

HOBBS OCD

MAR 16 2015

RECEIVED

OXY

Lea County, New Mexico
Foxglove 29 Federal 6H
F29F 6H

Original Wellbore

Design: Original Wellbore

Standard Survey Report

28 December, 2014

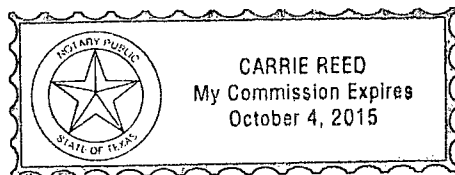
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 4th of March, 2015.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling

www.scientificdrilling.com

APR 02 2015

Handwritten initials

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well F29F 6H
Project:	Lea County, New Mexico	TVD Reference:	KB @ 3715.90usft
Site:	Foxglove 29 Federal 6H	MD Reference:	KB @ 3715.90usft
Well:	F29F 6H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	Midland District

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	Foxglove 29 Federal 6H				
Site Position:		Northing:	467,068.60 usft	Latitude:	32° 16' 54.856 N
From:	Map	Easting:	729,507.60 usft	Longitude:	103° 35' 26.525 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	F29F 6H					
Well Position	+N/-S	0.00 usft	Northing:	467,068.60 usft	Latitude:	32° 16' 54.856 N
	+E/-W	0.00 usft	Easting:	729,507.60 usft	Longitude:	103° 35' 26.525 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,691.90 usft

Wellbore	Original Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/11/2013	7.31	60.18	48,415

Design	Original Wellbore				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)	
	0.00	0.00	0.00	180.07	

Survey Program	Date 12/28/2014				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
229.00	15,585.00	SDI MWD (Original Wellbore)	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
229.00	0.58	52.31	229.00	0.71	0.92	-0.71	0.25	0.25	0.00	
500.00	0.35	318.57	499.99	2.17	1.45	-2.17	0.26	-0.08	-34.59	
774.00	0.46	9.27	773.98	3.88	1.08	-3.88	0.13	0.04	18.50	
1,047.00	0.50	337.88	1,046.97	6.07	0.81	-6.07	0.10	0.01	-11.50	
1,338.00	0.84	60.10	1,337.96	8.31	2.18	-8.31	0.32	0.12	28.25	
1,613.00	0.32	65.40	1,612.94	9.63	4.62	-9.64	0.19	-0.19	1.93	
1,896.00	0.54	32.74	1,895.94	11.08	6.06	-11.09	0.11	0.08	-11.54	
2,179.00	0.39	342.29	2,178.93	13.12	6.49	-13.13	0.15	-0.05	-17.83	
2,461.00	0.48	257.60	2,460.92	13.78	5.05	-13.79	0.21	0.03	-30.03	

