

UNORTHODOX
LOCATION

HOBBS OCD

OCD Hobbs
JAN 22 2014

ATS-13-1130

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

1a. Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM097153
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator BTA Oil Producers LLC		7. If Unit or CA Agreement, Name and No.
3a. Address 104 S Pecos Midland, TX 79701	3b. Phone No. (include area code) 432-682-3753	8. Lease Name and Well No. (305274) 9418 JV-P Vaca Draw #5H
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 190' FNL & 330' FWL Unit Letter D (NWNW) SHL Sec 10-T25S-R33E At proposed prod. Zone 330' FSL & 380' FWL Unit Letter P (SWSW) BHL Sec 10-T25S-R33E		9. API Well No. 30-025-41624
14. Distance in miles and direction from nearest town or post office* Approximately 23 miles from Jal		10. Field and Pool, or Exploratory Red Hills Upper Draper Mill; Bone Spring Shale
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 190'		11. Sec., T.R.M. or Bk and Survey or Area Section 10 - T25S - R33E
16. No. of acres in lease 640		12. County or Parish Lea County
17. Spacing Unit dedicated to this well 160		13. State NM
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. 1320' (#4H)		20. BLM/BIA Bond No. on file NM 1195 NM B000 849 NM B000 740 & NM B000 215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3419.4' GL		22. Approximate date work will start* ASAP
		23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

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

25. Signature <i>Pam Inskeep</i>	Name (Printed/Typed) Pam Inskeep	Date 11/4/2013
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Title Regulatory Administrator		Name (Printed/Typed) JAN 22 2014
Approved by (Signature) /S/ STEPHEN J. CAFFEY		Date
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

APPROVAL FOR TWO YEARS

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.

(Continued on page 2)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

Carlsbad Controlled Water Basin

JAN 27 2014

ATTACHMENT TO FORM 3160-3
BTA Oil Producers, LLC
9418 JV-P VACA DRAW #5H
SHL: 190' FNL & 330' FWL, Unit D
Sec. 10 T25S R33E
BHL: 330' FSL & 380' FWL, Unit M
Sec 10, T25S, R33E
Lea County, NM

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 3419.4'

3. Proposed Depths: Horizontal: EOC (end of curve) TVD = 9425' MD = 9696'
Toe (end of lateral) TVD = 9450' MD = 13972'

4. Estimated tops of geological markers: (TVD)

Fresh Water	142'
Rustler	1162'
Top of Salt	1531'
BOS/Top Fletcher Anhydrite	4840'
Delaware Mt. Grp./Lamar	5081'
Bone Spring	9238'
U. Avalon	9281'
L. Avalon	9663'
1 st Bone Spring Sand	10245'
2d Bone Spring Sand	10820'
3 rd Bone Spring Sand	11918'
Wolfcamp	12309'

5. Possible mineral bearing formations:

Delaware Mt. Grp	5081'	Oil/Gas
Bone Spring	9238'	Oil/Gas
U. Avalon	9281'	Oil/Gas
L. Avalon	9663'	Oil/Gas
1 st Bone Spring Sand	10245'	Oil/Gas
2d Bone Spring Sand	10820'	Oil/Gas
3 rd Bone Spring Sand	11918'	Oil/Gas
Wolfcamp	12309'	Oil/Gas

See COA

5050'

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 1190' (28' into Rustler) and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 9 5/8" casing to 5100' (19' into Lamar) and circulating cement back to surface. Any zones between 9 5/8" casing shoe and TD, which contain commercial quantities of oil and/or gas will have cement circulated across them. This will be achieved by cementing 5 1/2" production casing from the TD to surface.

ATTACHMENT TO FORM 3160-3
BTA Oil Producers, LLC
9418 JV-P VACA DRAW #5H
Page 2 of 5

6. Proposed Mud System

The well will be drilled to TD with a combination of fresh water, brine, cut brine mud systems. The applicable depths and properties of these systems are as follows:

See COA

DEPTH (MD)	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-1190'	Fresh Water	8.5	29	N.C.
1190'-5100'	Brine	10	29	N.C.
5100'-13972'	Cut Brine	8.9-9.2	29	N.C.

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

Visual or electronic mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume.

The mud program has been designed to minimize the volume of H₂S circulated to surface. Proper mud weights, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

7. Proposed Casing Program

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 1/2"	0-1190'	13 3/8" 0-1190'	54.5#	J-55	New	ST&C	2.31/2.17/9.18
12 1/4"	1190'-5100'	9 5/8" 0-4250'	40#	J-55	New	LT&C	1.91/1.16/3.61
		4250'-5100'	40#	L-80	New	LT&C	2.79/1.17/4.21
7 7/8"	5100'-13972'	5 1/2" 0-13972'	17#	P-110	New	LT&C	1.33/1.65/3.22

8. Proposed Cement Program

13 3/8" SURFACE: (Circulate to Surface)

			<u>Yield</u>	<u>Density</u>	<u>Water Requirements</u>
Lead:	450 sks	Class "C" + 4% Gel	1.75 cf/sk	13.5 ppg	9.2 gal/sk
0'-700'		+ 2% CaCl ₂			
Excess 62%					

**ATTACHMENT TO FORM 3160-3
BTA Oil Producers, LLC
9418 JV-P VACA DRAW #5H
Page 3 of 5**

	<u>Description</u>	<u>Yield</u>	<u>Density</u>	<u>Water Requirements</u>
Tail: 450 sks 700'-1190' Excess 58% Combined open hole excess 60%.	Class C w/2% CaCl ₂	1.32 cf/sk	14.8 ppg	6.3 gal/sk

9 5/8" INTERMEDIATE CASING:

Single Stage: (Circulate to Surface)

1 st Lead: 250 sks 0'-1190' Excess 12%	EconoCem-HLC + 5% Salt +5 pps Kol-Seal	2.00 cf/sk	12.7 ppg	10.6 gal/sk
2 nd Lead:* 750 sks 1190'-4700' Excess 36%	EconoCem-HLC + 5% Salt +5 pps Kol-Seal	2.00 cf/sk	12.7 ppg	10.6 gal./sk.
Tail:* 250 sks 4700'- 5100 ' Excess 132%	Class C w/2% CaCl ₂	1.32 cf/sk	14.8 ppg	6.3 gal./sk.

* open hole
Combined OH excess 42%

5 1/2" PRODUCTION CASING:

Single Stage: (Cement calculated to surface. Minimum tie back 200' above 9 5/8" intermediate casing)

Lead: 0'-5100' 600 sks (min. tie-back 200' above 9 5/8" shoe) Excess 13%	EconoCem-H +0.5 % Halad-322+ 5 pps Kol-Seal+ 0.25 pps D-Air 7000 + 0.2% HR-601	2.51 cf/sk	11.9 ppg	14.2 gal/sk.
Lead:* 5100'-8946'(KOP) 350 sks Excess 32%	EconoCem-H +0.5% Halad-322+ 5 pps Kol-Seal+ 0.25 pps D-Air 7000 + 0.2% HR 601	2.51 cf/sk	11.9 ppg	14.2 gal/sk

ATTACHMENT TO FORM 3160-3
BTA Oil Producers, LLC
9418 JV-P VACA DRAW #5H
Page 4 of 5

		<u>Description</u>	<u>Yield</u>	<u>Density</u>	<u>Water Requirements</u>
Tail:*					
8946'(KOP) - 13972'	1000 sks	VersaCem + 0.4% GasStop	1.24 cf/sk	14.4 ppg	5.7 gal/sk
Excess 41%		+ 0.3% CFR-3 + 1 % Salt			
		+ 1% HR-601			

*open hole

Combined OH Excess 37%

9. Pressure Control Equipment:



A 13 5/8" 2000 psi Hydril type annular preventer with mud cross, choke manifold, chokes, kill line, Kelly cock, safety valve and subs to fit all drill strings in use as provided for in Onshore Order #2 will be nipped up on the 13 3/8" x 2000 psi SOW X 13 5/8" x 2000 psi casing head (see attached BOPE drawings). This unit will be hydraulically operated and will be tested by independent tester using test plug to 250 psig/300 psig low and 1000 psig high. Choke line valve, chokes, upper Kelly cock valve, safety valve shall also be tested to 250 psig/300 psig low and 1000 psig high by independent tester.

