Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

30-015-44521

Well Reference:
29, 24S, 29E, Eddy NM
N 32.18573 W -104.01380

I, Roseleigh Taylor certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 21, 2017 through December 25, 2017, conduct or supervise the taking of the SlimPulse surveys from a depth of 8020.00 feet to a depth of 13325.00 feet referenced to driller's depth; 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 U.S.A Inc for the Cedar Canyon 29 Federal Com 24H Well (Original Hole) API No. 30-015-44521 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.

By
Roseleigh Taylor
FE

Subscribed and Sworn to before me this 16th day of January (month) 2018 (yr)

My Commission expires:
12.20.2020

Allemand
Notary Public (signature)

Adams County Colorado
(County State)

JENNIFER ALLEMAND
Notary Public
State of Colorado
Notary ID # 20164047962
Commission Expires 12-20-2020

Schlumberger

Oxy Cedar Canyon 29 Federal Com 24H Gyro+MWD 0-13370 ftMD Survey
Geodetic Report
(Def Survey)

Report Date:	December 26, 2017 - 09:57 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	83.696 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Cedar Canyon 29 Federal Com 24H / Oxy Cedar Canyon 29 Federal Com 24H	**TVD Reference Datum:**	RKB=26.5'
Well:	Oxy Cedar Canyon 29 Federal Com 24H	**TVD Reference Elevation:**	2954.900 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	2928.400 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.144 °
Survey Name:	Oxy Cedar Canyon 29 Federal Com 24H Gyro+MWD 0-13370 ftMD	**Total Gravity Field Strength:**	998.4649mgn (9.80665 Based)
Survey Date:	December 19, 2017	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	*202.785 ° / 5573.836 ft / 6.245 / 0.648*	***Total Magnetic Field Strength:***	*48049.887 nT*
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.977 °
Location Lat / Long:	N 32° 11' 8.61989", W 104° 0' 49.69009"	**Declination Date:**	December 18, 2017
Location Grid N/E Y/X:	N 431449.170 ftUS, E 640188.190 ftUS	***Magnetic Declination Model:***	HDGM 2017
CRS Grid Convergence Angle:	0.1702 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99992028	**Grid Convergence Used:**	0.1702 °
Version / Patch:	2.10.565.0	***Total Corr Mag North->Grid North:***	8.9739 °
		Local Coord Referenced To:	Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	431449.17	640188.19	N 32 11 8.62	W 104 0 49.69
	82.00	1.47	12.82	81.99	0.34	1.03	0.23	1.79	431450.20	640188.42	N 32 11 8.63	W 104 0 49.69
	177.00	1.34	6.66	176.96	0.99	3.32	0.63	0.21	431452.49	640188.82	N 32 11 8.65	W 104 0 49.68
