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OCCIDENTAL PERMIAN LTD.

Cedar Canyon

Eddy County, NM

Cedar Canyon 15 Fee #2H

DH - Job #320213-MPH-203

Survey: MWD

SDI Standard Survey Report

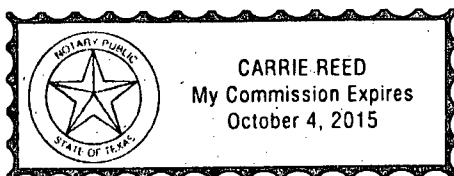
This survey is correct to the best of my knowledge and is supported by actual field data.

K. Wharton

Notarized this date 1st of April, 2013.

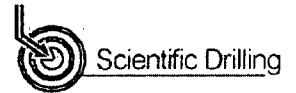
Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Cedar Canyon 15 Fee #2H
Project:	Cedar Canyon	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Cedar Canyon 15 Fee #2H	North Reference:	True
Wellbore:	DH - Job #320213-MPH-203	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320213-MPH-203	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:	0.00 usft	Slot Radius:	0"	Grid Convergence:	0.20 °

Well	Cedar Canyon 15 Fee #2H, Directional					
Well Position	+N/-S	0.00 usft	Northing:	440,525.95 usft	Latitude:	32° 12' 38.257 N
	+E/-W	0.00 usft	Easting:	609,522.81 usft	Longitude:	103° 58' 45.181 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	0.00 usft

Wellbore	DH - Job #320213-MPH-203				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/24/13	7.56	60.06	48,412

Design		DH - Job #320213-MPH-203		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	87.40

Survey Program	Date	04/10/13
From	To	
(usft)	(usft)	
428.00	12,960.00	MWD (DH - Job #320213-MPH-203)
		MWD
		MWD

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
428.00	1.49	108.38	427.95	-1.75	5.28	108.38	5.56
506.00	1.32	106.80	505.93	-2.33	7.10	108.19	7.48
595.00	1.41	110.32	594.90	-3.01	9.11	108.28	9.60
685.00	1.49	101.18	684.87	-3.62	11.30	107.78	11.86
775.00	1.80	106.32	774.84	-4.25	13.80	107.10	14.44
867.00	1.71	108.30	866.79	-5.08	16.49	107.13	17.26
962.00	1.58	99.90	961.75	-5.75	19.13	106.74	19.97
1,052.00	1.58	93.18	1,051.72	-6.04	21.59	105.62	22.42
1,147.00	1.58	100.61	1,146.68	-6.35	24.18	104.71	25.00
1,241.00	1.49	106.89	1,240.65	-6.94	26.63	104.61	27.52
1,336.00	1.71	109.09	1,335.61	-7.77	29.15	104.92	30.17

