

3001542616

OCCIDENTAL PERMIAN LTD.

Cedar Canyon

Eddy County, NM (Grid North)

Cypress "33" Federal Com #7H

DH - Job #320914-MPH-1105

Survey: MWD

SDI Survey Report

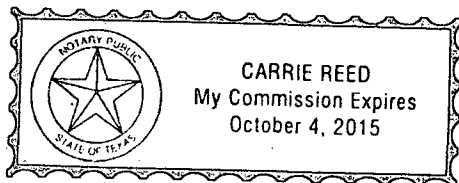
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 1st of October, 2014.

[Signature]

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 #7H
Project:	Cedar Canyon	TVD Reference:	Mean Sea Level (System)
Site:	Eddy County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Cypress "33" Federal Com #7H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1105	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1105	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 (Grid North)			
Site Position:		Northing:	441,785.82 usft	Latitude:	32° 12' 50.714 N
From:	Lat/Long	Easting:	609,864.21 usft	Longitude:	103° 58' 41.159 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.19 °

Well	Cypress "33" Federal Com #7H, Horizontal					
Well Position	+N/-S	0.0 usft	Northing:	461,404.44 usft	Latitude:	32° 16' 5.001 N
	+E/-W	0.0 usft	Easting:	605,575.10 usft	Longitude:	103° 59' 30.358 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	0.0 usft

Wellbore		DH - Job #320914-MPH-1105			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/11/2014	7.39	60.08	48,299

Design	DH - Job #320914-MPH-1105				
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	177.80	

Survey Program:		Date	10/13/2014		
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
417.0	13,541.0	MWD (DH - Job #320914-MPH-1105)	MWD	MWD	

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
	417.0	2.37	272.28	416.9	0.3	-8.6	272.28	8.6
	509.0	2.46	271.14	508.8	0.5	-12.5	272.10	12.5
	602.0	1.14	254.44	601.8	0.2	-15.4	270.93	15.4
	694.0	1.06	257.08	693.7	-0.2	-17.1	269.38	17.1
	787.0	1.14	255.76	786.7	-0.6	-18.8	268.16	18.8
	879.0	1.49	253.74	878.7	-1.2	-20.9	266.80	20.9
	972.0	1.85	255.23	971.7	-1.9	-23.5	265.40	23.5
	1,066.0	2.20	250.57	1,065.6	-2.9	-26.6	263.84	26.8
	1,161.0	0.62	227.81	1,160.6	-3.8	-28.7	262.42	29.0
	1,255.0	0.35	156.44	1,254.6	-4.4	-29.0	261.31	29.3
	1,350.0	0.26	172.00	1,349.6	-4.9	-28.9	260.34	29.3