	272.00	1.09	10.09	271.94	1.50	5.31	0.92	0.27	431454.48	640189.11	N 32 11 8.67	W 104 0 49.68
	367.00	1.18	4.23	366.92	1.93	7.18	1.15	0.15	431456.34	640189.34	N 32 11 8.69	W 104 0 49.68
	463.00	1.37	9.95	462.90	2.43	9.29	1.42	0.24	431458.46	640189.61	N 32 11 8.71	W 104 0 49.67
	558.00	0.48	18.83	557.89	2.91	10.77	1.74	0.97	431459.94	640189.93	N 32 11 8.73	W 104 0 49.67
	651.00	0.02	30.58	650.88	3.08	11.14	1.87	0.47	431460.31	640190.06	N 32 11 8.73	W 104 0 49.67
	744.00	0.02	346.19	743.88	3.09	11.17	1.87	0.02	431460.34	640190.06	N 32 11 8.73	W 104 0 49.67
	838.00	0.04	23.29	837.88	3.10	11.21	1.88	0.03	431460.38	640190.07	N 32 11 8.73	W 104 0 49.67
	931.00	0.01	310.02	930.88	3.11	11.25	1.88	0.04	431460.42	640190.08	N 32 11 8.73	W 104 0 49.67
	1025.00	0.02	286.81	1024.88	3.09	11.26	1.87	0.01	431460.43	640190.06	N 32 11 8.73	W 104 0 49.67
	1118.00	0.03	260.25	1117.88	3.05	11.26	1.83	0.02	431460.43	640190.02	N 32 11 8.73	W 104 0 49.67
	1211.00	*0.10*	*194.85*	*1210.88*	*3.00*	*11.18*	*1.78*	*0.10*	*431460.35*	*640189.97*	*N 32 11 8.73*	*W 104 0 49.67*
	1305.00	0.13	195.20	1304.88	2.93	10.99	1.73	0.03	431460.16	640189.92	N 32 11 8.73	W 104 0 49.67
	1398.00	0.20	242.74	1397.88	2.74	10.82	1.58	0.16	431459.99	640189.75	N 32 11 8.73	W 104 0 49.67
	1492.00	0.37	247.81	1491.88	2.30	10.53	1.14	0.18	431459.80	640189.33	N 32 11 8.73	W 104 0 49.68
	1587.00	0.57	243.26	1586.88	1.56	10.30	0.43	0.21	431459.47	640188.62	N 32 11 8.72	W 104 0 49.68
	1682.00	1.12	241.54	1681.87	0.26	9.84	-0.81	0.58	431458.81	640187.38	N 32 11 8.72	W 104 0 49.70
	1777.00	1.42	243.72	1776.85	-1.71	8.68	-2.68	0.32	431457.85	640185.51	N 32 11 8.71	W 104 0 49.72
	1872.00	1.46	259.88	1871.82	-4.02	7.95	-4.93	0.43	431457.12	640183.26	N 32 11 8.70	W 104 0 49.75
	1967.00	0.30	228.81	1966.80	-5.44	7.57	-6.30	1.28	431456.74	640181.89	N 32 11 8.69	W 104 0 49.76
	2062.00	0.15	152.49	2061.80	-5.59	7.29	-6.43	0.32	431456.46	640181.76	N 32 11 8.69	W 104 0 49.76
	2157.00	0.18	191.99	2156.80	-5.60	7.04	-6.41	0.12	431456.21	640181.78	N 32 11 8.69	W 104 0 49.76
	2252.00	0.20	212.54	2251.80	-5.75	6.75	-6.53	0.07	431455.92	640181.66	N 32 11 8.69	W 104 0 49.77
	2442.00	0.15	156.47	2441.80	-5.88	6.24	-6.61	0.09	431455.41	640181.58	N 32 11 8.68	W 104 0 49.77
	2538.00	0.17	145.88	2537.80	-5.78	6.01	-6.48	0.04	431455.18	640181.71	N 32 11 8.68	W 104 0 49.77
	2633.00	0.57	80.48	2632.80	-5.24	5.97	-5.93	0.55	431455.14	640182.26	N 32 11 8.68	W 104 0 49.76
	2728.00	0.48	95.27	2727.79	-4.38	6.01	-5.07	0.17	431455.18	640183.12	N 32 11 8.68	W 104 0 49.75
