

DEC 17 2014

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OXY Permian

Eddy County, NM (NAD 27 NME)

Government AC 13 Federal

#5H

OH - Job #320814-MPH-1045

15-40880

Survey: SDI MWD #1

SDI Survey Report

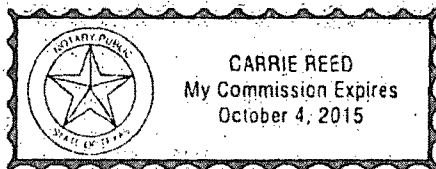
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 3rd of October, 2014.

[Signature]

Notary Signature
County of Midland
State of Texas



SDI
SDI Survey Report

Company:	OXY Permian	Local Co-ordinate Reference:	Well #5H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB @ 3291.5usft
Site:	Government AC 13 Federal	MD Reference:	KB @ 3291.5usft
Well:	#5H	North Reference:	Grid
Wellbore:	OH - Job #320814-MPH-1045	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

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:	Government AC 13 Federal		
Site Position:		Northing:	573,111.30 usft
From:	Map	Easting:	560,218.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 34' 31.575 N
		Longitude:	104° 8' 16.246 W
		Grid Convergence:	0.11 "

Well:	#5H		
Well Position	+N/-S	0.0 usft	Northing: 573,111.30 usft
	+E/-W	0.0 usft	Easting: 560,218.50 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 34' 31.575 N
		Longitude:	104° 8' 16.246 W
		Ground Level:	3,267.5 usft

Wellbore	OH - Job #320814-MPH-1045				
Magnetics:	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	6/2/2014	7.51	60.34	48,470

Design:	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	90.52

Survey Program	Date: 10/21/2014			
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
320.0	11,978.0	SDI MWD #1 (OH - Job #320814-MPH-10)	SDI MWD	SDI MWD - Standard ver 1.0.1

Survey								
MD	Inc	Azi (azimuth)	TVD	N/S	E/W	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°)	(usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
320.0	0.88	200.20	320.0	-2.3	-0.8	200.20	2.5	
411.0	1.14	65.73	411.0	-2.6	-0.3	185.83	2.6	
498.0	1.32	76.98	498.0	-2.0	1.5	143.23	2.5	
588.0	1.58	92.80	587.9	-1.8	3.8	116.08	4.2	
678.0	1.06	96.05	677.9	-2.0	5.8	108.83	6.1	
769.0	0.70	82.25	768.9	-2.0	7.2	105.50	7.5	
860.0	0.53	96.23	859.9	-2.0	8.2	103.54	8.4	
949.0	0.09	290.91	948.9	-2.0	8.5	103.14	8.7	
1,040.0	0.35	268.76	1,039.9	-2.0	8.2	103.54	8.4	
1,132.0	0.26	303.39	1,131.9	-1.9	7.7	103.55	7.9	
1,226.0	0.18	131.03	1,225.9	-1.8	7.7	103.52	7.9	