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Wellbore:	DH - Job #320213-MPH-203	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320213-MPH-203	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,430.00	1.71	106.71	1,429.57	-8.63	31.82	105.17	32.97
1,525.00	1.58	102.89	1,524.53	-9.33	34.45	105.15	35.69
1,619.00	1.49	109.00	1,618.50	-10.01	36.87	105.20	38.21
1,714.00	1.32	119.59	1,713.47	-10.96	38.99	105.70	40.50
1,809.00	1.58	118.18	1,808.44	-12.12	41.10	106.43	42.84
1,903.00	1.32	120.91	1,902.41	-13.28	43.17	107.10	45.16
1,998.00	1.49	107.42	1,997.38	-14.22	45.28	107.43	47.46
2,092.00	1.32	106.58	2,091.35	-14.89	47.49	107.41	49.77
2,186.00	1.32	104.39	2,185.33	-15.47	49.57	107.33	51.93
2,281.00	1.89	112.91	2,280.29	-16.35	52.08	107.43	54.58
2,375.00	2.02	117.39	2,374.24	-17.72	54.98	107.86	57.76
2,470.00	2.11	116.78	2,469.17	-19.27	58.02	108.37	61.14
2,564.00	2.50	115.68	2,563.10	-20.94	61.42	108.83	64.89
2,659.00	2.81	125.08	2,658.00	-23.18	65.19	109.57	69.19
2,753.00	3.21	121.63	2,751.87	-25.88	69.32	110.48	73.99
2,848.00	2.68	124.60	2,846.74	-28.54	73.41	111.24	78.76
2,942.00	1.19	122.40	2,940.69	-30.31	76.04	111.73	81.86
3,037.00	1.10	120.50	3,035.67	-31.30	77.66	111.95	83.73
3,221.00	1.49	140.38	3,219.62	-34.04	80.71	112.87	87.59
3,320.00	1.49	131.28	3,318.59	-35.88	82.50	113.51	89.96
3,415.00	1.58	128.38	3,413.55	-37.51	84.45	113.95	92.41
3,509.00	1.49	128.38	3,507.52	-39.07	86.43	114.33	94.85
3,604.00	1.49	134.71	3,602.49	-40.71	88.27	114.76	97.21
3,698.00	1.58	131.19	3,696.45	-42.42	90.11	115.21	99.60
3,793.00	1.41	132.51	3,791.42	-44.07	91.96	115.61	101.98
3,887.00	1.58	131.72	3,885.39	-45.72	93.78	115.99	104.33
3,982.00	1.41	130.88	3,980.36	-47.35	95.64	116.34	106.72
4,076.00	1.41	123.90	4,074.33	-48.76	97.48	116.57	108.99
4,171.00	1.10	132.11	4,169.30	-50.02	99.12	116.78	111.03
4,265.00	1.10	121.30	4,263.29	-51.09	100.56	116.93	112.80
4,360.00	1.10	128.20	4,358.27	-52.13	102.06	117.06	114.60
4,454.00	1.32	122.01	4,452.25	-53.26	103.69	117.19	116.57
4,549.00	1.32	127.68	4,547.22	-54.51	105.48	117.33	118.73
4,643.00	1.01	126.71	4,641.20	-55.67	107.00	117.49	120.62
4,738.00	1.10	129.61	4,736.19	-56.75	108.38	117.64	122.34
4,832.00	1.41	129.61	4,830.17	-58.06	109.96	117.84	124.35
4,926.00	1.41	128.82	4,924.14	-59.53	111.75	118.04	126.62
5,021.00	1.41	134.00	5,019.11	-61.07	113.51	118.28	128.89
5,116.00	1.71	140.29	5,114.07	-62.97	115.25	118.65	131.33
5,210.00	1.41	133.70	5,208.04	-64.85	116.98	119.00	133.76
5,305.00	1.58	141.21	5,303.01	-66.68	118.65	119.34	136.10
5,399.00	1.41	135.89	5,396.97	-68.52	120.27	119.67	138.42
5,494.00	1.19	138.88	5,491.95	-70.10	121.73	119.94	140.47
5,588.00	1.10	138.88	5,585.93	-71.52	122.96	120.18	142.25

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Wellbore:	DH - Job #320213-MPH-203	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320213-MPH-203	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,683.00	1.32	146.31	5,680.91	-73.11	124.17	120.49	144.10	
5,778.00	1.10	99.55	5,775.89	-74.18	125.68	120.55	145.93	
5,872.00	1.19	164.68	5,869.88	-75.27	126.82	120.69	147.48	
5,966.00	1.19	151.89	5,963.86	-77.07	127.54	121.14	149.02	
6,060.00	1.58	151.58	6,057.83	-79.07	128.62	121.58	150.98	
6,155.00	1.58	156.28	6,152.79	-81.42	129.77	122.11	153.20	
6,249.00	1.49	151.28	6,246.76	-83.68	130.88	122.59	155.34	
6,344.00	1.41	157.30	6,341.73	-85.84	131.92	123.05	157.39	
6,438.00	1.10	152.90	6,435.70	-87.71	132.78	123.45	159.13	
6,533.00	1.01	146.40	6,530.69	-89.22	133.66	123.72	160.70	
6,627.00	1.32	151.10	6,624.67	-90.86	134.64	124.01	162.43	
6,722.00	1.49	181.68	6,719.64	-93.05	135.13	124.55	164.07	
6,817.00	1.32	179.71	6,814.61	-95.38	135.10	125.22	165.38	
6,911.00	1.41	209.99	6,908.59	-97.46	134.53	125.92	166.12	
7,005.00	1.71	221.59	7,002.55	-99.51	133.02	126.80	166.12	
7,100.00	2.42	212.31	7,097.49	-102.27	131.01	127.98	166.20	
7,194.00	2.68	209.19	7,191.40	-105.87	128.88	129.40	166.78	
7,289.00	2.68	209.68	7,286.29	-109.73	126.69	130.90	167.61	
7,383.00	3.30	303.90	7,380.21	-110.13	123.36	131.76	165.37	
7,478.00	3.21	217.50	7,475.11	-110.72	119.47	132.82	162.88	
7,572.00	2.81	206.91	7,568.98	-114.86	116.82	134.52	163.83	
7,667.00	2.29	194.69	7,663.88	-118.77	115.29	135.85	165.52	
7,754.00	1.89	194.30	7,750.82	-121.85	114.49	136.78	167.20	
7,790.00	1.76	192.82	7,786.81	-122.96	114.22	137.11	167.83	
7,822.00	0.97	5.40	7,818.80	-123.17	114.14	137.18	167.92	
7,853.00	5.10	11.50	7,849.75	-121.56	114.44	136.73	166.95	
7,885.00	8.35	10.89	7,881.53	-117.88	115.16	135.67	164.80	
7,916.00	11.87	7.28	7,912.04	-112.51	115.99	134.13	161.59	
7,948.00	14.68	7.20	7,943.18	-105.22	116.91	131.99	157.29	
7,979.00	17.59	7.90	7,972.96	-96.68	118.05	129.32	152.59	
8,011.00	19.52	9.75	8,003.30	-86.62	119.62	125.91	147.69	
8,042.00	20.58	12.91	8,032.42	-76.20	121.72	122.05	143.60	
8,074.00	21.81	15.99	8,062.25	-65.01	124.61	117.55	140.55	
8,105.00	22.86	17.83	8,090.93	-53.74	128.04	112.77	138.86	
8,137.00	22.77	19.76	8,120.42	-41.99	132.04	107.64	138.55	
8,168.00	22.42	21.79	8,149.04	-30.86	136.26	102.76	139.71	
8,200.00	22.25	27.06	8,178.65	-19.80	141.28	97.98	142.66	
8,231.00	22.77	32.42	8,207.29	-9.50	147.17	93.69	147.48	
8,263.00	24.27	37.78	8,236.63	0.92	154.52	89.66	154.52	
8,294.00	26.12	38.75	8,264.68	11.28	162.69	86.03	163.08	
8,326.00	27.44	39.10	8,293.25	22.50	171.75	82.54	173.22	
8,357.00	28.40	43.67	8,320.64	33.37	181.35	79.57	184.40	
8,389.00	30.34	48.94	8,348.53	44.19	192.70	77.08	197.70	
8,420.00	32.45	53.43	8,375.00	54.29	205.29	75.19	212.35	

