KB=18' @ 3843.01ft
Site:	Sec.24, T.17 S., R. 31 E.	**MD Reference:**	KB=18' @ 3843.01ft
Well:	Partition 13 FED MD 6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #4	**Database:**	EDM 5000.1 Multi User Db

Project Eddy County, NM

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Sec.24, T.17 S., R. 31 E.

Site Position:		**Northing:**	664,720.0000 usft	**Latitude:**	32° 49' 34.975 N
From:	Map	**Easting:**	655,241.7000 usft	**Longitude:**	103° 49' 40.666 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.27 °

Well Partition 13 FED MD 6H

Well Position	**+N/-S**	0.00 ft	**Northing:**	664,720.0000 usft	**Latitude:**	32° 49' 34.975 N
	+E/-W	0.00 ft	**Easting:**	655,241.7000 usft	**Longitude:**	103° 49' 40.666 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,825.01 ft

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	2/2/2017	7.16	60.58	48,303

Design Plan #4

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	359.57

Survey Tool Program **Date** 3/6/2017

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
0.00	10,516.37	Plan #4 (Wellbore #1)	MWD	MWD - Standard

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00

Company:	Burnett Oil Company, INC	**Local Co-ordinate Reference:**	Well Partition 13 FED MD 6H
Project:	Eddy County, NM	**TVD Reference:**	KB=18' @ 3843.01ft
Site:	Sec.24, T.17 S., R. 31 E.	**MD Reference:**	KB=18' @ 3843.01ft
Well:	Partition 13 FED MD 6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #4	**Database:**	EDM 5000.1 Multi User Db

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,825.62	0.00	0.00	4,825.62	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 8.76									
4,900.00	6.50	359.57	4,899.84	4.20	-0.03	4.20	8.76	8.76	0.00
5,000.00	15.26	359.57	4,997.95	23.05	-0.17	23.05	8.76	8.76	0.00
5,100.00	24.01	359.57	5,092.04	56.62	-0.42	56.62	8.76	8.76	0.00

Company:	Burnett Oil Company, INC	**Local Co-ordinate Reference:**	Well Partition 13 FED MD 6H
Project:	Eddy County, NM	**TVD Reference:**	KB=18' @ 3843.01ft
Site:	Sec.24, T.17 S., R. 31 E.	**MD Reference:**	KB=18' @ 3843.01ft
Well:	Partition 13 FED MD 6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #4	**Database:**	EDM 5000.1 Multi User Db

