

3001542642

OXY

Eddy County, NM (NAD 27 NME)

Devon 8 Fee 4H

4H

OH

Design: OH

Standard Survey Report

26 November, 2014

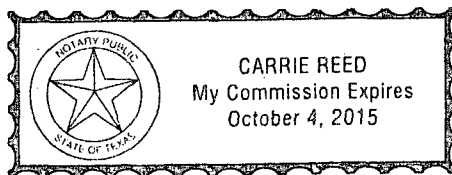
This survey is correct to the best of my knowledge and is supported by actual field data.

Hubert

Notarized this date 4th of March, 2015.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling

www.scientificdrilling.com

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well 4H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=25 @ 3045.20usft (Original Well Elev)
Site:	Devon 8 Fee 4H	MD Reference:	KB=25 @ 3045.20usft (Original Well Elev)
Well:	4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Project	Eddy County, NM (NAD 27 NME), 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	Devon 8 Fee 4H		
Site Position:		Northing:	417,034.40 usft
From:	Map	Easting:	571,671.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 8' 46.797 N
		Longitude:	104° 6' 6.348 W
		Grid Convergence:	0.12 °

Well	4H		
Well Position	+N-S	0.00 usft	Northing: 417,034.40 usft
	+E-W	0.00 usft	Easting: 571,671.30 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 8' 46.797 N
		Longitude:	104° 6' 6.348 W
		Ground Level:	3,020.20 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	BGGM2014	9/2/2014	7.59
			59.93
			48,147

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			269.59

Survey Program	Date	11/26/2014		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
500.00	12,655.00	Survey #1 (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1

Survey	Measured	Inclination	Azimuth	Vertical	+N-S	+E-W	Vertical	Dogleg	Build	Turn
	Depth	(°)	(bearing)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
	(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	500.00	0.62	74.82	499.99	0.71	2.61	-2.62	0.12	0.12	0.00
	675.00	0.57	63.60	674.98	1.34	4.30	-4.31	0.07	-0.03	-6.41
	856.00	0.38	162.75	855.98	1.17	5.29	-5.30	0.41	-0.10	54.78
	1,038.00	0.55	144.75	1,037.97	-0.12	5.97	-5.97	0.12	0.09	-9.89
	1,226.00	0.39	157.30	1,225.96	-1.45	6.74	-6.73	0.10	-0.09	6.68
	1,414.00	0.44	82.94	1,413.96	-1.95	7.70	-7.69	0.27	0.03	-39.55
	1,602.00	0.24	75.91	1,601.96	-1.76	8.80	-8.79	0.11	-0.11	-3.74
	1,790.00	1.26	97.75	1,789.94	-1.95	11.23	-11.22	0.55	0.54	11.62
	1,978.00	2.57	104.17	1,977.83	-3.26	17.37	-17.34	0.71	0.70	3.41