After setting the 9 5/8" intermediate casing the following BOPE as provided for in Onshore Order #2 will be rigged up on the 9 5/8" intermediate casing spool: 13 5/8" X 3000 psi annular, 13 5/8" X 3000 psi double ram type preventer with blind rams on top and 4 1/2" drill pipe rams on the bottom, choke, mud cross, choke manifold, 4" diameter choke line, 2" kill line, kelly cock, safety valve with proper subs for all drill string connections in use (see attached BOPE drawings). The BOPE including auxiliary equipment (chokes, choke manifold etc.) will be tested by independent tester.

A test plug will be used and all BOPE tested to 250 psig/300 psig low pressure and 3000 psig high pressure for 10 minutes. Annular preventer will be tested to 1500 psig. BOP stack will be used continuously until total depth is reached. 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. Any time a component of the BOP stack or choke manifold is changed or installed BOPE will be re-tested as required.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string depth or 1500 psig, whichever is greater, but not to exceed 70 percent of casing's minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action will be taken.

10. Production Hole Drilling Summary:

Drill 7 7/8" hole to 8946'. Kick off at +/- 8946', building curve at 12°/100' to 30.00° inclination at 9196'MD/9184' TVD az 170.00°. Continue build at 12°/100' and turn at 1.90°/100' to 89.67° inclination 9696'MD/9425'TVD 179.31°azimuth. Continue lateral section at 89.67° inc., az 179.31° for +/-4285' lateral to TD at +/-13972' MD/ 9450' TVD. Run 5-1/2" production casing. 5 1/2" casing will be isolated by a single stage cement job. Cement will be calculated to surface (min tie back is 200' above 9 5/8" csg shoe).

11. Auxiliary Well Control and Monitoring Equipment

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

12. Logging, Testing and Coring Program:

- A. Open hole logging as follows: GR and neutron TD to surface, Density TD to intermediate casing shoe, DLLT/MGRD TD to intermediate casing shoe.
- B. The mud logging program will consist of lagged 20' samples from intermediate casing shoe to KOP and thru curve and lateral to TD.
- C. Drill Stem test is not anticipated
- D. No conventional coring is anticipated.
- E. Further testing procedures will be determined after the 5 ½" production casing has been cemented at TD based on drill shows and log evaluation.

13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

See COA

No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature is 112° Fahrenheit and estimated maximum bottom hole pressure is 4063 psi. Wells in this area will penetrate formations that are known or could reasonably be expected to contain hydrogen sulfide. Therefore, a H2S drilling operations plan is included with this APD. Hydrogen Sulfide detection equipment will be operational and breathing equipment will be on location after drilling out the 13 3/8" casing shoe and until the 5 ½" casing is cemented. If while drilling the intermediate hole section H2S concentrations exceed 100 ppm the well will be shut-in and a remote operated choke will be installed. A remote operated choke will be installed as part of the 3000 psi BOP equipment rigged up after setting 9 5/8" intermediate casing and before drilling the casing shoe. BTA will comply with Onshore Order #6. All BOPE testing companies used by BTA have H2S certified employees and will work on H2S locations. No major loss circulation zones have been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence on approximately **February 1, 2014** with drilling and completion operations lasting approximately **90** days.



NEXUS

DIRECTIONAL SOLUTIONS, L.P.



Azimuths to Grid North
True North: 0.41°
Magnetic North: 6.88°

Magnetic Field
Strength: 48339.45nT
Angle: 60.06°
Date: 10/16/2013

To convert a Magnetic Direction to a Grid Direction, Add 6.88°
To convert a True Direction to a Grid Direction, Subtract 0.41°
IGRF2010

9418 JV-P Vaca Draw 5H
Lea County, NM (NAD27 NME)
Northing: (Y) 419738.40
Easting: (X) 737090.80
Design #1

WELL DETAILS:									
WELL @ 3437.4usft (Original Well Elev)									
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
0.0	0.0	419738.40	737090.80	32° 9' 5.972 N	103° 34' 2.127 W				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
8945.5	0.00	0.00	8945.5	0.0	0.0	0.00	0.00	0.0	
9195.5	30.00	170.00	9184.2	-63.0	11.1	12.00	170.00	63.2	
9696.3	89.67	179.31	9425.1	-475.2	38.4	12.00	10.75	475.9	
13971.7	89.67	179.31	9450.0	-4750.2	90.2	0.00	0.00	4751.1	PBHL 9418 JV-P Vaca Draw #5H
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting				
PBHL 9418 JV-P Vaca Draw #5H	9450.0	-4750.2	90.2	414988.20	737181.00				

LEGEND

→ Design #1

Matt Shipp
14-14, October 17 2013
Nexus Directional Solutions
3925 CR 1255
Odessa TX 79765

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone Name: New Mexico East 3001