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Well:	#5H	North Reference:	Grid
Wellbore:	OH - Job #320814-MPH-1045	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)		
1,257.0	0.35	211.19	1,256.9	-2.0	7.6	104.34	7.9		
1,424.0	0.35	272.27	1,423.9	-2.4	6.9	109.03	7.3		
1,519.0	0.35	157.05	1,518.9	-2.6	6.7	111.42	7.2		
1,614.0	0.44	223.67	1,613.9	-3.2	6.5	115.72	7.3		
1,708.0	0.26	62.65	1,707.9	-3.3	6.5	117.08	7.3		
1,802.0	0.70	35.23	1,801.9	-2.8	7.0	111.43	7.5		
1,897.0	0.62	39.28	1,896.9	-1.9	7.7	103.77	7.9		
1,991.0	1.14	24.95	1,990.9	-0.8	8.4	94.35	8.4		
2,086.0	0.79	60.19	2,085.8	0.5	9.4	86.67	9.4		
2,180.0	1.14	27.76	2,179.8	1.7	10.4	80.71	10.5		
2,274.0	0.97	51.14	2,273.8	3.0	11.4	75.17	11.8		
2,369.0	0.88	53.34	2,368.8	4.0	12.6	72.57	13.2		
2,463.0	1.32	39.80	2,462.8	5.2	13.9	69.39	14.8		
2,557.0	1.58	50.17	2,556.8	6.9	15.6	66.16	17.0		
2,651.0	0.70	64.15	2,650.7	8.0	17.1	65.01	18.9		
2,745.0	0.44	103.44	2,744.7	8.1	18.0	65.64	19.7		
2,840.0	0.79	94.12	2,839.7	8.0	19.0	67.13	20.6		
2,934.0	0.70	100.97	2,933.7	7.8	20.2	68.75	21.6		
3,029.0	0.62	60.63	3,028.7	8.0	21.2	69.35	22.6		
3,160.0	0.70	63.18	3,159.7	8.7	22.5	68.89	24.1		
3,255.0	0.79	64.06	3,254.7	9.2	23.6	68.64	25.4		
3,349.0	1.06	74.70	3,348.7	9.8	25.1	68.72	26.9		
3,443.0	0.79	45.08	3,442.7	10.4	26.4	68.38	28.3		
3,537.0	1.32	27.41	3,536.7	11.9	27.3	66.52	29.8		
3,631.0	1.06	353.22	3,630.6	13.7	27.7	63.71	30.9		
3,726.0	0.79	237.73	3,725.6	14.2	27.0	62.28	30.6		
3,820.0	0.97	230.00	3,819.6	13.4	25.9	62.72	29.1		
3,914.0	0.88	238.52	3,913.6	12.5	24.7	63.19	27.6		
4,008.0	0.79	211.63	4,007.6	11.5	23.7	64.06	26.4		
4,103.0	0.35	226.04	4,102.6	10.8	23.2	65.05	25.5		
4,197.0	0.35	219.89	4,196.6	10.4	22.8	65.54	25.0		
4,291.0	0.26	228.94	4,290.6	10.0	22.4	65.97	24.5		
4,386.0	0.09	295.92	4,385.6	9.9	22.2	65.99	24.3		
4,480.0	0.53	336.70	4,479.6	10.3	22.0	64.83	24.3		
4,574.0	0.26	206.88	4,573.8	10.5	21.7	64.10	24.1		
4,668.0	0.35	212.42	4,667.6	10.1	21.4	64.78	23.7		
4,763.0	0.62	225.08	4,762.6	9.5	20.9	65.60	23.0		
4,857.0	0.70	246.70	4,856.6	8.9	20.0	66.04	21.9		
4,951.0	1.14	273.94	4,950.6	8.7	18.6	64.80	20.5		
5,046.0	1.23	277.90	5,045.5	8.9	18.6	61.71	18.9		
5,136.0	1.49	286.78	5,135.5	9.4	14.5	57.07	17.3		
5,226.0	0.79	292.40	5,225.5	10.0	12.8	52.13	16.3		
5,317.0	0.88	280.89	5,316.5	10.4	11.6	48.18	15.5		
5,407.0	1.32	283.86	5,406.5	10.7	9.9	42.65	14.6		

