

30-025-42043

Operator Name/Number: OXY USA Inc. 16696
 Lease Name/Number: NBR 18 State #4H
 Pool Name/Number: Red Tank Bone Spring, East 51687
 Surface Location: 370 FSL 1720 FWL N Sec 7 T22S R33E VO-4617-2
 Top Perf: 330 FNL 1720 FWL C Sec 18 T22S R33E LO-4780-4
 Bottom Perf: 330 FSL 1720 FWL N Sec 18 T22S R33E "
 Bottom Hole Location: 180 FSL 1720 FWL N Sec 18 T22S R33E "

HOBBS OCD

C-102 Plats: 5/21/14 5/27/14 8/11/14 Elevation: 3609.2' GL Objective: 1st Bone Spring

Proposed TD: Horizontal Lateral 9908' TVD 15183' TMD
 SL - Lat: 32.4000069 Long: 103.6137559 X=722093.9 Y=509984.4
 TP - Lat: 32.3980829 Long: 103.6137548 X=722098.9 Y=509284.4
 BP - Lat: 32.3853865 Long: 103.6137476 X=722132.2 Y=504665.6
 BH - Lat: 32.3849742 Long: 103.6137474 X=722133.3 Y=504515.6

NAD - 1927

NAD - 1927

NAD - 1927

NAD - 1927

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Casing Program:

Hole Size	Interval	OD Csg	Weight	Collar	Grade	Condition	Collapse Design Factor	Burst Design Factor	Tension Design Factor
14-3/4"	0-975'	11-3/4"	47	BT&C	J55	New	4.28	4.69	7.47
				Hole filled with 8.5# Mud			1510#	3070#	
10-5/8"	0-4825'	8-5/8"	32	BT&C	J-55	New	2.28	1.39	2.18
				Hole filled with 10.2# Mud			2530#	3930#	
7-7/8"	0-15183'	5-1/2"	17	BT&C	P-110	New	1.63	1.25	2.23
				Hole filled with 9.2# Mud			7460#	10640#	

Collapse and burst loads calculated using Stress Check with anticipated loads

Cement Program:

- a. 11-3/4" Surface Circulate cement to surface w/ 440sx PPC cmt w/ 1% CaCl₂, 13.5ppg 1.73 yield 1013# 24hr CS 125% Excess followed by 320sx PPC cmt, 14.8ppg 1.34 yield 1416# 24hr CS 125% Excess.
- b. 8-5/8" Intermediate Circulate cement to surface w/ 590sx HES Light PPC cmt w/ 5% salt + .25% HR-800, 12.9ppg 1.69 yield 771# 24hr CS 125% Excess followed by 230sx PPC cmt, 14.8ppg 1.33 yield 1779# 24hr CS 125% Excess
- c. 5-1/2" Production Cement w/ 610sx Tuned Light System w/ .25#/sx HR-800 + 3#/sx Kol-Seal + .125#/sx Poly-E-Flake, 9.8ppg 3.45 yield 706# 24hr CS 100% Excess followed by 880sx Super H cmt w/ 3#/sx salt + .4% CFR-3 + .5% Halad R-344 + .3% HR-800 + .125%/ss Poly-E-Flake, 13.2ppg 1.66 yield 615# 24hr CS 40% Excess. Calc TOC 3825'

Description of Cement Additives: Calcium Chloride, Salt (Accelerator); CFR-3 (Dispersant);

Kol-Seal, Poly-E-Flake (Lost Circulation Additive); Halad-344 (Low Fluid Loss Control); HR-601, HR-800 (Retarder)

The above cement volumes could be revised pending the caliper measurement.

Proposed Mud Circulation System:

Depth	Mud Wt. ppg	Visc sec	Fluid Loss	Type System
0 - 975'	8.4-8.8	28-38	NC	Fresh Water/Spud Mud
975 - 4825'	10.0-10.2	28-32	NC	Fresh water/NaCl Brine
4825 - TD	9.2-9.8	28-34	NC	Cut Brine/Sweeps

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, water zones until such time as casing can be cemented into place for zonal isolation.

BOP Program:

Surface None
 Intermediate/Production 13-5/8" 10M three ram stack w/ 5M annular preventer, 5M Choke Manifold

Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:

Geological Marker	Depth	Type
a. Rustler	835'	---
b. T. Salt	1215'	---
c. B. Salt	4435'	---
d. Lamar	4800'	---
e. Bell Canyon	4895'	Oil/Gas
f. Cherry Canyon	5745'	Oil/Gas
g. Brushy Canyon	6980'	Oil/Gas
h. Bone Spring	8675'	Oil/Gas
i. 1st Bone Spring	9825'	Oil/Gas

Fresh water may be present above the Rustler formation. Surface casing will be set below the top of the Rustler, which will cover potential fresh water sources.

A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins.
 Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility.

AUG 21 2014



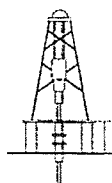
NBR18S 4H
Lea County, New Mexico
Northing: 509984.40
Easting: 722093.90
Design #2



To convert a Magnetic Direction to a Grid Direction, Add 6.85°
To convert a True Direction to a Grid Direction, Subtract 0.39°

Azimuths to Grid North
True North: -0.39
Magnetic North: 6.84

Magnetic Field
Strength: 48401.7 nT
Dip Angle: 60.26
Date: 08/06/2016
Model: IGRF2011



KB @ 3633.2usft
Gr@ 3609.2

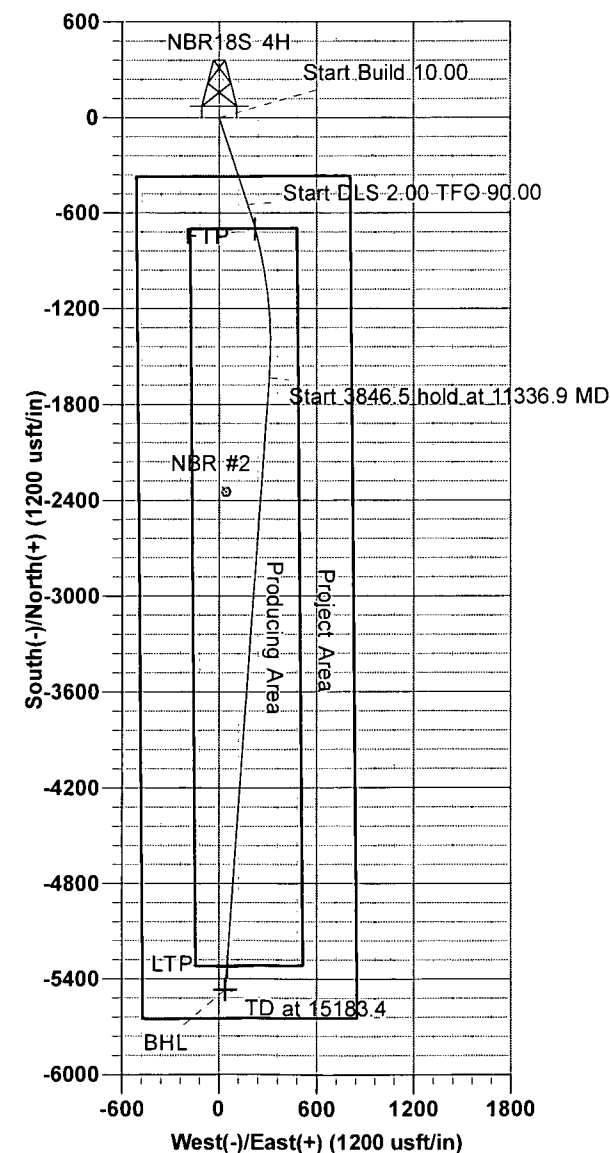
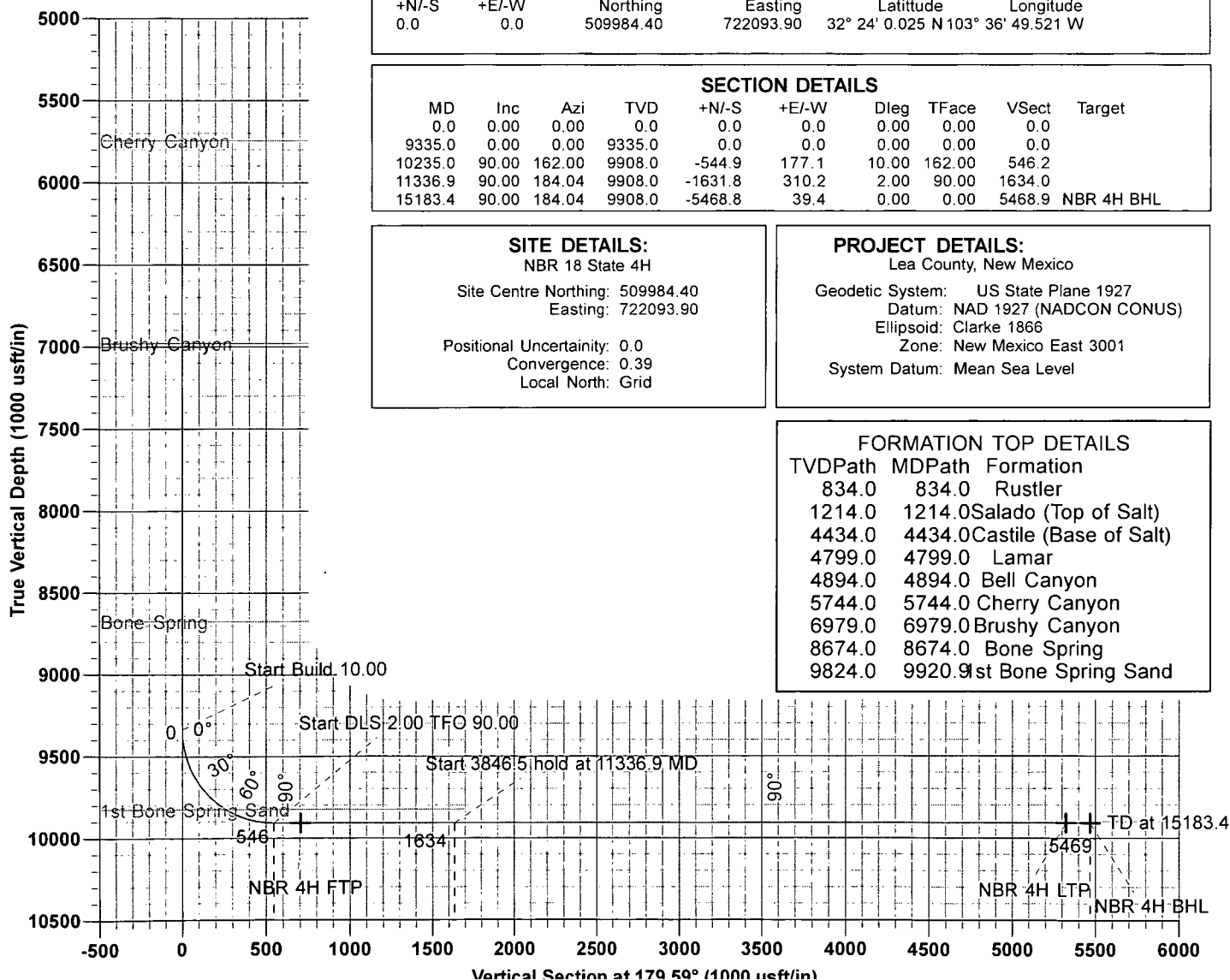
WELL DETAILS NBR18S 4H						
Ground Level: 3609.2						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	509984.40	722093.90	32° 24' 0.025 N 103° 36' 49.521 W		

