

UNORTHODOX
LOCATION

OCD Hobbs

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JAN 22 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		7. If Unit or CA Agreement, Name and No. ---	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		8. Lease Name and Well No. <305274> 9418 JV-P Vaca Draw #2H	
2. Name of Operator BTA Oil Producers LLC <260297>		9. API Well No. 30-025- 41621	
3a. Address 104 S Pecos Midland, TX 79701	3b. Phone No. (include area code) 432-682-3753		
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 190' FNL & 330' FEL Unit Letter A (NENE) SHL Sec 10-T25S-R33E At proposed prod. Zone 330' FSL & 380' FEL Unit Letter P (SESE) BHL Sec 10-T25S-R33E		10. Field and Pool, or Exploratory Red Hills - Upper Drop Mill Bone Spring 2479005 shale	
14. Distance in miles and direction from nearest town or post office* Approximately 23 miles from Jal		11. Sec., T.R.M. or Blk and Survey or Area Section 10 - T25S - R33E	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 190'		16. No. of acres in lease 640	17. Spacing Unit dedicated to this well 160
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. 1880' (#3H)		19. Proposed Depth TVD: 9,380' MD: 13,942'	20. BLM/BIA Bond No. on file NM1195 & NMB000849
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3414.5' 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:

- Well plat certified by a registered surveyor.
- A Drilling Plan
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- 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 pinskeep@btaoil.com	Date 10/10/2013
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Title

Regulatory Administrator

Approved by (Signature) /s/ STEPHEN J. CAFFEY	Name (Printed/Typed)	Date JAN 22 2014
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Title
FIELD MANAGER

Office
CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legan 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

JAN 27 2014

ATTACHMENT TO FORM 3160-3
BTA Oil Producers, LLC
9418 JV-P VACA DRAW #2H
SHL: 190' FNL & 330' FEL, Unit A
Sec. 10 T25S R33E
BHL: 330' FSL & 380' FEL, Unit P
Sec 10, T25S, R33E
Lea County, NM

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3414.5'
3. Proposed Depths: Horizontal: EOC (end of curve) TVD = 9380' MD = 9653'
Toe (end of lateral) TVD = 9380' MD= 13942'
4. Estimated tops of geological markers: (TVD)

Fresh Water	142'
Rustler	1166'
Top of Salt	1591'
Base of Salt	4931'
Lamar	5260'
Bone Spring	9275'
U. Avalon	9725'
L. Avalon	9887'
1 st Bone Spring Sand	10233'
2d Bone Spring Sand	10808'

5. Possible mineral bearing formations:

Lamar	5260'	Oil/Gas
Bone Spring	9275'	Oil/gas
U. Avalon	9725'	Oil/Gas
L. Avalon	9887'	Oil/Gas
1 st Bone Spring Sand	10233'	Oil/Gas
2d Bone Spring Sand	10808'	Oil/Gas

See COA

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~1200'~~ ^{1220'} 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 ~~5275'~~ ^{5110'} 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 #2H
Page 2 of 5

6. Proposed Mud System

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

See
COA

DEPTH (MD)	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-1200' 1200'	Fresh Water	8.5	29	N.C.
1200'-5275' 5100'	Brine	10	29	N.C.
5275'-13942'	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"	0-1200' 1200'	13 3/8" 0-1200'	54.5#	J-55	New	ST&C	2.28/2.13/9.03
12 1/4"	1200'-5275' 5100'	9 5/8" 0-4500' 4500'-5275'	40# 40#	J-55 L-80	New New	LT&C LT&C	1.91/1.10/3.41 2.79/1.13/4.07
7 7/8"	5275'-13942'	5 1/2" 0-13942'	17#	P-110	New	LT&C	1.33/1.67/3.25

8. Proposed Cement Program

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

Lead: 450 sks Class "C" + 4% Gel
0'-700' + 2% CaCl₂
Excess 62%

Yield
1.75 cf/sk

Density
13.5 ppg

Mix
Water
9.2 gal/sk

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

	<u>Description</u>	<u>Yield</u>	<u>Density</u>	<u>Mix Water</u>
Tail: 450 sks 700'-1200' Excess 55% Combined open hole excess 59%.	Class C w/2% CaCl ₂	1.32 cf/sk	14.8 ppg	.63 gal/sk

9 5/8" INTERMEDIATE CASING:

Single Stage: (Circulate to Surface)

1 st Lead: 250 sks 0'-1200' Excess 11%	EconoCem-HLC + 5% Salt +5 pps Kol-Seal	2.00 cf/sk	12.7 ppg	10.6 gal/sk
2 nd Lead:* 750 sks 1200'-4700' Excess 37%	EconoCem-HLC + 5% Salt +5 pps Kol-Seal	2.00 cf/sk	12.7 ppg	10.6 gal./sk.
Tail:* 250 sks 4700'-5275' Excess 67%	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'-5275' (min. tie-back 200' above 9 5/8" shoe) Excess 10%	600 sks 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:* 5275'-8903'(KOP) Excess 40%	350 sks 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 #2H
Page 4 of 5

	<u>Description</u>	<u>Yield</u>	<u>Density</u>	<u>Mix Water</u>
Tail:*				
8903'(KOP) - 13942'	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 41%

8. Pressure Control Equipment:

*Self
COA*

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 ~~4000~~ 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.

9. Production Hole Drilling Summary:

Drill 7 7/8" hole to 8903'. Kick off at +/- 8903', building curve at 12°/100' to 30.00° inclination at 9154'MD/9142' TVD az 190.00°. Continue build at 12°/100' and turn at 2.06°/100' to 9653'MD/9380' TVD 179.73°azimuth. Continue lateral section at 90.00° inc., az 179.73° for +/-4289' lateral to TD at +/-13942' MD/ 9380' 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).

10. 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. Cased hole logs only.
- 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.

12. 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 4033 psi.. Wells in the Red Hills 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 H2S concentrations exceed 100 ppm the well will be shut-in and a remote operated choke will be installed. 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.

13. Anticipated Starting Date

Drilling operations will commence on approximately December 31, 2013 with drilling and completion operations lasting approximately 90 days.



NEXUS

DIRECTIONAL SOLUTIONS, L.P.