	2823.00	*0.16*	*118.06*	*2822.79*	*-3.88*	*6.22*	*-4.56*	*0.36*	*431455.09*	*640183.63*	*N 32 11 8.68*	*W 104 0 49.74*
	2918.00	0.03	97.20	2917.79	-3.75	6.35	-4.41	0.14	431455.02	640183.78	N 32 11 8.68	W 104 0 49.74
	3013.00	0.03	76.45	3012.79	-3.70	6.35	-4.37	0.01	431455.02	640183.82	N 32 11 8.68	W 104 0 49.74
	3108.00	*0.03*	*81.45*	*3107.79*	*-3.65*	*6.37*	*-4.32*	*0.01*	*431455.04*	*640183.87*	*N 32 11 8.68*	*W 104 0 49.74*
	3203.00	0.01	144.36	3202.79	-3.62	6.38	-4.29	0.03	431455.05	640183.90	N 32 11 8.68	W 104 0 49.74
	3298.00	0.02	308.19	3297.79	-3.63	6.38	-4.30	0.03	431455.05	640183.89	N 32 11 8.68	W 104 0 49.74
	3393.00	0.09	295.38	3392.79	-3.71	6.32	-4.38	0.07	431455.09	640183.81	N 32 11 8.68	W 104 0 49.74
	3488.00	0.99	323.27	3487.79	-4.18	6.61	-4.94	0.96	431455.78	640183.25	N 32 11 8.69	W 104 0 49.75
	3583.00	2.21	342.18	3582.75	-4.97	9.01	-5.99	1.38	431456.18	640182.20	N 32 11 8.71	W 104 0 49.76
	3678.00	3.26	343.66	3677.64	-5.80	13.35	-7.31	1.11	431462.52	640180.88	N 32 11 8.76	W 104 0 49.77
	3774.00	4.45	339.23	3773.42	-7.21	19.45	-8.40	1.28	431468.62	640178.79	N 32 11 8.81	W 104 0 49.80
	3869.00	5.42	334.76	3868.07	-9.58	26.96	-12.62	1.10	431476.12	640175.57	N 32 11 8.89	W 104 0 49.84
	3964.00	6.53	332.67	3962.55	-12.98	35.81	-17.01	1.19	431484.98	640171.18	N 32 11 8.97	W 104 0 49.89
	4059.00	7.81	330.63	4056.81	-17.44	46.24	-22.66	1.37	431495.41	640165.54	N 32 11 9.08	W 104 0 49.95
	4154.00	8.80	328.46	4150.81	-23.07	58.06	-29.62	1.09	431507.22	640158.57	N 32 11 9.20	W 104 0 50.03
	4249.00	9.33	326.50	4244.62	-29.69	70.87	-37.87	0.65	431519.84	640150.52	N 32 11 9.32	W 104 0 50.13
	4344.00	9.20	325.18	4338.36	-36.63	83.33	-46.26	0.26	431532.49	640141.93	N 32 11 9.45	W 104 0 50.23
	4439.00	9.18	325.59	4432.18	-44.03	95.82	-54.88	0.07	431544.98	640133.31	N 32 11 9.57	W 104 0 50.33
	4534.00	9.38	324.42	4525.93	-51.36	108.32	-63.64	0.23	431557.49	640124.56	N 32 11 9.69	W 104 0 50.43
	4629.00	9.52	323.98	4619.65	-59.01	120.92	-72.72	0.24	431570.08	640115.47	N 32 11 9.82	W 104 0 50.53
	4724.00	9.57	323.77	4713.33	-66.85	133.65	-82.01	0.06	431582.80	640106.19	N 32 11 9.94	W 104 0 50.64
	4819.00	9.51	323.90	4807.02	-74.69	146.36	-91.30	0.07	431595.51	640096.90	N 32 11 10.07	W 104 0 50.75
	5010.00	*9.22*	*324.57*	*4995.48*	*-89.97*	*171.57*	*-109.47*	*0.16*	*431620.73*	*640078.73*	*N 32 11 10.32*	*W 104 0 50.96*
	5105.00	9.39	326.45	5089.23	-97.23	184.23	-118.16	0.37	431633.39	640070.04	N 32 11 10.45	W 104 0 51.06