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
9335.0	0.00	0.00	9335.0	0.0	0.0	0.00	0.00	0.0	
10235.0	90.00	162.00	9908.0	-544.9	177.1	10.00	162.00	546.2	
11336.9	90.00	184.04	9908.0	-1631.8	310.2	2.00	90.00	1634.0	
15183.4	90.00	184.04	9908.0	-5468.8	39.4	0.00	0.00	5468.9	NBR 4H BHL

SITE DETAILS:	
NBR 18 State 4H	
Site Centre Northing: 509984.40	
Easting: 722093.90	
Positional Uncertainty: 0.0	
Convergence: 0.39	
Local North: Grid	

PROJECT DETAILS:	
Lea County, New Mexico	
Geodetic System: US State Plane 1927	
Datum: NAD 1927 (NADCON CONUS)	
Ellipsoid: Clarke 1866	
Zone: New Mexico East 3001	
System Datum: Mean Sea Level	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
834.0	834.0	Rustler
1214.0	1214.0	Salado (Top of Salt)
4434.0	4434.0	Castile (Base of Salt)
4799.0	4799.0	Lamar
4894.0	4894.0	Bell Canyon
5744.0	5744.0	Cherry Canyon
6979.0	6979.0	Brushy Canyon
8674.0	8674.0	Bone Spring
9824.0	9920.9	1st Bone Spring Sand



Jody Barclay
14:17, August 06 2014

Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234



Scientific Drilling
Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well NBR18S 4H
Company:	OXY	TVD Reference:	KB @ 3633.2usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3633.2usft
Site:	NBR 18 State 4H	North Reference:	Grid
Well:	NBR18S 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Project:	Lea County, New Mexico		
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:	NBR 18 State 4H		
Site Position:		Northing:	509,984.40 usft
From:	Map	Easting:	722,093.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 24' 0.025 N
		Longitude:	103° 36' 49.521 W
		Grid Convergence:	0.39 °

Well:	NBR18S 4H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 24' 0.025 N
		Longitude:	103° 36' 49.521 W
		Ground Level:	3,609.2 usft

Wellbore:	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	08/06/14	7.23	60.26	48,402

Design:	Design #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	-1.0	0.0	0.0	179.59

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	
9,335.0	0.00	0.00	9,335.0	0.0	0.0	0.00	0.00	0.00	0.00	
10,235.0	90.00	162.00	9,908.0	-544.9	177.1	10.00	10.00	0.00	162.00	
11,336.9	90.00	184.04	9,908.0	-1,631.8	310.2	2.00	0.00	2.00	90.00	
15,183.4	90.00	184.04	9,908.0	-5,468.8	39.4	0.00	0.00	0.00	0.00	NBR 4H BHL



Scientific Drilling
Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well NBR18S 4H
Company:	OXY	TVD Reference:	KB @ 3633.2usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3633.2usft
Site:	NBR 18 State 4H	North Reference:	Grid
Well:	NBR18S 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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
834.0	0.00	0.00	834.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
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
1,214.0	0.00	0.00	1,214.0	0.0	0.0	0.0	0.00	0.00	0.00
Salado (Top of Salt)									
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
4,434.0	0.00	0.00	4,434.0	0.0	0.0	0.0	0.00	0.00	0.00
Castile (Base of Salt)									
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



Scientific Drilling

Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well NBR18S 4H
Company:	OXY	TVD Reference:	KB @ 3633.2usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3633.2usft
Site:	NBR 18 State 4H	North Reference:	Grid
Well:	NBR18S 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,799.0	0.00	0.00	4,799.0	0.0	0.0	0.0	0.00	0.00	0.00
Lamar									
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,894.0	0.00	0.00	4,894.0	0.0	0.0	0.0	0.00	0.00	0.00
Bell Canyon									
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
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
5,744.0	0.00	0.00	5,744.0	0.0	0.0	0.0	0.00	0.00	0.00
Cherry Canyon									
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
6,979.0	0.00	0.00	6,979.0	0.0	0.0	0.0	0.00	0.00	0.00
Brushy Canyon									
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
8,674.0	0.00	0.00	8,674.0	0.0	0.0	0.0	0.00	0.00	0.00
Bone Spring									
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
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00



Scientific Drilling
Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well NBR18S 4H
Company:	OXY	TVD Reference:	KB @ 3633.2usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3633.2usft
Site:	NBR 18 State 4H	North Reference:	Grid
Well:	NBR18S 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,335.0	0.00	0.00	9,335.0	0.0	0.0	0.0	0.00	0.00	0.00
9,350.0	1.50	162.00	9,350.0	-0.2	0.1	0.2	10.00	10.00	0.00
9,400.0	6.50	162.00	9,399.9	-3.5	1.1	3.5	10.00	10.00	0.00
9,450.0	11.50	162.00	9,449.2	-10.9	3.6	11.0	10.00	10.00	0.00
9,500.0	16.50	162.00	9,497.7	-22.4	7.3	22.5	10.00	10.00	0.00
9,550.0	21.50	162.00	9,545.0	-37.9	12.3	38.0	10.00	10.00	0.00
9,600.0	26.50	162.00	9,590.7	-57.2	18.6	57.4	10.00	10.00	0.00
9,650.0	31.50	162.00	9,634.4	-80.3	26.1	80.5	10.00	10.00	0.00
9,700.0	36.50	162.00	9,675.8	-106.9	34.7	107.1	10.00	10.00	0.00
9,750.0	41.50	162.00	9,714.7	-136.8	44.4	137.1	10.00	10.00	0.00
9,800.0	46.50	162.00	9,750.6	-169.8	55.2	170.2	10.00	10.00	0.00
9,850.0	51.50	162.00	9,783.4	-205.7	66.8	206.1	10.00	10.00	0.00
9,900.0	56.50	162.00	9,812.8	-244.1	79.3	244.7	10.00	10.00	0.00
9,920.9	58.58	162.00	9,824.0	-260.9	84.8	261.5	10.00	10.00	0.00
1st Bone Spring Sand									
9,950.0	61.50	162.00	9,838.5	-284.9	92.6	285.5	10.00	10.00	0.00
10,000.0	66.50	162.00	9,860.5	-327.6	106.4	328.4	10.00	10.00	0.00
10,050.0	71.50	162.00	9,878.4	-372.0	120.9	372.8	10.00	10.00	0.00
10,100.0	76.50	162.00	9,892.2	-417.7	135.7	418.6	10.00	10.00	0.00
10,150.0	81.50	162.00	9,901.7	-464.3	150.9	465.4	10.00	10.00	0.00
10,200.0	86.50	162.00	9,906.9	-511.6	166.2	512.8	10.00	10.00	0.00
10,235.0	90.00	162.00	9,908.0	-544.9	177.1	546.2	10.00	10.00	0.00
10,300.0	90.00	163.30	9,908.0	-606.9	196.4	608.3	2.00	0.00	2.00
10,400.0	90.00	165.30	9,908.0	-703.2	223.5	704.8	2.00	0.00	2.00
10,500.0	90.00	167.30	9,908.0	-800.3	247.2	802.1	2.00	0.00	2.00
10,600.0	90.00	169.30	9,908.0	-898.2	267.4	900.2	2.00	0.00	2.00
10,700.0	90.00	171.30	9,908.0	-996.8	284.3	998.8	2.00	0.00	2.00
10,800.0	90.00	173.30	9,908.0	-1,095.9	297.7	1,098.0	2.00	0.00	2.00
10,900.0	90.00	175.30	9,908.0	-1,195.4	307.6	1,197.6	2.00	0.00	2.00
11,000.0	90.00	177.30	9,908.0	-1,295.2	314.1	1,297.4	2.00	0.00	2.00
11,100.0	90.00	179.30	9,908.0	-1,395.1	317.1	1,397.4	2.00	0.00	2.00
11,200.0	90.00	181.30	9,908.0	-1,495.1	316.5	1,497.4	2.00	0.00	2.00
11,300.0	90.00	183.30	9,908.0	-1,595.1	312.5	1,597.3	2.00	0.00	2.00
11,336.9	90.00	184.04	9,908.0	-1,631.8	310.2	1,634.0	2.00	0.00	2.00
11,400.0	90.00	184.04	9,908.0	-1,694.8	305.7	1,697.0	0.00	0.00	0.00
11,500.0	90.00	184.04	9,908.0	-1,794.6	298.7	1,796.7	0.00	0.00	0.00
11,600.0	90.00	184.04	9,908.0	-1,894.3	291.6	1,896.4	0.00	0.00	0.00
11,700.0	90.00	184.04	9,908.0	-1,994.1	284.6	1,996.1	0.00	0.00	0.00
11,800.0	90.00	184.04	9,908.0	-2,093.8	277.6	2,095.8	0.00	0.00	0.00
11,900.0	90.00	184.04	9,908.0	-2,193.6	270.5	2,195.5	0.00	0.00	0.00
12,000.0	90.00	184.04	9,908.0	-2,293.3	263.5	2,295.2	0.00	0.00	0.00
12,100.0	90.00	184.04	9,908.0	-2,393.1	256.4	2,394.9	0.00	0.00	0.00
12,200.0	90.00	184.04	9,908.0	-2,492.8	249.4	2,494.6	0.00	0.00	0.00
12,300.0	90.00	184.04	9,908.0	-2,592.6	242.4	2,594.3	0.00	0.00	0.00
12,400.0	90.00	184.04	9,908.0	-2,692.3	235.3	2,694.0	0.00	0.00	0.00
12,500.0	90.00	184.04	9,908.0	-2,792.1	228.3	2,793.7	0.00	0.00	0.00
12,600.0	90.00	184.04	9,908.0	-2,891.8	221.2	2,893.4	0.00	0.00	0.00
12,700.0	90.00	184.04	9,908.0	-2,991.6	214.2	2,993.1	0.00	0.00	0.00
12,800.0	90.00	184.04	9,908.0	-3,091.3	207.2	3,092.8	0.00	0.00	0.00
12,900.0	90.00	184.04	9,908.0	-3,191.1	200.1	3,192.5	0.00	0.00	0.00



