

OCCIDENTAL PERMIAN LTD.

Cedar Canyon
Eddy County, NM
Cypress 33 Federal Com #6H
DH - Job #321013-MPH-1025

Survey: MWD

SDI Survey Report

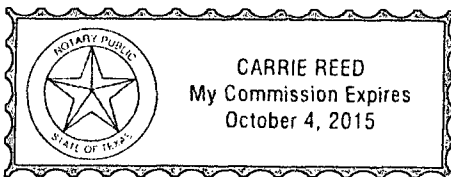
This survey is correct to the best of my knowledge and is supported by actual field data.

K. Hartman

Notarized this date 31st of October, 2013.

Carrie Reed

Notary Signature
County of Midland
State of Texas



SDI

SDI Survey Report

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 33 Federal Com #6H
Project:	Cedar Canyon	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Cypress 33 Federal Com #6H	North Reference:	True
Wellbore:	DH - Job #321013-MPH-1025	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #321013-MPH-1025	Database:	EDM-Regulatory

Project	Cedar Canyon		
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:		Eddy County, NM			
Site Position:		Northing:	442,496.34 usft	Latitude:	32° 12' 57.600 N
From:	Lat/Long	Easting:	614,222.51 usft	Longitude:	103° 57' 50.400 W
Position Uncertainty:	0.0 usft	Slot Radius:	0"	Grid Convergence:	0.20 °

Well:		Cypress 33 Federal Com #6H, Directional				
Well Position	+N/-S	0.0 usft	Northing:	461,097.09 usft	Latitude:	32° 16' 1.883 N
	+E/-W	0.0 usft	Easting:	607,961.58 usft	Longitude:	103° 59' 2.575 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft	

Wellbore:	DH - Job #321013-MPH-1025				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/5/2013	7.50	60.10	48,392

Design:		DH - Job #321013-MPH-1025		
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	180.00

Survey Program		Date	11/7/2013		
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
403.0	13,152.0	MWD (DH - Job #321013-MPH-1025)	MWD	MWD	

Survey							
MD (usft)	inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
403.0	0.18	223.60	403.0	-0.5	-0.4	223.60	0.6
493.0	0.00	43.69	493.0	-0.6	-0.5	223.60	0.8
584.0	0.20	193.53	584.0	-0.7	-0.6	218.61	0.9
676.0	0.09	284.86	676.0	-0.9	-0.7	218.51	1.1
767.0	0.09	219.56	767.0	-0.9	-0.8	221.72	1.2
859.0	0.18	101.52	859.0	-1.0	-0.7	215.61	1.2
952.0	0.18	218.95	952.0	-1.1	-0.6	210.06	1.3
1,046.0	0.26	136.77	1,046.0	-1.4	-0.6	203.15	1.5
1,140.0	0.18	72.61	1,140.0	-1.5	-0.3	191.54	1.5
1,235.0	0.09	317.21	1,235.0	-1.4	-0.2	188.71	1.4
1,329.0	0.26	174.12	1,329.0	-1.6	-0.2	188.86	1.6

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Project: Cedar Canyon		TVD Reference: WELL @ 0.0usft (Original Well Elev)	
Site: Eddy County, NM		MD Reference: WELL @ 0.0usft (Original Well Elev)	
Well: Cypress 33 Federal Com #6H		North Reference: True	
Wellbore: DH - Job #321013-MPH-1025		Survey Calculation Method: Minimum Curvature	
Design: DH - Job #321013-MPH-1025		Database: EDM-Regulatory	