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,200.00	32.77	359.57	5,179.93	104.12	-0.78	104.12	8.76	8.76	0.00
5,300.00	41.53	359.57	5,259.56	164.45	-1.23	164.46	8.76	8.76	0.00
5,400.00	50.29	359.57	5,329.07	236.20	-1.76	236.21	8.76	8.76	0.00
5,500.00	59.05	359.57	5,386.85	317.70	-2.37	317.71	8.76	8.76	0.00
5,600.00	67.80	359.57	5,431.54	407.05	-3.03	407.06	8.76	8.76	0.00
5,700.00	76.56	359.57	5,462.11	502.15	-3.74	502.17	8.76	8.76	0.00
5,800.00	85.32	359.57	5,477.84	600.81	-4.48	600.82	8.76	8.76	0.00
5,859.15	90.50	359.57	5,480.00	659.90	-4.92	659.92	8.76	8.76	0.00
Start 4657.22 hold at 5859.15 MD									
5,900.00	90.50	359.57	5,479.64	700.74	-5.22	700.76	0.00	0.00	0.00
6,000.00	90.50	359.57	5,478.77	800.74	-5.97	800.76	0.00	0.00	0.00
6,100.00	90.50	359.57	5,477.90	900.73	-6.72	900.75	0.00	0.00	0.00
6,200.00	90.50	359.57	5,477.03	1,000.72	-7.46	1,000.75	0.00	0.00	0.00
6,300.00	90.50	359.57	5,476.15	1,100.72	-8.21	1,100.75	0.00	0.00	0.00
6,400.00	90.50	359.57	5,475.28	1,200.71	-8.95	1,200.74	0.00	0.00	0.00
6,500.00	90.50	359.57	5,474.41	1,300.70	-9.70	1,300.74	0.00	0.00	0.00
6,600.00	90.50	359.57	5,473.54	1,400.70	-10.44	1,400.74	0.00	0.00	0.00
6,700.00	90.50	359.57	5,472.66	1,500.69	-11.19	1,500.73	0.00	0.00	0.00
6,800.00	90.50	359.57	5,471.79	1,600.68	-11.93	1,600.73	0.00	0.00	0.00
6,900.00	90.50	359.57	5,470.92	1,700.68	-12.68	1,700.72	0.00	0.00	0.00
7,000.00	90.50	359.57	5,470.04	1,800.67	-13.43	1,800.72	0.00	0.00	0.00
7,100.00	90.50	359.57	5,469.17	1,900.66	-14.17	1,900.72	0.00	0.00	0.00
7,200.00	90.50	359.57	5,468.30	2,000.66	-14.92	2,000.71	0.00	0.00	0.00
7,300.00	90.50	359.57	5,467.43	2,100.65	-15.66	2,100.71	0.00	0.00	0.00
7,400.00	90.50	359.57	5,466.55	2,200.64	-16.41	2,200.71	0.00	0.00	0.00
7,500.00	90.50	359.57	5,465.68	2,300.64	-17.15	2,300.70	0.00	0.00	0.00
7,600.00	90.50	359.57	5,464.81	2,400.63	-17.90	2,400.70	0.00	0.00	0.00
7,700.00	90.50	359.57	5,463.94	2,500.62	-18.64	2,500.69	0.00	0.00	0.00
7,800.00	90.50	359.57	5,463.06	2,600.62	-19.39	2,600.69	0.00	0.00	0.00
7,900.00	90.50	359.57	5,462.19	2,700.61	-20.13	2,700.69	0.00	0.00	0.00
8,000.00	90.50	359.57	5,461.32	2,800.60	-20.88	2,800.68	0.00	0.00	0.00
8,100.00	90.50	359.57	5,460.45	2,900.60	-21.63	2,900.68	0.00	0.00	0.00
8,200.00	90.50	359.57	5,459.57	3,000.59	-22.37	3,000.68	0.00	0.00	0.00
8,300.00	90.50	359.57	5,458.70	3,100.59	-23.12	3,100.67	0.00	0.00	0.00
8,400.00	90.50	359.57	5,457.83	3,200.58	-23.86	3,200.67	0.00	0.00	0.00
8,500.00	90.50	359.57	5,456.95	3,300.57	-24.61	3,300.66	0.00	0.00	0.00
8,600.00	90.50	359.57	5,456.08	3,400.57	-25.35	3,400.66	0.00	0.00	0.00
8,700.00	90.50	359.57	5,455.21	3,500.56	-26.10	3,500.66	0.00	0.00	0.00
8,800.00	90.50	359.57	5,454.34	3,600.55	-26.84	3,600.65	0.00	0.00	0.00
8,900.00	90.50	359.57	5,453.46	3,700.55	-27.59	3,700.65	0.00	0.00	0.00
9,000.00	90.50	359.57	5,452.59	3,800.54	-28.34	3,800.64	0.00	0.00	0.00
9,100.00	90.50	359.57	5,451.72	3,900.53	-29.08	3,900.64	0.00	0.00	0.00
9,200.00	90.50	359.57	5,450.85	4,000.53	-29.83	4,000.64	0.00	0.00	0.00

Integrity Directional Services, LLC

Survey Report

INTEGRITY Directional Services

Company:	Burnett Oil Company, INC	**Local Co-ordinate Reference:**	Well Partition 13 FED MD 6H
Project:	Eddy County, NM	**TVD Reference:**	KB=18' @ 3843.01ft
Site:	Sec.24, T.17 S., R. 31 E.	**MD Reference:**	KB=18' @ 3843.01ft
Well:	Partition 13 FED MD 6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #4	**Database:**	EDM 5000.1 Multi User Db

