

Schlumberger

OXY

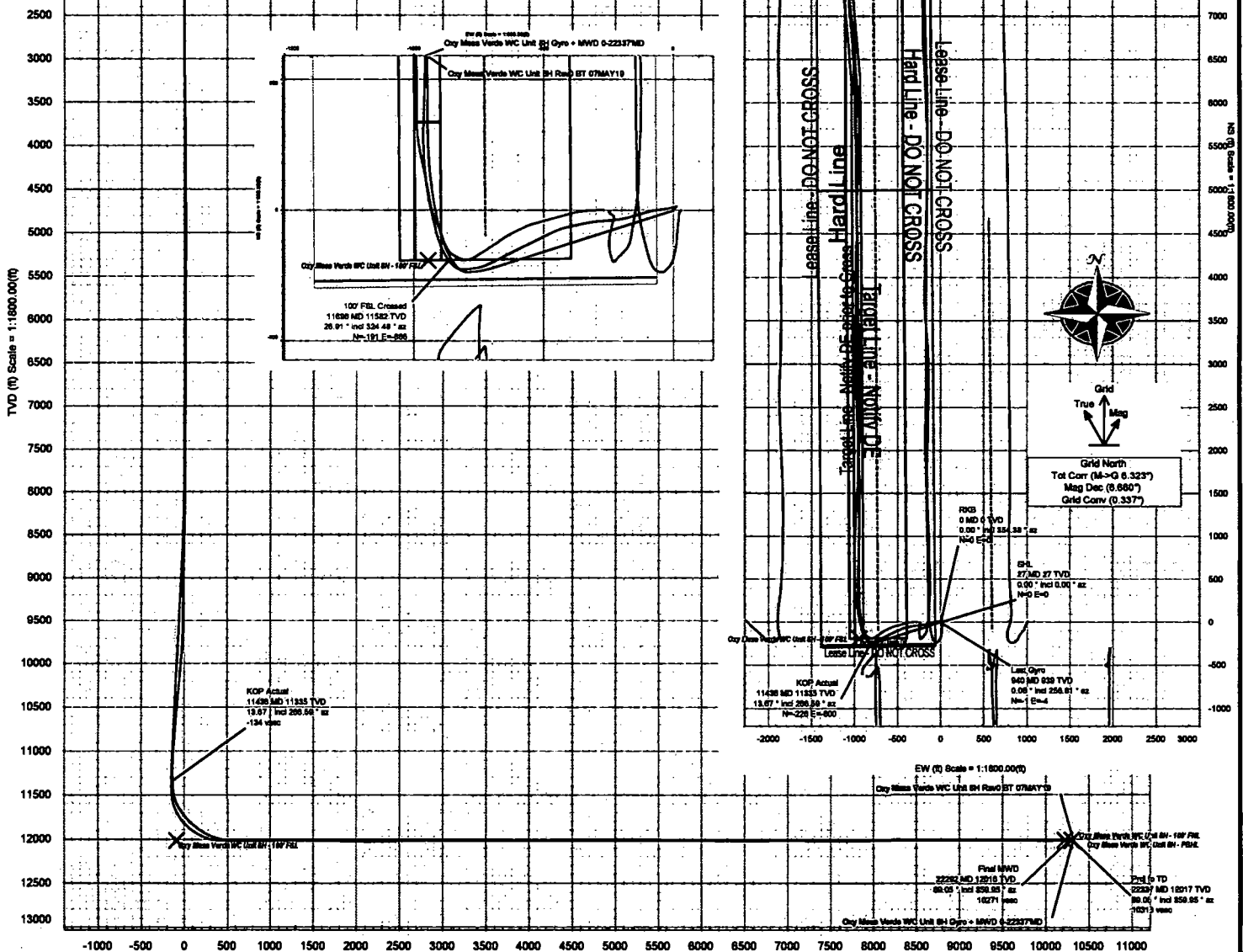


Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Mesa Verde WC Unit 8H	NM Lea County (NAD 83)	Oxy Mesa Verde WC Unit 8H

Gravity & Magnetic Parameters				Surface Location				NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	IFR1	Dip:	63.83°	Date:	15-JUL-2019	Lat:	N 32 12 39.48	North:	441669.225US	Grid Conv:	0.3372	Shot:	Oxy Mesa Verde WC Unit 8H	TVD Ref:	RKB(26.5' above MSL)
MagDec:	8.6°	FB:	4768.7nT	Gravity FB:	988.431mgN (JL0008 Based)	Lon:	W 102 42 2.91	East:	736964.095US	Scale Fact:	0.9998292	Plan:	Oxy Mesa Verde WC Unit 8H Gyr + MWD 0-22337MD		

