MS Energy Services

Job Number: SVMO-141584
Company: OXY USA, Inc.
Lease/Well: Federal 23 12H
Location: Eddy County, NM
Rig Name: H&P #620
RKB: 25'
G.L. or M.S.L.: GL

State/Country: New Mexico/USA
Declination: 6.98°
Grid: East To Grid North
File name: S:\2014SU~1\OXY\MO\FEDERAL\2312H.SVY
Date/Time: 26-Nov-14 / 08:54
Curve Name: Surface - 822' M.D. (Rate Gyro) (API 30-015-41803)

30015 41803

MS SURVEY

We hereby certify that our survey data from Surface MD to 822' MD is, to the best of our knowledge a true and accurate account of the well bore.

Curtis Bingeman 11/26/14
MS Energy Services Date

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane .00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
52.00	.21	155.92	52.00	-.09	.04	-.09	.10	155.91	.40
143.00	.54	140.87	143.00	-.57	.38	-.57	.69	146.57	.38
234.00	.95	179.87	233.99	-1.66	.65	-1.66	1.78	158.61	.69
325.00	.84	183.39	324.98	-3.08	.61	-3.08	3.14	168.76	.14
416.00	.82	188.00	415.97	-4.39	.48	-4.39	4.42	173.73	.08
507.00	.77	188.43	506.96	-5.64	.30	-5.64	5.65	176.94	.06
596.00	.67	195.92	595.95	-6.73	.07	-6.73	6.73	179.39	.15
689.00	.63	197.96	688.95	-7.74	-.24	-7.74	7.74	181.74	.05
778.00	.62	201.36	777.94	-8.65	-.56	-8.65	8.67	183.71	.04

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
Last Survey Depth Recorded									
822.00	.56	200.78	821.94	-9.08	-.72	-9.08	9.11	184.56	.14

OXY

Federal (New Mexico)
Federal 23 12H
Federal 23 12H

Original Wellbore

Design: OH

Standard Survey Report

10 December, 2014

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

Notarized this date 4th of March, 2015.

Carrie Reed
Notary Signature
County of Midland
State of Texas

NOTARY PUBLIC STATE OF TEXAS
CARRIE REED
My Commission Expires
October 4, 2015

Scientific Drilling

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well Federal 23 12H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3570.30usft
Site:	Federal 23 12H	MD Reference:	KB @ 3570.30usft
Well:	Federal 23 12H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Project Federal (New Mexico), 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 Federal 23 12H

Site Position:		Northing:	497,723.50 usft	Latitude:	32° 22' 1.312 N
From:	Map	Easting:	678,539.70 usft	Longitude:	103° 45' 18.280 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well Federal 23 12H

Well Position	+N/-S	0.00 usft	Northing:	497,723.50 usft	Latitude:	32° 22' 1.312 N
	+E/-W	0.00 usft	Easting:	678,539.70 usft	Longitude:	103° 45' 18.280 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,546.30 usft

Wellbore Original Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/8/2014	7.37	60.22	48,425

Design OH

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	1.03

Survey Program Date 12/10/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
52.00	778.00	MS Gyro (Original Wellbore)	Generic Gyro	Generic Gyro
822.00	12,278.00	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
52.00	0.21	155.92	52.00	-0.09	0.04	-0.09	0.40	0.40	0.00
143.00	0.54	140.87	143.00	-0.57	0.38	-0.56	0.38	0.36	-16.54
234.00	0.95	179.87	233.99	-1.66	0.65	-1.65	0.69	0.45	42.86
325.00	0.84	183.39	324.98	-3.08	0.61	-3.07	0.14	-0.12	3.87
416.00	0.82	188.00	415.97	-4.39	0.48	-4.38	0.08	-0.02	5.07
507.00	0.77	188.43	506.96	-5.64	0.30	-5.63	0.06	-0.05	0.47
596.00	0.67	195.92	595.95	-6.73	0.07	-6.73	0.15	-0.11	8.42
689.00	0.63	197.96	688.95	-7.74	-0.24	-7.74	0.05	-0.04	2.19
778.00	0.62	201.36	777.94	-8.65	-0.56	-8.66	0.04	-0.01	3.82