Scientific Drilling

Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well NBR18S 4H
Company:	OXY	TVD Reference:	KB @ 3633.2usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3633.2usft
Site:	NBR 18 State 4H	North Reference:	Grid
Well:	NBR18S 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

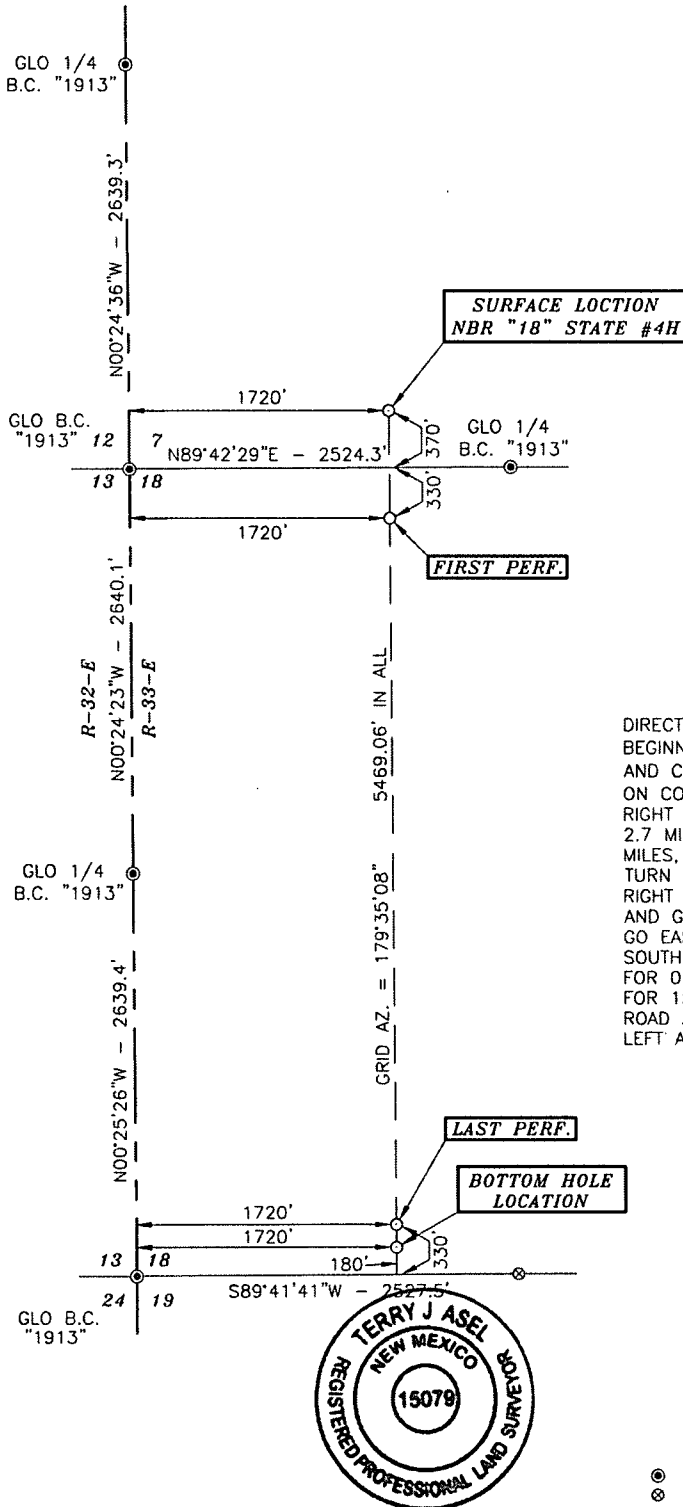
Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,000.0	90.00	184.04	9,908.0	-3,290.9	193.1	3,292.2	0.00	0.00	0.00
13,100.0	90.00	184.04	9,908.0	-3,390.6	186.1	3,391.9	0.00	0.00	0.00
13,200.0	90.00	184.04	9,908.0	-3,490.4	179.0	3,491.6	0.00	0.00	0.00
13,300.0	90.00	184.04	9,908.0	-3,590.1	172.0	3,591.3	0.00	0.00	0.00
13,400.0	90.00	184.04	9,908.0	-3,689.9	164.9	3,691.0	0.00	0.00	0.00
13,500.0	90.00	184.04	9,908.0	-3,789.6	157.9	3,790.7	0.00	0.00	0.00
13,600.0	90.00	184.04	9,908.0	-3,889.4	150.9	3,890.3	0.00	0.00	0.00
13,700.0	90.00	184.04	9,908.0	-3,989.1	143.8	3,990.0	0.00	0.00	0.00
13,800.0	90.00	184.04	9,908.0	-4,088.9	136.8	4,089.7	0.00	0.00	0.00
13,900.0	90.00	184.04	9,908.0	-4,188.6	129.7	4,189.4	0.00	0.00	0.00
14,000.0	90.00	184.04	9,908.0	-4,288.4	122.7	4,289.1	0.00	0.00	0.00
14,100.0	90.00	184.04	9,908.0	-4,388.1	115.7	4,388.8	0.00	0.00	0.00
14,200.0	90.00	184.04	9,908.0	-4,487.9	108.6	4,488.5	0.00	0.00	0.00
14,300.0	90.00	184.04	9,908.0	-4,587.6	101.6	4,588.2	0.00	0.00	0.00
14,400.0	90.00	184.04	9,908.0	-4,687.4	94.5	4,687.9	0.00	0.00	0.00
14,500.0	90.00	184.04	9,908.0	-4,787.1	87.5	4,787.6	0.00	0.00	0.00
14,600.0	90.00	184.04	9,908.0	-4,886.9	80.5	4,887.3	0.00	0.00	0.00
14,700.0	90.00	184.04	9,908.0	-4,986.6	73.4	4,987.0	0.00	0.00	0.00
14,800.0	90.00	184.04	9,908.0	-5,086.4	66.4	5,086.7	0.00	0.00	0.00
14,900.0	90.00	184.04	9,908.0	-5,186.1	59.3	5,186.4	0.00	0.00	0.00
15,000.0	90.00	184.04	9,908.0	-5,285.9	52.3	5,286.1	0.00	0.00	0.00
15,100.0	90.00	184.04	9,908.0	-5,385.6	45.3	5,385.8	0.00	0.00	0.00
15,183.4	90.00	184.04	9,908.0	-5,468.8	39.4	5,468.9	0.00	0.00	0.00

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									
NBR 4H BHL	0.00	0.00	9,908.0	-5,468.8	39.4	504,515.60	722,133.30	32° 23' 5.907 N	103° 36' 49.491 W
- plan hits target center									
- Point									
NBR 4H LTP	0.00	0.01	9,908.0	-5,323.5	53.2	504,660.90	722,147.10	32° 23' 7.344 N	103° 36' 49.318 W
- plan misses target center by 3.5usft at 15037.5usft MD (9908.0 TVD, -5323.3 N, 49.7 E)									
- Point									
NBR 4H FTP	0.00	0.00	9,908.0	-701.6	221.5	509,282.75	722,315.40	32° 23' 53.068 N	103° 36' 46.993 W
- plan misses target center by 1.5usft at 10398.0usft MD (9908.0 TVD, -701.2 N, 223.0 E)									
- Point									

SECTIONS 7 & 18, TOWNSHIP 22 SOUTH, RANGE 33 EAST, N.M.P.M.,
LEA COUNTY
NEW MEXICO



DIRECTIONS:
BEGINNING AT THE INTERSECTION OF HWY. #128 AND COUNTY ROAD #798 (RED ROAD), GO NORTH ON COUNTY ROAD #798 FOR 7.3 MILES, TURN RIGHT AND GO NORTHEAST ON CALICHE ROAD FOR 2.7 MILES, CONTINUE EAST SOUTHEAST FOR 2.5 MILES, CONTINUE NORTHEAST FOR 2.0 MILES, TURN LEFT AND GO NORTH FOR 1.2 MILES, TURN RIGHT AND GO EAST FOR 0.7 MILES, TURN LEFT AND GO NORTH FOR 0.2 MILES, TURN RIGHT AND GO EAST FOR 0.8 MILES, TURN RIGHT AND GO SOUTH FOR 0.6 MILES, TURN LEFT AND GO EAST FOR 0.1 MILES, TURN RIGHT AND GO SOUTHEAST FOR 153.6 FEET, TURN RIGHT ON PROPOSED ROAD AND GO SOUTH FOR 271.7 FEET, TURN LEFT AND GO EAST FOR 661.8 FEET TO LOCATION.