Survey Report

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Site:	Devon 8 Fee 4H	MD Reference:	KB=25 @ 3045.20usft (Original Well Elev)
Well:	4H	North Reference:	Grid
Wellbore:	OH	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)	
2,166.00	3.26	89.63	2,165.59	-4.25	26.80	-26.77	0.54	0.37	-7.73	
2,354.00	0.97	35.59	2,353.46	-2.93	33.07	-33.05	1.49	-1.22	-28.74	
2,423.00	0.84	36.08	2,422.45	-2.04	33.71	-33.69	0.19	-0.19	0.71	
2,543.00	0.63	34.19	2,542.44	-0.79	34.60	-34.59	0.18	-0.18	-1.58	
2,637.00	0.30	37.24	2,636.44	-0.16	35.04	-35.04	0.35	-0.35	3.24	
2,731.00	0.28	346.57	2,730.44	0.26	35.13	-35.13	0.26	-0.02	-53.90	
2,825.00	1.15	269.36	2,824.43	0.47	34.14	-34.14	1.19	0.93	-82.14	
2,919.00	1.34	273.72	2,918.41	0.53	32.10	-32.10	0.23	0.20	4.64	
3,013.00	1.38	271.52	3,012.38	0.63	29.87	-29.87	0.07	0.04	-2.34	
3,107.00	1.46	265.22	3,106.35	0.56	27.54	-27.55	0.19	0.09	-6.70	
3,202.00	1.55	269.74	3,201.32	0.46	25.05	-25.05	0.16	0.09	4.76	
3,296.00	1.55	264.79	3,295.29	0.33	22.51	-22.52	0.14	0.00	-5.27	
3,390.00	0.30	312.71	3,389.27	0.39	21.07	-21.07	1.45	-1.33	50.98	
3,484.00	0.62	292.51	3,483.27	0.75	20.42	-20.42	0.38	0.34	-21.49	
3,577.00	0.68	294.85	3,576.26	1.17	19.45	-19.46	0.07	0.06	2.52	
3,672.00	0.64	298.50	3,671.26	1.66	18.47	-18.49	0.06	-0.04	3.84	
3,766.00	0.66	277.84	3,765.25	1.99	17.48	-17.49	0.25	0.02	-21.98	
3,860.00	0.62	267.11	3,859.25	2.04	16.43	-16.45	0.13	-0.04	-11.41	
3,954.00	0.64	273.49	3,953.24	2.04	15.40	-15.41	0.08	0.02	6.79	
4,048.00	0.71	262.21	4,047.23	1.99	14.30	-14.31	0.16	0.07	-12.00	
4,142.00	0.69	267.68	4,141.23	1.89	13.16	-13.17	0.07	-0.02	5.82	
4,236.00	0.92	266.74	4,235.22	1.83	11.84	-11.85	0.25	0.24	-1.00	
4,330.00	0.83	251.09	4,329.21	1.56	10.44	-10.45	0.27	-0.10	-16.65	
4,424.00	0.31	311.24	4,423.20	1.51	9.60	-9.62	0.77	-0.55	63.99	
4,518.00	0.24	316.25	4,517.20	1.82	9.28	-9.29	0.08	-0.07	5.33	
4,611.00	0.10	207.31	4,610.20	1.89	9.11	-9.12	0.31	-0.15	-117.14	
4,705.00	0.21	207.44	4,704.20	1.66	8.99	-9.00	0.12	0.12	0.14	
4,799.00	0.50	246.08	4,798.20	1.34	8.53	-8.54	0.38	0.31	41.11	
4,894.00	0.87	249.63	4,893.19	0.92	7.48	-7.49	0.39	0.39	3.74	
4,987.00	1.08	248.69	4,986.18	0.36	6.00	-6.00	0.23	0.23	-1.01	
5,081.00	0.42	58.32	5,080.17	0.22	5.47	-5.47	1.59	-0.70	180.46	
5,175.00	0.50	50.88	5,174.17	0.66	6.08	-6.08	0.11	0.09	-7.91	
5,269.00	0.34	49.09	5,268.17	1.10	6.61	-6.62	0.17	-0.17	-1.90	
5,363.00	0.31	336.56	5,362.17	1.52	6.72	-6.73	0.41	-0.03	-77.16	
5,457.00	0.23	278.05	5,456.17	1.78	6.43	-6.44	0.29	-0.09	-62.24	
5,551.00	0.98	62.51	5,550.16	2.17	6.96	-6.97	1.25	0.80	153.68	
5,645.00	0.91	68.46	5,644.15	2.82	8.36	-8.38	0.13	-0.07	6.33	
5,739.00	0.63	65.21	5,738.14	3.31	9.53	-9.55	0.30	-0.30	-3.46	
5,833.00	0.62	68.69	5,832.13	3.71	10.47	-10.50	0.04	-0.01	3.70	
5,927.00	0.31	42.09	5,926.13	4.08	11.11	-11.14	0.39	-0.33	-28.30	
6,020.00	0.19	125.03	6,019.13	4.18	11.41	-11.44	0.37	-0.13	89.18	
6,114.00	0.24	173.40	6,113.13	3.90	11.56	-11.59	0.19	0.05	51.46	
6,209.00	0.54	177.22	6,208.13	3.25	11.60	-11.63	0.32	0.32	4.02	
6,303.00	0.78	234.39	6,302.12	2.44	11.11	-11.12	0.71	0.26	60.82	

Survey Report

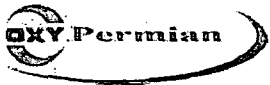
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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