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well Federal 23 12H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3570.30usft
Site:	Federal 23 12H	MD Reference:	KB @ 3570.30usft
Well:	Federal 23 12H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
822.00	0.56	200.78	821.94	-9.08	-0.72	-9.09	0.14	-0.14	-1.32
969.00	0.94	173.19	968.93	-10.95	-0.84	-10.96	0.35	0.26	-18.77
1,064.00	0.47	169.14	1,063.92	-12.10	-0.67	-12.11	0.50	-0.49	-4.26
1,158.00	0.48	161.51	1,157.92	-12.85	-0.47	-12.86	0.07	0.01	-8.12
1,253.00	0.48	195.95	1,252.91	-13.61	-0.46	-13.62	0.30	0.00	36.25
1,347.00	0.42	178.44	1,346.91	-14.34	-0.56	-14.35	0.16	-0.06	-18.63
1,442.00	0.17	132.71	1,441.91	-14.78	-0.44	-14.79	0.34	-0.26	-48.14
1,537.00	0.19	181.10	1,536.91	-15.03	-0.34	-15.04	0.16	0.02	50.94
1,631.00	0.24	185.10	1,630.91	-15.39	-0.36	-15.39	0.06	0.05	4.26
1,726.00	0.33	128.19	1,725.91	-15.75	-0.16	-15.75	0.30	0.09	-59.91
1,820.00	0.14	70.80	1,819.91	-15.88	0.16	-15.88	0.30	-0.20	-61.05
1,915.00	0.24	173.69	1,914.91	-16.04	0.29	-16.04	0.32	0.11	108.31
2,010.00	0.23	160.41	2,009.91	-16.42	0.37	-16.41	0.06	-0.01	-13.98
2,104.00	0.18	142.75	2,103.91	-16.72	0.53	-16.70	0.09	-0.05	-18.79
2,199.00	0.17	156.26	2,198.91	-16.96	0.67	-16.95	0.04	-0.01	14.22
2,293.00	0.17	105.95	2,292.90	-17.13	0.86	-17.11	0.15	0.00	-53.52
2,387.00	0.17	28.93	2,386.90	-17.05	1.07	-17.02	0.23	0.00	-81.94
2,482.00	0.24	144.21	2,481.90	-17.08	1.25	-17.06	0.37	0.07	121.35
2,576.00	0.08	214.26	2,575.90	-17.30	1.33	-17.27	0.24	-0.17	74.52
2,670.00	0.13	145.90	2,669.90	-17.44	1.35	-17.41	0.13	0.05	-72.72
2,764.00	0.10	201.13	2,763.90	-17.61	1.38	-17.58	0.12	-0.03	58.76
2,858.00	0.20	341.21	2,857.90	-17.53	1.30	-17.50	0.30	0.11	149.02
2,953.00	0.21	351.68	2,952.90	-17.20	1.22	-17.17	0.04	0.01	11.02
3,047.00	0.22	308.28	3,046.90	-16.91	1.05	-16.89	0.17	0.01	-46.17
3,141.00	0.20	354.09	3,140.90	-16.64	0.89	-16.62	0.18	-0.02	48.73
3,236.00	0.14	298.09	3,235.90	-16.42	0.78	-16.40	0.18	-0.06	-58.95
3,330.00	0.12	310.14	3,329.90	-16.30	0.60	-16.29	0.04	-0.02	12.82
3,424.00	0.12	209.94	3,423.90	-16.32	0.47	-16.31	0.20	0.00	-106.60
3,519.00	0.38	66.64	3,518.90	-16.29	0.71	-16.27	0.51	0.27	-150.84
3,613.00	0.56	116.72	3,612.90	-16.37	1.41	-16.34	0.46	0.19	53.28
3,708.00	0.76	96.09	3,707.89	-16.64	2.45	-16.60	0.32	0.21	-21.72
3,802.00	0.75	112.24	3,801.88	-16.94	3.64	-16.87	0.23	-0.01	17.18
3,896.00	0.71	95.31	3,895.88	-17.23	4.79	-17.14	0.23	-0.04	-18.01
3,991.00	0.72	104.42	3,990.87	-17.43	5.95	-17.32	0.12	0.01	9.59
4,085.00	0.91	101.59	4,084.86	-17.73	7.26	-17.60	0.21	0.20	-3.01
4,179.00	1.04	108.96	4,178.85	-18.16	8.80	-18.00	0.19	0.14	7.84
4,274.00	0.78	95.47	4,273.83	-18.50	10.25	-18.31	0.35	-0.27	-14.20
4,368.00	0.62	86.67	4,367.83	-18.53	11.40	-18.32	0.20	-0.17	-9.36
4,398.00	0.63	86.77	4,397.82	-18.51	11.73	-18.30	0.03	0.03	0.33
4,557.00	0.70	41.73	4,556.81	-17.74	13.25	-17.50	0.32	0.04	-28.33
4,652.00	2.88	6.98	4,651.76	-14.94	13.92	-14.68	2.46	2.29	-36.58
4,746.00	6.12	10.21	4,745.46	-7.66	15.10	-7.38	3.46	3.45	3.44
4,840.00	9.95	10.93	4,838.52	5.25	17.53	5.57	4.08	4.07	0.77