Survey Report

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Project:	Lea County, New Mexico	TVD Reference:	KB @ 3715.90usft
Site:	Foxglove 29 Federal 6H	MD Reference:	KB @ 3715.90usft
Well:	F29F 6H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,744.00	0.38	274.50	2,743.92	13.60	2.95	-13.60	0.06	-0.04	5.97
3,026.00	0.28	294.90	3,025.91	13.96	1.39	-13.96	0.05	-0.04	7.23
3,309.00	0.38	274.38	3,308.91	14.33	-0.17	-14.33	0.05	0.04	-7.25
3,593.00	0.60	231.70	3,592.90	13.48	-2.27	-13.47	0.14	0.08	-15.03
3,875.00	0.86	236.57	3,874.87	11.40	-5.20	-11.39	0.09	0.09	1.73
4,158.00	0.34	188.78	4,157.86	9.40	-7.10	-9.39	0.24	-0.18	-16.89
4,441.00	1.66	103.02	4,440.82	7.64	-3.23	-7.64	0.59	0.47	-30.30
4,724.00	1.37	115.22	4,723.72	5.28	3.82	-5.28	0.15	-0.10	4.31
5,007.00	0.47	41.76	5,006.68	4.70	7.65	-4.71	0.46	-0.32	-25.96
5,143.00	0.41	10.89	5,142.68	5.60	8.12	-5.61	0.18	-0.04	-22.70
5,287.00	0.75	317.02	5,286.67	6.79	7.57	-6.80	0.42	0.24	-37.41
5,381.00	0.66	313.95	5,380.67	7.62	6.76	-7.62	0.10	-0.10	-3.27
5,475.00	0.66	306.72	5,474.66	8.32	5.94	-8.32	0.09	0.00	-7.69
5,758.00	0.93	305.44	5,757.63	10.62	2.76	-10.63	0.10	0.10	-0.45
6,040.00	1.32	304.74	6,039.58	13.80	-1.77	-13.80	0.14	0.14	-0.25
6,323.00	1.34	306.51	6,322.50	17.63	-7.11	-17.62	0.02	0.01	0.63
6,606.00	1.55	199.67	6,605.45	15.99	-11.06	-15.98	0.82	0.07	-37.75
6,888.00	1.26	24.18	6,887.42	15.23	-11.07	-15.21	1.00	-0.10	-52.23
7,171.00	1.22	195.76	7,170.40	15.17	-10.62	-15.15	0.87	-0.01	50.63
7,453.00	1.44	188.32	7,452.32	8.77	-11.94	-8.76	0.10	0.08	-2.64
7,735.00	0.38	170.34	7,734.28	4.34	-12.30	-4.33	0.38	-0.38	-6.38
8,018.00	0.27	61.70	8,017.28	3.73	-11.56	-3.72	0.19	-0.04	-38.39
8,301.00	0.42	223.30	8,300.28	3.30	-11.68	-3.28	0.24	0.05	57.10
8,583.00	0.54	206.39	8,582.27	1.35	-12.98	-1.34	0.07	0.04	-6.00
8,866.00	1.01	222.39	8,865.24	-1.68	-15.25	1.70	0.18	0.17	5.65
9,148.00	1.49	239.91	9,147.18	-5.36	-20.10	5.38	0.22	0.17	6.21
9,431.00	1.17	29.03	9,430.15	-4.68	-21.88	4.70	0.91	-0.11	52.69
9,714.00	1.56	63.05	9,713.07	-0.40	-17.05	0.42	0.31	0.14	12.02
9,902.00	1.20	96.82	9,901.02	0.52	-12.81	-0.51	0.46	-0.19	17.96
9,997.00	1.13	100.88	9,996.00	0.23	-10.90	-0.21	0.11	-0.07	4.27
10,091.00	0.94	290.96	10,089.99	0.33	-10.71	-0.31	2.19	-0.20	-180.77
10,185.00	1.33	303.94	10,183.97	1.21	-12.34	-1.20	0.49	0.41	13.81
10,279.00	1.16	286.91	10,277.95	2.10	-14.15	-2.08	0.43	-0.18	-18.12
10,373.00	0.76	271.02	10,371.94	2.39	-15.69	-2.37	0.51	-0.43	-16.90
10,475.00	0.34	343.44	10,473.94	2.69	-16.45	-2.67	0.72	-0.41	71.00
10,561.00	8.16	178.07	10,559.66	-3.18	-16.32	3.20	9.87	9.09	-192.29
10,655.00	22.78	192.82	10,650.03	-27.73	-20.15	27.75	15.98	15.55	15.69
10,750.00	30.66	187.21	10,734.83	-69.77	-27.29	69.80	8.70	8.29	-5.91
10,844.00	39.58	175.99	10,811.72	-123.58	-28.20	123.62	11.68	9.49	-11.94
10,938.00	45.61	180.80	10,880.91	-187.11	-26.58	187.15	7.29	6.41	5.12
11,036.00	52.53	182.67	10,945.08	-261.07	-28.88	261.10	7.21	7.06	1.91
11,130.00	59.63	182.46	10,997.50	-338.94	-32.36	338.98	7.56	7.55	-0.22
11,224.00	63.33	181.94	11,042.37	-421.46	-35.52	421.50	3.97	3.94	-0.55
11,318.00	68.35	182.01	11,080.83	-507.15	-38.48	507.19	5.34	5.34	0.07