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,423.0	0.44	187.48	1,423.0	-2.1	-0.3	187.18	2.1	
1,517.0	0.44	146.44	1,517.0	-2.8	-0.1	182.37	2.8	
1,611.0	0.00	58.81	1,611.0	-3.1	0.1	178.44	3.1	
1,706.0	0.09	251.55	1,706.0	-3.1	0.0	179.75	3.1	
1,800.0	0.55	233.82	1,800.0	-3.4	-0.4	187.05	3.4	
1,895.0	0.93	264.98	1,895.0	-3.7	-1.6	202.62	4.0	
1,989.0	0.88	268.96	1,989.0	-3.8	-3.0	218.53	4.9	
2,083.0	1.29	262.33	2,083.0	-4.0	-4.8	230.45	6.2	
2,178.0	1.58	264.52	2,177.9	-4.2	-7.2	239.42	8.3	
2,272.0	1.49	262.98	2,271.9	-4.5	-9.7	245.00	10.7	
2,366.0	1.08	238.92	2,365.9	-5.1	-11.6	246.28	12.7	
2,461.0	1.33	230.24	2,460.8	-6.3	-13.3	244.64	14.7	
2,555.0	1.67	224.57	2,554.8	-8.0	-15.1	242.15	17.0	
2,650.0	1.67	207.87	2,649.8	-10.2	-16.7	238.63	19.5	
2,744.0	2.40	191.30	2,743.7	-13.3	-17.7	233.07	22.2	
2,839.0	0.85	171.02	2,838.7	-16.0	-18.0	228.42	24.0	
2,933.0	0.60	111.35	2,932.7	-16.8	-17.4	225.99	24.2	
2,996.0	0.66	151.56	2,995.7	-17.3	-16.9	224.45	24.2	
3,123.0	0.53	169.02	3,122.7	-18.5	-16.5	221.72	24.8	
3,217.0	2.64	300.77	3,216.6	-17.8	-18.3	225.72	25.5	
3,311.0	4.13	307.00	3,310.5	-14.7	-22.8	237.29	27.1	
3,406.0	4.04	307.01	3,405.2	-10.6	-28.2	249.44	30.1	
3,500.0	5.19	302.00	3,498.9	-6.3	-34.5	259.58	35.1	
3,595.0	7.12	294.27	3,593.4	-1.6	-43.5	267.84	43.5	
3,689.0	8.35	292.42	3,686.5	3.4	-55.1	273.49	55.2	
3,783.0	10.38	293.21	3,779.2	9.3	-69.2	277.65	69.8	
3,878.0	9.94	293.21	3,872.8	15.9	-84.6	280.65	86.1	
3,972.0	9.41	291.28	3,965.4	21.9	-99.2	282.44	101.6	
4,066.0	9.15	290.75	4,058.2	27.3	-113.4	283.55	116.6	
4,160.0	9.15	291.90	4,151.0	32.8	-127.3	284.43	131.4	
4,254.0	8.97	290.40	4,243.8	38.1	-141.1	285.11	146.1	
4,349.0	8.88	291.81	4,337.7	43.4	-154.8	285.66	160.8	
4,443.0	8.53	291.81	4,430.6	48.7	-168.1	286.16	175.0	
4,537.0	7.91	291.37	4,523.6	53.6	-180.5	286.55	188.3	
4,632.0	8.97	290.75	4,617.6	58.6	-193.6	286.86	202.3	
4,726.0	9.15	290.93	4,710.4	63.9	-207.4	287.13	217.0	
4,820.0	9.06	291.54	4,803.2	69.3	-221.3	287.39	231.9	
4,914.0	8.97	291.46	4,896.1	74.7	-235.0	287.64	246.6	
5,009.0	8.71	290.31	4,989.9	79.9	-248.6	287.82	261.1	
5,103.0	8.71	290.14	5,082.9	84.8	-262.0	287.94	275.4	
5,197.0	10.34	290.07	5,175.6	90.2	-276.6	288.06	290.9	
5,291.0	10.73	290.05	5,268.0	96.1	-292.7	288.17	308.1	
5,385.0	10.20	289.61	5,360.4	101.9	-308.8	288.26	325.1	
5,480.0	9.32	288.47	5,454.0	107.1	-324.0	288.30	341.2	