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well Federal 23 12H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3570.30usft
Site:	Federal 23 12H	MD Reference:	KB @ 3570.30usft
Well:	Federal 23 12H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
4,935.00	12.93	2.76	4,931.63	23.93	19.59	24.28	3.56	3.14	-8.60
5,029.00	13.58	355.36	5,023.13	45.44	19.21	45.78	1.93	0.69	-7.87
5,124.00	14.18	354.99	5,115.36	68.15	17.29	68.45	0.64	0.63	-0.39
5,218.00	13.93	354.41	5,206.54	90.88	15.18	91.14	0.31	-0.27	-0.62
5,312.00	12.84	0.61	5,297.99	112.58	14.19	112.82	1.92	-1.16	6.60
5,407.00	12.56	359.91	5,390.67	133.47	14.29	133.70	0.34	-0.29	-0.74
5,501.00	12.78	359.11	5,482.38	154.08	14.11	154.31	0.30	0.23	-0.85
5,596.00	12.64	359.00	5,575.05	174.98	13.77	175.20	0.15	-0.15	-0.12
5,690.00	12.76	359.15	5,666.75	195.65	13.43	195.86	0.13	0.13	0.16
5,785.00	13.28	359.87	5,759.31	217.05	13.25	217.25	0.57	0.55	0.76
5,879.00	13.39	359.39	5,850.78	238.73	13.11	238.93	0.17	0.12	-0.51
5,973.00	13.13	358.33	5,942.27	260.28	12.68	260.47	0.38	-0.28	-1.13
6,067.00	12.61	357.55	6,033.91	281.21	11.93	281.38	0.58	-0.55	-0.83
6,161.00	12.18	358.16	6,125.72	301.37	11.18	301.52	0.48	-0.46	0.65
6,255.00	11.85	358.42	6,217.66	320.93	10.59	321.07	0.36	-0.35	0.28
6,349.00	11.69	358.67	6,309.68	340.10	10.11	340.22	0.18	-0.17	0.27
6,443.00	11.92	358.97	6,401.69	359.32	9.71	359.44	0.25	0.24	0.32
6,475.00	13.10	0.58	6,432.93	366.25	9.69	366.37	3.84	3.69	5.03
6,506.00	15.26	2.88	6,462.99	373.84	9.93	373.96	7.20	6.97	7.42
6,538.00	17.33	3.90	6,493.70	382.80	10.46	382.93	6.53	6.47	3.19
6,569.00	19.97	3.40	6,523.07	392.70	11.09	392.83	8.53	8.52	-1.61
6,601.00	22.79	3.17	6,552.86	404.34	11.76	404.49	8.82	8.81	-0.72
6,632.00	25.52	2.57	6,581.15	417.01	12.39	417.17	8.84	8.81	-1.94
6,664.00	28.49	2.19	6,609.66	431.53	12.99	431.69	9.30	9.28	-1.19
6,695.00	31.79	2.69	6,636.46	447.08	13.66	447.25	10.68	10.65	1.61
6,727.00	34.62	2.74	6,663.23	464.58	14.49	464.76	8.84	8.84	0.16
6,758.00	37.93	2.02	6,688.22	482.90	15.24	483.10	10.77	10.68	-2.32
6,790.00	40.55	1.45	6,713.00	503.13	15.85	503.34	8.26	8.19	-1.78
6,821.00	42.07	1.13	6,736.29	523.59	16.31	523.80	4.95	4.90	-1.03
6,852.00	44.29	1.26	6,758.89	544.80	16.76	545.01	7.17	7.16	0.42
6,883.00	46.65	2.15	6,780.63	566.89	17.42	567.11	7.88	7.61	2.87
6,915.00	47.72	2.38	6,802.38	590.34	18.35	590.57	3.39	3.34	0.72
6,946.00	49.58	1.78	6,822.86	613.59	19.19	613.84	6.17	6.00	-1.94
6,977.00	51.85	0.47	6,842.49	637.58	19.66	637.83	8.02	7.32	-4.23
7,009.00	53.96	359.83	6,861.79	663.10	19.72	663.35	6.78	6.59	-2.00
7,040.00	57.36	359.23	6,879.27	688.70	19.51	688.94	11.08	10.97	-1.94
7,071.00	59.32	359.12	6,895.54	715.08	19.13	715.31	6.33	6.32	-0.35
7,103.00	61.26	359.02	6,911.40	742.87	18.68	743.08	6.07	6.06	-0.31
7,134.00	63.49	358.69	6,925.77	770.33	18.13	770.53	7.26	7.19	-1.06
7,166.00	66.16	358.40	6,939.38	799.27	17.39	799.46	8.38	8.34	-0.91
7,197.00	68.38	358.08	6,951.36	827.85	16.51	828.01	7.22	7.16	-1.03
7,228.00	70.21	358.10	6,962.32	856.83	15.55	856.97	5.90	5.90	0.06
7,260.00	72.44	358.84	6,972.57	887.13	14.74	887.26	7.30	6.97	2.31