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Well:	Cypress "33" Federal Com #7H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1105	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1105	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,444.0	0.35	200.74	1,443.6	-5.4	-28.9	259.45	29.4	
1,539.0	0.26	215.59	1,538.6	-5.8	-29.2	258.68	29.7	
1,633.0	0.35	213.13	1,632.6	-6.3	-29.4	258.01	30.1	
1,728.0	0.35	222.89	1,727.6	-6.7	-29.8	257.32	30.5	
1,822.0	0.44	242.05	1,821.6	-7.1	-30.3	256.84	31.1	
1,917.0	0.62	233.44	1,916.5	-7.6	-31.0	256.31	32.0	
2,011.0	0.79	226.05	2,010.5	-8.3	-31.9	255.40	33.0	
2,105.0	0.79	194.59	2,104.5	-9.4	-32.5	253.90	33.9	
2,200.0	1.32	167.68	2,199.5	-11.1	-32.5	251.14	34.3	
2,294.0	1.67	175.60	2,293.5	-13.5	-32.1	247.19	34.9	
2,389.0	1.67	175.25	2,388.4	-16.3	-31.9	242.98	35.8	
2,483.0	1.67	148.71	2,482.4	-18.8	-31.1	238.83	36.3	
2,578.0	2.11	124.79	2,577.4	-21.0	-28.9	234.04	35.8	
2,672.0	2.73	128.23	2,671.3	-23.4	-25.8	227.79	34.8	
2,766.0	1.76	156.44	2,765.2	-26.1	-23.4	221.94	35.1	
2,870.0	1.18	169.52	2,869.2	-28.6	-22.6	218.32	36.4	
3,049.0	1.32	172.70	3,048.1	-32.5	-22.0	214.13	39.2	
3,143.0	1.23	169.10	3,142.1	-34.5	-21.7	212.12	40.8	
3,238.0	0.35	152.66	3,237.1	-35.8	-21.3	210.82	41.7	
3,332.0	1.58	10.98	3,331.1	-34.8	-21.0	211.10	40.6	
3,427.0	2.64	352.09	3,426.0	-31.3	-21.0	213.88	37.7	
3,521.0	3.52	347.08	3,519.9	-26.3	-22.0	219.81	34.3	
3,616.0	3.25	345.67	3,614.7	-20.9	-23.3	228.09	31.3	
3,710.0	3.34	344.64	3,708.6	-15.7	-24.7	237.56	29.2	
3,805.0	3.34	340.57	3,803.4	-10.4	-26.3	248.45	28.3	
3,899.0	3.25	336.36	3,897.2	-5.4	-28.3	259.25	28.8	
3,994.0	3.17	332.05	3,992.1	-0.6	-30.6	268.91	30.6	
4,088.0	3.25	331.35	4,085.9	4.0	-33.1	276.98	33.3	
4,183.0	3.61	350.07	4,180.8	9.4	-34.9	285.01	36.1	
4,277.0	3.61	350.59	4,274.6	15.2	-35.9	292.94	39.0	
4,371.0	3.34	347.96	4,368.4	20.8	-37.0	299.36	42.4	
4,466.0	3.17	347.34	4,463.3	26.1	-38.1	304.36	46.2	
4,560.0	3.43	3.69	4,557.1	31.4	-38.5	309.20	49.7	
4,655.0	3.25	5.80	4,651.9	36.9	-38.0	314.14	53.0	
4,749.0	3.17	5.80	4,745.8	42.2	-37.5	318.33	56.4	
4,844.0	3.17	4.92	4,840.7	47.4	-37.0	322.00	60.1	
4,938.0	3.08	4.74	4,934.5	52.5	-36.6	325.12	64.0	
5,033.0	2.99	1.05	5,029.4	57.5	-36.3	327.72	68.0	
5,127.0	2.90	354.72	5,123.3	62.3	-36.5	329.64	72.2	
5,222.0	3.43	3.87	5,218.1	67.6	-36.5	331.59	76.8	
5,316.0	2.99	359.91	5,312.0	72.8	-36.4	333.47	81.4	
5,411.0	2.81	359.21	5,406.8	77.6	-36.4	334.88	85.7	
5,505.0	2.55	350.68	5,500.7	82.0	-36.8	335.85	89.9	
5,600.0	3.61	351.47	5,595.6	87.0	-37.5	336.67	94.8	