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Cypress 33 Federal Com #6H	North Reference:	True
Wellbore:	DH - Job #321013-MPH-1025	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #321013-MPH-1025	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,574.0	8.44	286.62	5,546.9	111.5	-337.8	288.27	355.7	
5,669.0	9.32	288.62	5,640.8	116.0	-351.8	288.24	370.4	
5,763.0	9.32	288.29	5,733.5	120.8	-366.2	288.25	385.6	
5,858.0	8.97	289.17	5,827.3	125.6	-380.5	288.27	400.7	
5,952.0	8.44	289.87	5,920.2	130.4	-393.9	288.31	415.0	
6,046.0	9.23	286.71	6,013.1	134.9	-407.6	288.31	429.4	
6,141.0	8.97	287.24	6,106.9	139.3	-422.0	288.26	444.4	
6,235.0	8.44	284.95	6,199.8	143.2	-435.7	288.20	458.6	
6,329.0	7.88	287.08	6,292.9	146.9	-448.5	288.13	472.0	
6,424.0	9.15	287.59	6,386.8	151.1	-461.9	288.11	486.0	
6,518.0	8.97	287.33	6,479.7	155.5	-476.1	288.09	500.8	
6,612.0	8.44	288.82	6,572.6	159.9	-489.6	288.09	515.0	
6,706.0	8.09	287.24	6,665.6	164.1	-502.4	288.09	528.6	
6,800.0	7.03	284.60	6,758.8	167.5	-514.3	288.04	540.9	
6,895.0	6.34	282.08	6,853.1	170.1	-525.1	287.95	551.9	
6,989.0	6.07	284.95	6,946.6	172.5	-534.9	287.87	562.1	
7,083.0	7.65	286.45	7,039.9	175.5	-545.7	287.83	573.3	
7,177.0	8.62	280.47	7,133.0	178.6	-558.7	287.73	586.5	
7,272.0	9.50	279.42	7,226.8	181.1	-573.4	287.53	601.3	
7,366.0	10.21	282.91	7,319.4	184.3	-589.2	287.37	617.3	
7,460.0	8.35	277.06	7,412.2	187.0	-604.1	287.20	632.4	
7,554.0	7.56	274.93	7,505.3	188.4	-617.0	286.98	645.1	
7,649.0	7.03	270.36	7,599.5	188.9	-629.1	286.72	656.8	
7,743.0	5.80	262.01	7,692.9	188.3	-639.5	286.41	666.7	
7,837.0	5.10	256.39	7,786.5	186.7	-648.3	286.06	674.6	
7,932.0	4.92	253.84	7,881.1	184.5	-656.3	285.70	681.7	
7,979.0	5.19	247.34	7,927.9	183.2	-660.2	285.51	685.1	
8,011.0	6.77	238.55	7,959.8	181.6	-663.1	285.32	687.6	
8,042.0	9.50	224.31	7,990.5	178.8	-666.5	285.02	690.1	
8,074.0	11.17	215.52	8,021.9	174.4	-670.1	284.59	692.4	
8,105.0	12.49	211.56	8,052.3	169.1	-673.6	284.09	694.5	
8,137.0	12.93	209.45	8,083.5	163.0	-677.2	283.54	696.5	
8,168.0	14.42	208.14	8,113.6	156.6	-680.7	282.96	698.5	
8,199.0	16.06	204.89	8,143.5	149.3	-684.3	282.31	700.4	
8,231.0	16.16	200.25	8,174.3	141.1	-687.8	281.60	702.1	
8,262.0	15.78	191.95	8,204.1	133.0	-690.1	280.91	702.8	
8,294.0	16.18	180.80	8,234.8	124.2	-691.1	280.19	702.2	
8,325.0	17.23	177.11	8,264.5	115.3	-690.9	279.48	700.5	
8,357.0	19.31	180.32	8,294.9	105.3	-690.7	278.67	698.7	
8,388.0	21.91	178.85	8,323.9	94.4	-690.6	277.78	697.0	
8,420.0	23.83	179.31	8,353.4	82.0	-690.4	276.77	695.3	
8,451.0	24.97	181.24	8,381.7	69.2	-690.5	275.72	693.9	
8,483.0	27.44	181.42	8,410.4	55.0	-690.8	274.56	693.0	
8,514.0	30.43	180.54	8,437.5	40.0	-691.1	273.32	692.2	