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well Federal 23 12H
Project:	Federal (New Mexico)	TVD Reference:	KB @ 3570.30usft
Site:	Federal 23 12H	MD Reference:	KB @ 3570.30usft
Well:	Federal 23 12H	North Reference:	Grid
Wellbore:	Original Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
7,291.00	75.20	359.87	6,981.20	916.90	14.40	917.01	9.46	8.90	3.32
7,322.00	77.97	0.73	6,988.40	947.05	14.56	947.16	9.33	8.94	2.77
7,354.00	80.37	1.70	6,994.41	978.47	15.23	978.59	8.07	7.50	3.03
7,385.00	82.19	2.72	6,999.11	1,009.09	16.41	1,009.22	6.71	5.87	3.29
7,417.00	84.95	4.21	7,002.69	1,040.83	18.34	1,040.99	9.79	8.63	4.66
7,448.00	87.18	3.47	7,004.82	1,071.68	20.41	1,071.87	7.58	7.19	-2.39
7,480.00	89.09	3.47	7,005.86	1,103.60	22.34	1,103.83	5.97	5.97	0.00
7,511.00	90.77	3.34	7,005.90	1,134.55	24.18	1,134.80	5.44	5.42	-0.42
7,543.00	92.12	3.31	7,005.09	1,166.48	26.04	1,166.76	4.22	4.22	-0.09
7,574.00	92.76	3.28	7,003.77	1,197.40	27.82	1,197.71	2.07	2.06	-0.10
7,606.00	91.31	2.51	7,002.63	1,229.34	29.43	1,229.67	5.13	-4.53	-2.41
7,641.00	91.14	2.33	7,001.89	1,264.30	30.91	1,264.65	0.71	-0.49	-0.51
7,647.56	90.99	2.26	7,001.76	1,270.86	31.17	1,271.22	2.48	-2.23	-1.08
F2312H PP									
7,754.00	88.62	1.11	7,002.12	1,377.24	34.30	1,377.64	2.48	-2.23	-1.08
7,848.00	87.11	1.01	7,005.62	1,471.16	36.04	1,471.57	1.61	-1.61	-0.11
7,943.00	89.03	1.81	7,008.82	1,566.07	38.38	1,566.51	2.19	2.02	0.84
8,037.00	89.56	2.47	7,009.98	1,659.99	41.89	1,660.48	0.90	0.56	0.70
8,131.00	88.29	2.16	7,011.74	1,753.90	45.68	1,754.44	1.39	-1.35	-0.33
8,225.00	88.86	2.16	7,014.08	1,847.80	49.22	1,848.39	0.61	0.61	0.00