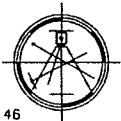
SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Terry J. Asel 5/27/2014
Terry J. Asel, N.M. R.P.L.S. No. 15079

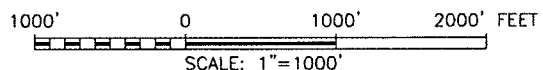
Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146



LEGEND

- ⊙ - DENOTES FOUND MONUMENT AS NOTED
- ⊗ - DENOTES CALCULATED CORNER



OXY USA INC.

NBR "18" STATE #4H LOCATED AT
370' FSL & 1720' FWL IN SECTION 7,
TOWNSHIP 22 SOUTH, RANGE 33 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO

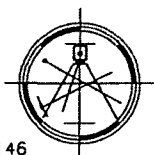
Survey Date: 05/21/14	Sheet 1 of 1 Sheets
W.O. Number: 120925WL-c (Rev. C)	Drawn By: KA Rev: C
Date: 05/22/14	120925WL-c Scale: 1"=1000'

Basis of Bearings - GPS Geodetic Measurements
NAD 83 North American Datum of 1983

A circular professional seal for Terry J Aseel, a Registered Professional Land Surveyor in New Mexico. The seal features three concentric circles. The outermost ring contains the text "TERRY J ASEEL" at the top and "REGISTERED PROFESSIONAL LAND SURVEYOR" at the bottom. The middle ring contains the text "NEW MEXICO". The innermost circle contains the license number "15079".

I, TERRY J. ASEI, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146



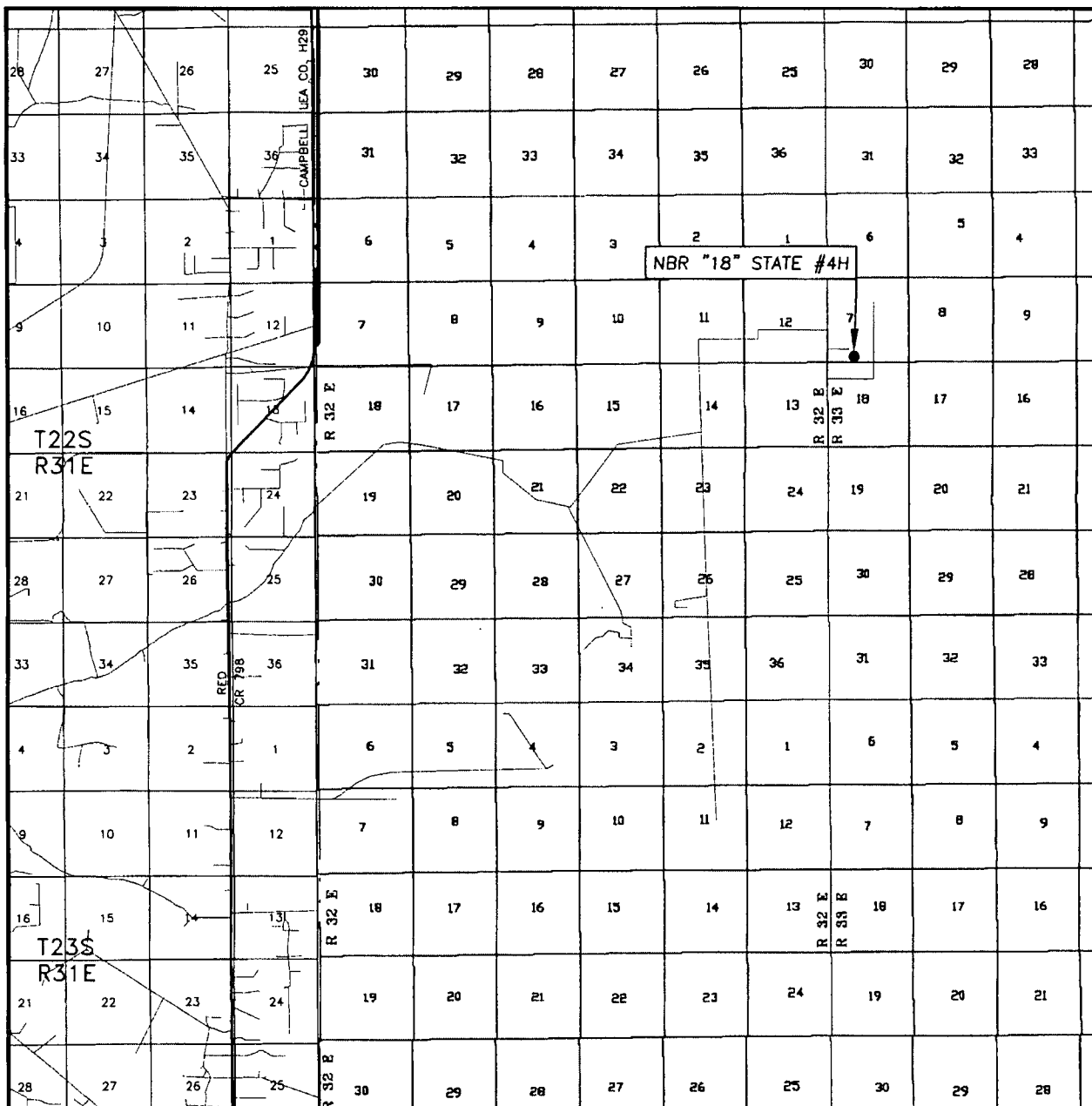
200' 0 200' 400' FEET

SCALE: 1"=200'

NBR "18" STATE #4H WELL PAD LOCATED AT
370' FSL & 1720' FWL IN SECTION 7,
TOWNSHIP 22 SOUTH, RANGE 33 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 05/21/14	Sheet 1 of 1 Sheets	
W.O. Number: 120925WL-c (Rev. C)	Drawn By: KA	Rev: C
Date: 05/22/14	140508WL-b	Scale: 1"=200'

VICINITY MAP

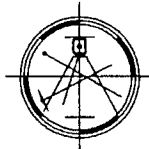


SEC. 7 TWP. 22-S RGE. 33-E
 SURVEY N.M.P.M.
 COUNTY LEA
 DESCRIPTION 370' FSL & 1720' FWL
 ELEVATION 3609.2'
 OPERATOR OXY USA INC.
 LEASE NBR "18" STATE #4H

SCALE: 1" = 2 MILES

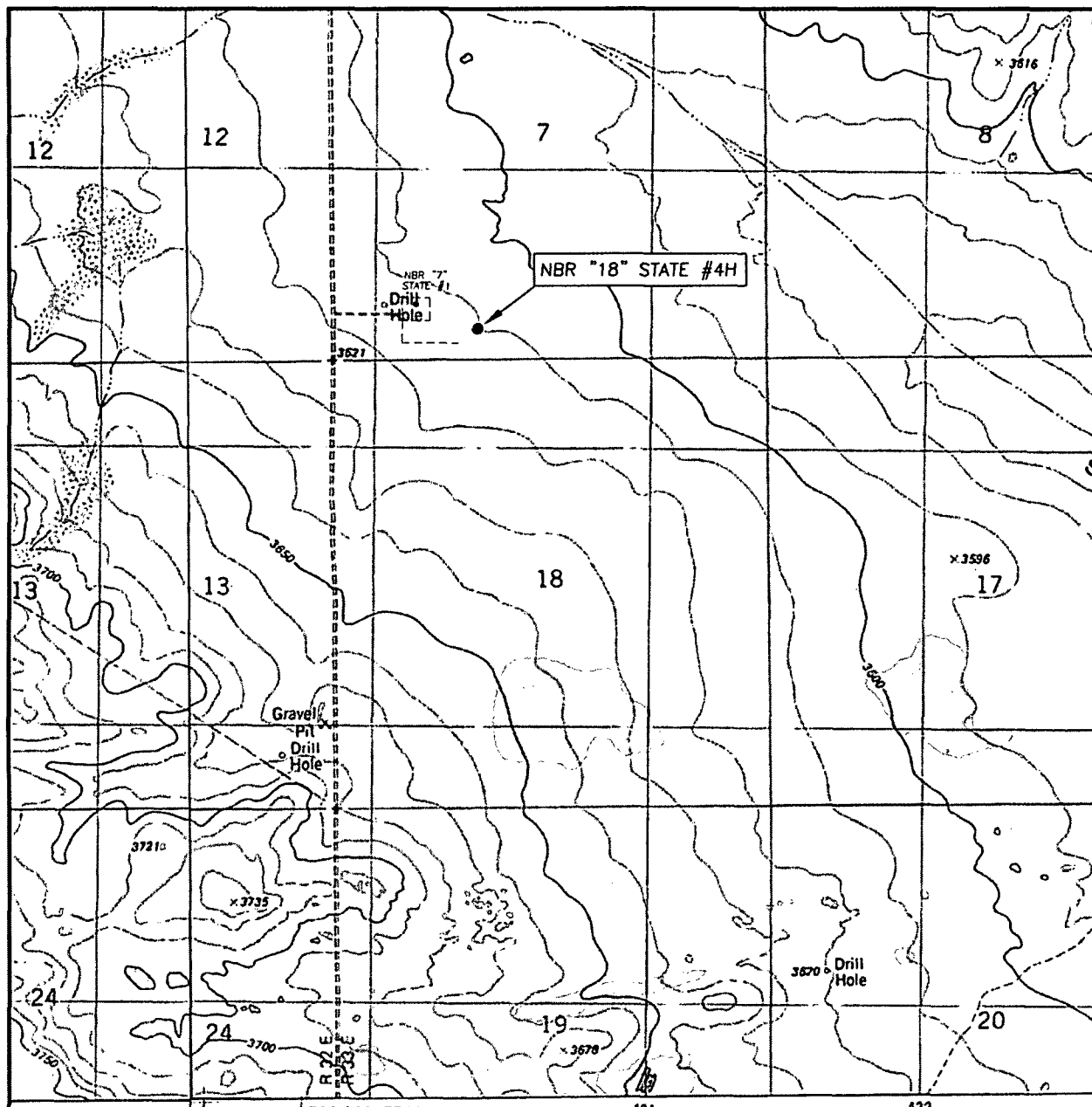
Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR
 HOBBS, NEW MEXICO - 575-393-9146