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,300.00	90.50	359.57	5,449.97	4,100.52	-30.57	4,100.63	0.00	0.00	0.00
9,400.00	90.50	359.57	5,449.10	4,200.51	-31.32	4,200.63	0.00	0.00	0.00
9,500.00	90.50	359.57	5,448.23	4,300.51	-32.06	4,300.63	0.00	0.00	0.00
9,600.00	90.50	359.57	5,447.36	4,400.50	-32.81	4,400.62	0.00	0.00	0.00
9,700.00	90.50	359.57	5,446.48	4,500.49	-33.55	4,500.62	0.00	0.00	0.00
9,800.00	90.50	359.57	5,445.61	4,600.49	-34.30	4,600.61	0.00	0.00	0.00
9,900.00	90.50	359.57	5,444.74	4,700.48	-35.05	4,700.61	0.00	0.00	0.00
10,000.00	90.50	359.57	5,443.86	4,800.47	-35.79	4,800.61	0.00	0.00	0.00
10,100.00	90.50	359.57	5,442.99	4,900.47	-36.54	4,900.60	0.00	0.00	0.00
10,200.00	90.50	359.57	5,442.12	5,000.46	-37.28	5,000.60	0.00	0.00	0.00
10,300.00	90.50	359.57	5,441.25	5,100.45	-38.03	5,100.60	0.00	0.00	0.00
10,400.00	90.50	359.57	5,440.37	5,200.45	-38.77	5,200.59	0.00	0.00	0.00
10,500.00	90.50	359.57	5,439.50	5,300.44	-39.52	5,300.59	0.00	0.00	0.00
10,516.37	90.50	359.57	5,439.36	5,316.81	-39.64	5,316.96	0.00	0.00	0.00
TD at 10516.37									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
13 FED MD 6H BHL (	0.00	0.00	5,437.60	5,316.81	-39.60	670,036.6000	655,202.1000	32° 50' 27.587 N	103° 49' 40.632 W
- plan misses target center by 1.56ft at 10516.37ft MD (5439.36 TVD, 5316.81 N, -39.64 E)									
- Point									
13 FED MD 6H LP (3:	0.00	0.00	5,480.00	659.90	-4.92	665,379.8987	655,236.7800	32° 49' 41.505 N	103° 49' 40.687 W
- plan hits target center									
- Point									

Plan Annotations

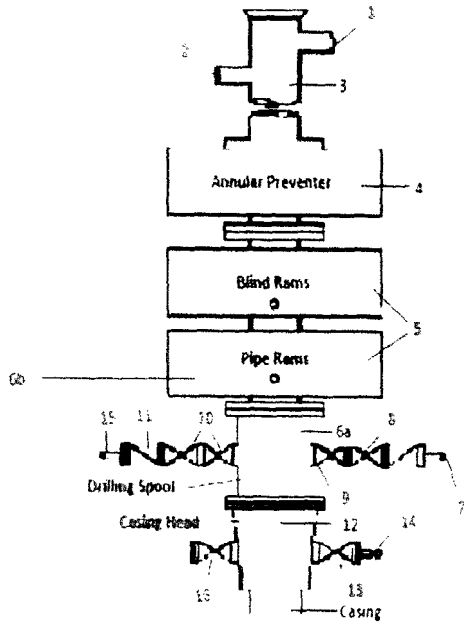
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4826	4826	0	0	Start Build 8.76
5859	5480	660	-5	Start 4657.22 hold at 5859.15 MD
10,516	5439	5317	-40	TD at 10516.37

Checked By: _____ Approved By: _____ Date: _____

Mack Energy Corporation
Minimum Blowout Preventer Requirements
3000 psi Working Pressure
13 5/8 inch- 5 MWP
11 Inch - 5 MWP
EXHIBIT #10

Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"



OPTIONAL

16	Flanged Valve	1 13/16	

CONTRACTOR'S OPTION TO
CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.
10.

ME

MEC TO FURNISH:

1. Bradenhead or casing head and side valves.
2. Wear bushing, If required.

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations

As shown in Figure 2, the wellhead holds the BOP equipment in position for well control during drilling operation. The wellhead (both A and B Sections) provide a vital link between the BOP and the casing strings required to drill and produce the well. The wellhead assembly is very important and provides several purposes such as:

- To support the weight of the casing string;
- To provide a pressure seal between the casing strings and the environment;
- To provide an outlet for any built up pressure to be bleed off.

Casing Head

The casing head is the lowermost section of the wellhead and may be attached by either a threaded or slip-on and weld connection to fit the casing. Threaded connections are simple to install and easy to remove, however it requires the casing to be run and set with the threaded connection precisely at the desired elevation. Since positioning the connection at the desired elevation is often a problem, a slip-on and weld connection (Figure 3) is commonly used. This requires welding services to complete the installation. When installing the casing head, great care needs to be taken to ensure the casing head is level and aligned with the rotary table. Additionally, the derrick should be level in order to prevent damage to the Kelly and the BOP/casing head system during subsequent drilling operations which could cause damage to the seal and support areas.