	5200.00	9.15	327.88	5182.98	-104.07	197.09	-126.46	0.35	431646.24	640061.74	N 32 11 10.57	W 104 0 51.15
	5295.00	8.73	324.05	5276.83	-110.92	209.32	-134.71	0.77	431658.48	640053.49	N 32 11 10.70	W 104 0 51.25
	5390.00	8.58	336.03	5370.76	-116.64	221.64	-141.82	1.90	431670.79	640046.38	N 32 11 10.82	W 104 0 51.33
	5485.00	8.94	336.02	5464.65	-121.03	234.86	-147.70	0.38	431684.01	640040.50	N 32 11 10.95	W 104 0 51.40
	5580.00	7.28	324.96	5558.70	-126.17	246.53	-154.16	2.39	431695.68	640034.04	N 32 11 11.06	W 104 0 51.48
	5675.00	6.15	311.11	5653.05	-132.51	254.80	-161.45	2.07	431703.95	640026.75	N 32 11 11.15	W 104 0 51.56
	5770.00	6.01	295.77	5747.53	-140.17	260.31	-169.77	1.71	431709.48	640018.44	N 32 11 11.20	W 104 0 51.66
	5865.00	6.21	314.05	5842.00	-147.66	266.05	-177.94	2.05	431715.20	640010.27	N 32 11 11.26	W 104 0 51.75
	5960.00	6.55	319.52	5936.41	-153.98	273.74	-185.15	0.73	431722.89	640003.06	N 32 11 11.33	W 104 0 51.83
	6055.00	6.99	327.03	6030.75	-159.62	282.71	-191.81	1.04	431731.86	639996.39	N 32 11 11.42	W 104 0 51.91
	6151.00	7.89	331.08	6125.94	-164.78	293.38	-198.18	1.08	431742.53	639990.03	N 32 11 11.53	W 104 0 51.99
	6246.00	9.03	331.57	6219.90	-170.99	305.64	-204.88	1.20	431754.78	639983.33	N 32 11 11.65	W 104 0 52.06
	6341.00	9.92	330.86	6313.61	-178.08	319.35	-212.41	0.94	431768.49	639975.79	N 32 11 11.79	W 104 0 52.15
	6436.00	9.13	329.49	6407.30	-185.34	332.99	-220.23	0.87	431782.13	639967.98	N 32 11 11.92	W 104 0 52.24
	6531.00	*8.48*	*327.73*	*6501.18*	*-188.50*	*345.41*	*-227.79*	*0.74*	*431794.55*	*639960.42*	*N 32 11 12.04*	*W 104 0 52.33*
	6626.00	8.11	328.45	6595.18	-194.43	357.04	-235.04	0.40	431806.16	639953.17	N 32 11 12.16	W 104 0 52.41
	6721.00	8.94	330.88	6689.13	-200.15	369.20	-242.14	0.95	431818.34	639946.07	N 32 11 12.28	W 104 0 52.49
	6816.00	*9.05*	*327.24*	*6782.98*	*-206.34*	*381.93*	*-249.77*	*0.61*	*431831.07*	*639938.44*	*N 32 11 12.41*	*W 104 0 52.58*
	6911.00	8.08	320.33	6876.91	-213.34	393.35	-256.08	1.49	431842.49	639930.13	N 32 11 12.52	W 104 0 52.66
	7006.00	6.69	315.98	6971.12	-220.40	402.47	-260.19	1.58	431851.61	639922.03	N 32 11 12.61	W 104 0 52.77
	7101.00	5.29	302.56	7065.51	-227.84	409.25	-274.42	1.65	431858.39	639913.78	N 32 11 12.68	W 104 0 52.87
	7196.00	4.38	287.99	7160.10	-235.20	413.17	-282.26	2.45	431862.31	639905.96	N 32 11 12.72	W 104 0 52.96
	7292.00	3.60	259.64	7255.88	-241.54	413.76	-288.71	2.18	431862.90	639899.51	N 32 11 12.72	W 104 0 53.04
	7387.00	3.68	248.80	7350.69	-247.47	412.13	-294.48	0.73	431861.28	639893.73	N 32 11 12.71	W 104 0 53.10