SDI

SDI Survey Report

Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 33 Federal Com #6H
Project:	Cedar Canyon	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Cypress 33 Federal Com #6H	North Reference:	True
Wellbore:	DH - Job #321013-MPH-1025	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #321013-MPH-1025	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
8,546.0	33.85	180.36	8,464.6	23.0	-691.2	271.91	691.6	
8,577.0	37.11	180.10	8,489.8	5.0	-691.3	270.42	691.3	
8,609.0	40.54	179.31	8,514.7	-15.0	-691.2	268.75	691.3	
8,640.0	44.49	180.54	8,537.6	-36.0	-691.1	267.02	692.1	
8,671.0	47.90	182.27	8,559.0	-58.3	-691.7	265.18	694.1	
8,703.0	50.39	183.88	8,580.0	-82.5	-693.0	263.21	697.9	
8,734.0	52.52	184.68	8,599.3	-106.7	-694.8	261.27	703.0	
8,765.0	54.96	184.76	8,617.6	-131.6	-696.9	259.31	709.2	
8,797.0	56.89	184.14	8,635.6	-158.0	-698.9	257.26	716.6	
8,828.0	59.97	183.53	8,651.8	-184.4	-700.7	255.26	724.5	
8,860.0	63.31	183.26	8,667.0	-212.5	-702.4	253.17	733.8	
8,891.0	65.95	182.21	8,680.3	-240.4	-703.7	251.14	743.6	
8,923.0	68.24	181.94	8,692.7	-269.9	-704.8	249.05	754.7	
8,954.0	70.17	181.15	8,703.7	-298.9	-705.5	247.04	766.2	
8,986.0	71.84	180.89	8,714.1	-329.1	-706.1	245.01	779.0	
9,017.0	74.84	180.64	8,723.0	-358.8	-706.5	243.07	792.4	
9,048.0	78.17	180.63	8,730.3	-388.9	-706.8	241.18	806.7	
9,080.0	80.64	180.80	8,736.1	-420.4	-707.2	239.27	822.7	
9,097.0	81.78	181.68	8,738.7	-437.2	-707.6	238.29	831.7	
9,128.0	84.01	182.07	8,742.6	-467.9	-708.6	236.56	849.1	
9,160.0	86.35	182.30	8,745.3	-499.8	-709.8	234.85	868.1	
9,191.0	87.23	182.03	8,747.0	-530.7	-710.9	233.26	887.2	
9,254.0	88.99	182.82	8,749.1	-593.6	-713.6	230.24	928.2	
9,348.0	89.87	182.65	8,750.0	-687.5	-718.1	226.25	994.2	
9,443.0	89.96	182.38	8,750.2	-782.4	-722.3	222.71	1,064.8	
9,537.0	88.11	180.36	8,751.7	-876.4	-724.5	219.58	1,137.1	
9,631.0	87.23	180.45	8,755.6	-970.3	-725.2	216.77	1,211.3	
9,726.0	87.23	177.46	8,760.1	-1,065.2	-723.4	214.18	1,287.6	
9,820.0	89.08	174.56	8,763.2	-1,158.9	-716.9	211.74	1,362.7	
9,914.0	89.96	174.83	8,764.0	-1,252.5	-708.2	209.49	1,438.8	
10,008.0	90.40	175.18	8,763.7	-1,346.1	-700.0	207.48	1,517.2	
10,103.0	90.75	176.06	8,762.7	-1,440.8	-692.8	205.68	1,598.7	
10,197.0	90.48	176.14	8,761.7	-1,534.6	-686.4	204.10	1,681.1	
10,291.0	89.96	175.26	8,761.3	-1,628.3	-679.3	202.65	1,764.4	
10,386.0	90.75	176.14	8,760.8	-1,723.1	-672.2	201.31	1,849.5	
10,480.0	91.19	176.14	8,759.2	-1,816.8	-665.9	200.13	1,935.0	
10,574.0	90.84	175.44	8,757.5	-1,910.6	-659.0	199.03	2,021.0	
10,669.0	90.57	175.26	8,756.3	-2,005.2	-651.3	197.99	2,108.4	
10,763.0	89.08	172.98	8,756.6	-2,098.7	-641.7	197.00	2,194.6	
10,857.0	88.64	172.19	8,758.5	-2,191.9	-629.5	196.02	2,280.5	
10,951.0	90.31	173.33	8,759.4	-2,285.2	-617.7	195.13	2,367.2	
11,046.0	90.66	173.68	8,758.5	-2,379.6	-606.9	194.31	2,455.7	
11,140.0	91.36	176.14	8,756.9	-2,473.2	-598.6	193.61	2,544.6	
11,234.0	90.66	175.70	8,755.2	-2,566.9	-591.9	192.99	2,634.3	
11,327.0	90.22	177.99	8,754.5	-2,659.8	-586.8	192.44	2,723.7	