8,319.00	89.16	359.80	7,015.71	1,941.77	50.83	1,942.37	2.53	0.32	-2.51
8,414.00	93.40	0.25	7,013.58	2,036.72	50.87	2,037.31	4.49	4.46	0.47
8,508.00	93.50	0.13	7,007.93	2,130.55	51.18	2,131.13	0.17	0.11	-0.13
8,602.00	94.31	1.02	7,001.53	2,224.33	52.13	2,224.91	1.28	0.86	0.95
8,696.00	88.82	355.98	6,998.96	2,318.19	49.66	2,318.71	7.93	-5.84	-5.36
8,791.00	90.30	356.32	6,999.69	2,412.97	43.28	2,413.36	1.60	1.56	0.36
8,886.00	89.63	357.87	6,999.75	2,507.85	38.47	2,508.13	1.78	-0.71	1.63
8,980.00	89.36	359.73	7,000.57	2,601.82	36.50	2,602.05	2.00	-0.29	1.98
9,074.00	91.34	0.34	7,000.00	2,695.81	36.56	2,696.03	2.20	2.11	0.65
9,168.00	90.77	1.18	6,998.27	2,789.79	37.80	2,790.02	1.08	-0.61	0.89
9,262.00	90.60	2.96	6,997.15	2,883.72	41.20	2,883.99	1.90	-0.18	1.89
9,357.00	88.32	1.89	6,998.04	2,978.62	45.22	2,978.95	2.65	-2.40	-1.13
9,451.00	88.42	2.70	7,000.71	3,072.50	48.98	3,072.89	0.87	0.11	0.86
9,545.00	90.71	4.82	7,001.43	3,166.29	55.15	3,166.77	3.32	2.44	2.26
9,640.00	89.90	4.32	7,000.92	3,260.98	62.71	3,261.58	1.00	-0.85	-0.53
9,734.00	89.87	4.38	7,001.11	3,354.71	69.84	3,355.43	0.07	-0.03	0.06
9,828.00	88.25	359.64	7,002.65	3,448.61	73.14	3,449.37	5.33	-1.72	-5.04
9,922.00	90.84	357.52	7,003.40	3,542.57	70.81	3,543.27	3.56	2.76	-2.26
10,016.00	91.25	355.18	7,001.69	3,636.35	64.83	3,636.93	2.53	0.44	-2.49
10,110.00	89.39	354.46	7,001.16	3,729.96	56.34	3,730.37	2.12	-1.98	-0.77
10,205.00	90.44	355.01	7,001.30	3,824.56	47.62	3,824.80	1.25	1.11	0.58
10,299.00	90.27	354.15	7,000.72	3,918.14	38.75	3,918.20	0.93	-0.18	-0.91
10,392.00	90.77	354.51	6,999.88	4,010.68	29.56	4,010.56	0.66	0.54	0.39
10,487.00	92.16	353.55	6,997.45	4,105.13	19.68	4,104.82	1.78	1.46	-1.01