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Wellbore:	DH - Job #320213-MPH-203	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #320213-MPH-203	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
8,452.00	34.82	56.77	8,401.64	64.41	219.83	73.67	229.07	
8,483.00	37.81	59.23	8,426.62	74.13	235.40	72.52	246.80	
8,515.00	40.45	60.90	8,451.44	84.20	252.90	71.59	266.55	
8,546.00	43.35	61.95	8,474.51	94.09	271.08	70.86	286.95	
8,578.00	45.99	62.30	8,497.27	104.61	290.97	70.23	309.20	
8,609.00	48.72	63.01	8,518.27	115.08	311.22	69.71	331.82	
8,641.00	50.56	64.94	8,538.99	125.77	333.13	69.32	356.08	
8,672.00	52.32	68.02	8,558.31	135.44	355.36	69.14	380.29	
8,704.00	54.08	69.86	8,577.48	144.64	379.27	69.13	405.91	
8,735.00	55.57	72.76	8,595.34	152.75	403.27	69.25	431.23	
8,767.00	56.72	75.58	8,613.17	159.99	428.83	69.54	457.71	
8,798.00	58.30	78.04	8,629.83	165.96	454.29	69.93	483.65	
8,830.00	60.06	79.35	8,646.22	171.34	481.23	70.40	510.83	
8,861.00	62.43	80.59	8,661.13	176.07	507.99	70.88	537.64	
8,893.00	64.98	81.55	8,675.31	180.52	536.33	71.40	565.90	
8,924.00	68.15	82.34	8,687.64	184.50	564.49	71.90	593.88	
8,956.00	72.12	83.02	8,698.51	188.33	594.34	72.42	623.46	
8,987.00	76.33	83.66	8,706.93	191.79	623.96	72.91	652.77	
9,019.00	78.08	85.24	8,714.02	194.81	655.02	73.44	683.37	
9,050.00	80.90	86.03	8,719.67	197.13	685.41	73.95	713.19	
9,113.00	86.09	87.79	8,726.81	200.49	747.88	74.99	774.29	
9,145.00	87.67	88.50	8,728.55	201.53	779.82	75.51	805.44	
9,209.00	88.64	89.20	8,730.61	202.81	843.77	76.48	867.80	
9,302.00	88.85	89.16	8,732.65	204.14	936.74	77.71	958.73	
9,397.00	88.90	89.37	8,734.51	205.36	1,031.71	78.74	1,051.95	
9,491.00	89.25	89.64	8,736.03	206.17	1,125.70	79.62	1,144.42	
9,586.00	89.43	90.25	8,737.13	206.26	1,220.69	80.41	1,238.00	
9,680.00	88.90	89.46	8,738.50	206.50	1,314.68	81.07	1,330.80	
9,775.00	88.81	88.67	8,740.39	208.05	1,409.65	81.60	1,424.92	
9,869.00	88.90	88.50	8,742.27	210.37	1,503.60	82.04	1,518.25	
10,021.00	88.99	88.32	8,745.07	214.59	1,655.52	82.61	1,669.37	
10,058.00	89.16	88.67	8,745.67	215.56	1,692.50	82.74	1,706.17	
10,152.00	88.99	88.50	8,747.19	217.88	1,786.46	83.05	1,799.69	
10,247.00	89.25	88.23	8,748.64	220.59	1,881.41	83.31	1,894.29	
10,341.00	88.37	89.11	8,750.60	222.77	1,975.36	83.57	1,987.88	
10,436.00	88.55	89.20	8,753.15	224.17	2,070.31	83.82	2,082.42	
10,531.00	89.78	90.34	8,754.53	224.55	2,165.30	84.08	2,176.91	
10,625.00	90.57	91.13	8,754.25	223.35	2,259.29	84.35	2,270.30	
10,720.00	90.84	90.78	8,753.08	221.77	2,354.27	84.62	2,364.69	
10,814.00	91.28	90.17	8,751.34	220.99	2,448.25	84.84	2,458.20	
10,908.00	91.54	89.64	8,749.03	221.14	2,542.22	85.03	2,551.82	
11,003.00	90.13	90.52	8,747.64	221.01	2,637.21	85.21	2,646.45	
11,097.00	90.22	90.78	8,747.35	219.94	2,731.20	85.40	2,740.04	
11,192.00	88.64	90.87	8,748.30	218.58	2,826.18	85.58	2,834.62	
11,286.00	88.64	90.52	8,750.53	217.44	2,920.15	85.74	2,928.23	