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7482.00	2.57	257.10	7445.54	-252.53	410.65	-299.40	1.26	431859.68	639888.81	N 32 11 12.69	W 104 0 53.16
	7577.00	1.89	269.28	7540.47	-256.20	410.05	-303.05	0.87	431859.19	639885.17	N 32 11 12.69	W 104 0 53.20
	7672.00	1.01	259.43	7635.44	-258.60	409.88	-305.43	0.96	431859.01	639882.78	N 32 11 12.68	W 104 0 53.23
	7767.00	0.85	210.12	7730.43	-259.75	409.26	-306.53	0.81	431858.40	639881.69	N 32 11 12.68	W 104 0 53.24
Last Gyro	7862.00	0.55	275.96	7825.43	-260.52	408.84	-307.25	0.89	431857.98	639880.96	N 32 11 12.67	W 104 0 53.25
	8020.00	0.68	3.86	7983.42	-261.09	409.65	-307.94	0.54	431858.89	639880.27	N 32 11 12.68	W 104 0 53.26
	8115.00	11.11	36.29	8077.80	-254.55	417.62	-302.22	11.11	431866.76	639886.00	N 32 11 12.76	W 104 0 53.19
	8210.00	19.72	43.40	8169.30	-235.88	436.49	-285.50	9.17	431885.62	639902.71	N 32 11 12.95	W 104 0 53.00
	8305.00	27.31	46.65	8256.35	-205.75	462.57	-258.09	8.26	431911.70	639930.12	N 32 11 13.20	W 104 0 52.68
	8400.00	34.12	58.55	8338.03	-163.71	490.92	-218.93	8.91	431940.05	639968.28	N 32 11 13.48	W 104 0 52.22
	8495.00	45.02	62.14	8411.16	-108.17	520.82	-166.32	11.72	431969.75	640021.88	N 32 11 13.78	W 104 0 51.61
	8590.00	58.73	64.99	8469.00	-37.67	553.85	-99.06	15.66	432002.98	640089.13	N 32 11 14.10	W 104 0 50.82
	8685.00	73.04	76.16	8507.06	46.83	582.27	-17.19	17.65	432031.39	640171.00	N 32 11 14.38	W 104 0 49.87
	8780.00	79.57	88.04	8529.63	138.87	594.78	74.02	13.95	432043.91	640262.21	N 32 11 14.50	W 104 0 48.81
	8875.00	89.99	95.97	8538.26	232.27	591.43	168.36	13.76	432040.55	640356.54	N 32 11 14.47	W 104 0 47.71
	8904.00	90.54	95.12	8538.14	260.85	586.63	197.23	3.49	432037.75	640385.40	N 32 11 14.44	W 104 0 47.37
	8999.00	86.22	93.66	8540.57	345.10	582.05	282.92	5.30	432031.17	640471.08	N 32 11 14.37	W 104 0 46.38
	9085.00	87.52	94.80	8545.76	436.34	574.97	377.51	1.89	432024.09	640565.67	N 32 11 14.30	W 104 0 45.28
	9180.00	86.59	93.01	8550.84	531.69	568.43	472.15	2.21	432017.55	640660.30	N 32 11 14.23	W 104 0 44.18
	9275.00	86.18	92.87	8556.63	625.26	563.48	566.83	0.43	432012.61	640754.98	N 32 11 14.18	W 104 0 43.07
	9370.00	86.42	93.07	8562.76	718.81	558.49	661.50	0.27	432007.61	640849.64	N 32 11 14.13	W 104 0 41.97
	9462.00	85.73	92.82	8569.06	809.43	553.93	753.17	0.89	432003.06	640941.30	N 32 11 14.08	W 104 0 40.91
	9561.00	87.38	91.82	8575.01	907.15	550.10	851.92	1.85	431999.23	641040.04	N 32 11 14.04	W 104 0 39.76
	9655.00	89.79	92.03	8577.33	1000.15	546.85	945.83	2.57	431996.07	641133.94	N 32 11 14.00	W 104 0 38.67
	9751.00	90.14	91.67	8577.39	1095.18	543.85	1041.78	0.52	431992.97	641228.88	N 32 11 13.97	W 104 0 37.55