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.88°

Magnetic Field

Strength: 48347.1 nT

Dip Angle: 60.07°

Date: 09/24/2013

Model: IGRF2010

To convert a Magnetic Direction to a Grid Direction, Add 6.88°
To convert a True Direction to a Grid Direction, Subtract 0.42°

9418 JV-P Vaca Draw 2H
Lea County, NM (NAD27 NME)
Northing: (Y) 419780.50
Easting: (X) 741734.30
Design #1

WELL DETAILS:									
WELL @ 3432.5usft (Original Well Elev)									
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
0.0	0.0	419780.50	741734.30	32° 9' 6.058 N	103° 33' 8.114 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	
8902.5	0.00	0.00	8902.5	0.0	0.0	0.00	0.00	0.0	
9152.5	30.00	190.00	9141.2	-63.0	-11.1	12.00	190.00	63.0	
9153.5	30.00	190.00	9142.1	-63.5	-11.2	0.00	0.00	63.5	
9652.6	90.00	179.73	9380.0	-473.5	-33.8	12.13	-11.81	473.6	
13941.8	90.00	179.73	9380.0	-4762.6	-13.7	0.00	0.00	4762.6	PBHL(9418 JVP Vaca Draw #2H)
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting				
PBHL(9418 JVP Vaca Draw #2H)	9380.0	-4762.6	-13.7	415017.90	741720.60				

LEGEND

→ Design #1

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Site 9418 JV-P Vaca Draw, Grid North

Latitude: 32° 9' 6.058" N
Longitude: 103° 33' 8.114" W

Grid East: 741734.30
Grid North: 419780.50
Scale Factor: 1.000

Geomagnetic Model: IGRF2010

Sample Date: 24-Sep-13

Magnetic Declination: 7.29°

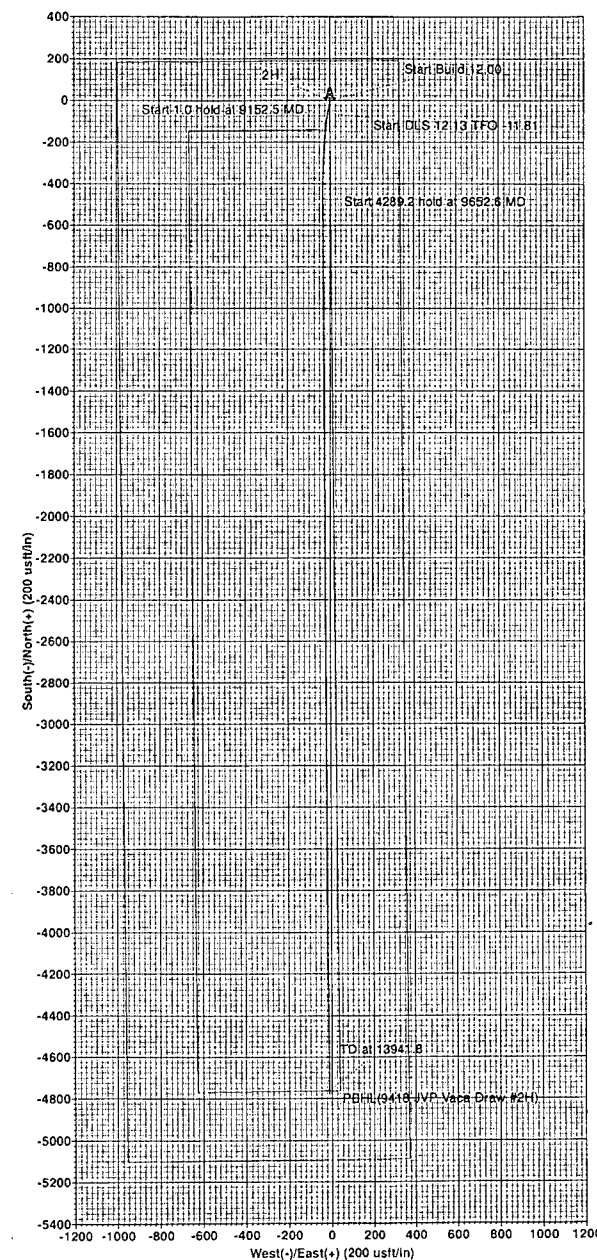
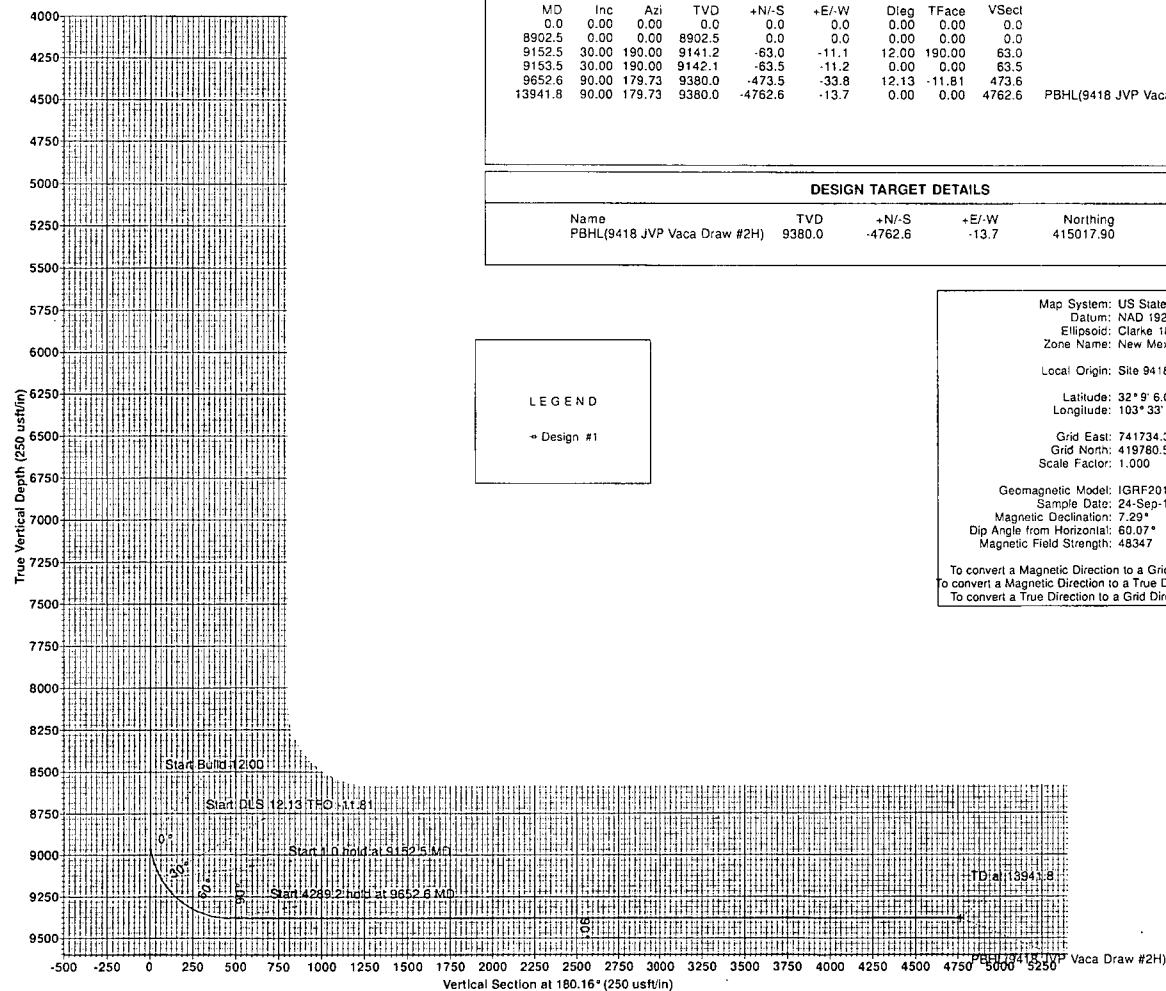
Dip Angle from Horizontal: 60.07°