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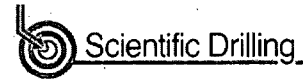
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Survey							
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11,381.00	87.58	89.64	8,753.66	217.30	3,015.10	85.88	3,022.92
11,475.00	88.99	90.08	8,756.48	217.53	3,109.05	86.00	3,116.65
11,570.00	89.87	90.17	8,757.42	217.32	3,204.05	86.12	3,211.41
11,664.00	88.11	89.46	8,759.08	217.63	3,298.03	86.22	3,305.20
11,759.00	88.64	89.73	8,761.77	218.30	3,392.98	86.32	3,400.00
11,853.00	87.49	88.41	8,764.95	219.82	3,486.92	86.39	3,493.84
11,948.00	87.67	89.11	8,768.96	221.88	3,581.81	86.46	3,588.67
12,042.00	87.58	88.50	8,772.85	223.84	3,675.71	86.52	3,682.52
12,137.00	87.76	91.84	8,776.72	223.55	3,770.61	86.61	3,777.23
12,231.00	87.85	92.27	8,780.32	220.19	3,864.48	86.74	3,870.75
12,326.00	88.20	91.04	8,783.59	217.44	3,959.39	86.86	3,965.35
12,420.00	89.16	89.64	8,785.76	216.89	4,053.36	86.94	4,059.15
12,515.00	88.99	89.37	8,787.29	217.71	4,148.34	87.00	4,154.05
12,609.00	88.99	88.76	8,788.95	219.24	4,242.31	87.04	4,247.97
12,704.00	88.99	87.79	8,790.62	222.10	4,337.25	87.07	4,342.94
12,798.00	88.99	86.30	8,792.28	226.95	4,431.11	87.07	4,436.92
12,893.00	88.69	85.71	8,794.20	233.56	4,525.86	87.05	4,531.88
Last MWD Survey							
12,960.00	88.48	85.29	8,795.86	238.82	4,592.63	87.02	4,598.84
Projection to Bit							

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
12,893.00	8,794.20	233.56	4,525.86	Last MWD Survey	
12,960.00	8,795.86	238.82	4,592.63	Projection to Bit	

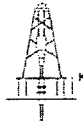


Cedar Canyon 15 FEE 2H
Eddy County, New Mexico
Northing: 440526.10
Easting: 609522.80
Original Wellbore



3. Convert Magnetic North to Grid. Add 1.38°
To convert True North to Grid, Subtract 0.19°

Adjusts to Grid North
True North: 0.19°
Magnetic North: 7.38°
Magnetic Field
Strength: 48.00 T/m
Dip Angle: 60.28°
Year: 2013.0000
Model: IGRF 2010



KB @ 2953.0usft (Rig 26 KB)
Gr: 2927.0

SECTION DETAILS:

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
7754.0	1.89	194.30	7750.8	-121.5	114.5	0.00	0.00	108.9	
7785.5	0.00	0.00	7782.3	-122.0	114.4	6.00	180.00	108.7	
7791.9	0.00	0.00	7788.7	-122.0	114.4	0.00	0.00	108.7	
8079.4	23.00	0.00	8068.6	-65.1	114.4	8.00	0.00	111.3	
9194.5	89.13	90.04	8729.6	210.4	820.7	8.00	90.38	829.4	
12958.8	89.13	90.04	8787.0	207.9	4584.5	0.00	0.00	4589.2	PBHL