DIRECTIONS BEGINNING AT THE INTERSECTION OF HWY. #128 AND COUNTY ROAD #798 (RED ROAD), GO NORTH ON COUNTY ROAD #798 FOR 7.3 MILES, TURN RIGHT AND GO NORTHEAST ON CALICHE ROAD FOR 2.7 MILES, CONTINUE EAST SOUTHEAST FOR 2.5 MILES, CONTINUE NORTHEAST FOR 2.0 MILES, TURN LEFT AND GO NORTH FOR 1.2 MILES, TURN RIGHT AND GO EAST FOR 0.7 MILES, TURN LEFT AND GO NORTH FOR 0.2 MILES, TURN RIGHT AND GO EAST FOR 0.8 MILES, TURN RIGHT AND GO SOUTH FOR 0.6 MILES, TURN LEFT AND GO EAST FOR 0.1 MILES, TURN RIGHT AND GO SOUTHEAST FOR 153.6 FEET, TURN RIGHT ON PROPOSED ROAD AND GO SOUTH FOR 271.7 FEET, TURN LEFT AND GO EAST FOR 661.8 FEET TO LOCATION.

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 7 TWP. 22-S RGE. 33-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 370' FSL & 1720' FWL

ELEVATION 3609.2'

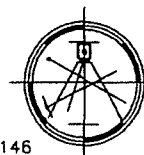
OPERATOR OXY USA INC.

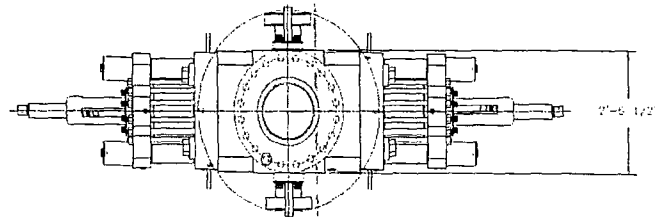
LEASE NBR "18" STATE #4H

U.S.G.S. TOPOGRAPHIC MAP
GRAMA RIDGE, N.M.

Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146





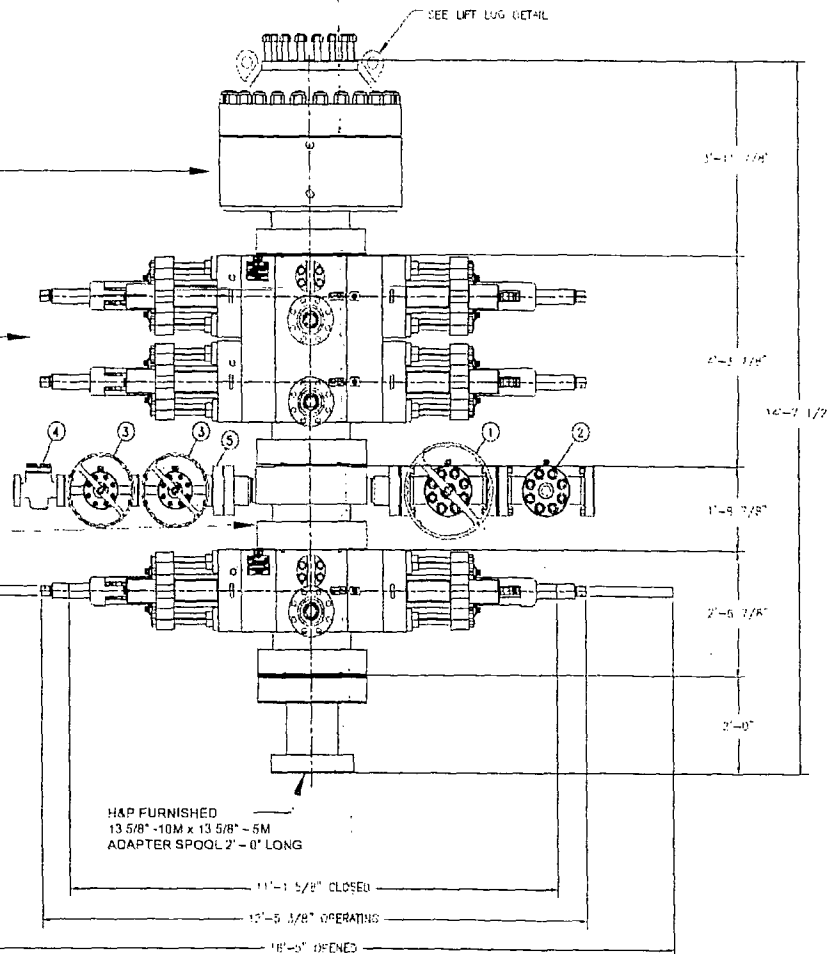
- LEGEND:**
- (1) - 4" 1/16"-10M FLANGED END GATE VALVE
 - (2) - 4" 1/16"-10M FLANGED END GATE VALVE WITH DOUBLE ACTING HYDRAULIC ACTUATOR
 - (3) - 2" 1/16"-10M FLANGED END GATE VALVE
 - (4) - 2" 1/16"-10M FLANGED END CHECK VALVE
 - (5) - DOUBLE STUCCED ADAPTER

SHAFFER RALTE-HOVER-SPHERICAL
ANNULAR PREVENTER (API 16A
MONOGRAMMED, 13 5/8"-10M WP,
10M BOTTOM FLANGE, 5M
STUCCED TOP (WEIGHT = 14,000
LBS WITH SHAFFER API 16A NOT
OIL RESISTANT ADAPTERS
ELEVENT)

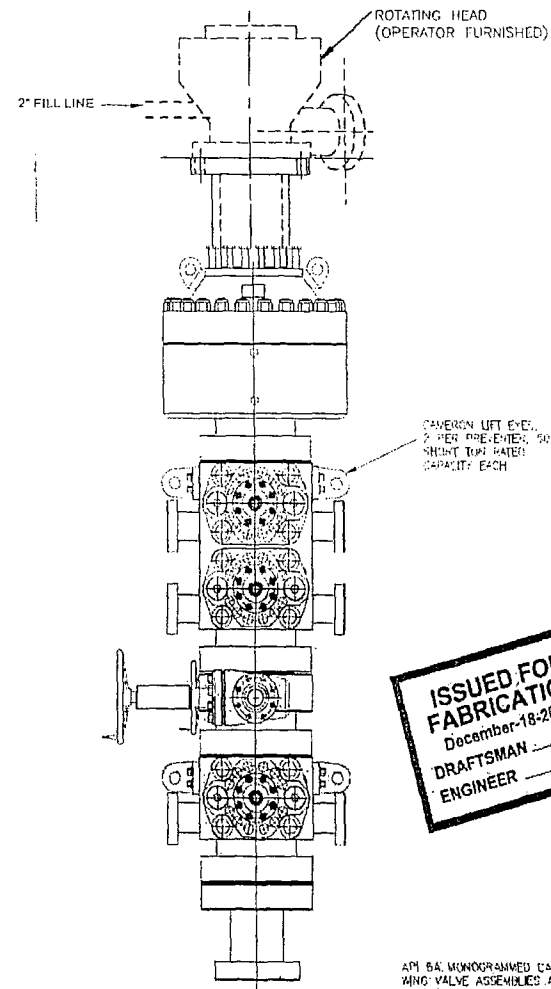
CAVERON UN DOUBLE
RAM-TYPE PREVENTER (API 16A
MONOGRAMMED, 13 5/8"-10M
WP), WITH 5" CAMERON PIPE
RAMS (CAMRAM FRONT PACKERS
& TOP SEALS) IN TOP CAVITY
AND CAMERON UN SHEARING
BLIND RAMS IN BOTTOM CAVITY
BOTTOM FLANGE & STUCCED
TOP (WEIGHT = 21,100 LBS.
WITH RAMS)