SDI

SDI Survey Report

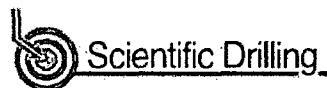
Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cypress 33 Federal Com #6H
Project:	Cedar Canyon	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
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Wellbore:	DH - Job #321013-MPH-1025	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #321013-MPH-1025	Database:	EDM-Regulatory

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11,422.0	91.19	179.04	8,753.3	-2,754.7	-584.3	191.98	2,816.0	
11,516.0	92.33	181.86	8,750.5	-2,848.7	-585.1	191.61	2,908.1	
11,610.0	92.33	180.98	8,746.6	-2,942.6	-587.4	191.29	3,000.6	
11,705.0	92.59	181.77	8,742.6	-3,037.4	-589.7	190.99	3,094.2	
11,799.0	91.28	182.38	8,739.4	-3,131.3	-593.1	190.72	3,187.0	
11,893.0	91.71	182.56	8,736.9	-3,225.2	-597.1	190.49	3,280.0	
11,988.0	89.25	182.47	8,736.1	-3,320.1	-601.3	190.27	3,374.1	
12,082.0	88.90	181.86	8,737.7	-3,414.0	-604.8	190.05	3,467.2	
12,177.0	87.14	181.68	8,740.9	-3,508.9	-607.8	189.83	3,561.2	
12,271.0	86.35	180.36	8,746.3	-3,602.7	-609.5	189.60	3,653.9	
12,365.0	84.59	178.34	8,753.7	-3,696.4	-608.4	189.35	3,746.2	
12,460.0	87.23	175.97	8,760.5	-3,791.1	-603.7	189.05	3,838.8	
12,554.0	90.66	176.76	8,762.2	-3,884.8	-597.7	188.75	3,930.6	
12,648.0	90.13	175.88	8,761.6	-3,978.6	-591.7	188.46	4,022.4	
12,742.0	91.10	175.62	8,760.6	-4,072.4	-584.7	188.17	4,114.1	
12,836.0	91.89	176.50	8,758.1	-4,166.1	-578.3	187.90	4,206.1	
12,930.0	92.48	176.12	8,754.5	-4,259.9	-572.2	187.65	4,298.1	
13,025.0	92.68	176.14	8,750.2	-4,354.5	-565.8	187.40	4,391.2	
13,102.0	93.12	175.53	8,746.3	-4,431.2	-560.2	187.21	4,466.5	
Last MWD Survey								
13,152.0	93.12	175.53	8,743.6	-4,481.0	-556.3	187.08	4,515.4	
Projection to Bit								

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
13,102.0	8,746.3	-4,431.2	-560.2	Last MWD Survey	
13,152.0	8,743.6	-4,481.0	-556.3	Projection to Bit	



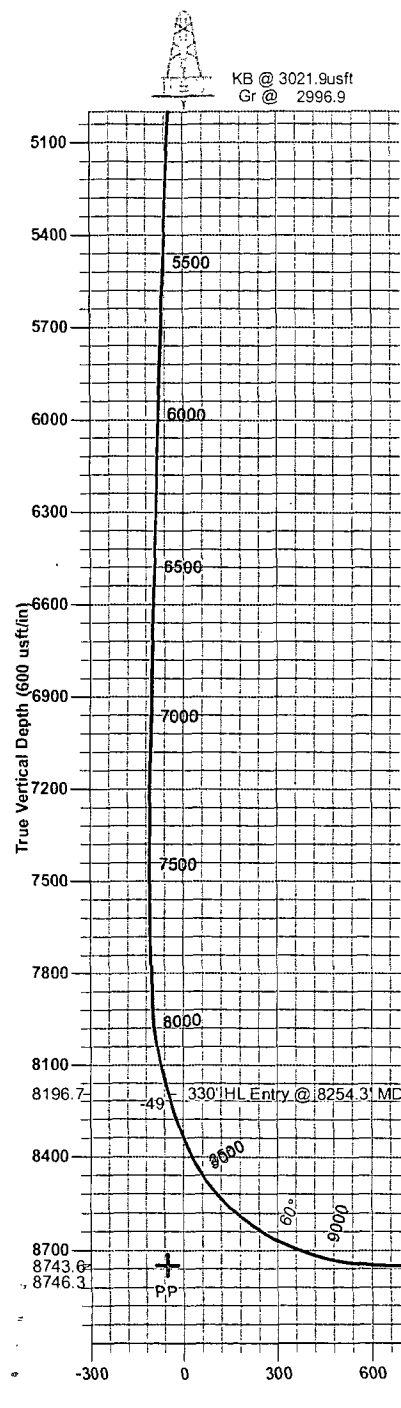
Cypress 33 Federal 6H
Eddy County, New Mexico
Northing: 461097.10
Easting: 607961.60
Design #2