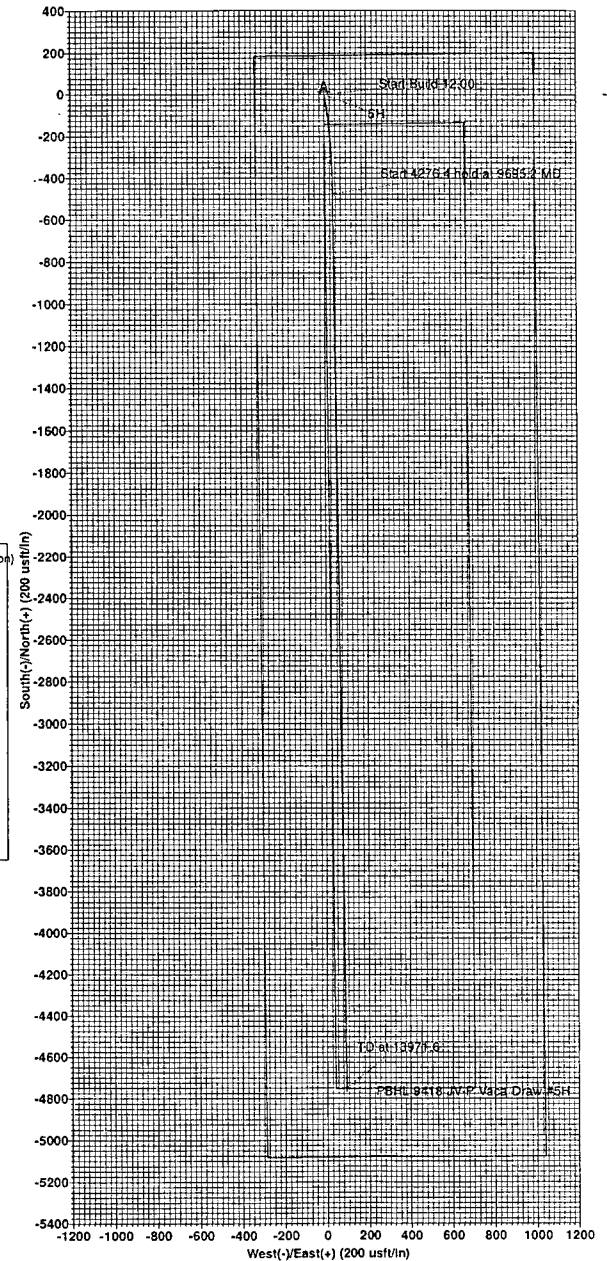
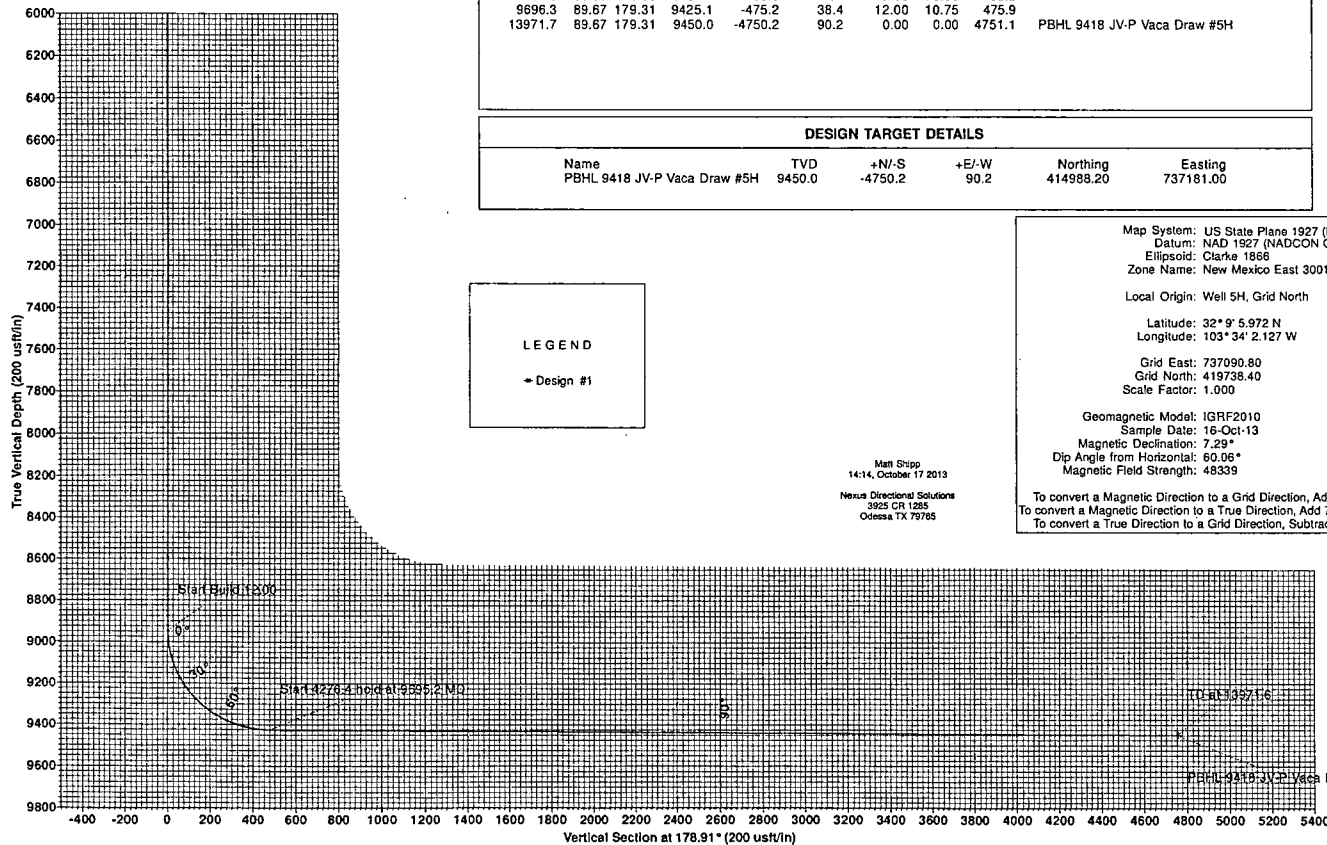
Local Origin: Well 5H, Grid North

Latitude: 32° 9' 5.972" N
Longitude: 103° 34' 2.127" W

Grid East: 737090.80
Grid North: 419738.40
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 16-Oct-13
Magnetic Declination: 7.29°
Dip Angle from Horizontal: 60.06°
Magnetic Field Strength: 48339

To convert a Magnetic Direction to a Grid Direction, Add 6.88°
To convert a Magnetic Direction to a True Direction, Add 7.29° East
To convert a True Direction to a Grid Direction, Subtract 0.41°





COG Operating LLC

Lea County, NM (NAD27 NME)

9418 JV-P Vaca Draw

5H

OH

Plan: Design #1

Standard Planning Report - Geographic

17 October, 2013

NEXUS
DIRECTIONAL SOLUTIONS, L.P.



Nexus Directional Solutions L.P.
Planning Report - Geographic



Database	EDM 5000.1 Single User Db	Local Co-ordinate Reference	Well: 5H
Company	COG Operating LLC	TVD Reference	WELL @ 3437.4usft (Original Well Elev)
Project	Lea County, NM (NAD27 NME)	MD Reference	WELL @ 3437.4usft (Original Well Elev)
Site	9418 JV-P Vaca Draw	North Reference	Grid
Well	5H	Survey Calculation Method	Minimum Curvature
Wellbore	OH		
Design	Design #1		

Project	Lea County, NM (NAD27 NME)		
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		9418 JV-P Vaca Draw			
Site Position:		Northings:	419,780.50 usft	Latitude:	32° 9' 6.058
From:	Map	Easting:	741,734.30 usft	Longitude:	103° 33' 8.114 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42

Well:	5H					
Well Position	+N/-S	0.0 usft	Northing:	419,738.40 usft	Latitude:	32° 9' 5.972 N
	+E/-W	0.0 usft	Easting:	737,090.80 usft	Longitude:	103° 34' 2.127 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,419.4 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/16/13	7.29	60.06	48,339

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	178.91

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,945.5	0.00	0.00	8,945.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,195.5	30.00	170.00	9,184.2	-63.0	11.1	12.00	12.00	0.00	170.00	
9,696.3	89.67	179.31	9,425.1	-475.2	38.4	12.00	11.91	1.86	10.75	
13,971.7	89.67	179.31	9,450.0	-4,750.2	90.2	0.00	0.00	0.00	0.00	PBHL 9418 JV-P Vaca