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)	
6,397.00	1.12	247.87	6,396.11	1.72	9.73	-9.75	0.43	0.36	14.34	
6,491.00	1.26	272.32	6,490.09	1.42	7.85	-7.86	0.56	0.15	26.01	
6,585.00	0.34	111.52	6,584.08	1.35	7.08	-7.09	1.69	-0.98	-171.06	
6,679.00	0.30	275.03	6,678.08	1.27	7.09	-7.10	0.67	-0.04	173.95	
6,774.00	0.75	275.86	6,773.08	1.36	6.23	-6.24	0.47	0.47	0.87	
6,868.00	0.87	273.51	6,867.07	1.47	4.90	-4.91	0.13	0.13	-2.50	
6,962.00	0.87	87.14	6,961.07	1.55	4.90	-4.91	1.85	0.00	184.71	
7,056.00	0.74	153.90	7,055.06	1.04	5.88	-5.89	0.95	-0.14	71.02	
7,150.00	1.26	192.14	7,149.05	-0.52	5.93	-5.93	0.87	0.55	40.68	
7,243.00	1.44	188.93	7,242.02	-2.67	5.53	-5.52	0.21	0.19	-3.45	
7,337.00	0.61	330.40	7,336.01	-3.41	5.10	-5.08	2.08	-0.88	150.50	
7,431.00	1.07	359.38	7,430.00	-2.09	4.85	-4.83	0.65	0.49	30.83	
7,459.00	1.01	347.40	7,458.00	-1.59	4.79	-4.78	0.80	-0.21	-42.79	
7,495.00	1.32	325.72	7,493.99	-0.94	4.49	-4.48	1.48	0.86	-60.22	
7,527.00	3.86	288.38	7,525.96	-0.29	3.26	-3.26	9.13	7.94	-116.69	
7,558.00	8.02	271.42	7,556.78	0.09	0.10	-0.11	14.42	13.42	-54.71	
7,590.00	12.32	266.57	7,588.27	-0.06	-5.54	5.54	13.69	13.44	-15.16	
7,621.00	15.92	264.24	7,618.33	-0.69	-13.07	13.08	11.75	11.61	-7.52	
7,652.00	18.84	263.71	7,647.91	-1.66	-22.28	22.29	9.43	9.42	-1.71	
7,684.00	21.09	262.74	7,677.99	-2.95	-33.13	33.15	7.11	7.03	-3.03	
7,715.00	23.29	262.03	7,706.69	-4.51	-44.73	44.76	7.15	7.10	-2.29	
7,746.00	24.96	266.40	7,734.99	-5.77	-57.33	57.37	7.88	5.39	14.10	
7,778.00	26.45	270.73	7,763.82	-6.10	-71.20	71.24	7.49	4.66	13.53	
7,809.00	28.17	274.60	7,791.37	-5.43	-85.40	85.43	7.97	5.55	12.48	
7,840.00	31.04	275.78	7,818.32	-4.04	-100.64	100.67	9.45	9.26	3.81	
7,903.00	38.70	273.50	7,869.97	-1.19	-136.52	136.52	12.33	12.16	-3.62	
7,997.00	47.50	270.16	7,938.55	0.70	-200.64	200.63	9.67	9.36	-3.55	
8,091.00	56.98	267.37	7,996.05	-1.01	-274.83	274.83	10.35	10.09	-2.97	
8,185.00	65.56	268.01	8,041.19	-4.31	-357.12	357.14	9.15	9.13	0.68	
8,280.00	70.98	270.30	8,076.35	-5.58	-445.32	445.35	6.13	5.71	2.41	
8,342.00	78.77	270.28	8,092.52	-5.28	-505.12	505.15	12.56	12.56	-0.03	
8,374.00	83.12	270.53	8,097.55	-5.06	-536.72	536.74	13.62	13.59	0.78	
8,405.00	86.06	270.51	8,100.48	-4.78	-567.57	567.59	9.48	9.48	-0.06	
8,468.00	89.03	270.87	8,103.17	-4.02	-630.50	630.52	4.75	4.71	0.57	
8,499.00	91.04	270.18	8,103.16	-3.73	-661.50	661.51	6.86	6.48	-2.23	
8,562.00	90.97	270.16	8,102.05	-3.55	-724.49	724.50	0.12	-0.11	-0.03	
8,656.00	90.94	270.59	8,100.48	-2.93	-818.47	818.47	0.46	-0.03	0.46	
8,750.00	90.57	270.81	8,099.25	-1.78	-912.46	912.45	0.46	-0.39	0.23	
8,844.00	90.23	270.95	8,098.59	-0.34	-1,006.45	1,006.42	0.39	-0.36	0.15	
8,938.00	91.34	271.58	8,097.30	1.73	-1,100.41	1,100.37	1.36	1.18	0.67	
9,032.00	92.92	271.06	8,093.81	3.90	-1,194.32	1,194.26	1.77	1.68	-0.55	
9,126.00	93.10	270.89	8,088.87	5.50	-1,288.18	1,288.10	0.26	0.19	-0.18	
9,220.00	93.39	271.35	8,083.55	7.33	-1,382.01	1,381.92	0.58	0.31	0.49	