Magnetic Field Strength: 48347

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 0.42°



Man Sprints
11:32, September 25 2013
Nexus Directional Solutions
3925 CR 1285
Odessa TX 79765



COG Operating LLC

Lea County, NM (NAD27 NME)

9418 JV-P Vaca Draw

2H

OH

Plan: Design #1

Standard Planning Report

25 September, 2013

NEXUS
DIRECTIONAL SOLUTIONS, L.P.



Nexus Directional Solutions L.P.
Planning Report

NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: 9418 JV-P Vaca Draw
Well: 2H
Wellbore: OH
Design: Design #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Site 9418 JV-P Vaca Draw
WELL @ 3432.5usft (Original Well Elev)
WELL @ 3432.5usft (Original Well Elev)
Grid:
Minimum Curvature

Project: Lea County, NM (NAD27 NME)

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

System Datum: Mean Sea Level

Site: 9418 JV-P Vaca Draw

Site Position: Northing: 419,780.50 usft Latitude: 32° 9' 6.058 N
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: 2H

Well Position: +N/-S 0.0 usft Northing: 419,780.50 usft Latitude: 32° 9' 6.058 N
+E/-W 0.0 usft Easting: 741,734.30 usft Longitude: 103° 33' 8.114 W
Position Uncertainty: 0.0 usft Wellhead Elevation: Ground Level: 3,414.5 usft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	09/24/13	7.29	60.07	48,347

Design: Design #1

Audit Notes:

Version: Phase: PROTOTYPE Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	180.16

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,902.5	0.00	0.00	8,902.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,152.5	30.00	190.00	9,141.2	-63.0	-11.1	12.00	12.00	0.00	190.00	
9,153.5	30.00	190.00	9,142.1	-63.5	-11.2	0.00	0.00	0.00	0.00	
9,652.6	90.00	179.73	9,380.0	-473.5	-33.8	12.13	12.02	-2.06	-11.81	
13,941.8	90.00	179.73	9,380.0	-4,762.6	-13.7	0.00	0.00	0.00	0.00	PBHL(9418 JVP Vaca



Nexus Directional Solutions L.P.
Planning Report

NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: 9418 JV-P Vaca Draw
Well: 2H
Wellbore: OH
Design: Design #1

Local Co-ordinate Reference:
TVD Reference: Site 9418 JV-P Vaca Draw
MD Reference: WELL @ 3432.5usft (Original Well Elev)
North Reference: WELL @ 3432.5usft (Original Well Elev)
Survey Calculation Method: Grid
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00



Nexus Directional Solutions L.P.
Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site 9418 JV-P Vaca Draw
Company:	COG Operating LLC	TVD Reference:	WELL @ 3432.5usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 3432.5usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	2H	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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,902.5	0.00	0.00	8,902.5	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 12.00									
9,000.0	11.70	190.00	8,999.3	-9.8	-1.7	9.8	12.00	12.00	0.00
9,100.0	23.70	190.00	9,094.4	-39.7	-7.0	39.7	12.00	12.00	0.00
9,152.5	30.00	190.00	9,141.2	-63.0	-11.1	63.0	12.00	12.00	0.00
Start 1.0 hold at 9152.5 MD									
9,153.5	30.00	190.00	9,142.1	-63.5	-11.2	63.5	0.00	0.00	0.00
Start DLS 12.13 TFO -11.81									
9,200.0	35.54	188.02	9,181.2	-88.3	-15.1	88.4	12.13	11.91	-4.27
9,300.0	47.51	185.14	9,255.9	-154.1	-22.5	154.1	12.13	11.98	-2.88
9,400.0	59.54	183.20	9,315.3	-234.1	-28.2	234.2	12.13	12.03	-1.94
9,500.0	71.59	181.70	9,356.5	-324.9	-32.0	325.0	12.13	12.05	-1.51
9,600.0	83.65	180.39	9,378.0	-422.4	-33.8	422.5	12.13	12.06	-1.31
9,652.6	90.00	179.73	9,380.0	-473.5	-33.8	473.6	12.13	12.06	-1.25
Start 4289.2 hold at 9652.6 MD									
9,700.0	90.00	179.73	9,380.0	-520.8	-33.5	520.9	0.00	0.00	0.00
9,800.0	90.00	179.73	9,380.0	-620.8	-33.1	620.9	0.00	0.00	0.00



Nexus Directional Solutions L.P.

Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: 9418 JV-P Vaca Draw
Well: 2H
Wellbore: OH
Design: Design #1