WELL DETAILS: Cedar Canyon 15 FEE 2H

Ground Level: 2927.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	440526.10	609522.80	32° 12' 38.259 N	103° 58' 45.181 W

DESIGN TARGET DETAILS:

Name	TVD	+N/-S	+E/-W	Northing	Easting
PP	8200.0	210.0	-1.1	440736.10	609521.70
PBHL	8787.0	207.9	4584.5	440734.00	614107.30

PROJECT DETAILS:

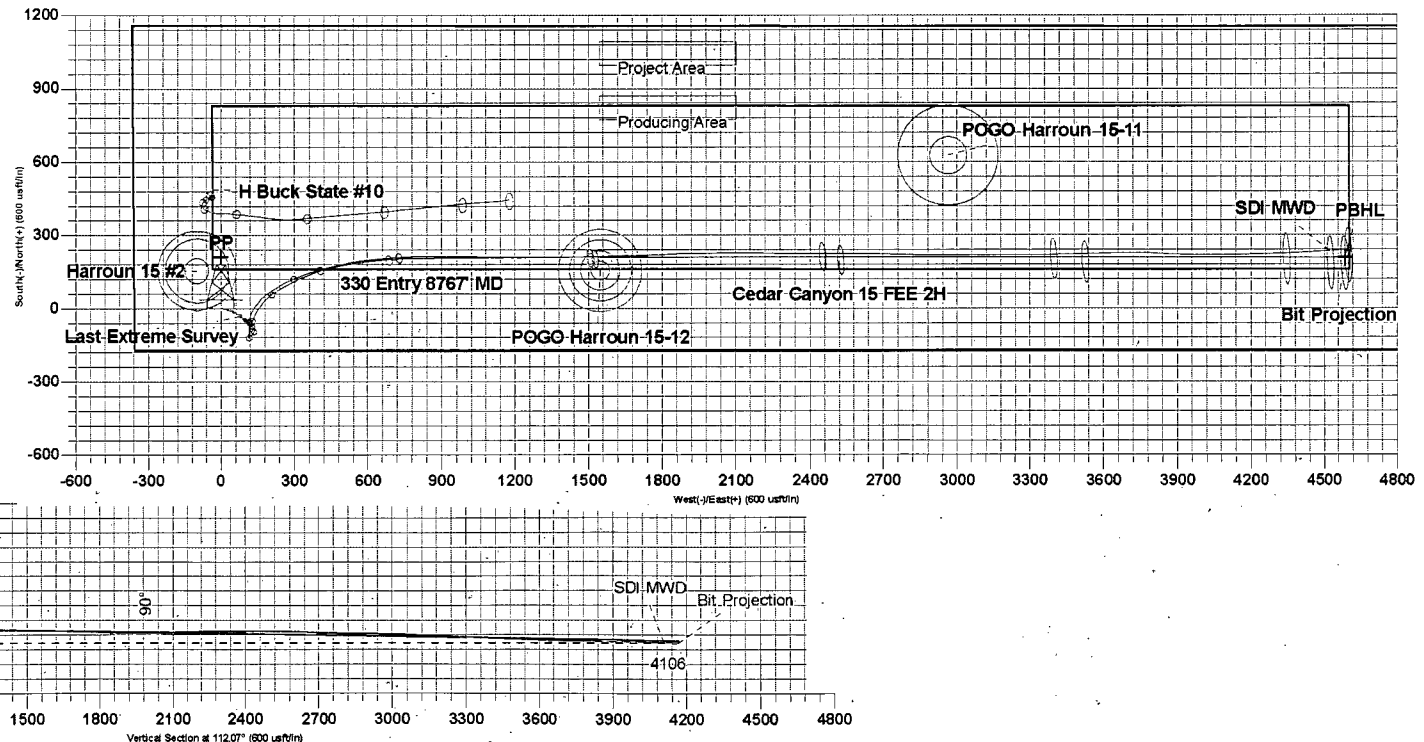
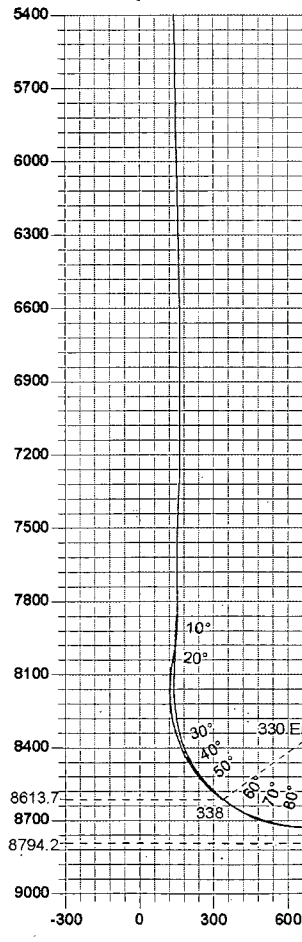
Eddy County, New Mexico
Geodetic System: US State Plane 1927
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level