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Site:	Government AC 13 Federal	MD Reference:	KB @ 3291.5usft
Well:	#5H	North Reference:	Grid
Wellbore:	OH - Job #320814-MPH-1045	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,496.0	2.11	285.02	5,495.4	11.4	7.3	32.66	13.6
5,587.0	0.97	260.14	5,586.4	11.7	4.9	22.86	12.7
5,680.0	2.11	258.56	5,679.4	11.2	2.5	12.47	11.5
5,774.0	1.14	222.70	5,773.3	10.2	0.2	0.87	10.2
5,868.0	0.26	156.79	5,867.3	9.3	-0.4	357.57	9.3
5,962.0	1.06	281.06	5,961.3	9.3	-1.2	352.86	9.4
6,044.0	0.35	307.78	6,043.3	9.6	-2.1	347.61	9.8
6,142.0	1.32	343.99	6,141.3	10.9	-2.7	346.27	11.2
6,232.0	1.32	169.27	6,231.3	10.8	-2.7	345.78	11.2
6,326.0	0.79	143.16	6,325.3	9.3	-2.2	346.88	9.5
6,420.0	1.85	73.99	6,419.3	9.2	-0.3	358.06	9.2
6,452.0	1.85	68.02	6,451.2	9.5	0.7	4.00	9.5
6,483.0	1.93	63.36	6,482.2	9.9	1.6	9.14	10.0
6,515.0	2.11	89.37	6,514.2	10.2	2.7	14.70	10.5
6,546.0	2.02	104.58	6,545.2	10.0	3.8	20.57	10.7
6,577.0	1.49	107.30	6,576.2	9.8	4.7	25.58	10.8
6,609.0	2.11	106.34	6,608.2	9.5	5.6	30.74	11.0
6,640.0	4.92	113.89	6,639.1	8.8	7.4	40.12	11.5
6,671.0	6.95	115.39	6,669.9	7.4	10.3	54.18	12.7
6,703.0	8.35	114.51	6,701.6	5.7	14.2	68.27	15.3
6,734.0	10.11	114.77	6,732.2	3.6	18.7	79.17	18.0
6,765.0	11.87	115.13	6,762.7	1.1	24.1	87.42	24.1
6,797.0	13.81	115.13	6,793.9	-1.9	30.5	93.64	30.6
6,828.0	15.21	112.49	6,823.9	-5.1	37.6	97.67	37.9
6,860.0	16.80	106.16	6,854.6	-8.0	45.9	99.83	46.6
6,891.0	18.03	103.79	6,884.2	-10.3	54.9	100.68	55.9
6,923.0	19.08	102.91	6,914.6	-12.7	64.8	101.09	66.0
6,954.0	20.14	103.88	6,943.8	-15.1	74.9	101.40	76.4
6,985.0	21.63	104.23	6,972.7	-17.8	85.6	101.74	87.5
7,017.0	23.57	103.88	7,002.3	-20.8	97.6	102.02	99.7
7,048.0	25.76	102.91	7,030.4	-23.8	110.1	102.18	112.7
7,079.0	28.14	100.89	7,058.1	-26.7	123.9	102.14	126.7
7,111.0	30.86	98.34	7,085.9	-29.3	139.4	101.86	142.5
7,143.0	33.24	98.34	7,113.0	-31.7	156.2	101.48	159.4
7,174.0	34.65	98.43	7,138.7	-34.3	173.4	101.18	176.7
7,205.0	35.88	99.57	7,164.1	-37.1	191.0	100.98	194.6
7,237.0	38.34	100.54	7,189.6	-40.4	210.0	100.90	213.9
7,268.0	40.45	102.47	7,213.5	-44.4	229.3	100.95	233.6
7,299.0	42.91	103.88	7,236.7	-49.1	249.4	101.13	254.2
7,331.0	45.64	105.19	7,259.6	-54.7	271.0	101.41	276.5
7,362.0	48.01	105.28	7,280.8	-60.6	292.8	101.70	299.0
7,394.0	50.47	104.84	7,301.7	-66.9	316.2	101.95	323.2
7,425.0	51.88	104.14	7,321.1	-73.0	339.6	102.13	347.3
7,457.0	53.82	103.17	7,340.5	-79.0	364.4	102.23	372.8