Local Co-ordinate Reference: Site 9418 JV-P Vaca Draw
TVD Reference: WELL @ 3432.5usft (Original Well Elev)
MD Reference: WELL @ 3432.5usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,900.0	90.00	179.73	9,380.0	-720.8	-32.6	720.9	0.00	0.00	0.00	
10,000.0	90.00	179.73	9,380.0	-820.8	-32.1	820.9	0.00	0.00	0.00	
10,100.0	90.00	179.73	9,380.0	-920.8	-31.7	920.9	0.00	0.00	0.00	
10,200.0	90.00	179.73	9,380.0	-1,020.8	-31.2	1,020.9	0.00	0.00	0.00	
10,300.0	90.00	179.73	9,380.0	-1,120.8	-30.7	1,120.9	0.00	0.00	0.00	
10,400.0	90.00	179.73	9,380.0	-1,220.8	-30.3	1,220.9	0.00	0.00	0.00	
10,500.0	90.00	179.73	9,380.0	-1,320.8	-29.8	1,320.9	0.00	0.00	0.00	
10,600.0	90.00	179.73	9,380.0	-1,420.8	-29.3	1,420.9	0.00	0.00	0.00	
10,700.0	90.00	179.73	9,380.0	-1,520.8	-28.9	1,520.9	0.00	0.00	0.00	
10,800.0	90.00	179.73	9,380.0	-1,620.8	-28.4	1,620.9	0.00	0.00	0.00	
10,900.0	90.00	179.73	9,380.0	-1,720.8	-27.9	1,720.9	0.00	0.00	0.00	
11,000.0	90.00	179.73	9,380.0	-1,820.8	-27.5	1,820.9	0.00	0.00	0.00	
11,100.0	90.00	179.73	9,380.0	-1,920.8	-27.0	1,920.9	0.00	0.00	0.00	
11,200.0	90.00	179.73	9,380.0	-2,020.8	-26.5	2,020.9	0.00	0.00	0.00	
11,300.0	90.00	179.73	9,380.0	-2,120.8	-26.1	2,120.9	0.00	0.00	0.00	
11,400.0	90.00	179.73	9,380.0	-2,220.8	-25.6	2,220.9	0.00	0.00	0.00	
11,500.0	90.00	179.73	9,380.0	-2,320.8	-25.1	2,320.9	0.00	0.00	0.00	
11,600.0	90.00	179.73	9,380.0	-2,420.8	-24.7	2,420.8	0.00	0.00	0.00	
11,700.0	90.00	179.73	9,380.0	-2,520.8	-24.2	2,520.8	0.00	0.00	0.00	
11,800.0	90.00	179.73	9,380.0	-2,620.8	-23.7	2,620.8	0.00	0.00	0.00	
11,900.0	90.00	179.73	9,380.0	-2,720.8	-23.2	2,720.8	0.00	0.00	0.00	
12,000.0	90.00	179.73	9,380.0	-2,820.8	-22.8	2,820.8	0.00	0.00	0.00	
12,100.0	90.00	179.73	9,380.0	-2,920.8	-22.3	2,920.8	0.00	0.00	0.00	
12,200.0	90.00	179.73	9,380.0	-3,020.8	-21.8	3,020.8	0.00	0.00	0.00	
12,300.0	90.00	179.73	9,380.0	-3,120.8	-21.4	3,120.8	0.00	0.00	0.00	
12,400.0	90.00	179.73	9,380.0	-3,220.8	-20.9	3,220.8	0.00	0.00	0.00	
12,500.0	90.00	179.73	9,380.0	-3,320.8	-20.4	3,320.8	0.00	0.00	0.00	
12,600.0	90.00	179.73	9,380.0	-3,420.8	-20.0	3,420.8	0.00	0.00	0.00	
12,700.0	90.00	179.73	9,380.0	-3,520.8	-19.5	3,520.8	0.00	0.00	0.00	
12,800.0	90.00	179.73	9,380.0	-3,620.8	-19.0	3,620.8	0.00	0.00	0.00	
12,900.0	90.00	179.73	9,380.0	-3,720.8	-18.6	3,720.8	0.00	0.00	0.00	
13,000.0	90.00	179.73	9,380.0	-3,820.8	-18.1	3,820.8	0.00	0.00	0.00	
13,100.0	90.00	179.73	9,380.0	-3,920.8	-17.6	3,920.8	0.00	0.00	0.00	
13,200.0	90.00	179.73	9,380.0	-4,020.8	-17.2	4,020.8	0.00	0.00	0.00	
13,300.0	90.00	179.73	9,380.0	-4,120.8	-16.7	4,120.8	0.00	0.00	0.00	
13,400.0	90.00	179.73	9,380.0	-4,220.8	-16.2	4,220.8	0.00	0.00	0.00	
13,500.0	90.00	179.73	9,380.0	-4,320.8	-15.8	4,320.8	0.00	0.00	0.00	
13,600.0	90.00	179.73	9,380.0	-4,420.8	-15.3	4,420.8	0.00	0.00	0.00	
13,700.0	90.00	179.73	9,380.0	-4,520.8	-14.8	4,520.8	0.00	0.00	0.00	
13,800.0	90.00	179.73	9,380.0	-4,620.8	-14.4	4,620.8	0.00	0.00	0.00	
13,900.0	90.00	179.73	9,380.0	-4,720.8	-13.9	4,720.8	0.00	0.00	0.00	
13,941.8	90.00	179.73	9,380.0	-4,762.6	-13.7	4,762.6	0.00	0.00	0.00	
TD at 13941.8										

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 JVP Vaca D	0.00	0.00	9,380.0	-4,762.6	-13.7	415,017.90	741,720.60	32° 8' 18.930 N	103° 33' 8.675 W	
- plan hits target center										
- Point										



Nexus Directional Solutions L.P.
Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: 9418 JV-P Vaca Draw
Well: 2H
Wellbore: OH
Design: Design #1

Local Co-ordinate Reference: Site 9418 JV-P Vaca Draw
TVD Reference: WELL @ 3432.5usft (Original Well Elev)
MD Reference: WELL @ 3432.5usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,902.5	8,902.5	0.0	0.0	Start Build 12.00
9,152.5	9,141.2	-63.0	-11.1	Start 1.0 hold at 9152.5 MD
9,153.5	9,142.1	-63.5	-11.2	Start DLS 12.13 TFO -11.81
9,652.6	9,380.0	-473.5	-33.8	Start 4289.2 hold at 9652.6 MD
13,941.8	9,380.0	-4,762.6	-13.7	TD at 13941.8



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 64	Q 16	Q 4	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:

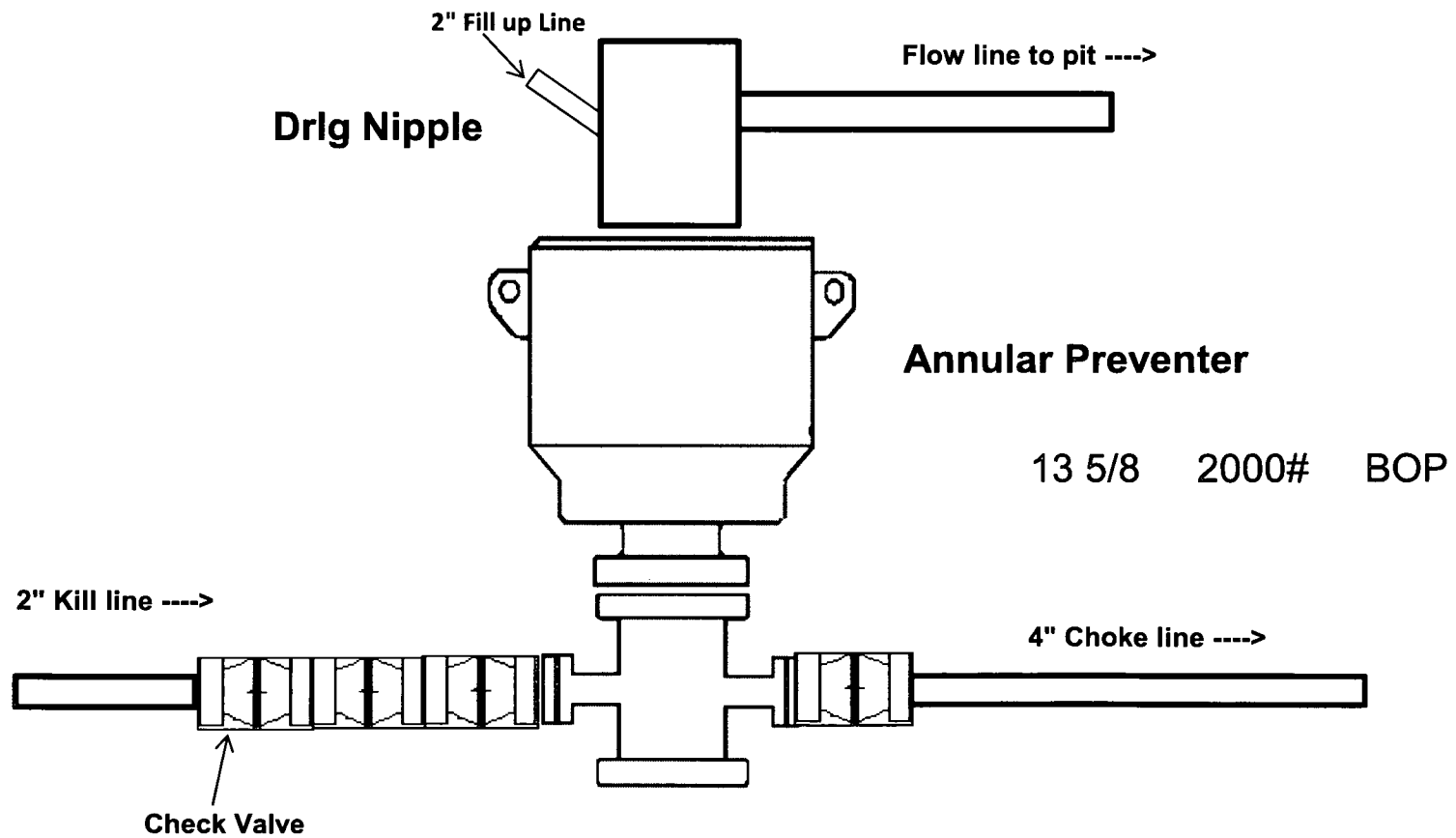
Township: 25S

Range: 33E

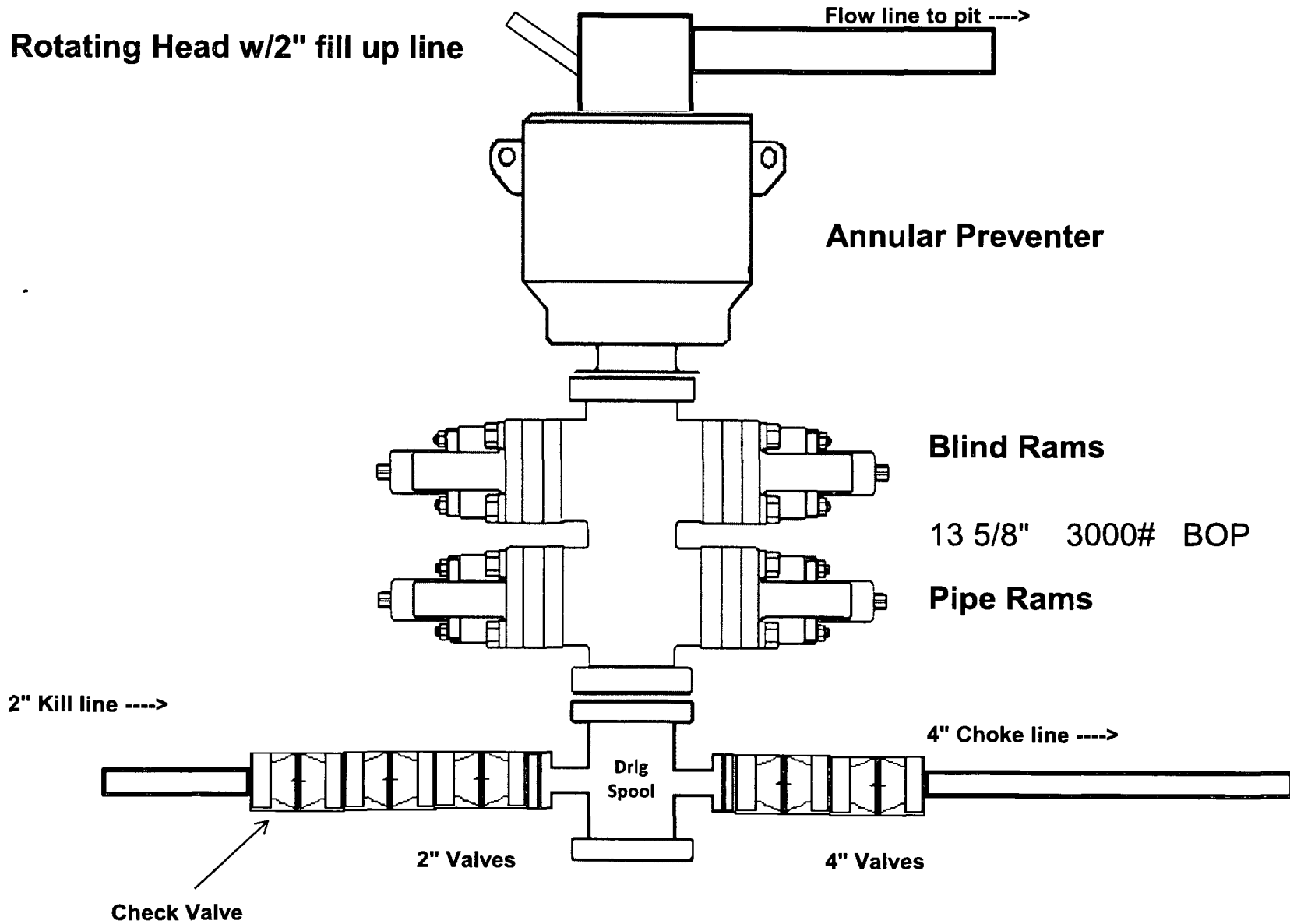
*UTM location was derived from PLSS - see Help

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.