After installation, the casing head/casing connection needs to be hydrostatically tested based off of the equipment's rated pressure of the pipe and flanged fittings. The casing head usually provides one or more side openings that provides access to each casing annulus and can be used for bleeding off pressure or pumping into the well. Caution should be taken when pumping mud continuously through these outlets as it may erode the wellhead, weakening the system. Pressure should be monitored and checked periodically. Casing head side outlets may be attached by thread, studded, clamp hub, and flanged connections. Casing heads with threaded outlets are acceptable for services up to and including 5,000 PSI working pressure provided that the casing head working pressure is rated the same. Some companies require flanged or studded connections for all 5,000 PSI and higher working pressure systems.

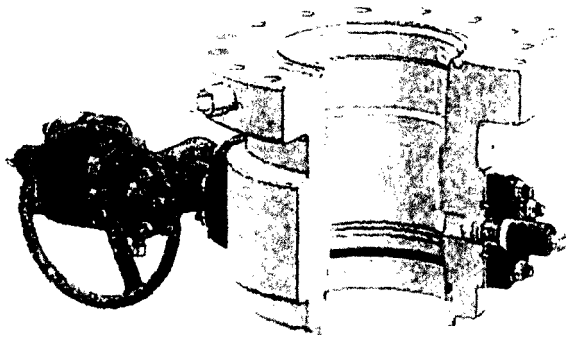


Figure 3 - Slip-On Weld (SOW) Casing Head

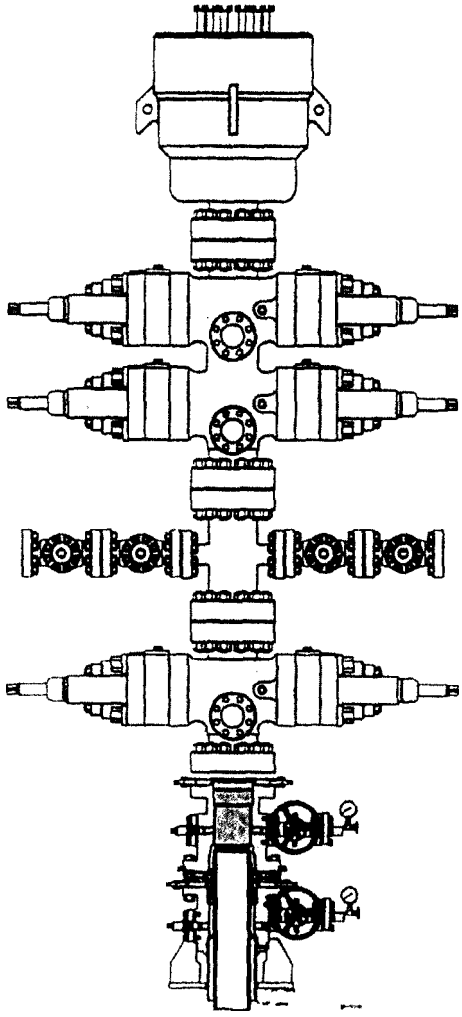


Figure 2 - BOP Stack Made Up to Wellhead

In sizing casing heads, the top flange must be sized to permit drilling the desired hole size and subsequent running and hanging of the casing strings. Usually the flange opening is sized to equal or exceeding the casing inside diameter of the casing string that is to be installed.

Adapter spools or flanges to connect BOP's of different sizes or pressure ratings to the casing head are not

CERTIFICATE No 140324-01 page 59 of 60

CONTACT(P/O) No 73998

ISSUED DATE 2014-03-21

COMMODITY E.R.W. STEEL PIPE

SPECIFICATION API 5CT J55
API 5CT 201

INSPECTION CERTIFICATE

EN10204 TYPE 3.1 B-1991

CUSTOMER : ATLAS TUBULAR,LP

NEXTEEL CO.,LTD. EXTEEL CO., LTD.
HEAD OFFICE 767-1, Daepak-Ri, Daesong-Myun
Nam-Gu, Pohang City, KyungBu
Korea.