Nexus Directional Solutions L.P.
Planning Report - Geographic

NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3437.4usft (Original Well Elev)
Project:	Lea County, NM (NAD27, NME)	MD Reference:	WELL @ 3437.4usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
100.0	0.00	0.00	100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
200.0	0.00	0.00	200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
300.0	0.00	0.00	300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
400.0	0.00	0.00	400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
500.0	0.00	0.00	500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
600.0	0.00	0.00	600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
700.0	0.00	0.00	700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
800.0	0.00	0.00	800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
900.0	0.00	0.00	900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,800.0	0.00	0.00	2,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,100.0	0.00	0.00	3,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,200.0	0.00	0.00	3,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,300.0	0.00	0.00	3,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,400.0	0.00	0.00	3,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,500.0	0.00	0.00	3,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,600.0	0.00	0.00	3,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,700.0	0.00	0.00	3,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,800.0	0.00	0.00	3,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
3,900.0	0.00	0.00	3,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,000.0	0.00	0.00	4,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,100.0	0.00	0.00	4,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,200.0	0.00	0.00	4,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,300.0	0.00	0.00	4,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,400.0	0.00	0.00	4,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,500.0	0.00	0.00	4,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,600.0	0.00	0.00	4,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,700.0	0.00	0.00	4,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,800.0	0.00	0.00	4,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
4,900.0	0.00	0.00	4,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
5,000.0	0.00	0.00	5,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
5,100.0	0.00	0.00	5,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
5,200.0	0.00	0.00	5,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
5,300.0	0.00	0.00	5,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W
5,400.0	0.00	0.00	5,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W



Nexus Directional Solutions L.P.
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H:
Company:	COG Operating LLC	TVD Reference:	WELL @ 3437.4usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 3437.4usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	N-S (usft)	E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,000.0	0.00	0.00	6,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,600.0	0.00	0.00	6,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,800.0	0.00	0.00	6,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
6,900.0	0.00	0.00	6,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,000.0	0.00	0.00	7,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,100.0	0.00	0.00	7,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,200.0	0.00	0.00	7,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,300.0	0.00	0.00	7,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,400.0	0.00	0.00	7,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,500.0	0.00	0.00	7,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,600.0	0.00	0.00	7,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,700.0	0.00	0.00	7,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,800.0	0.00	0.00	7,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
7,900.0	0.00	0.00	7,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,100.0	0.00	0.00	8,100.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,200.0	0.00	0.00	8,200.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,300.0	0.00	0.00	8,300.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,400.0	0.00	0.00	8,400.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,500.0	0.00	0.00	8,500.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,600.0	0.00	0.00	8,600.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,700.0	0.00	0.00	8,700.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,800.0	0.00	0.00	8,800.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,900.0	0.00	0.00	8,900.0	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,945.5	0.00	0.00	8,945.5	0.0	0.0	419,738.40	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,947.9	0.29	170.00	8,947.9	0.0	0.0	419,738.39	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
Start Build 12.00										
8,950.0	0.54	170.00	8,950.0	0.0	0.0	419,738.38	737,090.80	32° 9' 5.972 N	103° 34' 2.127 W	
8,975.0	3.54	170.00	8,975.0	-0.9	0.2	419,737.50	737,090.95	32° 9' 5.963 N	103° 34' 2.125 W	
9,000.0	6.54	170.00	8,999.9	-3.1	0.5	419,735.34	737,091.34	32° 9' 5.941 N	103° 34' 2.121 W	
9,025.0	9.54	170.00	9,024.6	-6.5	1.1	419,731.90	737,091.94	32° 9' 5.907 N	103° 34' 2.114 W	
9,050.0	12.54	170.00	9,049.2	-11.2	2.0	419,727.18	737,092.77	32° 9' 5.861 N	103° 34' 2.105 W	
9,075.0	15.54	170.00	9,073.4	-17.2	3.0	419,721.21	737,093.83	32° 9' 5.801 N	103° 34' 2.093 W	
9,100.0	18.54	170.00	9,097.3	-24.4	4.3	419,714.00	737,095.10	32° 9' 5.730 N	103° 34' 2.079 W	
9,125.0	21.54	170.00	9,120.8	-32.8	5.8	419,705.56	737,096.59	32° 9' 5.646 N	103° 34' 2.063 W	
9,150.0	24.54	170.00	9,143.8	-42.5	7.5	419,695.93	737,098.29	32° 9' 5.551 N	103° 34' 2.044 W	
9,175.0	27.54	170.00	9,166.3	-53.3	9.4	419,685.12	737,100.19	32° 9' 5.444 N	103° 34' 2.022 W	
9,195.5	30.00	170.00	9,184.2	-63.0	11.1	419,675.40	737,101.90	32° 9' 5.348 N	103° 34' 2.003 W	
9,200.0	30.53	170.20	9,188.1	-65.2	11.5	419,673.17	737,102.29	32° 9' 5.325 N	103° 34' 1.999 W	
9,225.0	33.48	171.20	9,209.3	-78.3	13.6	419,660.09	737,104.43	32° 9' 5.196 N	103° 34' 1.975 W	
9,250.0	36.44	172.05	9,229.8	-92.5	15.7	419,645.92	737,106.51	32° 9' 5.056 N	103° 34' 1.952 W	
9,275.0	39.41	172.79	9,249.5	-107.7	17.7	419,630.69	737,108.54	32° 9' 4.905 N	103° 34' 1.930 W	
9,300.0	42.38	173.44	9,268.4	-124.0	19.7	419,614.44	737,110.50	32° 9' 4.744 N	103° 34' 1.908 W	