SDI
SDI Survey Report

Company:	OXY Permian	Local Co-ordinate Reference:	Well #5H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB @ 3291.5usft
Site:	Government AC 13 Federal	MD Reference:	KB @ 3291.5usft
Well:	#5H	North Reference:	Grid
Wellbore:	OH - Job #320814-MPH-1045	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Azimuth (°)	Closure Distance (usft)	
7,488.0	56.01	103.52	7,358.3	-84.8	389.1	102.30	398.2	
7,520.0	57.43	103.95	7,375.8	-91.2	415.0	102.39	424.9	
7,551.0	56.92	103.52	7,392.2	-97.4	440.6	102.47	451.3	
7,582.0	59.20	102.70	7,408.1	-103.5	466.5	102.51	477.9	
7,614.0	58.97	100.74	7,424.6	-109.0	493.4	102.46	505.3	
7,645.0	59.44	100.45	7,440.4	-113.9	519.6	102.37	531.9	
7,677.0	60.94	99.13	7,456.3	-118.7	546.9	102.24	559.7	
7,709.0	62.61	98.95	7,471.5	-123.1	574.8	102.09	587.8	
7,740.0	63.93	99.13	7,485.4	-127.4	602.1	101.95	615.5	
7,772.0	65.32	99.26	7,499.1	-132.1	630.7	101.83	644.3	
7,803.0	67.80	99.48	7,511.5	-136.7	658.7	101.72	672.8	
7,834.0	70.61	100.01	7,522.5	-141.6	687.3	101.64	701.7	
7,866.0	72.81	100.10	7,532.5	-146.9	717.2	101.58	732.1	
7,897.0	74.22	100.50	7,541.3	-152.2	746.4	101.53	761.8	
7,929.0	75.36	100.36	7,549.7	-157.8	776.8	101.48	792.7	
7,960.0	76.33	99.39	7,557.3	-163.0	806.4	101.42	822.7	
7,992.0	77.91	98.25	7,564.4	-167.7	837.3	101.33	853.9	
8,023.0	79.23	96.76	7,570.6	-171.7	867.4	101.20	884.2	
8,055.0	80.55	96.49	7,576.2	-175.3	898.7	101.04	915.6	
8,086.0	82.04	96.32	7,580.9	-178.8	929.1	100.89	946.2	
8,117.0	83.80	96.14	7,584.7	-182.1	959.7	100.74	976.8	
8,148.0	85.56	96.14	7,587.6	-185.4	990.4	100.60	1,007.6	
8,180.0	86.09	96.23	7,589.9	-188.8	1,022.1	100.47	1,039.4	
8,212.0	85.91	96.23	7,592.1	-192.3	1,053.9	100.34	1,071.3	
8,243.0	86.97	96.67	7,594.0	-195.8	1,084.6	100.23	1,102.1	
8,275.0	88.46	97.02	7,595.3	-199.6	1,116.3	100.14	1,134.0	
8,306.0	89.96	95.70	7,595.7	-203.0	1,147.1	100.04	1,165.0	
8,337.0	88.46	94.38	7,596.2	-205.8	1,178.0	99.91	1,195.9	
8,400.0	87.67	92.98	7,598.3	-209.8	1,240.9	99.60	1,258.5	
8,495.0	87.41	93.77	7,602.4	-215.4	1,335.6	99.16	1,352.9	
8,589.0	86.70	92.10	7,607.2	-220.2	1,429.3	98.76	1,446.2	
8,683.0	87.58	89.99	7,611.9	-221.9	1,523.2	98.29	1,539.3	
8,777.0	89.87	88.49	7,614.0	-220.7	1,617.2	97.77	1,632.2	
8,871.0	91.63	85.86	7,612.8	-216.0	1,711.0	97.20	1,724.6	
8,965.0	89.43	85.42	7,611.9	-208.9	1,804.8	96.60	1,816.8	
9,059.0	88.99	84.36	7,613.2	-200.5	1,898.4	96.03	1,908.9	
9,154.0	87.14	86.03	7,616.4	-192.6	1,993.0	95.52	2,002.3	
9,248.0	87.49	87.26	7,620.8	-187.1	2,086.7	95.12	2,095.1	
9,342.0	87.23	87.35	7,625.1	-182.6	2,180.5	94.79	2,188.1	
9,437.0	86.26	86.74	7,630.5	-177.8	2,275.2	94.47	2,282.2	
9,531.0	86.28	85.42	7,636.6	-171.3	2,368.8	94.14	2,375.0	
9,625.0	87.41	84.63	7,641.8	-163.2	2,462.3	93.79	2,467.7	
9,720.0	87.93	86.65	7,645.7	-156.0	2,556.9	93.49	2,561.7	
9,814.0	87.93	86.47	7,649.1	-150.3	2,650.7	93.25	2,655.0	
9,908.0	88.37	87.70	7,652.1	-145.6	2,744.5	93.04	2,748.4	