QA Representative Authorized

ITEM NO.	TYPE OF PIPE END	NOMINAL SIZE	Dimension (O.D x Thick. x Length)	QUANTITY (PCS)	TOTAL WEIGHT (kg)	HEAT NO.	YIELD STRENGTH psi (MPa)	TENSILE STRENGTH psi (MPa)	EL (%)	CHEMICAL COMPOSITION(%) C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Sol Al	Ti	B	Nb	Ceq.	HYDRO-STATIC TEST T.P (PSI)	RE SULT	IMPACT TEST A.ENERGY (J)	SHEAR AREA	HARD-NESS TEST	Corro-sion TEST	RE MARK
										-4	-3		-4		-2	-3	-2	-3												HRB HV MIC SSCC
1	BPE	13-3/8	13.375 x 0.330 x 40	46	42,951	3W7469	67,000	92,300		31	H	2518	200	1392	135	20	2	2	21	1	1	42		100	1,600	G	132	132			
							67,300	92,800	93,300	31	P	2524	202	1397	146	25	Tr	Tr	22	Tr	Tr	44		107			130				
							67,700	92,900	93,400	32	P	2520	202	1405	145	20	Tr	Tr	22	Tr	Tr	43		108			134				
2	BPE	13-3/8	13.375 x 0.330 x 40	1	895	132A08685	61,600	83,400		36	H	1900	160	900	110	18	32	1	20	Tr	2	39		130	1,600	G	132	132			
							62,400	84,100	84,700	36	P	1904	161	900	114	21	33	Tr	20	Tr	Tr	39		140			130				
							62,200	84,100	84,700	37	P	1902	161	910	116	18	32	Tr	22	Tr	Tr	39		135			135				
3	BPE	13-3/8	13.375 x 0.330 x 39	1	614	3B87489	67,100	92,500		31	H	2519	200	1392	135	20	2	2	21	1	1	42		100	1,600	G	132	132			
							67,300	92,800	93,300	31	P	2524	202	1397	146	25	Tr	Tr	22	Tr	Tr	44		107			130				
							67,700	92,900	93,400	32	P	2520	202	1405	145	20	Tr	Tr	22	Tr	Tr	43		108			134				
			** SUB TOTAL **	46	42,951																											

HEAT TREATMENT (WELD SEAM)	VISUAL & DIMENSION	FLATTENING, BEND, GUIDED BEND TEST	REVERSE FLATTENING TEST	WELD DUCTILITY TEST	FLARING TEST	RESIDUAL MAGNETISM TEST	CRUSH TEST	STRAIGHTNESS	DRIFT TEST	NONDESTRUCTIVE TEST(NDT) SEAM	FULL BODY	M.P

BPE: BLACK PLAIN END,
BBE: BLACK BEVELLED END,
BTC: BLACK THREADED END,
GTC: GALVANIZED PLAIN END,
O.D: OUTSIDE DIAMETER
Thick: Wall Thickness
Unit: Inch

L: Length (unit: Feet)
B: BASE METAL W: WELD SEAM
H: HEAT(LADLE) ANALYSIS, P: PRODUCT ANALYSIS
Chemical Composition Unit(-4: x 1/10000, -3: x 1/1000, -2: x 1/100(The test value less than each unit is regarded as Tr))
Carbon Equivalent: Ceq=C+Si/6+(Ni+Cu)/15+(Cr+Mo+V)/5
T.P: TEST PRESSURE
G: Good
NDT: NONDESTRUCTIVE TEST, E.T: EDDY CURRENT TEST, U.T: ULTRASONIC TEST, M.P: MAGNETIC PARTICLE TEST(Special End Area Test)

Tr: Trace present

* Tensile Test(Strip Type Specimen Width)
≤ 7-1/2" → 19mm 8"~7-5/8" → 25mm, 8-5/8 ≤ → 38mm
Specimen Orientation L90
* Reference Indicator for NDE N10 3.2mm(0.125") or N10
* Min Temperature for Heat Treatment Min. 650℃

SIGNATURE

WE HEREBY CERTIFY THAT THE PRODUCTS HERE IN HAVE BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ORDER.