SITE DETAILS: Cedar Canyon

Site Centre Northing: 440526.10
Easting: 609522.80

Positional Uncertainty: 0.0
Convergence: 0.19
Local North: Grid



Reservoir Development

Drilling & Measurements (Extreme Engineering)

6724 Corporation Pkwy Suite 100

Fort Worth, TX 76126

Phone: (817) 717-1820

Fax: (817) 546-7551

March 29, 2013

Occidental Permian Ltd

5 Greenway Plaza Suite 110

Houston, Texas 77046

Attention: Anthony Tschacher

Re:

CLIENT: OXY Permain
WELL: CEDAR CANYON 15 FEE #2
FIELD: BONE SPRINGS
RIG: HP 216
COUNTY: Eddy
API NO: 30-015-41032
JOB NO: NM-OXY-0045

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements (formerly Extreme), a division of Schlumberger Technology Corporation (P-5 No. 754900).

Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Tim Daws	CEDAR CANYON 15 FEE			
FST-1	#2	334.00 Ft to	February 25, 2013 to	SlimPulse
	Original Hole	7749.00 Ft	March 3, 2013	

A plat of the bottom hole location is oriented both to the surface location and to the lease lines (or until line in case of pooling), is attached to the survey report.

If any other information is required, please contact the undersigned at the above letterhead and phone number.

Sincerely,

Mike Johns
Field Service Manager

CC: OXY Permain
Enclosures: [2]
County of Eddy
State of New Mexico

Reservoir Development

Drilling & Measurements (Extreme Engineering)

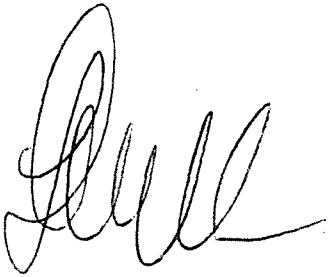
6724 Corporation Pkwy Suite 100

Fort Worth, TX 76126

Phone: (817) 717-1820

Fax: (817) 546-7551

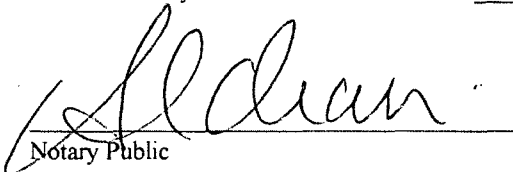
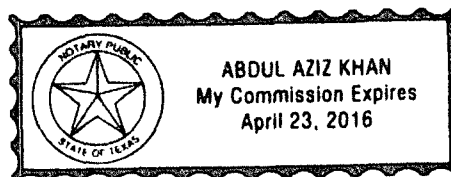
I, Tim Daws certify that; I am employed by Drilling & Measurements (formerly Extreme), a division of Schlumberger Technology Corporation; that I did on the day(s) of February 25, 2013 through March 03, 2013, conduct or supervise the taking of the SlimPulse surveys from a depth of 334.00 feet to a depth of 7749.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY Permain for the CEDAR CANYON 15 FEE #2 Well (Original Hole) API No. 30-015-41032 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.



Tim Daws
FST-1

Before me, Abdul Khan, on this day personally appeared Timothy Daws, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 29 day of March, 2013 (year).


Notary Public

Cedar Canyon 15 Fee #2 MWD 0' to 7749' Survey Report

(Def Survey)

Report Date: March 03, 2013 - 03:57 PM
 Client: Oxy
 Field: NM, Eddy (NAD27 CG) 2012
 Structure / Slot: Oxy Cedar Canyon 15 Fee #2 H&P 216 / Cedar Canyon 15 Fee #2
 Well: Cedar Canyon 15 Fee #2
 Borehole: Original Hole
 UMI / APIT: Unknown / 30.015-41032
 Survey Name: Cedar Canyon 15 Fee #2 MWD 0' to 7749'
 Survey Date: March 03, 2013
 Tor / AHD / DDI / ERD Ratio: 20.274 * / 206.183 ft / 3.621 / 0.027
 Coordinate Reference System: NAD27 New Mexico State Plane, Central Zone, US Feet
 Location Lat / Long: N 32° 12' 38.190007" W 103° 59' 45.120007"
 Location Grid NIE YIX: N 447753.393 HUS, E 1202395.863 HUS
 CRS Grid Convergence Angle: 1.21087142°
 Grid Scale Factor: 1.00046511