Survey Report

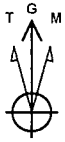
Company:	OXY	**Local Co-ordinate Reference:**	Well Federal 23 12H
Project:	Federal (New Mexico)	**TVD Reference:**	KB @ 3570.30usft
Site:	Federal 23 12H	**MD Reference:**	KB @ 3570.30usft
Well:	Federal 23 12H	**North Reference:**	Grid
Wellbore:	Original Wellbore	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**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)
10,581.00	91.81	354.90	6,994.19	4,198.59	10.23	4,198.09	1.48	-0.37	1.44
10,675.00	92.83	357.35	6,990.39	4,292.29	3.88	4,291.66	2.82	1.09	2.61
10,769.00	92.36	0.84	6,986.13	4,386.17	2.40	4,385.50	3.74	-0.50	3.71
10,864.00	91.11	3.29	6,983.25	4,481.06	5.82	4,480.43	2.89	-1.32	2.58
10,958.00	89.76	4.47	6,982.54	4,574.83	12.18	4,574.31	1.91	-1.44	1.26
11,053.00	88.32	5.69	6,984.13	4,669.44	20.59	4,669.05	1.99	-1.52	1.28
11,147.00	88.56	5.72	6,986.69	4,762.94	29.93	4,762.71	0.26	0.26	0.03
11,241.00	90.50	8.33	6,987.46	4,856.22	41.43	4,856.18	3.46	2.06	2.78
11,336.00	91.18	7.04	6,986.07	4,950.36	54.13	4,950.53	1.53	0.72	-1.36
11,430.00	89.09	6.01	6,985.85	5,043.74	64.81	5,044.09	2.48	-2.22	-1.10
11,524.00	88.86	4.90	6,987.53	5,137.30	73.75	5,137.79	1.21	-0.24	-1.18
11,619.00	89.33	3.79	6,989.03	5,232.01	80.94	5,232.62	1.27	0.49	-1.17
11,712.00	90.00	4.26	6,989.57	5,324.78	87.47	5,325.49	0.88	0.72	0.51
11,807.00	90.74	2.92	6,988.96	5,419.59	93.42	5,420.39	1.61	0.78	-1.41
11,900.00	91.14	2.06	6,987.43	5,512.49	97.46	5,513.35	1.02	0.43	-0.92
11,995.00	91.51	1.88	6,985.24	5,607.41	100.72	5,608.31	0.43	0.39	-0.19
12,090.00	91.75	2.23	6,982.53	5,702.31	104.13	5,703.26	0.45	0.25	0.37
12,184.00	91.04	1.49	6,980.24	5,796.23	107.18	5,797.22	1.09	-0.76	-0.79
12,227.00	90.30	1.71	6,979.74	5,839.21	108.38	5,840.21	1.80	-1.72	0.51
MWD Survey									
12,258.16	90.30	1.71	6,979.58	5,870.35	109.31	5,871.37	0.00	0.00	0.00
F2312H PBHL									
12,278.00	90.30	1.71	6,979.47	5,890.18	109.90	5,891.21	0.00	0.00	0.00
Projection to TD									

OXY Permian

Federal 23 12H
Federal (New Mexico)
Northing: 497723.50
Easting: 678539.70
Design #2