SURVEYOR TO

SIGNATURE

MANAGER OF QUALITY ASSURANCE TEAM

CERTIFICATE No 140324-01 page 58 of 60

CONTACT(P/O) No 73998

ISSUED DATE 2014-03-21

COMMODITY E.R.W. STEEL PIPE

SPECIFICATION API 5CT J55
API 5CT 2011

INSPECTION CERTIFICATE

EN10204 TYPE 3.1 B-1991

CUSTOMER : ATLAS TUBULAR,LP

NEXTEEL CO.,LTD. EXTEEL CO., LTD.
HEAD OFFICE 787-1, Daegak-Ri, Daesong-Myun, Nam-Gu, Pohang City, KyungBu Korea.

QA Representative Authority
By
(Sign)

(Gauge Length: 2 INCH)

ITEM NO.	TYPE OF PIPE END	NOMINAL SIZE	Dimension [O.D x Thick. x Length]	QUANTITY (PCS)	TOTAL WEIGHT (kg)	HEAT NO.	YIELD STRENGTH psi (MPa)	TENSILE STRENGTH psi (MPa) R	TENSILE STRENGTH psi (MPa) W	EL (%)	CHEMICAL COMPOSITION(%) C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Sol Al	Ti	B	Nb	Ceq.	HYDRO-STATIC TEST T.P (MPa)	HYDRO-STATIC TEST RE	HYDRO-STATIC TEST SEAT	IMPACT TEST A.ENERGY (J)	IMPACT TEST SHEAR AREA	HARDNESS TEST	Corrosion TEST	REMARK
								R	W		-4	-3	-4	-4	-5	-5	-2	-3																
1	BPE	13-3/8	13.375 x 0.330 x 45	20	18,787	SB87479	68,400	91,200		32	H 2403	198	1386	118	22	2	1	18	Tr	3	31				96	1,600	G		134	133			
							68,900	91,500	92,200	32	P 2405	196	1361	119	26	1	Tr	19	Tr	1	32				98				136				
							68,700	91,300	92,000	32	P 2405	198	1390	120	25	1	Tr	18	Tr	1	33				96				131				
				70	65,755	SB87480	68,300	92,500		32	H 2486	204	1372	33	21	2	1	10	Tr	3	29				90	1,600	G		135	131			
							69,000	93,200	93,800	32	P 2488	205	1379	50	26	Tr	Tr	11	Tr	Tr	29				100				129				
							68,800	93,200	93,600	32	P 2487	204	1380	42	21	Tr	Tr	12	Tr	Tr	29				91				129				
				63	59,179	SB87484	68,000	92,100		32	H 2437	200	1392	129	15	2	1	13	1	1	49				90	1,600	G		131	130			
							68,400	92,100	92,700	33	P 2437	200	1389	139	16	Tr	Tr	14	Tr	Tr	50				95				133				
							68,500	92,800	93,300	32	P 2440	200	1386	135	15	Tr	Tr	13	Tr	Tr	49				97				127				
			** SUB TOTAL **	153	143,721																													

HEAT TREATMENT (WELD SEAM)	VISUAL & DIMENSION	FLATTENING, BEND, GUIDED BEND TEST	REVERSE FLATTENING TEST	WELD DUCTILITY TEST	FLARING TEST	RESIDUAL MAGNETISM TEST	CRUSH TEST	STRAIGHTNESS	DRIFT TEST	NONDESTRUCTIVE TEST(NDT) U.T SEAM	U.T FULL BODY	M.T

BPE: BLACK PLAIN END,
BBE: BLACK BEVELLED END,
BTE: BLACK THREADED END,
BTC: BLACK THREADED & COUPLED,
GPE: GALVANIZED PLAIN END,
O.D: OUTSIDE DIAMETER
Thick : Wall Thickness
(Unit : inch)

L: Length (Unit : Feet)
B: BASE METAL, W: WELD SEAM
H: HEAT(LADLE) ANALYSIS, P: PRODUCT ANALYSIS
Chemical Composition Unit : -4: x 1/10000, -3: x 1/1000, -2: x 1/100 (The test value less than each unit is regarded as Tr)
Carbon Equivalent CMn/6+(Ni+Cu)/15+(Cr+Mo+V)/5
T.P: TEST PRESSURE
% : Elongation
NDT: NONDESTRUCTIVE TEST, E.T: EDDY CURRENT TEST, U.T: ULTRASONIC TEST, M.T: MAGNETIC PARTICLE TEST(Specific End Area Test)

G: Good
Tr: Trace element

* Tensile Test Strip Type Specimen: Width
≤ 3-1/2" → 19mm, 4"-7-5/8" → 25mm, 8-5/8 ≤ → 38mm
Specimen Orientation L90
* Reference Indicator for NDE N10 3.2mm(0.125") or N10
* Min.temperature for Heat Treatment Min 850℃

SIGNATURE

WE HEREBY CERTIFY THAT THE PRODUCTS HERE IN HAVE BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ORDER.