Survey Report

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Well:	F29F 6H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,412.00	72.22	185.21	11,112.55	-595.43	-44.08	595.48	5.22	4.12	3.40
11,507.00	76.12	182.10	11,138.46	-686.61	-49.88	686.67	5.17	4.11	-3.27
11,601.00	79.76	182.11	11,158.10	-778.46	-53.26	778.52	3.87	3.87	0.01
11,695.00	89.40	182.35	11,166.97	-871.86	-56.90	871.93	10.26	10.26	0.26
11,789.00	91.78	180.98	11,166.00	-965.80	-59.63	965.88	2.92	2.53	-1.46
11,884.00	91.25	177.51	11,163.49	-1,060.75	-58.37	1,060.82	3.69	-0.56	-3.65
11,978.00	90.03	176.28	11,162.44	-1,154.60	-53.28	1,154.67	1.84	-1.30	-1.31
12,072.00	89.70	177.27	11,162.66	-1,248.45	-48.00	1,248.51	1.11	-0.35	1.05
12,167.00	91.07	176.60	11,162.02	-1,343.31	-42.92	1,343.36	1.61	1.44	-0.71
12,261.00	90.37	177.27	11,160.84	-1,437.17	-37.89	1,437.21	1.03	-0.74	0.71
12,355.00	90.27	177.37	11,160.31	-1,531.06	-33.50	1,531.10	0.15	-0.11	0.11
12,450.00	89.60	176.56	11,160.42	-1,625.93	-28.47	1,625.96	1.11	-0.71	-0.85
12,544.00	90.47	178.62	11,160.36	-1,719.84	-24.51	1,719.87	2.38	0.93	2.19
12,638.00	90.24	179.19	11,159.78	-1,813.82	-22.72	1,813.85	0.65	-0.24	0.61
12,732.00	91.18	178.53	11,158.62	-1,907.79	-20.85	1,907.82	1.22	1.00	-0.70
12,827.00	90.97	178.86	11,156.83	-2,002.75	-18.68	2,002.77	0.41	-0.22	0.35
12,921.00	91.14	178.88	11,155.10	-2,096.72	-16.83	2,096.73	0.18	0.18	0.02
13,016.00	90.74	178.77	11,153.54	-2,191.68	-14.88	2,191.70	0.44	-0.42	-0.12
13,110.00	90.30	178.87	11,152.69	-2,285.66	-12.95	2,285.67	0.48	-0.47	0.11
13,204.00	90.33	180.42	11,152.17	-2,379.65	-12.36	2,379.67	1.65	0.03	1.65
13,298.00	89.90	180.53	11,151.99	-2,473.65	-13.14	2,473.66	0.47	-0.46	0.12
13,392.00	89.63	179.94	11,152.37	-2,567.65	-13.53	2,567.66	0.69	-0.29	-0.63
13,487.00	90.67	179.34	11,152.12	-2,662.64	-12.93	2,662.66	1.26	1.09	-0.63
13,581.00	90.57	179.09	11,151.11	-2,756.63	-11.64	2,756.64	0.29	-0.11	-0.27
13,675.00	90.13	179.71	11,150.53	-2,850.62	-10.66	2,850.63	0.81	-0.47	0.66
13,769.00	89.70	178.64	11,150.67	-2,944.61	-9.31	2,944.62	1.23	-0.46	-1.14
13,864.00	90.20	180.67	11,150.75	-3,039.60	-8.74	3,039.61	2.20	0.53	2.14
13,958.00	90.57	182.27	11,150.12	-3,133.57	-11.15	3,133.58	1.75	0.39	1.70
14,052.00	90.64	182.90	11,149.13	-3,227.46	-15.39	3,227.48	0.67	0.07	0.67
14,146.00	90.47	182.28	11,148.22	-3,321.36	-19.63	3,321.39	0.68	-0.18	-0.66
14,240.00	90.50	182.71	11,147.42	-3,415.27	-23.72	3,415.30	0.46	0.03	0.46
14,334.00	90.87	182.20	11,146.30	-3,509.18	-27.75	3,509.21	0.67	0.39	-0.54
14,429.00	90.34	182.51	11,145.30	-3,604.09	-31.65	3,604.13	0.65	-0.56	0.33
14,523.00	90.30	182.23	11,144.77	-3,698.01	-35.54	3,698.05	0.30	-0.04	-0.30
14,617.00	90.67	181.55	11,143.98	-3,791.95	-38.64	3,792.00	0.82	0.39	-0.72
14,711.00	88.93	179.91	11,144.30	-3,885.94	-39.84	3,885.99	2.54	-1.85	-1.74
14,806.00	88.49	179.52	11,146.44	-3,980.91	-39.37	3,980.96	0.62	-0.46	-0.41
14,900.00	88.16	179.44	11,149.19	-4,074.87	-38.51	4,074.91	0.36	-0.35	-0.09
14,995.00	87.82	178.96	11,152.52	-4,169.80	-37.19	4,169.84	0.62	-0.36	-0.51
15,089.00	90.03	178.80	11,154.29	-4,263.76	-35.35	4,263.80	2.36	2.35	-0.17
15,183.00	90.17	178.61	11,154.12	-4,357.74	-33.23	4,357.77	0.25	0.15	-0.20
15,277.00	90.07	179.28	11,153.92	-4,451.72	-31.50	4,451.76	0.72	-0.11	0.71
15,371.00	90.54	178.21	11,153.42	-4,545.69	-29.44	4,545.73	1.24	0.50	-1.14