13 5/8"-10M WP
CAMERON DRILLING SPOOL
(API 16A MONOGRAMMED),
STUCCED TOP & FLANGED BOTTOM
WITH 4" 1/16"-10M WP FLANGED OUTLETS
(WEIGHT APPROXIMATELY 8,000 LBS)

CAMERON UN SINGLE RAM-TYPE
PREVENTER (API 16A
MONOGRAMMED, 13 5/8"-10M WP),
WITH 5" CAMERON PIPE RAMS
(CAMRAM FRONT PACKERS & TOP
SEALS) BOTTOM FLANGE
STUCCED TOP
WEIGHT = 10,900 LBS



**13 5/8 - 10M BOP STACK
WITH 13 5/8 - 5M ANNULAR**



**ISSUED FOR
FABRICATION**
December-18-2007
DRAFTSMAN
ENGINEER

API 16A MONOGRAMMED CAMERON CHOKES AND KILL
RING VALVE ASSEMBLIES ARE NOT SHOWN FOR
CLARITY

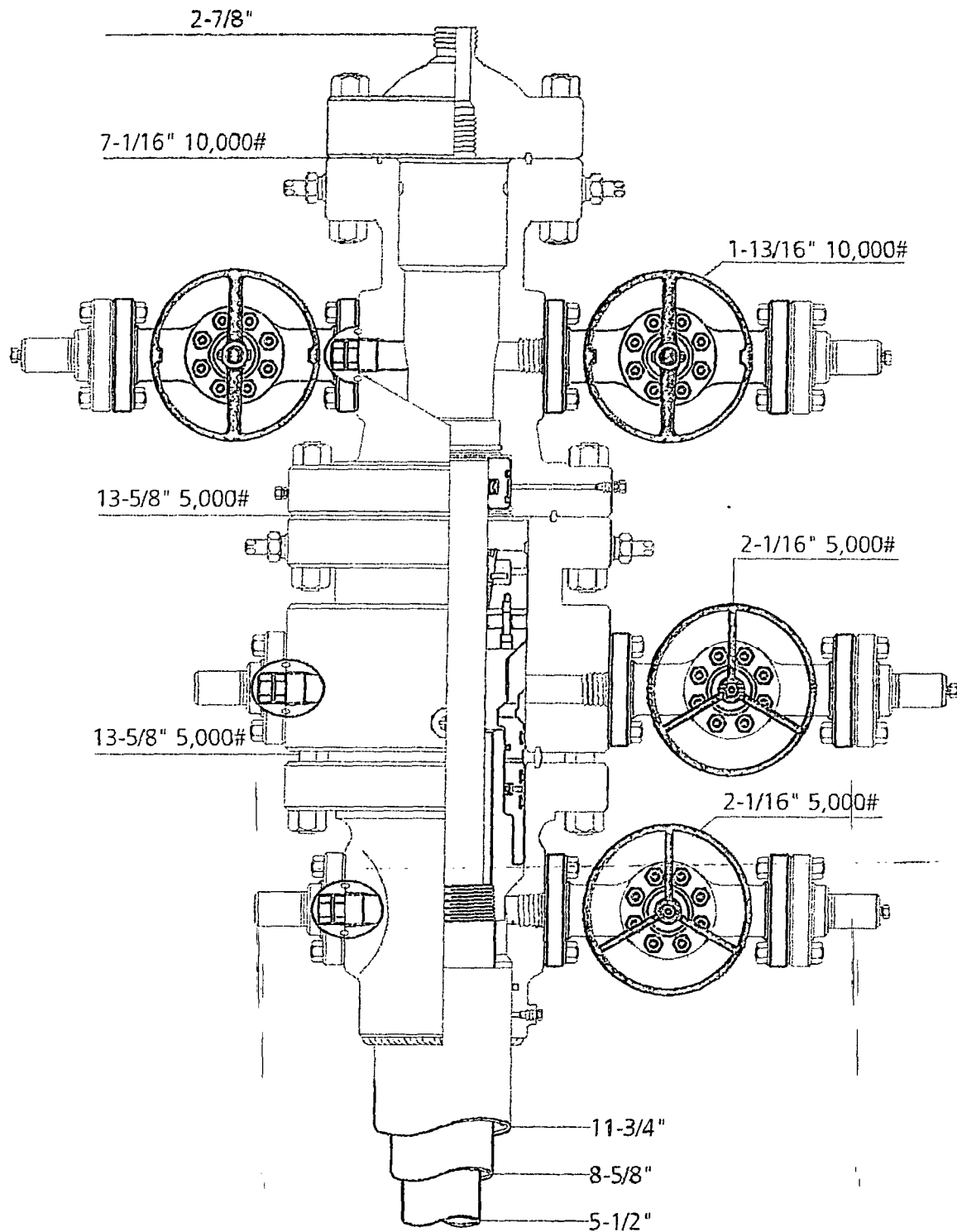
WEIGHTS DO NOT INCLUDE HOSES, ADAPTER SPOOLS
OR QUICK CONNECT FITTINGS

PROPRIETARY

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

ENGINEERING APPROVAL		DATE	TITLE
11/18/07	ADDED SHEET 01	JAV	13 5/8"-10M BOP 3 RAM STACK
4-10-07	QUICKENED SHEET 01	JUG	'FLEXRIG3'
4-04-07	ADDED TO 'SPACER-ADAPTER SPOOL	JUG	CUSTOMER: H&P
02-07-07	ADDED ADAPTER SPOOL	JUG	PROJECT: FLEXRIG3
06-13-02	CORRECTED BOP STACK	VAL	BRAND: NTS
REV	DATE	DESCRIPTION	BY
SCALE: 3/4"=1'	SHEET: 1 OF 1	DATE: 05-05-07	REV: 210-P1-07 E