SURVEYOR TO

SIGNATURE

MANAGER OF QUALITY ASSURANCE TEAM

증명서번호
CERTIFICATE No. 131122 - 01

계약번호
CONTECT(P/O) No. 70997

발급일자
ISSUED DATE 2013-11-22

제품명
COMMODITY E.R.W. STEEL PIPE

제품규격
SPECIFICATION API 5CT J55
API 5CT 2011

검 사 증 명 서
INSPECTION CERTIFICATE

EN10204 TYPE 3.1 B-1991

넥 스 틸 ㈜
NEXTEEL CO., LTD.
NEXTEEL CO.,LTD.
본사 공장 : 경북 포항시 남구 대송면 대각리 767-1번지
HEAD OFFICE 787-1, Daegak-Ri, Daesong-Myun, Nam-Gu, Pohang City, KyungBuk, Korea.

고객사
CUSTOMER : ATLAS TUBULAR,LP

ITEM NO.	끝단 TYPE OF PIPE END	호칭경 NOMINAL SIZE	치수 Dimension 외경 x 두께 x 길이 (O.D x Thick. x Length)	수량 QUANTITY (PCS)	총중량 TOTAL WEIGHT (kg)	재킹번호 HEAT NO	인장시험 TENSILE TEST (Gauge Length 2 INCH) 항복강도 YIELD STRENGTH psi (MPa)	인장강도 TENSILE STRENGTH psi (MPa)		연신율 EL (%)	화학성분 CHEMICAL COMPOSITION(%)															수압시험 HYDRO-STATIC TEST		충격시험 IMPACT TEST		경도시험 HARDNESS TEST		부식시험 Corrosion TEST		비고 REMARK
								B	W			C	Si	Mn	P	S	Cu	Ni	Cu	Mo	V	Sol Al	Ti	B	Nb	Ceq.	T.P (PSI)	SULT	ABSORBED ENGY (J)	SHEAR AREA (%)	HRB	HV	H2S	SSCC	
	①		②	③				③				-4	-3		-4		2	-3	-2		-3		-4			④	⑤		(21)℃					
1	BPE	10-3/4	10.750 x 0.400 x 45	20	18,050	SP21600	68,000	94,800		32	H	.2544	177	1403	145	18	2	2	18	Tr	Tr	26			90	2,500	G	135					
							68,900	95,400	95,500	33	P	.2541	175	1400	143	15	Tr	Tr	16	Tr	Tr	25			90								
							68,500	95,100	95,800	33	P	.2541	174	1399	143	16	Tr	Tr	15	Tr	Tr	25			90								
				45	40,654	BP57055	70,000	97,700		31	H	.2580	177	1375	141	23	2	1	15	Tr	1	20			100	2,500	G	136					
							70,700	98,300	98,400	32	P	.2527	173	1372	138	20	1	Tr	13	Tr	Tr	20			100								
							70,300	98,000	98,500	32	P	.2577	174	1371	137	22	Tr	Tr	12	Tr	Tr	19			90								
2	BPE	10-3/4	10.375 x 0.300 x 38	105	53,289	SB87489	67,100	92,500		31	H	.2549	200	1392	135	20	2	2	21	1	1	42			100	1,600	G	135					
							67,000	93,000	93,200	31	P	.2517	196	1389	132	17	Tr	-	19	Tr	Tr	40			90								
							67,800	93,100	93,300	32	P	.2518	198	1390	133	17	1	Tr	18	Tr	Tr	41			90								
			** SUB TOTAL **	170	147,013																													

열처리 HEAT TREATMENT (WELD SEAM)	외관, 치수검사 VISUAL & DIMENSION	분열, 굽힘시험 FLATTENING, BEND GUIDED BEND TEST	편개시험 REVERSE FLATTENING TEST	용접부연성시험 WELD DUCTILITY TEST	확관시험 FLARING TEST	잔류자성시험 RESIDUAL MAGNETISM TEST	충격시험 CRUSH TEST	진직도 STRAIGHTNESS	관통시험 DRIFT TEST	비파괴검사 ※ NONDESTRUCTIVE TEST(NDT) U.T		M.T
										SEAM	FULL BODY	
G	G	G						G	G	G	G	G