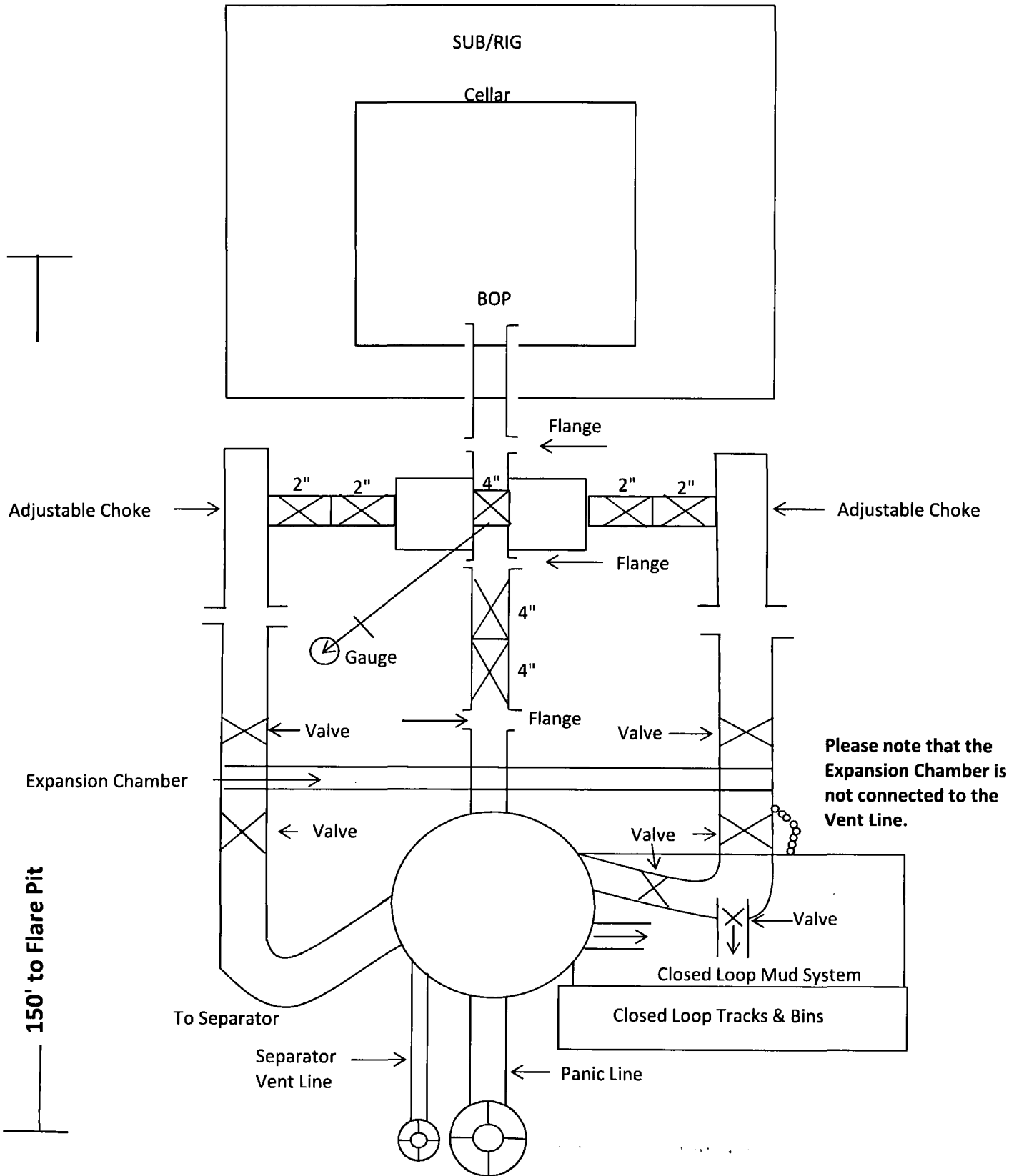
2,000 psi BOP Schematic



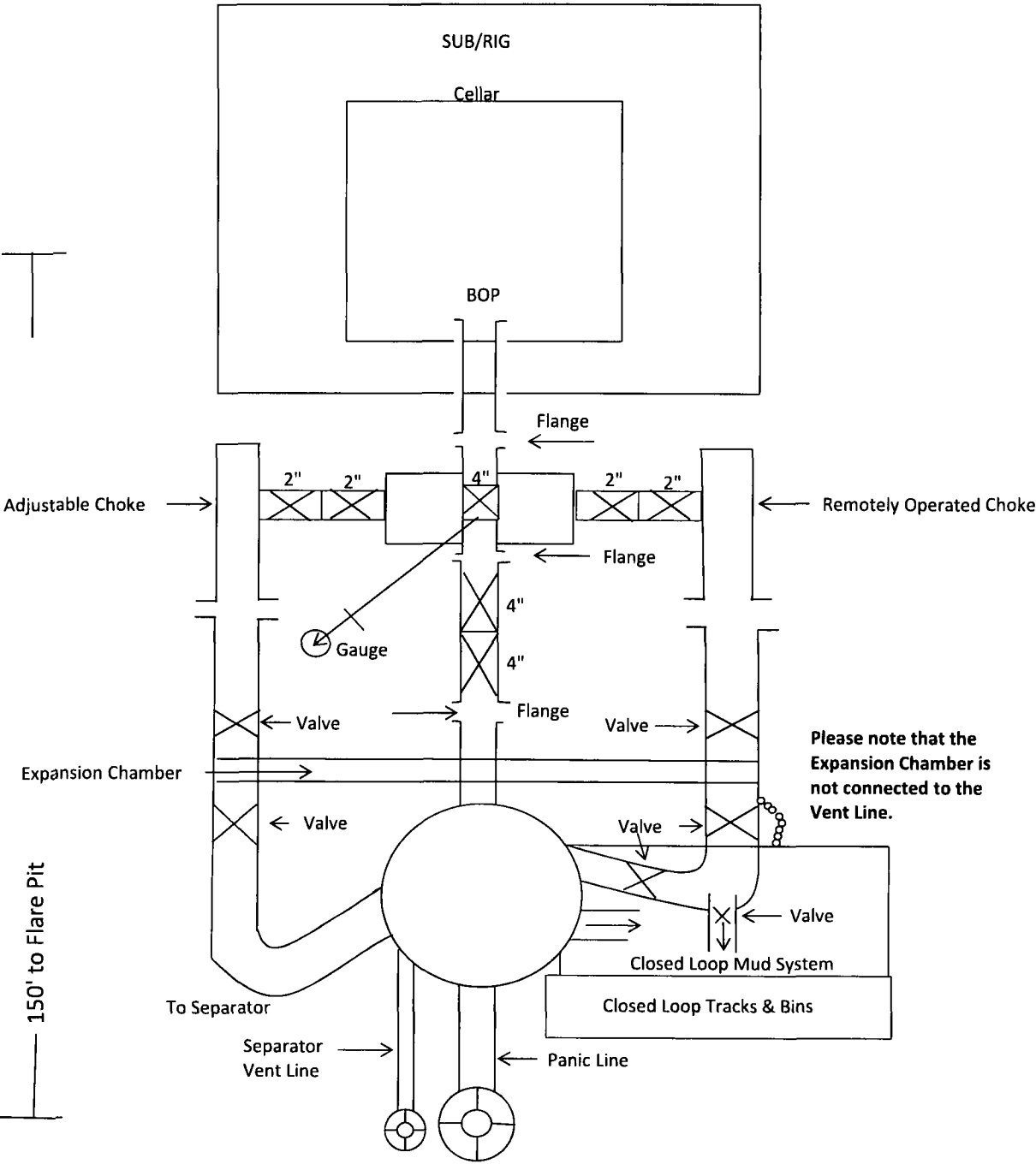
3,000 psi BOP Schematic