Survey Report

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Site:	Foxglove 29 Federal 6H	MD Reference:	KB @ 3715.90usft
Well:	F29F 6H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellbore	Database:	Midland District

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,426.38	90.80	178.70	11,152.78	-4,601.05	-27.94	4,601.08	1.00	0.47	0.88
F26F 6H LTP									
15,465.00	90.98	179.04	11,152.18	-4,639.66	-27.18	4,639.69	1.00	0.47	0.88
15,536.00	90.87	177.86	11,151.03	-4,710.62	-25.26	4,710.65	1.67	-0.15	-1.66
MWD Survey									
15,585.00	90.87	177.86	11,150.29	-4,759.58	-23.43	4,759.61	0.00	0.00	0.00
Projection to Bit/TD - F29F 6H BHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,536.00	11,151.03	-4,710.62	-25.26	MWD Survey
15,585.00	11,150.29	-4,759.58	-23.43	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____



F29F 6H
Lea County, New Mexico
Northing: 467068.60
Easting: 729507.60
Plan #2



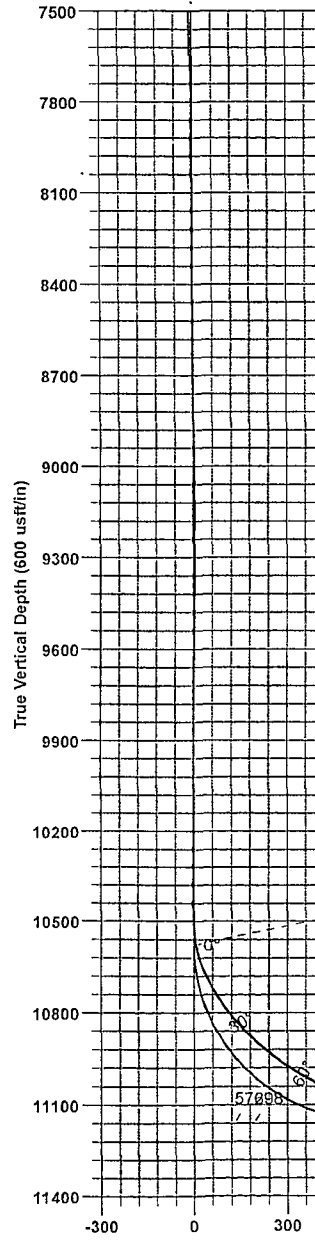
To convert Magnetic North to Grid, Add 6.92°
To convert True North to Grid, Subtract 0.40°

Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.92°

Magnetic Field
Strength: 48414.7nT
Dip Angle: 60.18°
Date: 10/11/2013
Model: IGRF2010