Nexus Directional Solutions L.P.
Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3437.4usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 3437.4usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	5H	Survey/Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,325.0	45.35	174.03	9,286.4	-141.2	21.6	419,597.23	737,112.38	32° 9' 4.573 N	103° 34' 1.888 W	
9,350.0	48.33	174.55	9,303.5	-159.3	23.4	419,579.08	737,114.19	32° 9' 4.394 N	103° 34' 1.868 W	
9,375.0	51.30	175.03	9,319.7	-178.3	25.1	419,560.06	737,115.93	32° 9' 4.205 N	103° 34' 1.850 W	
9,400.0	54.28	175.48	9,334.8	-198.2	26.8	419,540.22	737,117.57	32° 9' 4.009 N	103° 34' 1.832 W	
9,425.0	57.26	175.89	9,348.8	-218.8	28.3	419,519.61	737,119.13	32° 9' 3.805 N	103° 34' 1.816 W	
9,450.0	60.25	176.27	9,361.8	-240.1	29.8	419,498.29	737,120.59	32° 9' 3.594 N	103° 34' 1.801 W	
9,475.0	63.23	176.63	9,373.6	-262.1	31.2	419,476.32	737,121.95	32° 9' 3.376 N	103° 34' 1.786 W	
9,500.0	66.21	176.97	9,384.3	-284.7	32.4	419,453.75	737,123.21	32° 9' 3.153 N	103° 34' 1.774 W	
9,525.0	69.20	177.30	9,393.8	-307.8	33.6	419,430.65	737,124.37	32° 9' 2.924 N	103° 34' 1.762 W	
9,550.0	72.18	177.61	9,402.1	-331.3	34.6	419,407.08	737,125.41	32° 9' 2.691 N	103° 34' 1.752 W	
9,575.0	75.17	177.92	9,409.1	-355.3	35.6	419,383.11	737,126.35	32° 9' 2.453 N	103° 34' 1.743 W	
9,600.0	78.16	178.21	9,414.9	-379.6	36.4	419,358.80	737,127.17	32° 9' 2.213 N	103° 34' 1.735 W	
9,625.0	81.14	178.50	9,419.4	-404.2	37.1	419,334.22	737,127.88	32° 9' 1.970 N	103° 34' 1.729 W	
9,650.0	84.13	178.79	9,422.6	-429.0	37.7	419,309.44	737,128.46	32° 9' 1.724 N	103° 34' 1.725 W	
9,675.0	87.12	179.07	9,424.5	-453.9	38.1	419,284.52	737,128.93	32° 9' 1.478 N	103° 34' 1.721 W	
9,695.2	89.52	179.29	9,425.1	-474.0	38.4	419,264.37	737,129.22	32° 9' 1.278 N	103° 34' 1.719 W	
Start 4276.4 hold at 9695.2 MD										
9,696.3	89.67	179.31	9,425.1	-475.2	38.4	419,263.18	737,129.23	32° 9' 1.266 N	103° 34' 1.719 W	
9,700.0	89.67	179.31	9,425.1	-478.9	38.5	419,259.53	737,129.28	32° 9' 1.230 N	103° 34' 1.719 W	
9,800.0	89.67	179.31	9,425.7	-578.9	39.7	419,159.54	737,130.49	32° 9' 0.241 N	103° 34' 1.713 W	
9,900.0	89.67	179.31	9,426.3	-678.9	40.9	419,059.55	737,131.70	32° 8' 59.251 N	103° 34' 1.708 W	
10,000.0	89.67	179.31	9,426.8	-778.8	42.1	418,959.56	737,132.91	32° 8' 58.262 N	103° 34' 1.702 W	
10,100.0	89.67	179.31	9,427.4	-878.8	43.3	418,859.57	737,134.12	32° 8' 57.272 N	103° 34' 1.696 W	
10,200.0	89.67	179.31	9,428.0	-978.8	44.5	418,759.57	737,135.33	32° 8' 56.283 N	103° 34' 1.690 W	
10,300.0	89.67	179.31	9,428.6	-1,078.8	45.7	418,659.58	737,136.54	32° 8' 55.293 N	103° 34' 1.684 W	
10,400.0	89.67	179.31	9,429.2	-1,178.8	47.0	418,559.59	737,137.75	32° 8' 54.303 N	103° 34' 1.679 W	
10,500.0	89.67	179.31	9,429.8	-1,278.8	48.2	418,459.60	737,138.96	32° 8' 53.314 N	103° 34' 1.673 W	
10,600.0	89.67	179.31	9,430.3	-1,378.8	49.4	418,359.61	737,140.17	32° 8' 52.324 N	103° 34' 1.667 W	
10,700.0	89.67	179.31	9,430.9	-1,478.8	50.6	418,259.62	737,141.38	32° 8' 51.335 N	103° 34' 1.661 W	
10,800.0	89.67	179.31	9,431.5	-1,578.8	51.8	418,159.63	737,142.59	32° 8' 50.345 N	103° 34' 1.655 W	
10,900.0	89.67	179.31	9,432.1	-1,678.8	53.0	418,059.64	737,143.81	32° 8' 49.356 N	103° 34' 1.650 W	
11,000.0	89.67	179.31	9,432.7	-1,778.8	54.2	417,959.65	737,145.02	32° 8' 48.366 N	103° 34' 1.644 W	
11,100.0	89.67	179.31	9,433.3	-1,878.7	55.4	417,859.66	737,146.23	32° 8' 47.377 N	103° 34' 1.638 W	
11,200.0	89.67	179.31	9,433.8	-1,978.7	56.6	417,759.66	737,147.44	32° 8' 46.387 N	103° 34' 1.632 W	
11,300.0	89.67	179.31	9,434.4	-2,078.7	57.9	417,659.67	737,148.65	32° 8' 45.397 N	103° 34' 1.626 W	
11,400.0	89.67	179.31	9,435.0	-2,178.7	59.1	417,559.68	737,149.86	32° 8' 44.408 N	103° 34' 1.621 W	
11,500.0	89.67	179.31	9,435.6	-2,278.7	60.3	417,459.69	737,151.07	32° 8' 43.418 N	103° 34' 1.615 W	
11,600.0	89.67	179.31	9,436.2	-2,378.7	61.5	417,359.70	737,152.28	32° 8' 42.429 N	103° 34' 1.609 W	
11,700.0	89.67	179.31	9,436.8	-2,478.7	62.7	417,259.71	737,153.49	32° 8' 41.439 N	103° 34' 1.603 W	
11,800.0	89.67	179.31	9,437.3	-2,578.7	63.9	417,159.72	737,154.70	32° 8' 40.450 N	103° 34' 1.597 W	
11,900.0	89.67	179.31	9,437.9	-2,678.7	65.1	417,059.73	737,155.91	32° 8' 39.460 N	103° 34' 1.591 W	
12,000.0	89.67	179.31	9,438.5	-2,778.7	66.3	416,959.74	737,157.12	32° 8' 38.471 N	103° 34' 1.586 W	
12,100.0	89.67	179.31	9,439.1	-2,878.7	67.5	416,859.75	737,158.33	32° 8' 37.481 N	103° 34' 1.580 W	
12,200.0	89.67	179.31	9,439.7	-2,978.6	68.7	416,759.76	737,159.55	32° 8' 36.491 N	103° 34' 1.574 W	
12,300.0	89.67	179.31	9,440.3	-3,078.6	70.0	416,659.76	737,160.76	32° 8' 35.502 N	103° 34' 1.568 W	
12,400.0	89.67	179.31	9,440.8	-3,178.6	71.2	416,559.77	737,161.97	32° 8' 34.512 N	103° 34' 1.562 W	
12,500.0	89.67	179.31	9,441.4	-3,278.6	72.4	416,459.78	737,163.18	32° 8' 33.523 N	103° 34' 1.557 W	
12,600.0	89.67	179.31	9,442.0	-3,378.6	73.6	416,359.79	737,164.39	32° 8' 32.533 N	103° 34' 1.551 W	
12,700.0	89.67	179.31	9,442.6	-3,478.6	74.8	416,259.80	737,165.60	32° 8' 31.544 N	103° 34' 1.545 W	
12,800.0	89.67	179.31	9,443.2	-3,578.6	76.0	416,159.81	737,166.81	32° 8' 30.554 N	103° 34' 1.539 W	
12,900.0	89.67	179.31	9,443.7	-3,678.6	77.2	416,059.82	737,168.02	32° 8' 29.564 N	103° 34' 1.533 W	
13,000.0	89.67	179.31	9,444.3	-3,778.6	78.4	415,959.83	737,169.23	32° 8' 28.575 N	103° 34' 1.528 W	
13,100.0	89.67	179.31	9,444.9	-3,878.6	79.6	415,859.84	737,170.44	32° 8' 27.585 N	103° 34' 1.522 W	
13,200.0	89.67	179.31	9,445.5	-3,978.6	80.9	415,759.85	737,171.65	32° 8' 26.596 N	103° 34' 1.516 W	