Survey Report

Company:	OXY	Local Co-ordinate Reference:	Well 4H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=25 @ 3045.20usft (Original Well Elev)
Site:	Devon 8 Fee 4H	MD Reference:	KB=25 @ 3045.20usft (Original Well Elev)
Well:	4H	North Reference:	Grid
Wellbore:	OH	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)
9,314.00	92.76	270.43	8,078.51	8.79	-1,475.86	1,475.76	1.19	-0.67	-0.98
9,408.00	92.52	270.16	8,074.18	9.27	-1,569.76	1,569.65	0.38	-0.26	-0.29
9,502.00	92.29	270.10	8,070.23	9.48	-1,663.67	1,663.56	0.25	-0.24	-0.06
9,596.00	91.64	269.44	8,067.01	9.11	-1,757.62	1,757.51	0.99	-0.69	-0.70
9,691.00	91.64	268.95	8,064.29	7.77	-1,852.57	1,852.46	0.52	0.00	-0.52
9,785.00	91.81	269.35	8,061.46	6.38	-1,946.52	1,946.42	0.46	0.18	0.43
9,879.00	91.61	268.74	8,058.66	4.81	-2,040.46	2,040.37	0.68	-0.21	-0.65
9,973.00	91.44	268.41	8,056.16	2.48	-2,134.40	2,134.32	0.39	-0.18	-0.35
10,067.00	91.24	268.12	8,053.96	-0.37	-2,228.33	2,228.27	0.37	-0.21	-0.31
10,161.00	91.18	268.12	8,051.97	-3.45	-2,322.26	2,322.22	0.06	-0.06	0.00
10,255.00	91.38	268.05	8,049.87	-6.59	-2,416.18	2,416.17	0.23	0.21	-0.07
10,349.00	91.48	267.76	8,047.53	-10.03	-2,510.09	2,510.10	0.33	0.11	-0.31
10,443.00	92.96	267.99	8,043.89	-13.51	-2,603.95	2,603.98	1.59	1.57	0.24
10,537.00	92.99	267.24	8,039.01	-17.42	-2,697.74	2,697.80	0.80	0.03	-0.80
10,631.00	93.19	268.48	8,033.94	-20.92	-2,791.54	2,791.62	1.33	0.21	1.32
10,726.00	92.59	270.71	8,029.15	-21.59	-2,886.41	2,886.49	2.43	-0.63	2.35
10,820.00	92.59	270.67	8,024.90	-20.46	-2,980.31	2,980.38	0.04	0.00	-0.04
10,913.00	90.61	270.16	8,022.31	-19.79	-3,073.26	3,073.33	2.20	-2.13	-0.55
11,007.00	90.20	270.17	8,021.64	-19.52	-3,167.26	3,167.32	0.44	-0.44	0.01
11,100.00	89.80	269.90	8,021.64	-19.46	-3,260.26	3,260.31	0.52	-0.43	-0.29
11,194.00	89.43	270.03	8,022.27	-19.52	-3,354.26	3,354.31	0.42	-0.39	0.14
11,288.00	90.17	270.74	8,022.60	-18.89	-3,448.25	3,448.30	1.09	0.79	0.76
11,382.00	90.13	270.67	8,022.35	-17.73	-3,542.25	3,542.28	0.09	-0.04	-0.07
11,476.00	91.38	271.03	8,021.12	-16.33	-3,636.22	3,636.25	1.38	1.33	0.38
11,570.00	91.85	271.60	8,018.47	-14.18	-3,730.16	3,730.17	0.79	0.50	0.61
11,663.00	92.01	271.27	8,015.33	-11.85	-3,823.08	3,823.07	0.39	0.17	-0.35
11,757.00	92.52	269.68	8,011.62	-11.07	-3,917.00	3,916.98	1.78	0.54	-1.69
11,851.00	92.53	269.18	8,007.48	-12.01	-4,010.90	4,010.89	0.53	0.01	-0.53
11,945.00	92.02	267.89	8,003.75	-14.41	-4,104.80	4,104.79	1.47	-0.54	-1.37
12,039.00	91.68	266.83	8,000.71	-18.74	-4,198.65	4,198.67	1.18	-0.36	-1.13
12,134.00	91.72	267.96	7,997.89	-23.05	-4,293.51	4,293.56	1.19	0.04	1.19
12,228.00	91.68	268.36	7,995.10	-26.07	-4,387.42	4,387.49	0.43	-0.04	0.43
12,323.00	91.38	268.06	7,992.57	-29.03	-4,482.33	4,482.43	0.45	-0.32	-0.32
12,417.00	91.24	268.28	7,990.42	-32.04	-4,576.26	4,576.37	0.28	-0.15	0.23
12,510.00	91.04	268.04	7,988.57	-35.02	-4,669.20	4,669.33	0.34	-0.22	-0.26
12,598.00	90.74	267.64	7,987.20	-38.34	-4,757.12	4,757.28	0.57	-0.34	-0.45
MWD Survey									
12,640.89	90.74	267.64	7,986.65	-40.10	-4,799.97	4,800.13	0.00	0.00	0.00
BHL (#4H)									
12,655.00	90.74	267.64	7,986.47	-40.68	-4,814.07	4,814.24	0.00	0.00	0.00
Projection to Bit/TD									