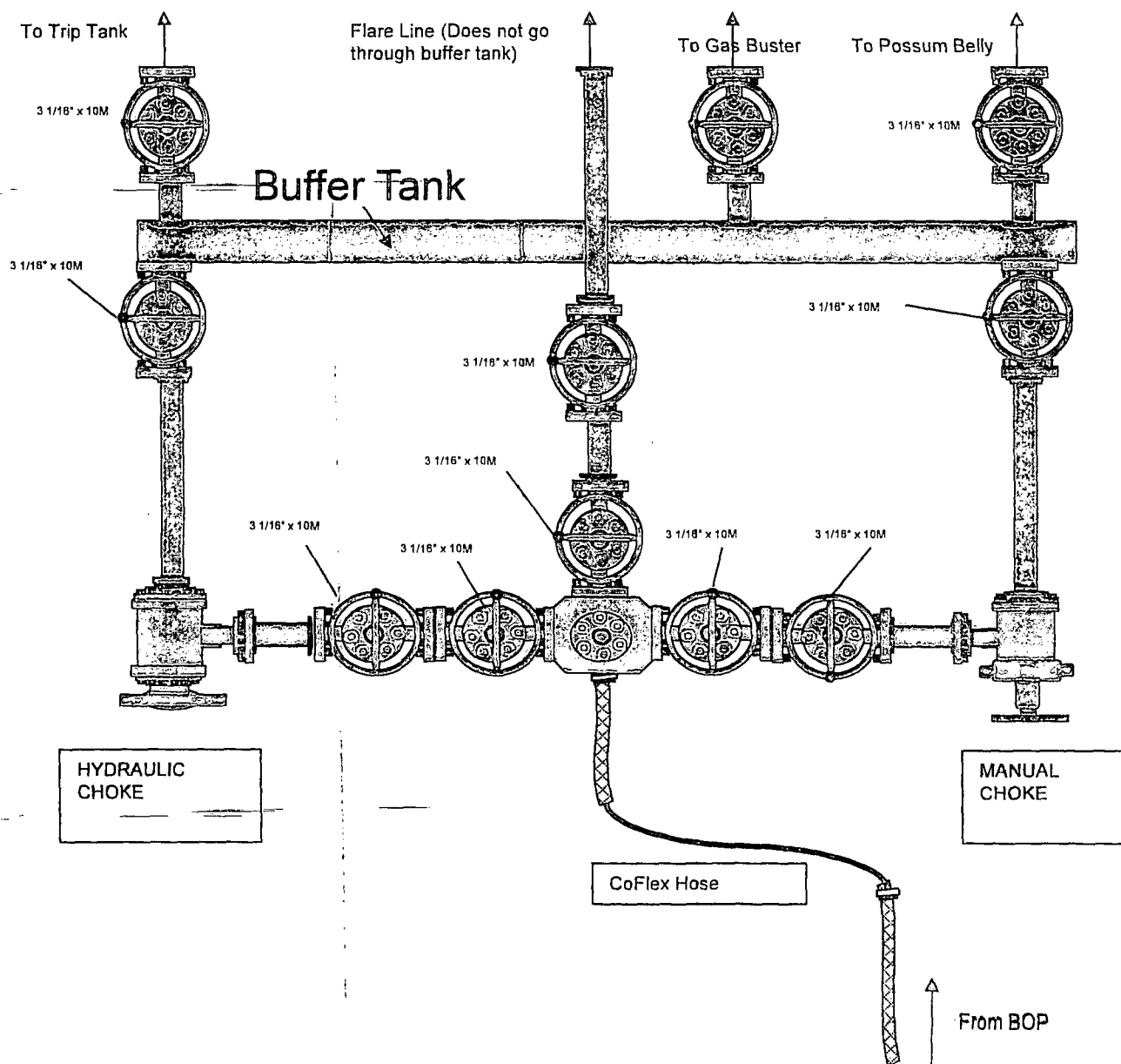
207-1



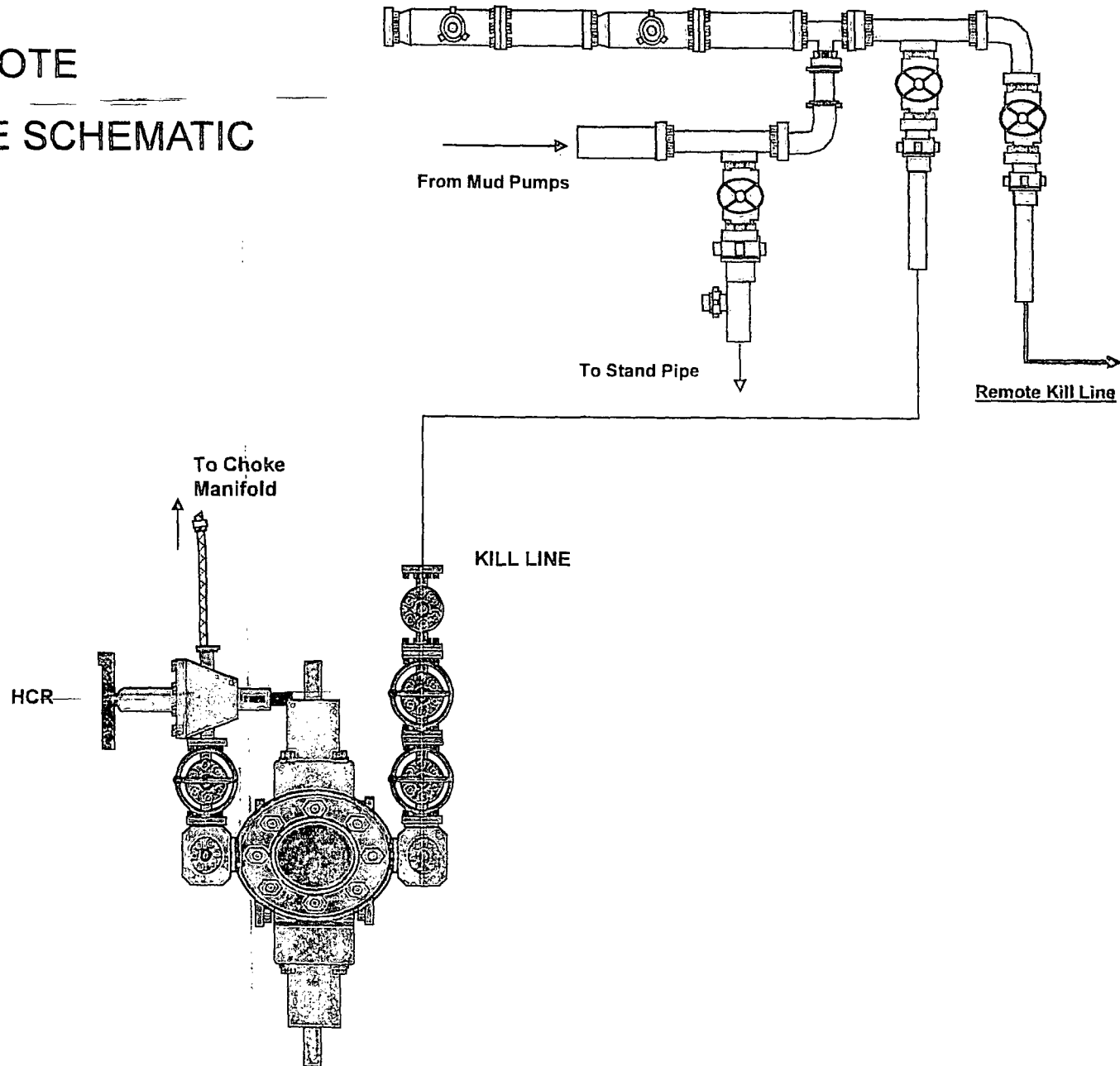
Permian Basin
MBS



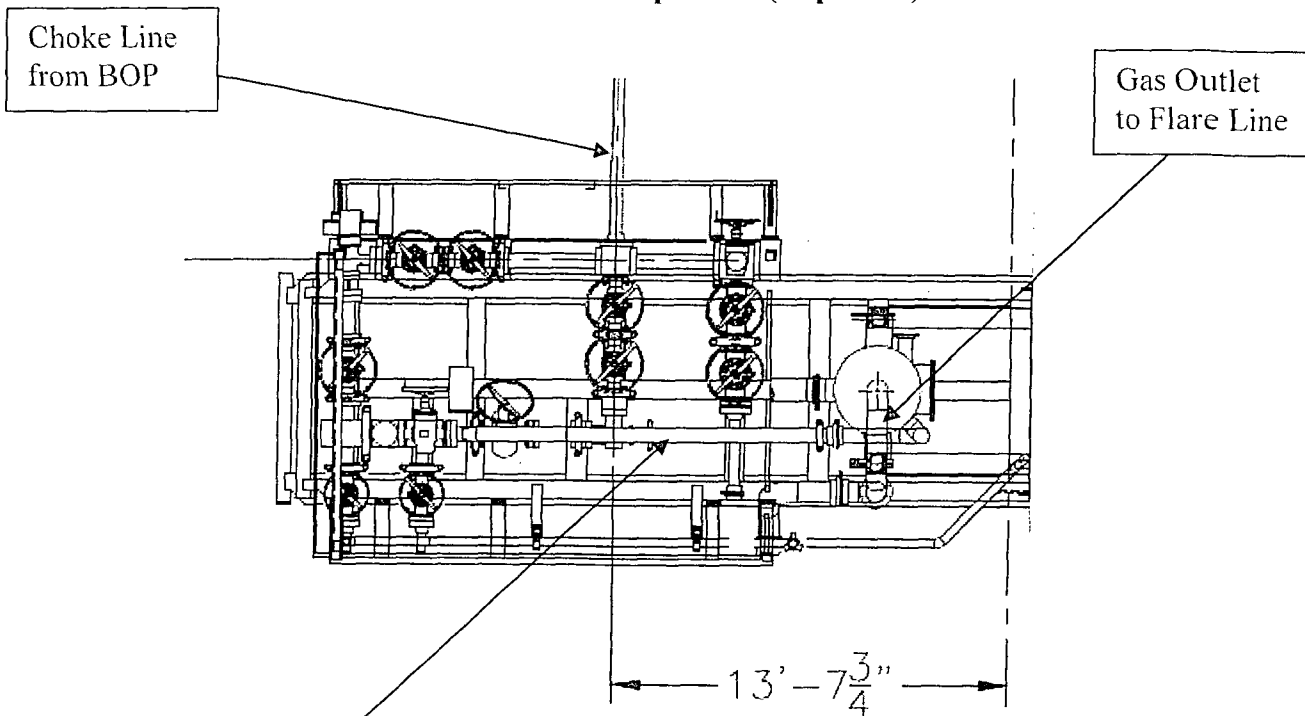
FLEX3 STD CHOKE MANIFOLD (COMPREHENSIVE)



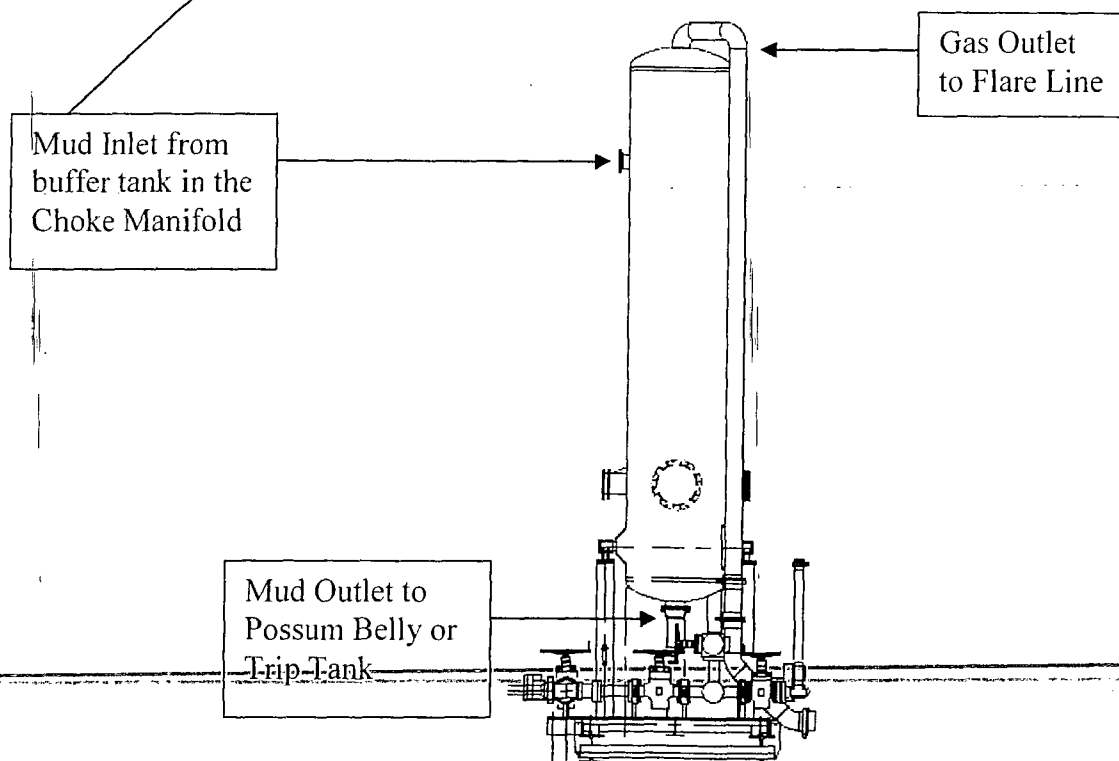
10M REMOTE KILL LINE SCHEMATIC



Choke Manifold – Gas Separator (Top View)