Nexus Directional Solutions L.P.
Planning Report - Geographic



Database:	EDM, 5000.1-Single User Db	Local Co-ordinate Reference:	Well 5H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3437.4usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 3437.4usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,300.0	89.67	179.31	9,446.1	-4,078.5	82.1	415,659.85	737,172.86	32° 8' 25.606 N	103° 34' 1.510 W
13,400.0	89.67	179.31	9,446.7	-4,178.5	83.3	415,559.86	737,174.07	32° 8' 24.617 N	103° 34' 1.504 W
13,500.0	89.67	179.31	9,447.2	-4,278.5	84.5	415,459.87	737,175.29	32° 8' 23.627 N	103° 34' 1.499 W
13,600.0	89.67	179.31	9,447.8	-4,378.5	85.7	415,359.88	737,176.50	32° 8' 22.638 N	103° 34' 1.493 W
13,700.0	89.67	179.31	9,448.4	-4,478.5	86.9	415,259.89	737,177.71	32° 8' 21.648 N	103° 34' 1.487 W
13,800.0	89.67	179.31	9,449.0	-4,578.5	88.1	415,159.90	737,178.92	32° 8' 20.658 N	103° 34' 1.481 W
13,900.0	89.67	179.31	9,449.6	-4,678.5	89.3	415,059.91	737,180.13	32° 8' 19.669 N	103° 34' 1.475 W
13,971.6	89.67	179.31	9,450.0	-4,750.1	90.2	414,988.34	737,180.99	32° 8' 18.961 N	103° 34' 1.471 W
TD at 13971.6									
13,971.7	89.67	179.31	9,450.0	-4,750.2	90.2	414,988.20	737,181.00	32° 8' 18.959 N	103° 34' 1.471 W

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL 9418 JV-P Vaca C	0.00	0.00	9,450.0	-4,750.2	90.2	414,988.20	737,181.00	32° 8' 18.959 N	103° 34' 1.471 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,947.9	8,947.9	0.0	0.0	Start Build 12.00
9,695.2	9,425.1	-474.0	38.4	Start 4276.4 hold at 9695.2 MD
13,971.6	9,450.0	-4,750.1	90.2	TD at 13971.6



New Mexico Office of the State Engineer **Water Column/Average Depth to Water**

No records found.

PLSS Search:

Section(s): 10

Township: 25S

Range: 33E

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the
POD suffix indicates the
POD has been replaced
& no longer serves a
water right file.)

(R=POD has
been replaced,
O=orphaned,
C=the file is
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q	Q	Q	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 02312			LE	1	2	1	05	25S	33E	632241	3559687*	150	90	60
C 02313			LE	2	3	3	26	25S	33E	636971	3552098*	150	110	40
C 02373 CLW317846	O		LE	2	1	1	13	25S	33E	638518	3556544*	625	185	440
C 02373 S			LE	1	2	1	13	25S	33E	638721	3556549*	625	185	440

Average Depth to Water: **142 feet**

Minimum Depth: **90 feet**

Maximum Depth: **185 feet**

Record Count: 4

PLSS Search:

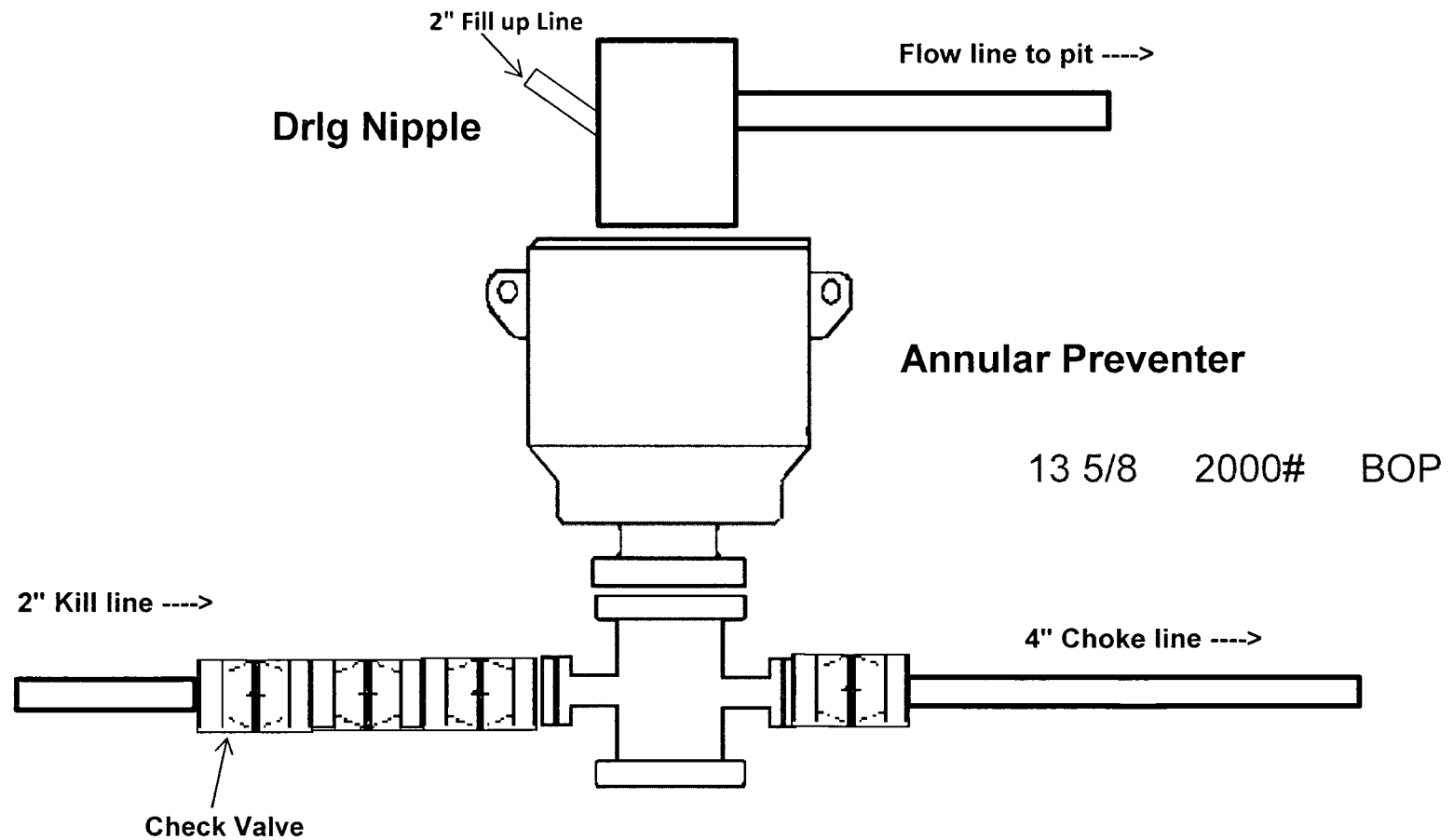
Township: 25S

Range: 33E

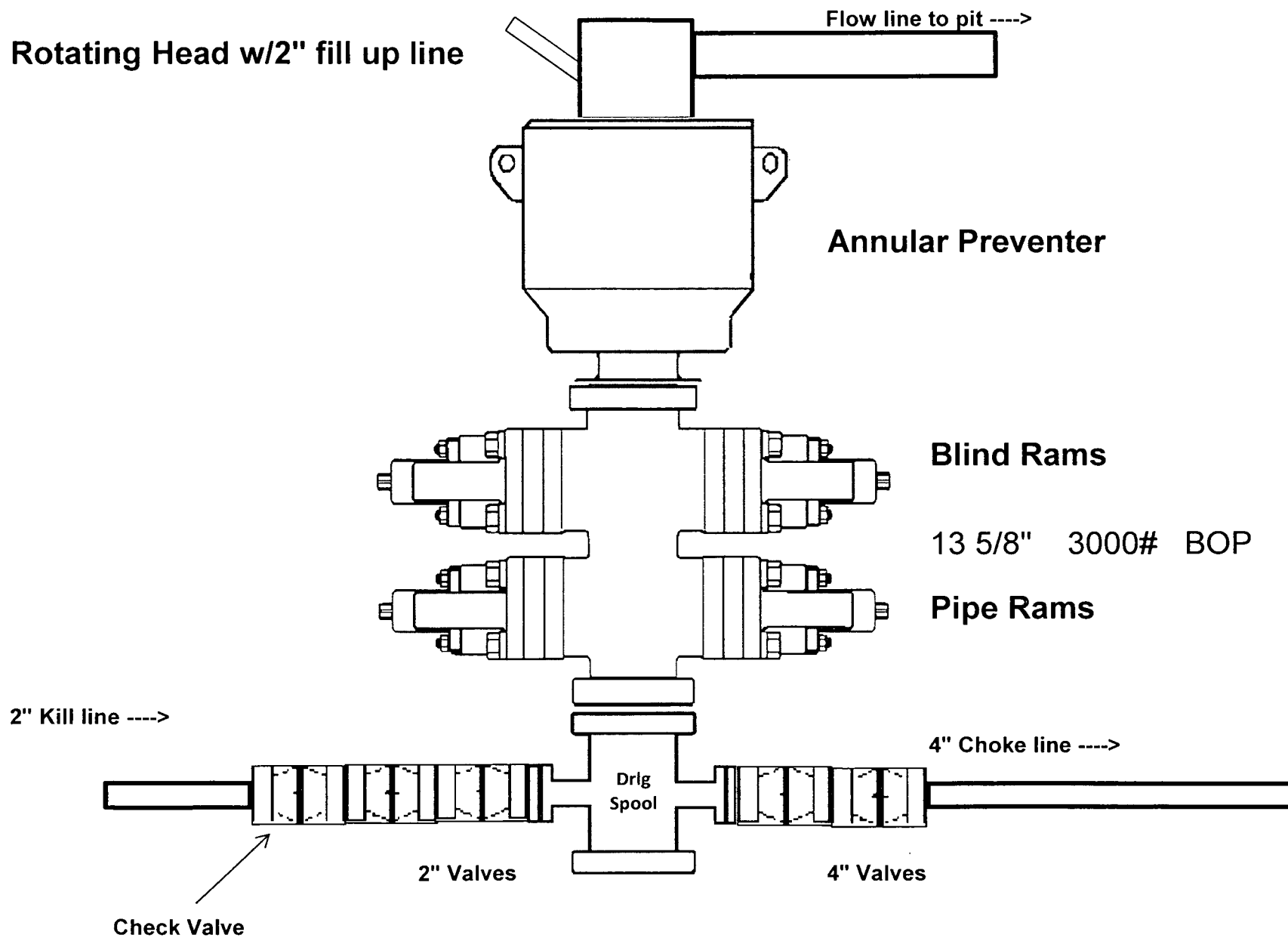
*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