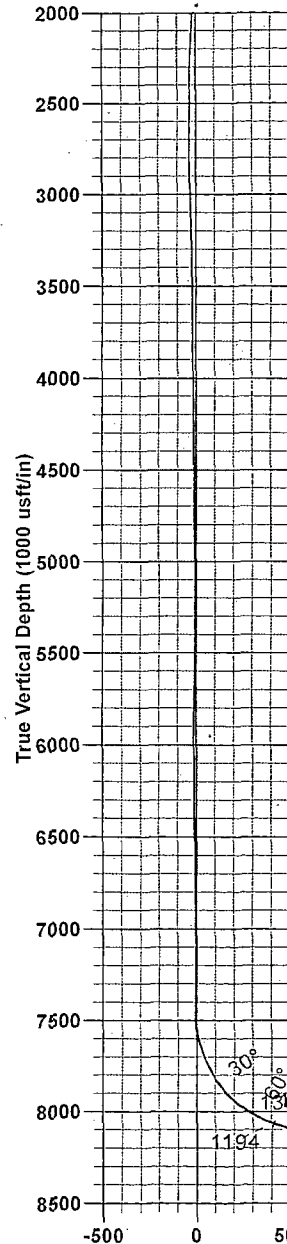
Devon 8 Fee 4H
Eddy County, NM (NAD 27 NME)
Northing: 417034.40
Easting: 571671.30
Plan #4

KB=25 @ 3045.20usft (Original Well Elev)
Gr @ 3020.20



Azimuths to Grid North
True North: -0.12°
Magnetic North: 7.47°
Magnetic Field
Strength: 48147.3snT
Dip Angle: 59.93°
Date: 9/2/2014
Model: BGGM2014

To convert Magnetic North to Grid, Add 7.47°
To convert True North to Grid, Subtract 0.12°