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10,002.0	89.52	90.52	7,653.8	-144.1	2,838.5	92.91	2,842.2
10,097.0	90.31	89.81	7,654.0	-144.4	2,933.5	92.82	2,937.1
10,191.0	89.16	89.99	7,654.4	-144.2	3,027.5	92.73	3,030.9
10,285.0	88.81	87.26	7,656.1	-142.0	3,121.4	92.60	3,124.7
10,380.0	88.64	85.24	7,658.2	-135.8	3,218.2	92.42	3,219.1
10,474.0	87.47	86.65	7,661.4	-129.1	3,309.9	92.23	3,312.4
10,569.0	87.23	84.80	7,665.8	-122.0	3,404.6	92.05	3,406.7
10,663.0	86.97	84.19	7,670.5	-113.0	3,498.0	91.85	3,499.8
10,758.0	87.93	85.15	7,674.8	-104.2	3,592.5	91.66	3,594.0
10,852.0	87.85	85.59	7,678.2	-96.6	3,686.1	91.50	3,687.4
10,946.0	87.93	86.65	7,681.7	-90.3	3,779.8	91.37	3,780.9
11,041.0	89.25	87.97	7,684.0	-85.8	3,874.7	91.27	3,875.7
11,136.0	89.87	87.00	7,684.7	-81.7	3,969.6	91.18	3,970.4
11,230.0	89.69	86.65	7,685.1	-76.4	4,063.5	91.08	4,064.2
11,324.0	89.34	87.70	7,685.9	-71.8	4,157.3	90.99	4,158.0
11,419.0	88.29	89.72	7,687.9	-69.7	4,252.3	90.94	4,252.9
11,513.0	89.78	89.99	7,689.4	-69.4	4,346.3	90.92	4,346.8
11,607.0	90.75	90.78	7,689.0	-70.1	4,440.3	90.90	4,440.8
11,701.0	90.75	89.72	7,687.8	-70.5	4,534.3	90.89	4,534.8
11,795.0	89.60	89.20	7,687.5	-69.6	4,628.3	90.86	4,628.8
11,826.9	89.39	88.69	7,687.8	-69.0	4,660.1	90.85	4,660.7
Hardline Crossing (MD=11826.9')							
11,889.0	88.99	87.70	7,688.7	-67.1	4,722.2	90.81	4,722.7
11,920.0	88.99	87.09	7,689.2	-65.6	4,753.2	90.79	4,753.6
11,978.0	88.99	87.09	7,690.2	-62.7	4,811.1	90.75	4,811.5
Final MWD Survey							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,826.9	7,687.8	-69.0	4,660.1	Hardline Crossing (MD=11826.9')
11,978.0	7,690.2	-62.7	4,811.1	Final MWD Survey



GAC 13 F 5H
Eddy County, NM (NAD 27 NME)
Northing: 573111.30
Easting: 560218.50
Plan #2



To convert Magnetic North to Grid, Add 7.40°
To convert True North to Grid, Subtract 0.11°

Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.40°

Magnetic Field
Strength: 48470.450T
Dip Angle: 60.34°
Date: 6/2/2014
Model: IGRF2010

KB @ 3291.5usft
Gr @ 3267.5

WELL DETAILS: GAC 13 F 5H

Ground Level: 3267.5

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	573111.30	560218.50	32° 34' 31.575 N	104° 8' 16.246 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	
6571.1	0.00	0.00	6571.1	0.0	0.0	0.00	0.00	0.0	
7571.1	60.00	100.63	7398.1	-88.1	469.3	6.00	100.63	470.1	
7771.1	60.00	100.63	7498.1	-120.0	639.5	0.00	0.00	640.6	
8122.7	88.13	100.63	7593.7	-181.8	968.5	8.00	0.00	970.1	
8819.3	88.13	86.89	7616.5	-226.1	1661.6	2.00	-90.23	1663.6	
11975.7	88.13	86.89	7719.5	-44.0	4811.0	0.00	0.00	4811.0	GA13F 5H BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
GA13F 5H FTP	7549.8	-112.0	463.0	572999.30	560681.50
GA13F 5H LTP	7717.4	-48.0	4652.0	573063.30	564870.50
GA13F 5H BHL	7719.5	-44.0	4811.0	573087.30	565029.50