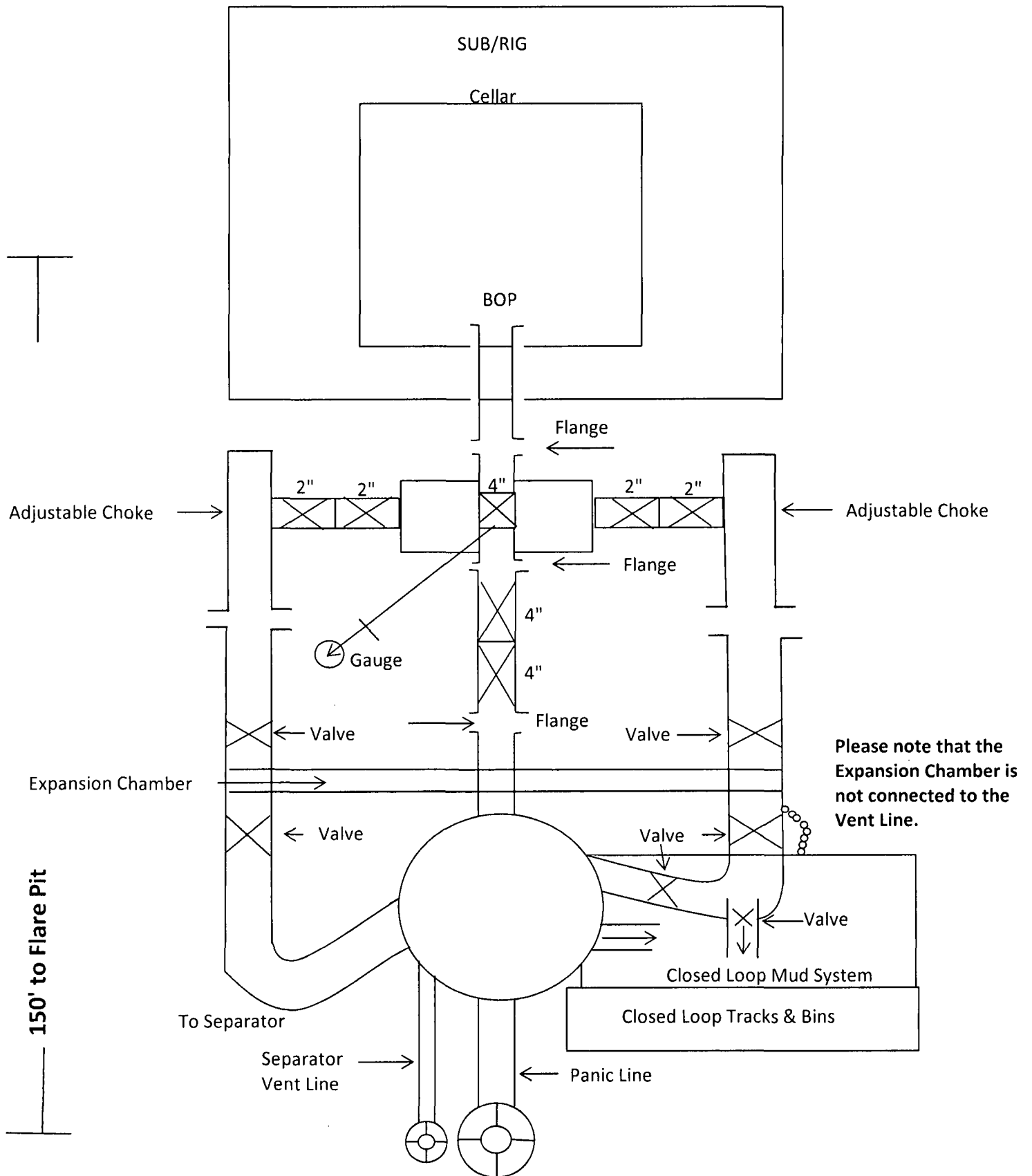
2,000 psi BOP Schematic



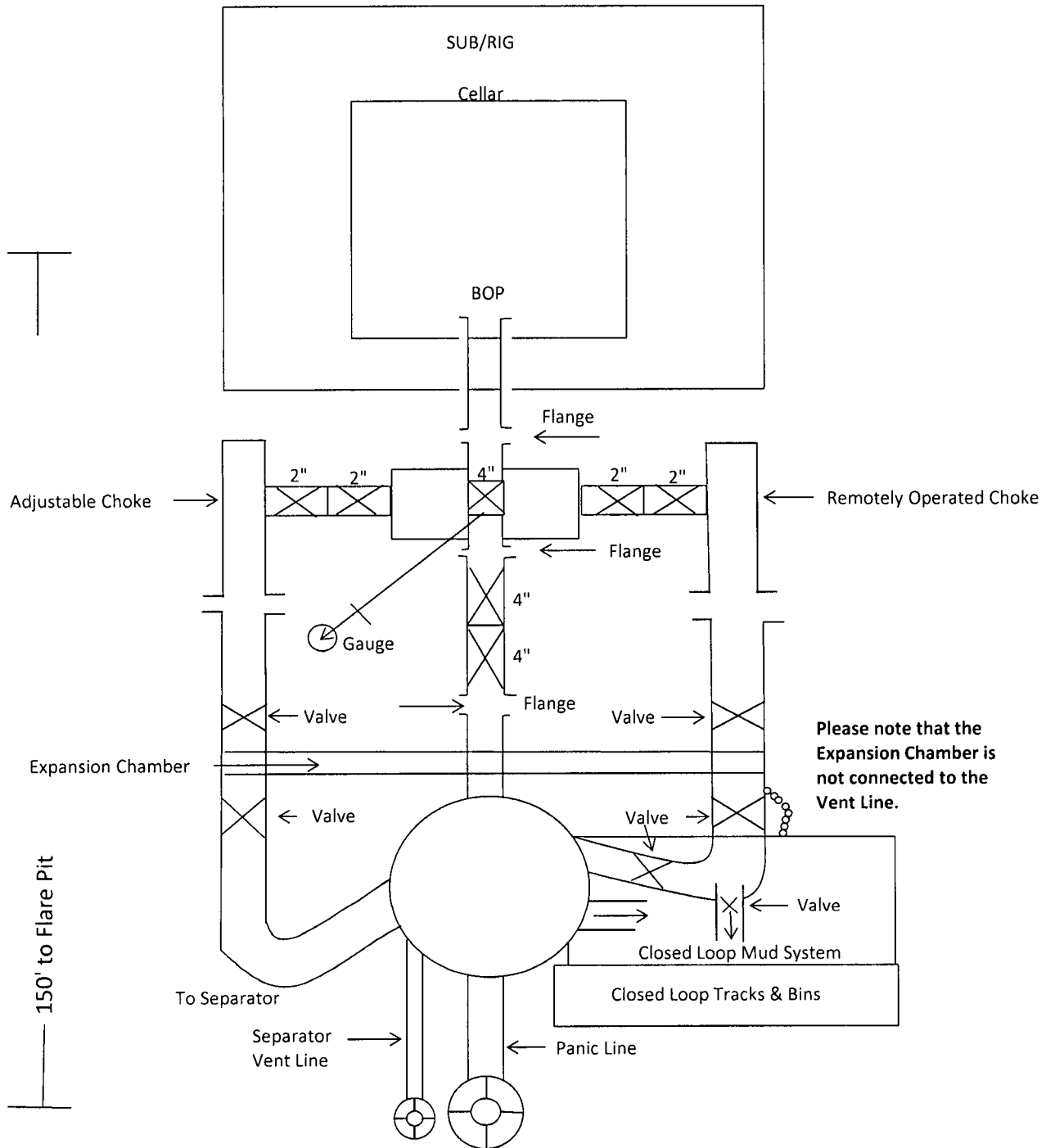
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment



BTA Oil Producers LLC
Rig Plat & Closed Loop Equipment Diagram

Well pad will be 340' X 340'
with cellar in center of pad

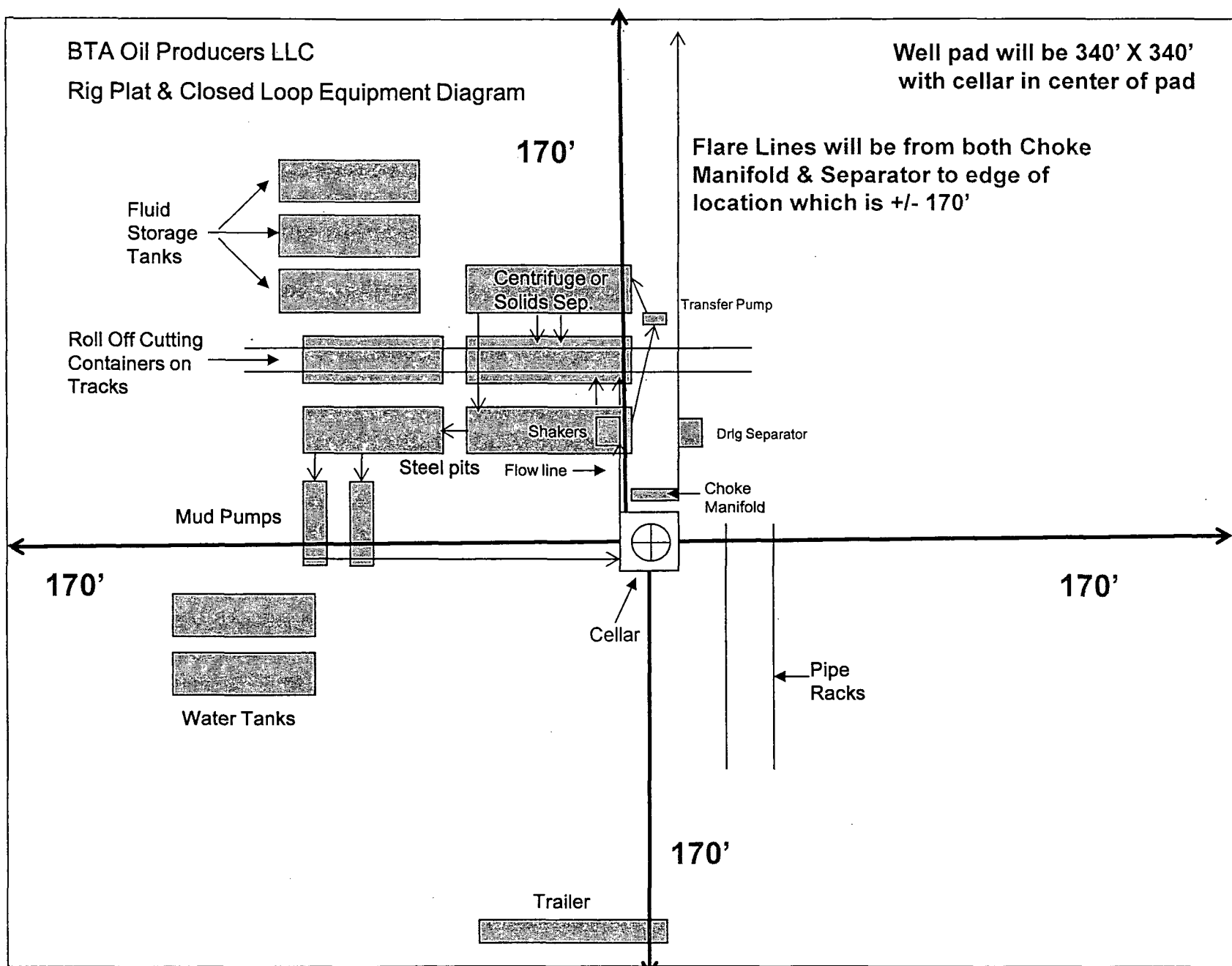


Exhibit 1

"I further certify that BTA will comply with Rule 19.15.17 NMAC by using a Closed Loop System."