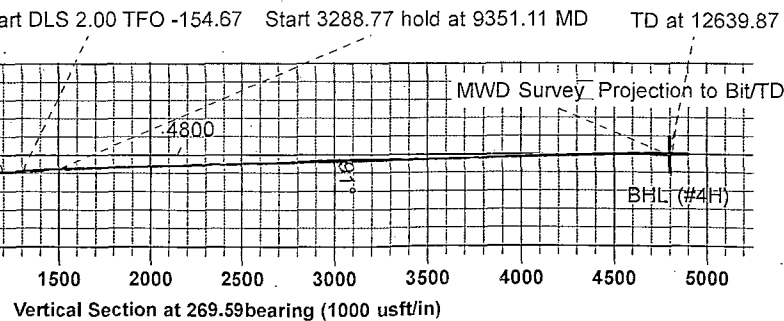
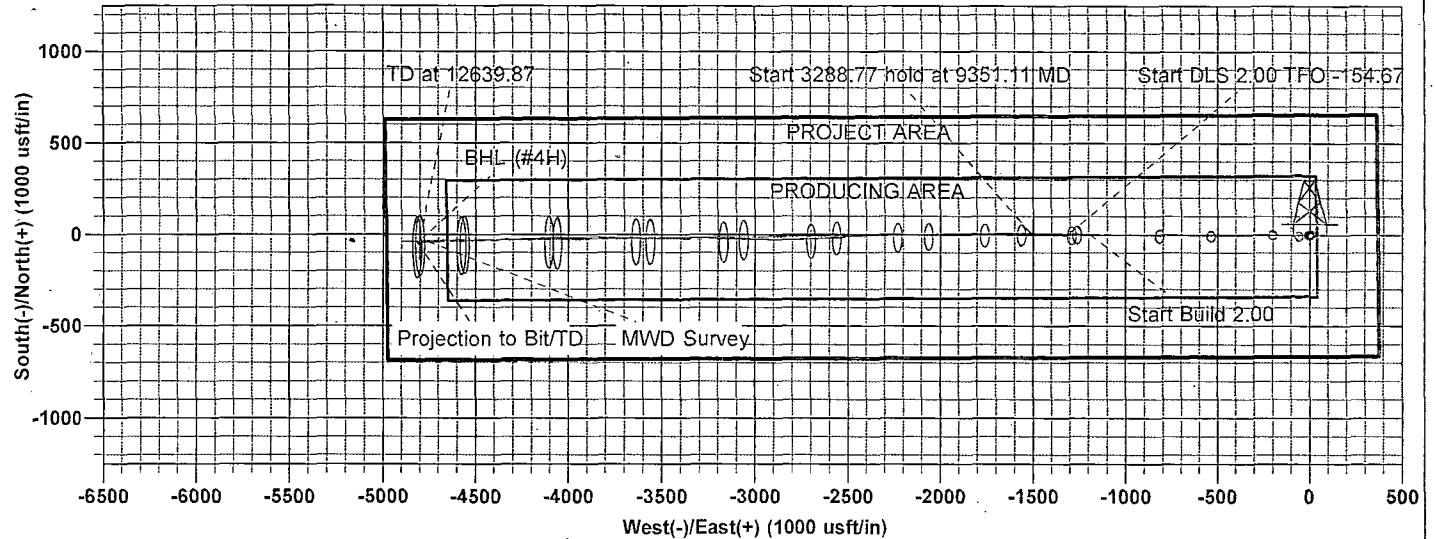


WELL DETAILS						
Ground Level: 3020.20						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	417034.40	571671.30	32° 8' 46.797 N	104° 6' 6.348 W	

SECTION DETAILS						
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg TFace VSect
9032.00	92.92	271.06	8093.81	3.90	-1194.32	0.00 0.00 1194.26
9143.08	95.14	271.06	8086.00	5.95	-1305.10	2.00 0.00 1305.02
9351.11	91.38	269.28	8074.17	6.56	-1512.74	2.00 -154.67 1512.66
12639.87	91.38	269.28	7995.00	-34.73	-4800.30	0.00 0.00 4800.42

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
BHL (#4H)	7995.00	-34.73	-4800.30	416999.67	566871.00

PROJECT DETAILS:		SITE DETAILS:	
Eddy County, NM (NAD 27 NME)		Devon 8 Fee 4H	
Geodetic System: US State Plane 1927 (Exact solution)		Site Centre Northing: 417034.40	
Datum: NAD 1927 (NADCON CONUS)		Easting: 571671.30	
Ellipsoid: Clarke 1866		Positional Uncertainty: 0.00	
Zone: New Mexico East 3001		Convergence: 0.12	
System Datum: Mean Sea Level		Local North: Grid	



Occidental Permian Ltd.
Devon 8 Fee 4H
API No. 30-015-42642

14-3/4" hole @ 478'
11-3/4" csg @ 445'
w/ 450sx-TOC-Surf-Circ.

10-5/8" hole @ 2483'
8-5/8" csg @ 2468'
w/ 710sx-TOC-Surf-Circ.

7-7/8" hole @ 12655'
5-1/2" csg @ 12655'
w/ 1435sx-TOC-Surf

2-7/8" tbg & pkr @ 7365'

Perfs @ 8281-12380'

TD- 12655'M 7986'V