	9848.00	89.93	91.38	8577.33	1189.30	541.34	1136.74	0.39	431990.46	641324.84	N 32 11 13.94	W 104 0 36.44
	9941.00	89.79	91.14	8577.56	1283.47	539.26	1231.72	0.27	431988.39	641419.81	N 32 11 13.92	W 104 0 35.34
	10036.00	89.41	89.82	8578.23	1377.82	538.83	1326.71	1.65	431987.76	641514.78	N 32 11 13.91	W 104 0 34.23
	10131.00	89.79	89.22	8578.89	1472.34	539.60	1421.70	0.56	431988.72	641609.78	N 32 11 13.92	W 104 0 33.13
	10226.00	89.52	89.45	8579.48	1566.88	540.70	1516.70	0.37	431989.82	641704.78	N 32 11 13.93	W 104 0 32.02
	10321.00	89.41	89.63	8580.35	1661.39	541.46	1611.69	0.22	431990.59	641799.75	N 32 11 13.93	W 104 0 30.92
	10416.00	89.48	89.28	8581.27	1755.90	542.36	1706.68	0.38	431991.49	641894.73	N 32 11 13.94	W 104 0 29.81
	10511.00	89.45	90.04	8582.16	1850.38	542.93	1801.67	0.80	431992.05	641989.72	N 32 11 13.94	W 104 0 28.71
	10606.00	89.27	89.70	8583.22	1944.83	543.14	1896.67	0.40	431992.27	642084.70	N 32 11 13.94	W 104 0 27.60
	10701.00	89.58	90.11	8584.17	2039.28	543.30	1991.66	0.54	431992.43	642179.69	N 32 11 13.94	W 104 0 26.50
	10796.00	89.34	90.12	8585.06	2133.66	543.11	2086.66	0.25	431992.24	642274.68	N 32 11 13.93	W 104 0 25.39
	10987.00	89.34	90.28	8587.27	2323.42	542.43	2277.64	0.09	431991.55	642465.65	N 32 11 13.92	W 104 0 23.17
	11082.00	89.58	89.90	8588.16	2417.83	542.27	2372.64	0.48	431991.40	642560.64	N 32 11 13.92	W 104 0 22.06
	11177.00	89.76	89.95	8588.71	2512.26	542.39	2467.64	0.20	431991.52	642655.63	N 32 11 13.91	W 104 0 20.96
	11272.00	90.03	86.06	8588.86	2606.85	544.04	2562.62	2.01	431993.17	642750.60	N 32 11 13.93	W 104 0 19.85
	11367.00	88.69	88.53	8589.11	2701.55	546.87	2657.58	0.61	431996.00	642845.55	N 32 11 13.95	W 104 0 18.75
	11462.00	89.86	88.47	8589.49	2796.21	549.36	2752.54	0.19	431998.48	642940.51	N 32 11 13.97	W 104 0 17.64
	11557.00	90.00	88.36	8589.60	2890.89	551.96	2847.51	0.19	432001.11	643035.48	N 32 11 14.00	W 104 0 16.54
	11652.00	90.31	92.24	8589.35	2985.24	551.49	2942.49	4.10	432000.61	643130.44	N 32 11 13.99	W 104 0 15.43
	11747.00	89.82	91.88	8589.24	3079.23	548.07	3037.42	0.64	431997.20	643225.37	N 32 11 13.95	W 104 0 14.33
	11842.00	89.93	92.02	8589.45	3173.25	544.84	3132.37	0.19	431993.97	643320.30	N 32 11 13.92	W 104 0 13.22
	11937.00	89.07	91.89	8590.27	3267.26	541.60	3227.31	0.92	431990.72	643415.24	N 32 11 13.88	W 104 0 12.12
	12032.00	90.07	91.85	8590.99	3361.29	538.50	3322.25	1.05	431987.63	643510.17	N 32 11 13.85	W 104 0 11.01
	12127.00	90.27	92.77	8590.71	3455.22	534.67	3417.18	0.99	431983.80	643605.09	N 32 11 13.81	W 104 0 9.91
	12222.00	89.76	91.36	8590.68	3549.20	531.25	3512.11	1.58	431980.37	643700.01	N 32 11 13.77	W 104 0 8.81