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Well:	Cypress "33" Federal Com #7H	North Reference:	Grid
Wellbore:	DH - Job #320914-MPH-1105	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1105	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,694.0	3.52	352.70	5,689.4	92.8	-38.3	337.55	100.4	
5,789.0	3.25	350.77	5,784.3	98.4	-39.2	338.30	105.9	
5,884.0	3.08	348.92	5,879.1	103.5	-40.1	338.84	111.0	
5,978.0	2.99	350.42	5,973.0	108.4	-41.0	339.30	115.9	
6,073.0	2.81	348.57	6,067.9	113.2	-41.8	339.71	120.6	
6,167.0	1.32	4.30	6,161.8	116.5	-42.2	340.08	123.9	
6,261.0	1.14	25.66	6,255.8	118.4	-41.7	340.59	125.6	
6,356.0	0.97	20.92	6,350.8	120.0	-41.0	341.12	126.8	
6,450.0	0.79	21.44	6,444.7	121.4	-40.5	341.54	128.0	
6,545.0	0.79	29.70	6,539.7	122.5	-39.9	341.94	128.9	
6,639.0	0.44	40.25	6,633.7	123.4	-39.4	342.29	129.5	
6,734.0	0.00	177.27	6,728.7	123.7	-39.2	342.43	129.7	
6,828.0	0.44	227.81	6,822.7	123.4	-39.4	342.28	129.6	
6,922.0	0.44	232.56	6,916.7	123.0	-40.0	341.99	129.3	
7,017.0	0.62	253.04	7,011.7	122.6	-40.8	341.61	129.2	
7,111.0	1.76	259.89	7,105.7	122.2	-42.7	340.75	129.4	
7,206.0	0.35	175.95	7,200.7	121.6	-44.1	340.08	129.4	
7,300.0	1.76	158.03	7,294.7	120.0	-43.5	340.07	127.7	
7,395.0	1.85	173.49	7,389.6	117.1	-42.8	339.93	124.7	
7,489.0	2.02	196.79	7,483.6	114.0	-43.1	339.29	121.9	
7,584.0	2.11	179.91	7,578.5	110.7	-43.6	338.50	119.0	
7,678.0	2.02	165.85	7,672.4	107.4	-43.2	338.09	115.7	
7,773.0	1.58	150.03	7,767.4	104.6	-42.1	338.06	112.8	
7,867.0	1.32	155.48	7,861.4	102.5	-41.0	338.18	110.4	
7,961.0	1.58	180.17	7,955.3	100.2	-40.6	337.95	108.1	
8,056.0	2.90	255.06	8,050.3	98.3	-42.9	336.41	107.2	
8,083.0	2.81	263.67	8,077.2	98.0	-44.2	335.72	107.5	
8,178.0	6.86	176.13	8,172.0	92.1	-46.2	333.38	103.0	
8,272.0	14.86	173.23	8,264.2	74.5	-44.4	329.23	86.7	
8,366.0	22.51	172.26	8,353.2	44.7	-40.5	317.79	60.3	
8,461.0	30.25	169.80	8,438.2	3.0	-33.8	275.11	33.9	
8,555.0	39.13	170.95	8,515.5	-49.7	-24.9	206.65	55.6	
8,649.0	48.19	173.76	8,583.4	-113.9	-16.4	188.21	115.1	
8,732.6	57.01	175.56	8,634.1	-180.0	-10.3	183.28	180.3	
8,744.0	58.21	175.78	8,640.2	-189.6	-9.6	182.90	189.8	
8,782.2	63.32	175.55	8,658.9	-222.8	-7.1	181.82	222.9	
8,838.0	70.79	175.25	8,680.6	-274.0	-3.0	180.62	274.0	
8,933.0	78.17	176.22	8,706.0	-365.2	3.8	179.40	365.2	
8,964.0	78.44	175.95	8,712.3	-395.5	5.9	179.14	395.5	
8,996.0	79.84	176.57	8,718.3	-426.9	8.0	178.93	426.9	
9,027.0	80.90	176.22	8,723.5	-457.4	9.9	178.76	457.5	
9,059.0	82.31	175.87	8,728.2	-488.9	12.1	178.59	489.1	
9,090.0	83.98	176.31	8,731.9	-519.7	14.2	178.44	519.8	
9,122.0	85.56	176.57	8,734.8	-551.5	16.1	178.32	551.7	