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

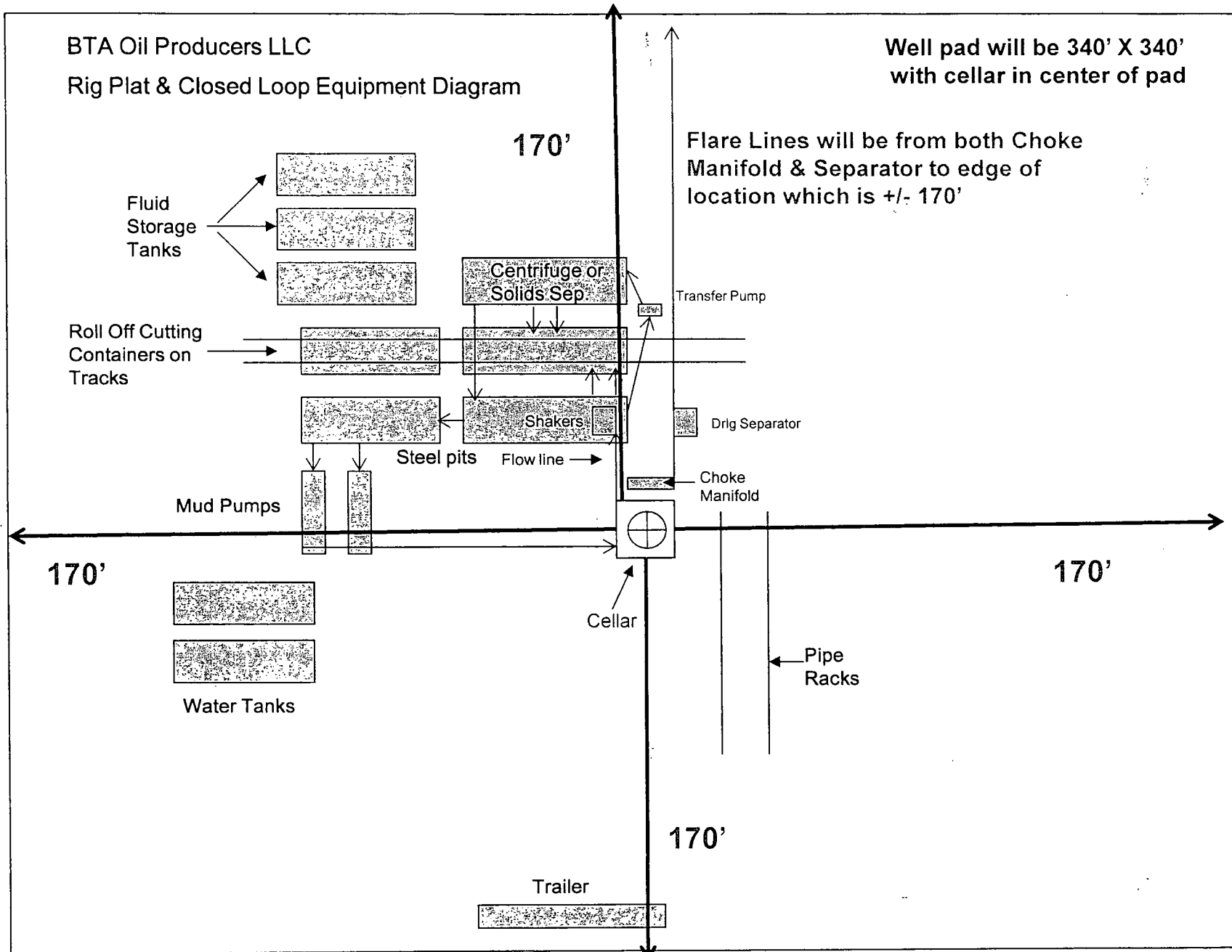
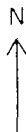