	12317.00	89.79	91.88	8591.05	3643.30	528.56	3607.07	0.55	431977.69	643794.97	N 32 11 13.74	W 104 0 7.70
	12412.00	89.17	91.47	8591.92	3737.37	525.78	3702.03	0.78	431974.91	643889.91	N 32 11 13.71	W 104 0 6.60
	12507.00	89.86	91.71	8592.72	3831.47	523.15	3796.99	0.77	431972.28	643984.87	N 32 11 13.68	W 104 0 5.49
	12602.00	90.13	91.86	8592.73	3925.54	520.34	3891.95	0.29	431969.47	644079.82	N 32 11 13.65	W 104 0 4.39
	12697.00	89.76	92.11	8592.82	4019.57	517.20	3986.89	0.60	431966.33	644174.76	N 32 11 13.62	W 104 0 3.28
	12792.00	89.82	91.83	8593.17	4113.61	514.10	4081.84	0.51	431963.23	644269.70	N 32 11 13.58	W 104 0 2.18
	12887.00	89.38	93.01	8593.83	4207.53	510.25	4176.76	1.62	431959.38	644364.61	N 32 11 13.54	W 104 0 1.07
	12982.00	88.38	91.92	8595.69	4301.40	506.17	4271.65	1.56	431955.30	644459.49	N 32 11 13.50	W 103 59 59.97
	13077.00	88.52	92.78	8598.26	4395.26	502.27	4366.53	0.92	431951.40	644554.37	N 32 11 13.46	W 103 59 58.86
	13172.00	90.34	92.73	8599.20	4489.09	497.71	4461.42	1.92	431946.84	644649.24	N 32 11 13.41	W 103 59 57.76
	13267.00	89.45	92.73	8599.38	4582.91	493.18	4556.31	0.94	431942.31	644744.12	N 32 11 13.36	W 103 59 56.66
Final MWD Survey	13325.00	89.38	92.97	8599.97	4640.17	490.30	4614.23	0.43	431939.43	644802.04	N 32 11 13.33	W 103 59 55.98
Proj to Bit	13370.00	89.38	92.97	8600.46	4684.58	487.97	4659.17	0.00	431937.10	644846.98	N 32 11 13.31	W 103 59 55.46

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size Casing Diameter (in)	(in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/96.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Cedar Canyon 29 Federal Com 24H Gyro+MWD 0-13370 ftMD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Cedar Canyon 29 Federal Com 24H Gyro+MWD 0-13370 ftMD
	1	26.500	7862.000	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Cedar Canyon 29 Federal Com 24H
	1	7862.000	13370.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Cedar Canyon 29 Federal Com 24H

Final PvA

H&P 636 (RKB=26.5')

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Cedar Canyon 29 Federal Com 24H	NM Eddy County (NAD 83)	Oxy Cedar Canyon 29 Federal Com 24H

Gravity & Magnetic Parameters						Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HDGM 2017	Dip:	59.977°	Date:	18-Dec-2017	Lat:	N 32 11 9.82	Northing:	421448.17fUS	Grid Conv:	0.1782°	Slot:	Oxy Cedar Canyon		
MagDec:	7.144°	FS:	48949.987nT	Gravity FS:	998.468mgn (9.80665 Based)	Lon:	W 104 0 40.89	Easting:	648188.19fUS	Scale Fact:	0.99992529	Plan:	Oxy Cedar Canyon 29 Federal Com 24H REV1 LBN 18Dec17	TVD Ref:	RKB=26.5'(2964.9ft above MSL)