KB @ 3715.90usft
Gr @ 3691.90



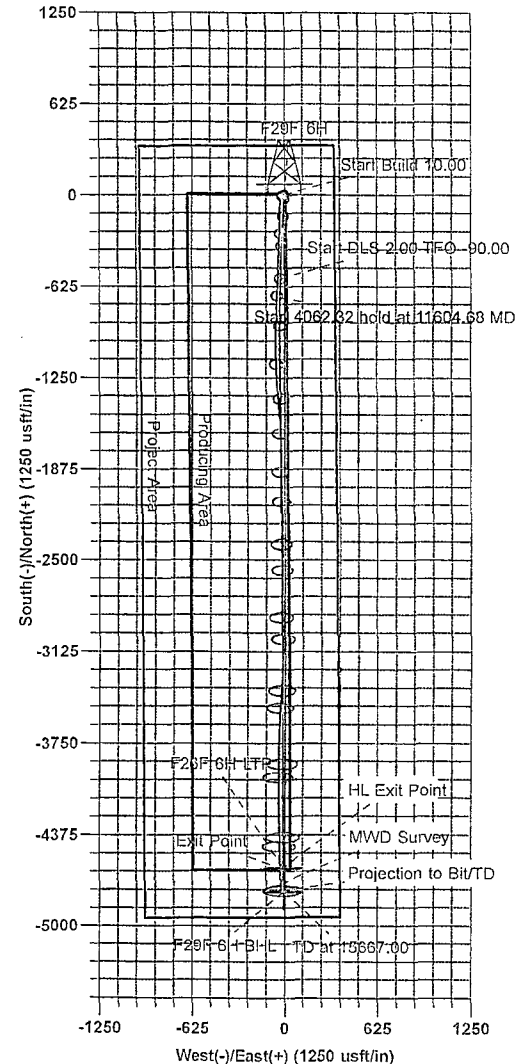
WELL DETAILS F29F 6H						
Ground Level: 3691.90						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	467068.60	729507.60	32° 16' 54.856 N	103° 35' 26.525 W	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10578.94	0.00	0.00	10578.94	0.00	0.00	0.00	0.00	0.00	
11478.94	90.00	183.00	11151.90	-572.17	-29.99	10.00	183.00	572.21	
11648.86	90.00	179.60	11151.90	-742.02	-33.84	2.00	-90.00	742.07	
15667.43	90.00	179.60	11151.90	-4760.50	-5.90	0.00	0.00	4760.50	F29F 6H BHL

DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	
F26F 6H LTP	11151.90	-4600.50	-5.70	462468.10	729501.90	
F29F 6H BHL	11151.90	-4760.50	-5.90	462308.10	729501.70	

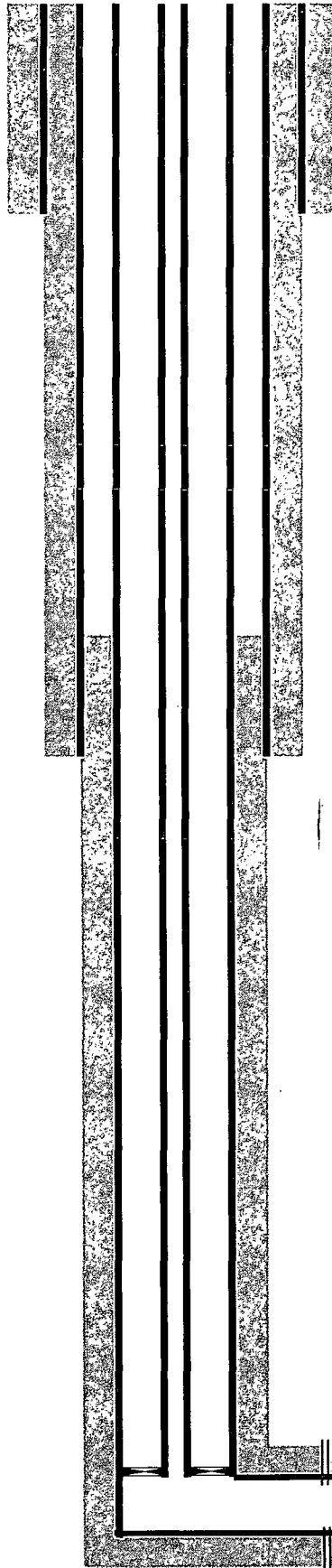
SITE DETAILS:	
Foxglove 29 Federal 6H	
Site Centre Northing: 467068.60	
Easting: 729507.60	
Positional Uncertainty: 0.00	
Convergence: 0.40	
Local North: Grid	

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



Vertical Section at 180.07 bearing (600 usft/in)

OXY USA INC.
Foxglove 29 Federal Com #6H
API No. 30-025-41850



14-3/4" hole @ 1399'
11-3/4" csg @ 1399'
w/ 1400sx-TOC-Surf-Circ.

10-5/8" hole @ 5203'
8-5/8" csg @ 5203'
w/ 1310sx-TOC-Surf-Circ.

7-7/8" hole @ 15585'
5-1/2" csg @ 15584'
w/ 1790sx-TOC @ 4440' calc.

2-7/8" tbg & pkr @ 10490'

Perfs @ 11349-15410'

TD- 15585'M 11150'V