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 0.000° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 2951.600 ft above Unknown
 Seabed / Ground Elevation: 2951.600 ft above Unknown
 Magnetic Declination: 7.596°
 Total Field Strength: 48369.652 nT
 Magnetic Dip Angle: 60.017°
 Declination Date: March 03, 2013
 Magnetic Declination Model: IGRGM 2012
 North Reference: Grid North
 Grid Convergence Used: 0.189°
 Total Corr Mag North-Grid North: 7.397°
 Local Coord Referenced To: Structure Reference Point

Comments	MD	Incl	Azim Grid	TVD	VSEC	NS	EW	DLS	Northing	Easting	Latitude	Longitude	Elev	MWD Surveys	
														Surf	Bottom
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	447753.39	1202395.86	N 32° 12' 38.19	W 103° 59' 45.12			
Assumed Vertical	334.00	0.00	0.00	334.00	0.00	0.00	0.00	0.00	447753.39	1202396.86	N 32° 12' 38.16	W 103° 59' 45.11			
Begin MWD	393.00	1.41	117.30	392.89	-0.33	-0.33	0.65	2.39	447753.08	1202396.51	N 32° 12' 38.16	W 103° 59' 45.11			
Surveys	506.00	1.32	106.80	505.96	-1.35	-1.35	3.13	0.23	447752.06	1202398.89	N 32° 12' 38.15	W 103° 59' 45.08			
	698.00	1.49	101.18	698.91	-2.40	-2.40	7.41	0.12	447750.99	1202402.27	N 32° 12' 38.13	W 103° 59' 45.07			
	867.00	1.71	108.30	866.84	-3.70	-3.70	12.28	0.16	447749.69	1202406.15	N 32° 12' 38.11	W 103° 59' 44.98			
	1052.00	1.58	92.18	1051.78	-4.71	-4.71	17.45	0.24	447748.68	1202413.32	N 32° 12' 38.11	W 103° 59' 44.96			
	1241.00	1.49	106.98	1240.98	-5.57	-5.57	22.40	0.20	447747.82	1202419.27	N 32° 12' 38.10	W 103° 59' 44.86			
	1430.00	1.71	108.71	1429.82	-7.10	-7.10	27.45	0.12	447746.29	1202423.93	N 32° 12' 38.08	W 103° 59' 44.80			
	1613.00	1.49	109.00	1612.55	-8.66	-8.66	32.31	0.13	447744.73	1202428.19	N 32° 12' 38.07	W 103° 59' 44.75			
	1803.00	1.58	118.18	1802.48	-10.70	-10.70	36.98	0.14	447742.68	1202432.84	N 32° 12' 38.05	W 103° 59' 44.69			
	1982.00	1.49	107.42	1981.41	-12.67	-12.67	41.60	0.16	447740.72	1202437.48	N 32° 12' 38.03	W 103° 59' 44.64			
	2181.00	1.32	104.39	2180.36	-13.95	-13.95	46.05	0.10	447739.44	1202441.94	N 32° 12' 38.01	W 103° 59' 44.59			
	2373.00	2.02	117.39	2372.28	-18.05	-18.05	51.20	0.41	447737.33	1202446.09	N 32° 12' 37.99	W 103° 59' 44.53			
	2564.00	2.50	115.86	2563.13	-19.41	-19.41	57.84	0.25	447735.98	1202450.83	N 32° 12' 37.96	W 103° 59' 44.44			
	2733.00	3.21	121.61	2731.89	-23.97	-23.97	66.16	1.07	447729.42	1202455.09	N 32° 12' 37.91	W 103° 59' 44.36			
	2942.00	1.19	122.40	2940.74	-27.79	-27.79	72.33	0.41	447725.89	1202460.23	N 32° 12' 37.87	W 103° 59' 44.28			
	3126.00	1.41	136.68	3124.89	-30.46	-30.46	75.50	0.21	447722.82	1202463.91	N 32° 12' 37.84	W 103° 59' 44.22			
	3317.00	1.49	131.28	3315.83	-33.81	-33.81	78.87	0.08	447718.27	1202467.87	N 32° 12' 37.81	W 103° 59' 44.17			
	3506.00	1.49	132.51	3506.87	-37.13	-37.13	82.67	0.02	447716.25	1202472.67	N 32° 12' 37.78	W 103° 59' 44.11			
	3699.00	1.41	140.39	3697.51	-40.82	-40.82	86.00	0.11	447712.76	1202481.80	N 32° 12' 37.74	W 103° 59' 44.05			