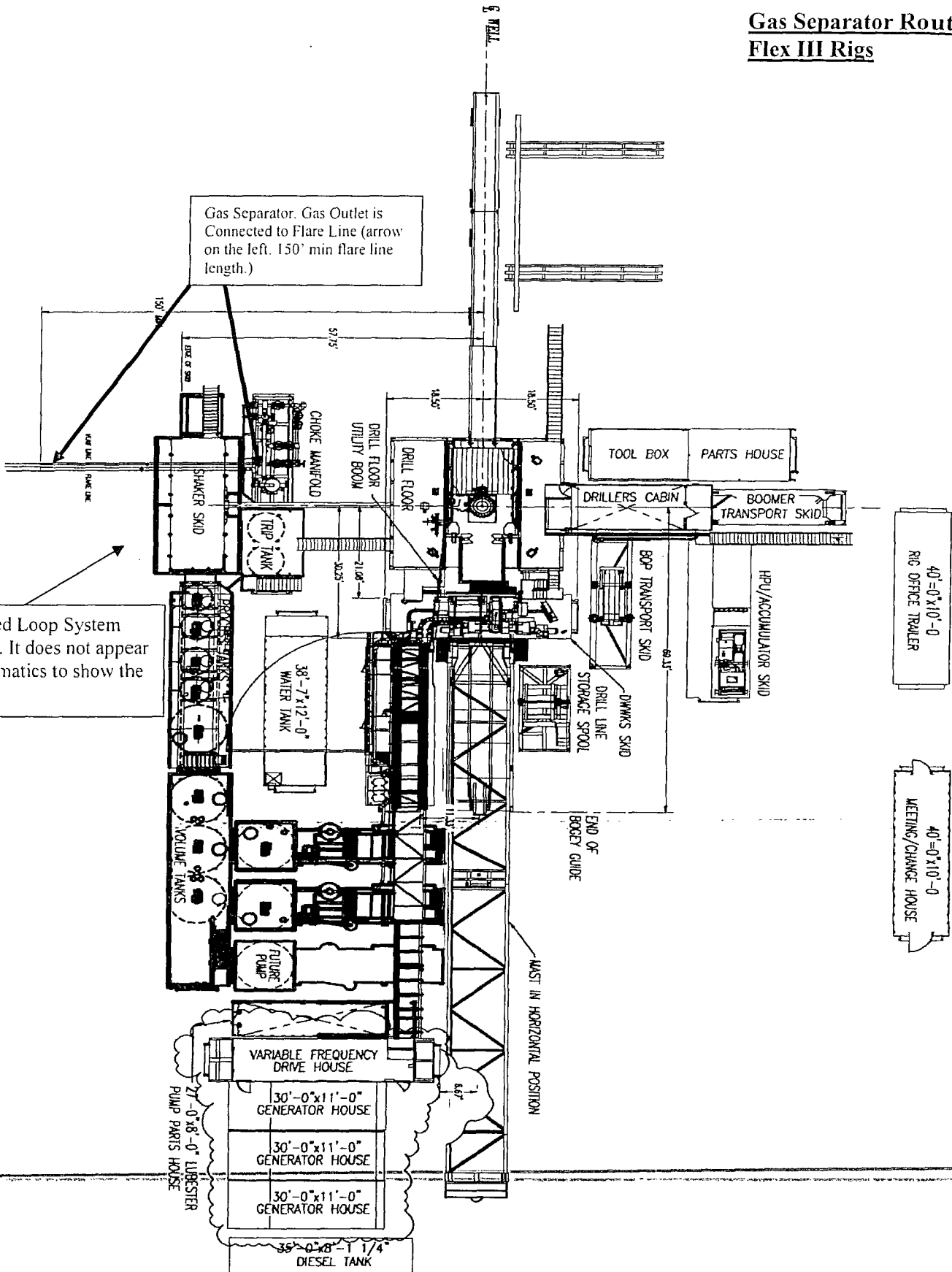


Choke Manifold – Gas Separator (Side View)

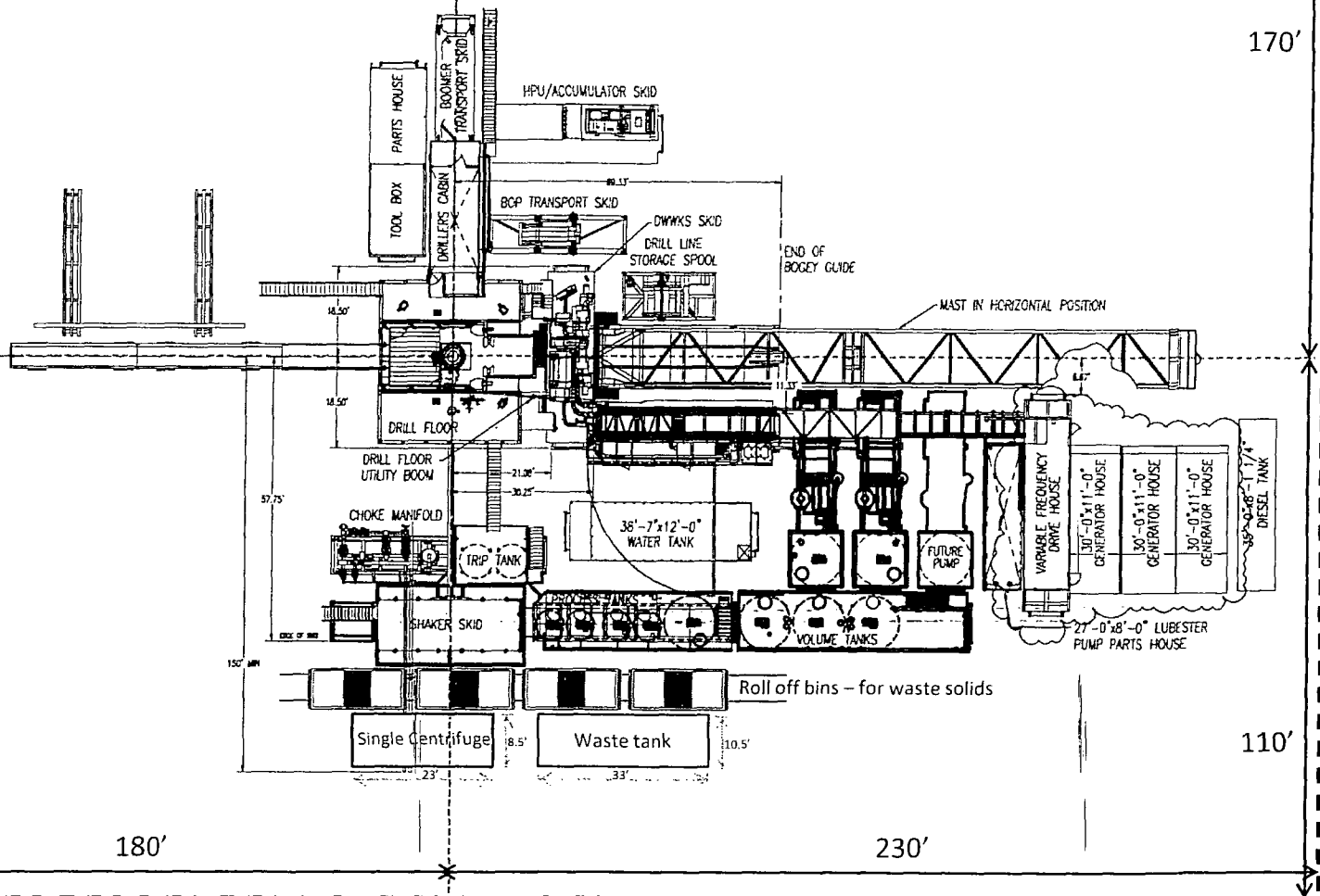


CM-4

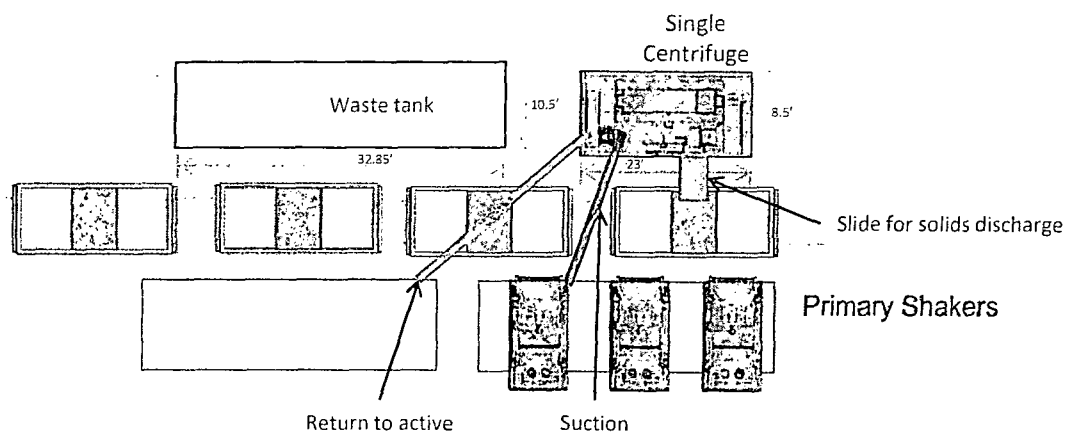
Gas Separator Routing Flex III Rigs



Oxy Single Centrifuge
Closed Loop System – New
Mexico Flex III
May 28, 2013



Oxy



Well Head



Oxy Single Centrifuge
Closed Loop System – New
Mexico Flex III
May 28, 2013