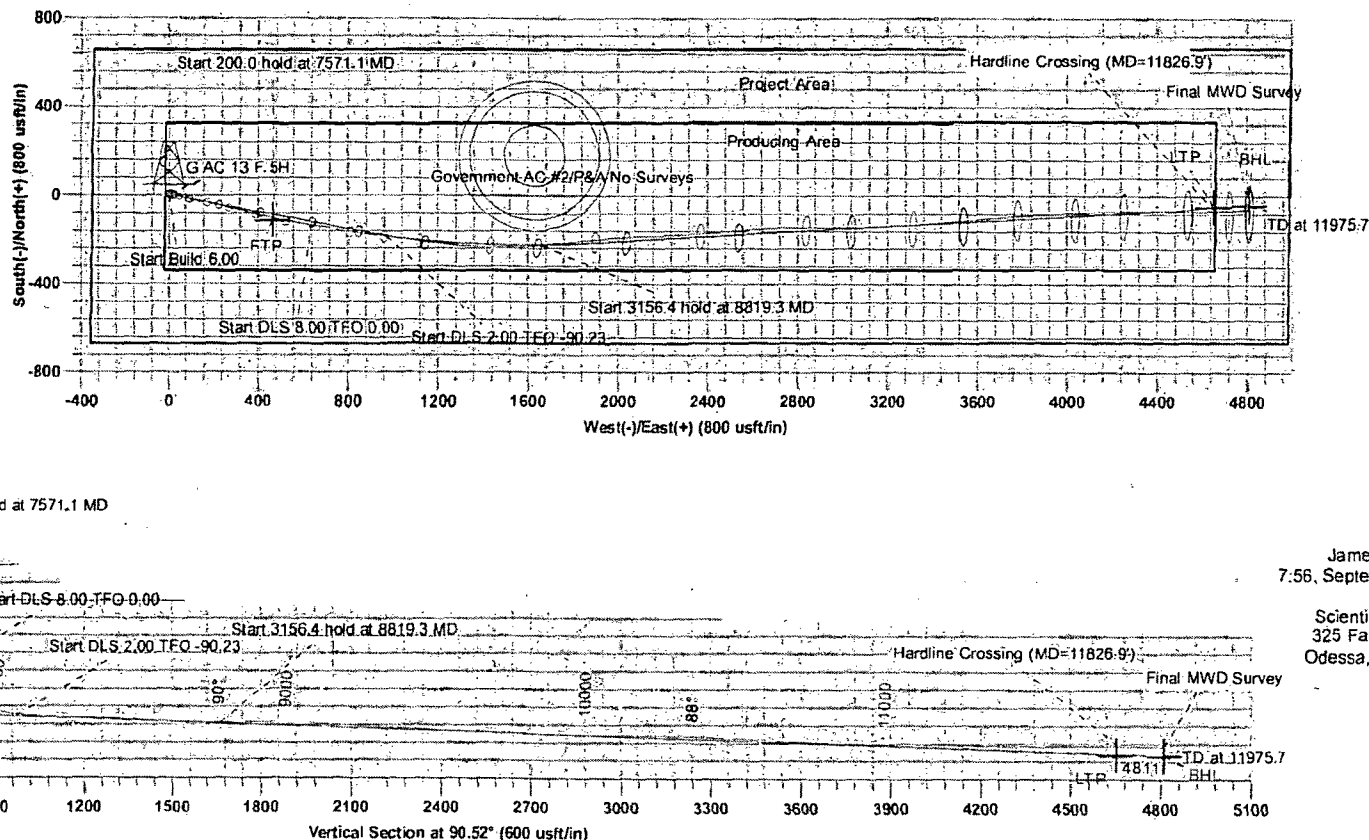
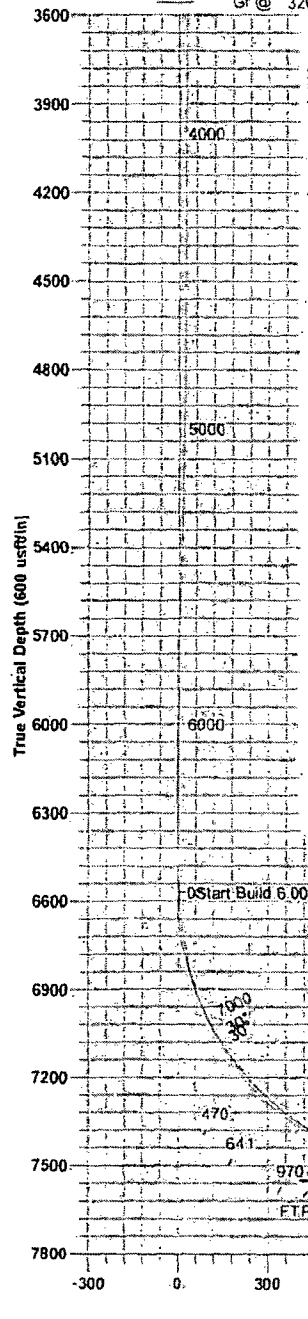
SITE DETAILS:

Government AC 13 Federal 5H
Site Centre Northing: 573111.30
Easting: 560218.50

Positional Uncertainty: 0.0
Convergence: 0.11
Local North: Grid

PROJECT DETAILS: Eddy County, NM (NAD 27 NME)

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



James Dunn
7.56, September 12 2014

Scientific Drilling
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Odessa, TX 79765