Azimuths to Grid North
True North: -0.31°
Magnetic North: 7.06°

Magnetic Field
Strength: 48424.8snT
Dip Angle: 60.22°
Date: 1/8/2014
Model: IGRF2010

To convert Magnetic North to Grid, Add 7.06°
To convert True North to Grid, Subtract 0.31°

KB @ 3570.30usft
Gr @ 3546.30

WELL DETAILS Federal 23 12H

Ground Level: 3546.30

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	497723.50	678539.70	32° 22' 1.312 N	103° 45' 18.280 W

SECTION DETAILS

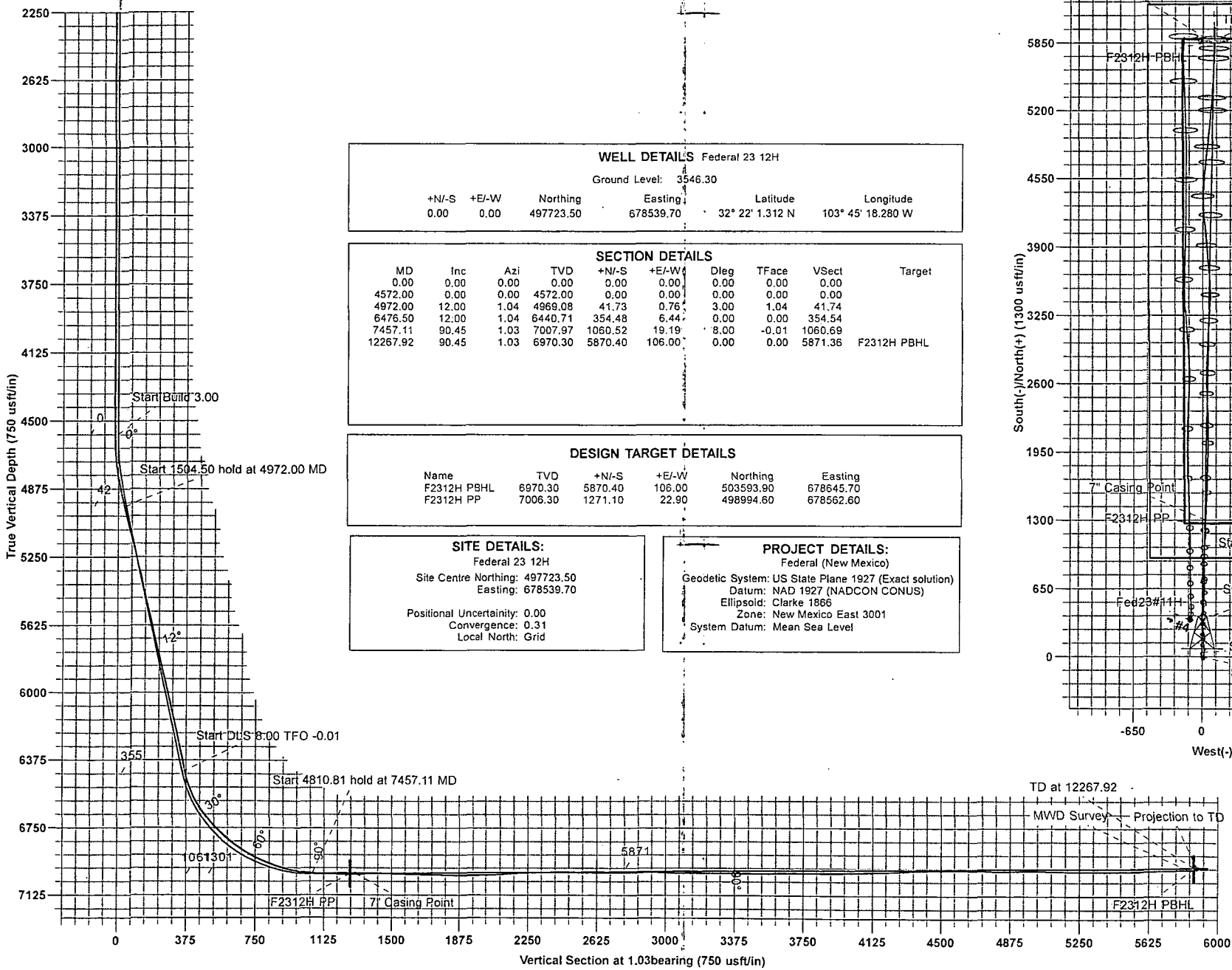
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4572.00	0.00	0.00	4572.00	0.00	0.00	0.00	0.00	0.00	
4972.00	12.00	1.04	4969.08	41.73	0.76	3.00	1.04	41.74	
6476.50	12.00	1.04	6440.71	354.48	6.44	0.00	0.00	354.54	
7457.11	90.45	1.03	7007.97	1060.52	19.19	8.00	-0.01	1060.69	
12267.92	90.45	1.03	6970.30	5870.40	106.00	0.00	0.00	5871.36	F2312H PBHL