	3905.00	1.58	131.72	3903.45	-44.08	-44.08	89.37	0.15	447708.29	1202485.28	N 32° 12' 37.71	W 103° 59' 44.01			
	4072.00	1.41	123.90	4070.36	-47.08	-47.08	92.37	0.14	447706.04	1202489.11	N 32° 12' 37.67	W 103° 59' 44.00			
	4283.00	1.10	121.30	4282.84	-49.33	-49.33	96.71	0.17	447704.04	1202492.91	N 32° 12' 37.65	W 103° 59' 43.97			
	4453.00	1.32	122.01	4451.29	-51.45	-51.45	100.14	0.12	447701.82	1202496.05	N 32° 12' 37.63	W 103° 59' 43.91			
	4641.00	1.01	128.71	4639.25	-53.59	-53.59	103.30	0.17	447699.78	1202498.21	N 32° 12' 37.61	W 103° 59' 43.85			
	4827.00	1.41	128.61	4825.21	-58.03	-58.03	106.36	0.22	447697.34	1202502.59	N 32° 12' 37.57	W 103° 59' 43.80			
	5013.00	1.41	134.30	5011.16	-58.11	-58.11	109.62	0.08	447694.25	1202506.74	N 32° 12' 37.55	W 103° 59' 43.86			
	5204.00	1.41	133.70	5202.10	-62.33	-62.33	113.16	0.00	447691.04	1202509.09	N 32° 12' 37.52	W 103° 59' 43.82			
	5391.00	1.41	157.91	5389.04	-66.05	-66.05	115.71	0.32	447687.31	1202513.82	N 32° 12' 37.48	W 103° 59' 43.78			
	5580.00	1.10	138.88	5578.00	-69.58	-69.58	117.77	0.27	447683.78	1202518.69	N 32° 12' 37.45	W 103° 59' 43.77			
	5769.00	1.10	88.55	5767.97	-71.24	-71.24	120.76	0.36	447682.12	1202523.68	N 32° 12' 37.43	W 103° 59' 43.73			
	5964.00	1.19	151.89	5961.85	-73.34	-73.34	123.96	0.52	447680.02	1202528.48	N 32° 12' 37.41	W 103° 59' 43.70			
	6155.00	1.58	156.28	6152.88	-77.50	-77.50	125.55	0.21	447675.86	1202533.47	N 32° 12' 37.37	W 103° 59' 43.68			
	6344.00	1.41	157.30	6341.81	-82.03	-82.03	127.50	0.09	447671.32	1202538.42	N 32° 12' 37.32	W 103° 59' 43.66			
	6533.00	1.01	146.40	6530.77	-85.58	-85.58	129.32	0.24	447667.79	1202543.24	N 32° 12' 37.29	W 103° 59' 43.64			
	6722.00	1.49	161.66	6719.73	-89.41	-89.41	130.17	0.47	447663.94	1202548.09	N 32° 12' 37.25	W 103° 59' 43.63			
	6911.00	1.41	208.99	6908.67	-93.88	-93.88	128.93	0.36	447659.47	1202552.85	N 32° 12' 37.20	W 103° 59' 43.64			
	7096.00	2.42	212.31	7092.56	-98.12	-98.12	125.72	0.55	447654.22	1202557.94	N 32° 12' 37.15	W 103° 59' 43.69			
	7284.00	2.68	209.88	7281.38	-108.33	-108.33	121.40	0.15	447647.01	1202562.32	N 32° 12' 37.08	W 103° 59' 43.73			
	7472.00	3.21	217.50	7469.13	-114.33	-114.33	118.02	0.35	447639.01	1202567.94	N 32° 12' 37.00	W 103° 59' 43.80			
	7657.00	2.29	194.69	7653.91	-122.43	-122.43	111.71	0.72	447630.81	1202573.62	N 32° 12' 36.63	W 103° 59' 43.85			
	7749.00	1.89	194.30	7746.65	-125.32	-125.32	110.96	0.49	447628.01	1202506.87	N 32° 12' 36.90	W 103° 59' 43.86			

Survey Type: Def Survey

Survey Error Model: ISOWSA Rev 0 *** 3-D 95.000% Confidence 2.7855 sigma

Survey Program:	Description	MD From	MD To	EOU Freq	Survey Tool Type	Borehole / Survey
		(ft)	(ft)	(ft)		
		0.000	25.000	1/26.000	SLE BLIND+TRENDO-Depth Only	Original Hole / Cedar Canyon 15 Fee #2 MWD 0' to 7749'
		25.000	334.000	1/339.000	SLE BLIND+TRENDO	Original Hole / Cedar Canyon 15 Fee #2 MWD 0' to 7749'
		334.000	334.000	Act Stps	SLE BLIND+TRENDO	Original Hole / Cedar Canyon 15 Fee #2 MWD 0' to 7749'
		334.000	7749.000	1/7415.000	SLE MWD-STD	Original Hole / Cedar Canyon 15 Fee #2 MWD 0' to 7749'