To convert a Magnetic Direction to a Grid Direction, Add 7.32°
To convert a True Direction to a Grid Direction, Subtract 0.19°

Azimuths to Grid North
True North: -0.19°
Magnetic North: 7.32°

Magnetic Field
Strength: 48378.1nT
Dip Angle: 60.10°
Date: 9/4/2013
Model: IGRF2010



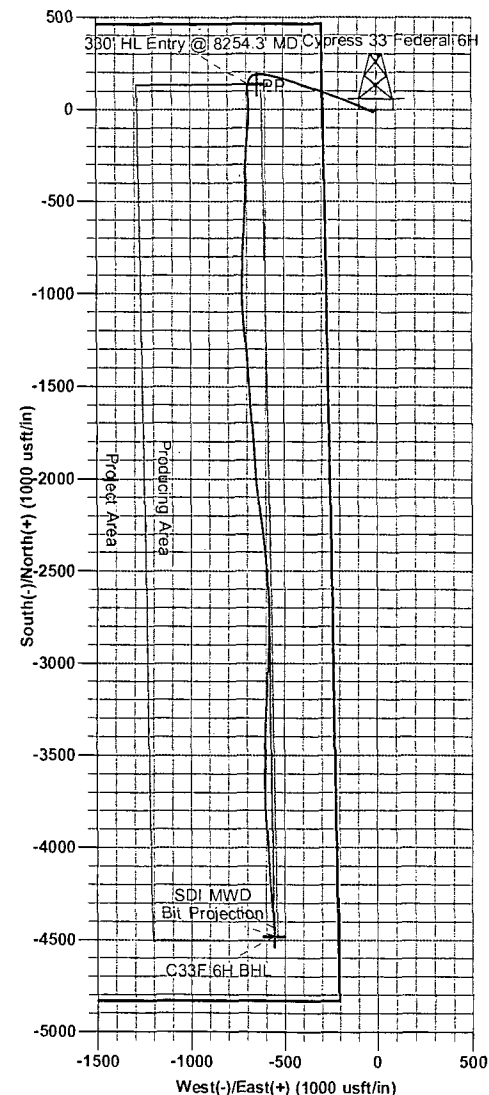
WELL DETAILS Cypress 33 Federal 6H					
Ground Level: 2996.9					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	461097.10	607961.60	32° 16' 1.883 N	103° 59' 2.574 W

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect
11234.0	90.66	175.70	8755.2	-2566.9	-591.9	0.00	0.00	2620.5
11330.0	90.66	177.00	8754.1	-2662.7	-585.8	1.35	89.99	2714.8
11443.9	90.21	179.23	8753.3	-2776.6	-582.1	2.00	101.37	2827.3
13149.5	90.21	179.23	8747.0	-4481.9	-559.3	0.00	0.00	4516.7
								C33F 6H BHL

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
C33F 6H BHL	8747.0	-4481.9	-559.3	456615.15	607402.34