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Wellbore:	DH - Job #320914-MPH-1105	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320914-MPH-1105	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
9,153.0	86.97	175.87	8,736.8	-582.3	18.2	178.21	582.6	
9,185.0	89.06	177.20	8,737.9	-614.2	20.1	178.13	614.6	
9,216.0	90.57	176.92	8,738.0	-645.2	21.7	178.07	645.6	
9,248.0	91.10	177.36	8,737.6	-677.2	23.3	178.03	677.6	
9,311.0	90.04	177.62	8,737.0	-740.1	26.1	177.98	740.6	
9,405.0	89.78	176.66	8,737.1	-834.0	30.7	177.89	834.5	
9,499.0	89.52	177.19	8,737.7	-927.8	35.8	177.79	928.5	
9,594.0	89.52	176.66	8,738.5	-1,022.7	40.9	177.71	1,023.5	
9,688.0	88.64	176.13	8,740.0	-1,116.5	46.8	177.60	1,117.5	
9,783.0	88.11	175.60	8,742.7	-1,211.2	53.6	177.46	1,212.4	
9,877.0	91.10	177.89	8,743.3	-1,305.0	59.0	177.41	1,306.4	
9,972.0	91.28	177.89	8,741.3	-1,400.0	62.5	177.44	1,401.3	
10,066.0	91.98	178.68	8,738.7	-1,493.9	65.3	177.50	1,495.3	
10,161.0	90.66	178.94	8,736.5	-1,588.8	67.3	177.58	1,590.2	
10,255.0	91.10	178.06	8,735.0	-1,682.8	69.7	177.63	1,684.2	
10,350.0	91.01	177.01	8,733.3	-1,777.7	73.8	177.62	1,779.2	
10,444.0	90.22	175.43	8,732.3	-1,871.5	80.0	177.55	1,873.2	
10,539.0	90.75	174.46	8,731.5	-1,966.1	88.4	177.43	1,968.1	
10,633.0	91.71	174.20	8,729.5	-2,059.6	97.7	177.29	2,061.9	
10,727.0	90.92	174.55	8,727.3	-2,153.1	106.9	177.16	2,155.8	
10,821.0	89.87	175.25	8,726.7	-2,246.8	115.2	177.06	2,249.7	
10,915.0	88.20	175.08	8,728.2	-2,340.4	123.1	176.99	2,343.6	
11,010.0	89.08	174.90	8,730.5	-2,435.0	131.4	176.91	2,438.6	
11,104.0	88.11	176.13	8,732.8	-2,528.7	138.8	176.86	2,532.5	
11,199.0	88.29	178.15	8,735.8	-2,623.5	143.5	176.87	2,627.4	
11,293.0	89.25	177.71	8,737.8	-2,717.4	146.9	176.91	2,721.4	
11,387.0	87.76	178.68	8,740.3	-2,811.4	149.9	176.95	2,815.3	
11,482.0	88.64	178.50	8,743.2	-2,906.3	152.2	177.00	2,910.3	
11,576.0	89.08	177.89	8,745.1	-3,000.2	155.2	177.04	3,004.2	
11,670.0	89.34	180.53	8,746.4	-3,094.2	156.5	177.11	3,098.1	
11,765.0	90.48	180.53	8,746.6	-3,189.2	155.6	177.21	3,193.0	
11,859.0	91.36	180.61	8,745.0	-3,283.2	154.7	177.30	3,286.8	
11,954.0	90.75	179.38	8,743.3	-3,378.1	154.7	177.38	3,381.7	
12,048.0	91.45	179.12	8,741.5	-3,472.1	155.9	177.43	3,475.6	
12,143.0	90.22	178.42	8,740.1	-3,567.1	157.9	177.46	3,570.6	
12,237.0	89.43	177.45	8,740.4	-3,661.0	161.3	177.48	3,664.6	
12,331.0	91.65	177.62	8,739.5	-3,754.9	165.4	177.48	3,758.6	
12,426.0	89.87	177.45	8,738.2	-3,849.8	169.4	177.48	3,853.6	
12,520.0	90.57	177.62	8,737.9	-3,943.7	173.5	177.48	3,947.5	
12,615.0	91.19	177.19	8,736.4	-4,038.6	177.8	177.48	4,042.5	
12,709.0	89.26	176.77	8,736.1	-4,132.5	182.7	177.47	4,136.5	
12,804.0	89.69	176.31	8,736.9	-4,227.3	188.5	177.45	4,231.5	
12,898.0	90.66	176.22	8,736.6	-4,321.1	194.6	177.42	4,325.5	
12,992.0	88.81	177.01	8,737.1	-4,414.9	200.1	177.40	4,419.5	
13,087.0	89.60	176.39	8,738.4	-4,509.8	205.6	177.39	4,514.5	

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Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
13,181.0	88.72	177.10	8,739.8	-4,603.6	211.0	177.38	4,608.4	
13,275.0	89.52	177.01	8,741.2	-4,697.5	215.8	177.37	4,702.4	
13,370.0	90.48	176.66	8,741.2	-4,792.3	221.0	177.36	4,797.4	
13,370.7	90.49	176.66	8,741.2	-4,793.0	221.1	177.36	4,798.1	
13,392.7	90.69	176.53	8,741.0	-4,815.0	222.4	177.36	4,820.1	
13,464.0	91.36	176.13	8,739.7	-4,886.1	226.9	177.34	4,891.4	
13,487.0	91.71	175.95	8,739.1	-4,909.1	228.5	177.33	4,914.4	
13,540.1	91.71	175.95	8,737.5	-4,962.0	232.3	177.32	4,967.4	
Last MWD Survey								
13,541.0	91.71	175.95	8,737.5	-4,962.9	232.3	177.32	4,968.3	
Projection to Bit								

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
13,540.1	8,737.5	-4,962.0	232.3	Last MWD Survey
13,541.0	8,737.5	-4,962.9	232.3	Projection to Bit