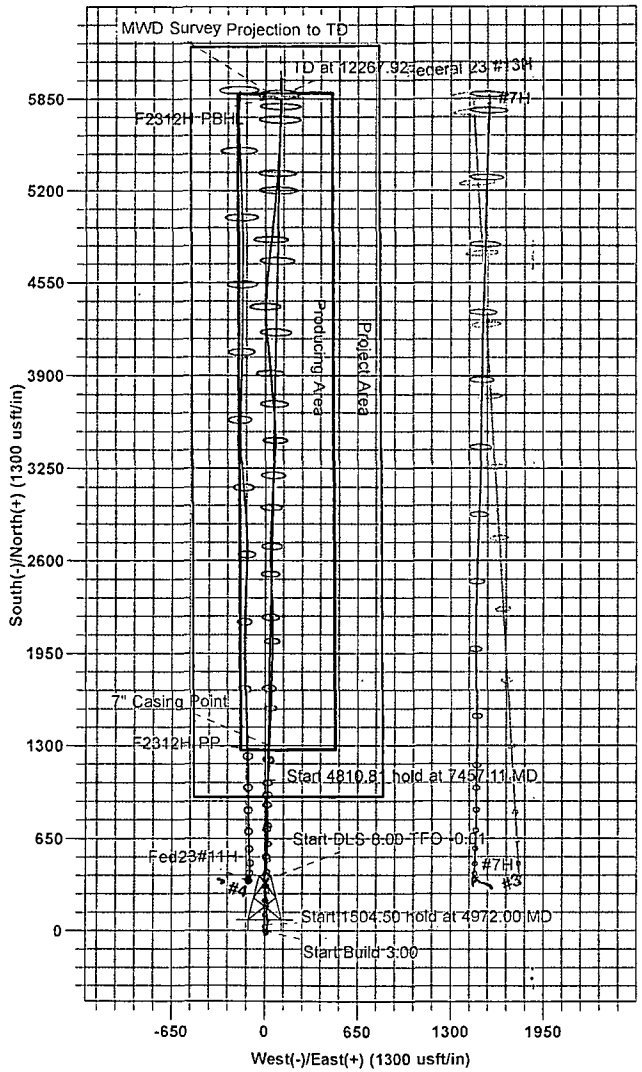
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
F2312H PBHL	6970.30	5870.40	106.00	503593.90	678645.70
F2312H PP	7006.30	1271.10	22.90	498994.60	678562.60

SITE DETAILS:
Federal 23 12H
Site Centre Northing: 497723.50
Easting: 678539.70
Positional Uncertainty: 0.00
Convergence: 0.31
Local North: Grid

PROJECT DETAILS:
Federal (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





OXY USA INC.
Federal 23 #12H
API No. 30-015-41803