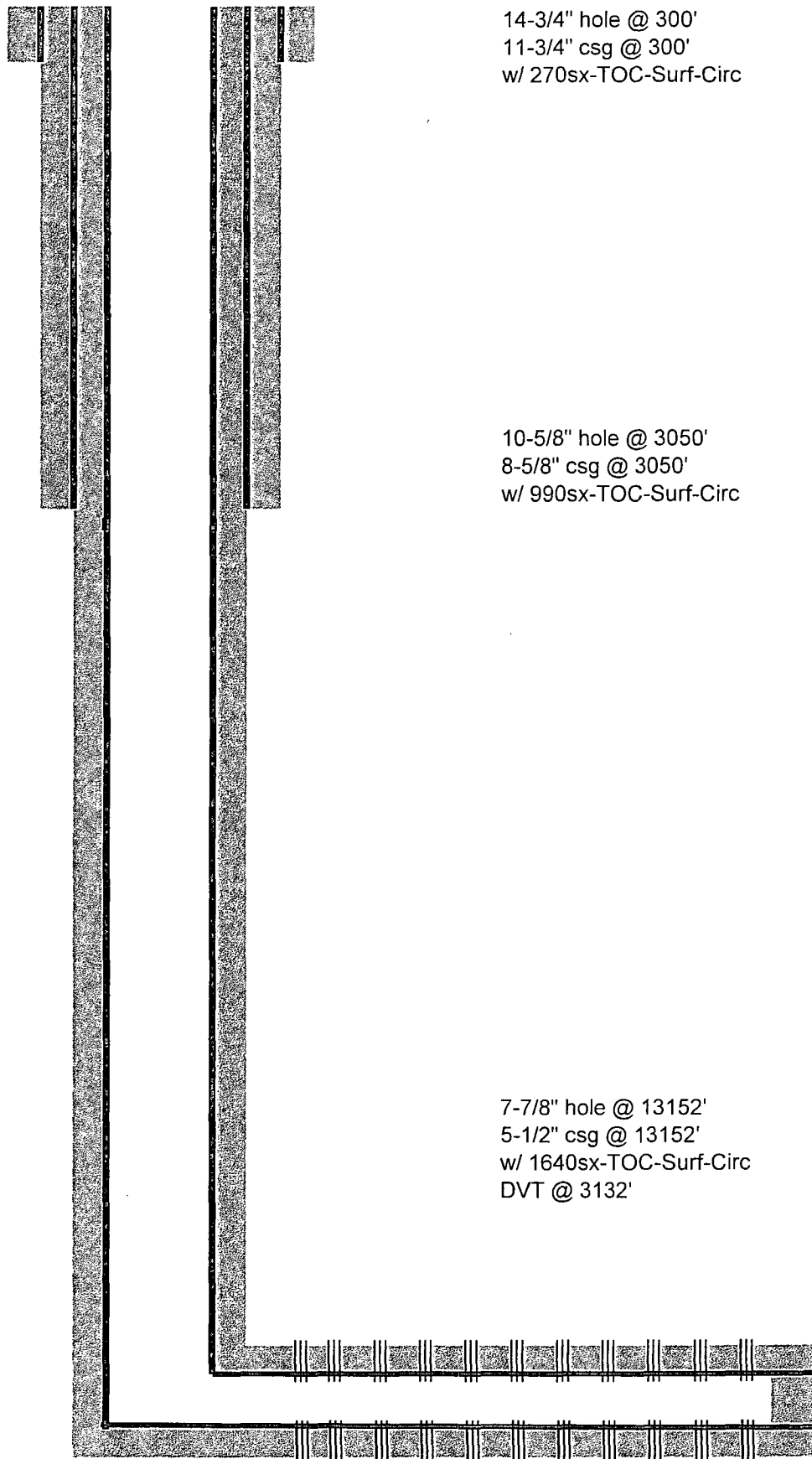
SITE DETAILS:	
Cypress 33 Federal 6H	
Site Centre Northing: 461097.10	
Easting: 607961.60	
Positional Uncertainty: 0.0	
Convergence: 0.19	
Local North: Grid	

PROJECT DETAILS:	
Eddy 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	



Jody Barclay
8:11, October 24 2013
Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234

OXY USA Inc.
Cypress 33 Federal #6H
API No. 30-015-41557



Perfs @ 8651-12890'

TD - 13152'M 8744'V
PBSD-12991'M 8752'V