Exhibit 1

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



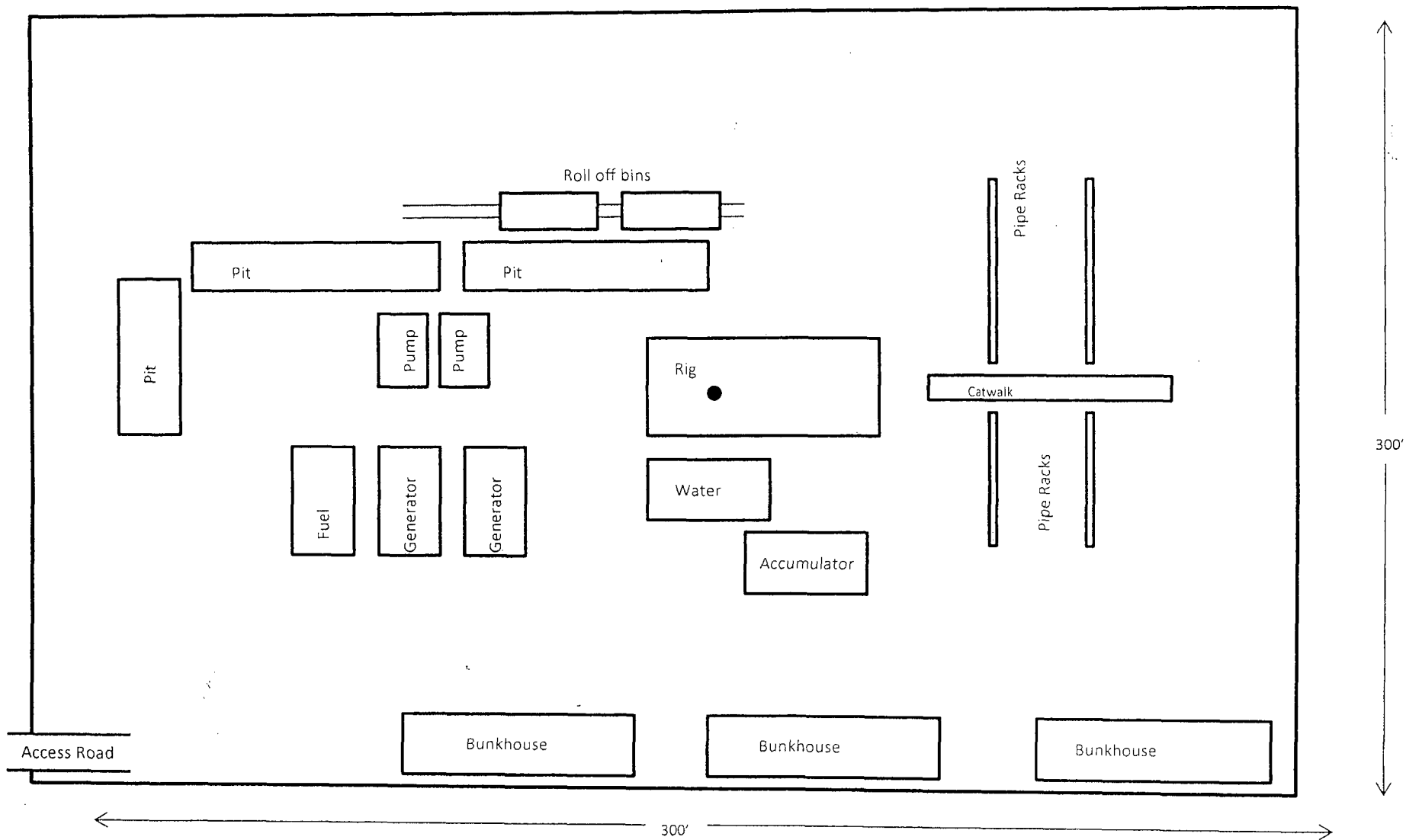
BTA Oil Producers

9418 JV-P Vaca Draw #2 -H

330' FNL 660' FEL

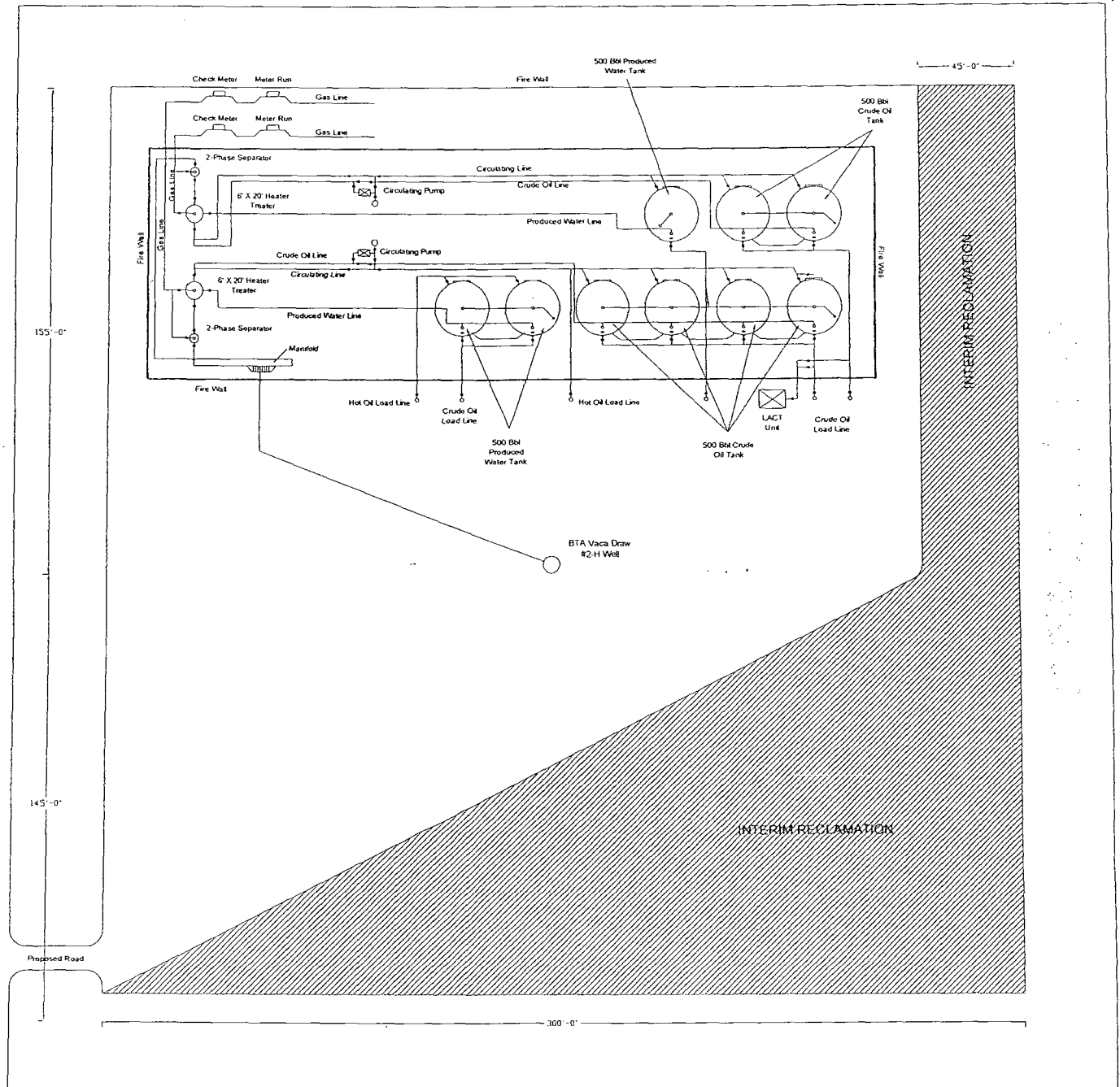
10, 25S, 33E

Lea County, NM





Proposed Production Facility Layout



BTA

BTA Oil Producers, LLC
(Midland, Texas)

BTA JV-P 9418, Vaca Draw #2-H Battery Drawing

Revision

Unit Letter "A", Section 10, Township 25 South, Range 33 East
Lea County, New Mexico

0

06/12/2013

Scale: None
Drawn by: jab

Date: 06.17.2013
Checked by: jab

NOT DRAWN TO SCALE