NOTE

① BPE: BLACK PLAIN END, BBE: BLACK BEVELLED END, BTE: BLACK THREADED END, BTC: BLACK THREADED & COUPLED, GPE: GALVANIZED PLAIN END, GTE: GAVANIZED THREADED END, GTC: GALVANIZED THREAD & COUPLED
② O.D: OUTSIDE DIAMETER, Thick.: Wall THickness
③ Unit (M: mm, I: Inch)
④ B: BASE METAL, W: WELD METAL
⑤ H: HEAT(LADLE) ANALYSIS P: PRODUCT ANALYSIS
⑥ Chemical Composition Unit. -4:×1/10000, -3:×1/1000, -2:×1/100
⑦ Carbon Equivalent : C+Mn/6+(Ni+Cu)/15+(Cr+Mo+V)/5
⑧ T.P : TEST PRESSURE
※ NDT: E.T: EDDYCURRENT TEST, U.T: ULTRASONIC TEST, M.T: MAGNETIC PARTICLE TEST(Special End Area Test)
⑨ G: Good
• Tr: It is within the standard range and include trace element)

• Tensile Test(Strip Type Specimen:Width)
: ≤ 3-1/2" -> 19mm, 4" ~ 7-5/8" -> 25mm
8-5/8 ≤ -> 38mm
< 8-5/8" Pipe Body : L90
8-5/8" ≤ Pipe Body : T180, Seat Weld : W
• Reference Indicator for NDE : N10 3.2mm(0.125") or N10
• Min. temperature for Heat Treatment : Min. 950℃

SIGNATURE

SURVEYOR TO

본 제품은 표준 규격의 정한 시험 및 검사에 합격하였음을 증명합니다.
WE HEREBY CERTIFY THAT THE PRODUCTS HERE IN HAVE BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ORDER

SIGNATUR

MANAGER OF QUALITY ASSURANCE TEAM

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Burnett Oil Co., Inc.
LEASE NO.:	NMLC029415A
WELL NAME & NO.:	6H-Partition 13 Federal MD
SURFACE HOLE FOOTAGE:	330'/N & 990'/W
BOTTOM HOLE FOOTAGE	290'/N & 990'/W
LOCATION:	Section 24, T. 17 S., R. 31 E., NMPM
COUNTY:	Eddy County, New Mexico

All other COAs still apply expect the following:

TABLE OF CONTENTS

I. 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.

II. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

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

2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility for water flows in the Artesia Group and Salado.
Possibility of lost circulation in the Red Beds, Rustler, Artesia Group, and San Andres.

1. The **13-3/8** inch surface casing shall be set at approximately **710** feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt**) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch production casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

3. The minimum required fill of cement behind the **7 x 5-1/2** inch production casing is: **Operator has proposed DV tool at depth of 4700'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.**

    a. Second stage above DV tool:

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

C. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **2000 (2M)** psi. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

4. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

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

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

ZS 091917

13 3/8	surface csg in a		17 1/2	inch hole.		Design Factors		SURFACE	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	48.00	J 55		ST&C	12.71	2.11	2.28	710	34,080
"B"								**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,349			Tail Cmt	does	circ to sfc.	Totals:	710	34,080

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**670**	1035	**548**	89	**9.50**	599	**2M**	1.56

9 5/8	casing inside the		13 3/8			Design Factors		INTERMEDIATE	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	36.00	J 55		ST&C	5.47	1.94	1.25	2,000	72,000
"B"								**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	2,000	72,000
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		710	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**680**	1104	**690**	60	**10.00**	1629	**2M**	0.81

7	casing inside the		9 5/8			Design Factors		PRODUCTION	
Segment	**#/ft**	**Grade**		**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	26.00	L 80		LT&C	3.77	2.17	2.56	4,800	124,800
"B"	**17.00**	**L 80**		**LT&C**	4.42	**1.95**	**2.74**	**5,650**	**96,050**
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500						Totals:	10,450	220,850
B would be:					31.11	2.23	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	10450	5439	5439	4826	91	9	5859

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 2000 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 1/2	0.1268	look ↘	0	**1411**		**10.00**			0.42