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	354.38	0.00	0.00	0.00	0.00	
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	
Last Gyr	939.50	0.08	258.81	939.49	-0.78	-1.23	-3.91	0.82
KOP Actual	11436.00	13.87	286.59	11335.45	-134.11	-226.38	-800.23	0.81
100' FSL Crossed	11896.00	26.91	324.48	11582.39	-91.30	-190.78	-885.59	10.23
100' FNL Crossed	22259.00	89.80	0.88	12015.58	10238.48	10172.48	-1180.85	3.58
Final MWD	22292.00	89.05	359.95	12015.89	10271.22	10205.48	-1180.41	3.58
Proj to TD	22337.00	89.05	359.95	12016.84	10315.92	10250.45	-1180.45	0.00



Oxy Mesa Verde WC Unit 8H Gyro + MWD 0-22337 MD Survey Geodetic Report

(Def Survey)



Report Date: July 25, 2019 - 09:25 AM
 Client: OXY
 Field: NM Lea County (NAD 83)
 Structure / Slot: Oxy Mesa Verde WC Unit 8H / Oxy Mesa Verde WC Unit 8H
 Well: Oxy Mesa Verde WC Unit 8H
 Borehole: Original Borehole
 UWI / API#: Unknown / 30-025-45821
 Survey Name: Oxy Mesa Verde WC Unit 8H Gyro + MWD 0-22337 MD
 Survey Date: June 17, 2019
 Tort / AHD / DDI / ERD Ratio: 256.129' / 11452.483 ft / 6.736 / 0.952
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 12' 39.47872", W 103° 42' 2.81065"
 Location Grid N/E Y/X: N 441059.220 NUS, E 736984.090 NUS
 CRS Grid Convergence Angle: 0.3372°
 Grid Scale Factor: 0.99995292
 Version / Patch: 2.10.760.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 353.484° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 1589.600 ft above MSL
 Seabed / Ground Elevation: 1583.100 ft above MSL
 Magnetic Declination: 6.660°
 Total Gravity Field Strength: 988.4311mg (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47885.700 nT
 Magnetic Dip Angle: 59.838°
 Declination Date: July 15, 2019
 Magnetic Declination Model: IFR1
 North Reference: Grid North
 Grid Convergence Used: 0.3372°
 Total Corr Mag North→Grid: 6.3228°
 North: 6.3228°
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
RKB	0.00	0.00	354.38	0.00	0.00	0.00	0.00	N/A	441059.22	736984.09	N 32 12 39.48 W 103 42 2.91	
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	441059.22	736984.09	N 32 12 39.48 W 103 42 2.91	
	99.90	0.45	212.82	99.90	-0.22	-0.24	-0.16	0.81	441058.88	736983.93	N 32 12 39.48 W 103 42 2.91	
	127.40	0.44	225.11	127.40	-0.37	-0.41	-0.29	0.35	441058.81	736983.80	N 32 12 39.47 W 103 42 2.91	
	156.70	0.35	235.74	156.70	-0.48	-0.54	-0.44	0.39	441058.68	736983.65	N 32 12 39.47 W 103 42 2.92	
	185.70	0.50	231.38	185.70	-0.59	-0.67	-0.62	0.53	441058.55	736983.47	N 32 12 39.47 W 103 42 2.92	
	212.30	0.43	236.88	212.30	-0.70	-0.79	-0.79	0.31	441058.43	736983.30	N 32 12 39.47 W 103 42 2.92	
	241.80	0.42	242.88	241.80	-0.79	-0.90	-0.98	0.15	441058.32	736983.11	N 32 12 39.47 W 103 42 2.92	
	267.70	0.43	253.05	267.69	-0.84	-0.97	-1.16	0.29	441058.25	736982.93	N 32 12 39.47 W 103 42 2.92	
	298.00	0.41	258.69	298.99	-0.87	-1.03	-1.38	0.15	441058.19	736982.71	N 32 12 39.47 W 103 42 2.93	
	330.60	0.40	254.72	330.59	-0.89	-1.08	-1.60	0.09	441058.14	736982.49	N 32 12 39.47 W 103 42 2.93	
	362.10	0.35	268.38	362.09	-0.91	-1.12	-1.80	0.29	441058.10	736982.29	N 32 12 39.47 W 103 42 2.93	
	393.70	0.36	269.84	393.69	-0.89	-1.12	-1.99	0.07	441058.10	736982.10	N 32 12 39.47 W 103 42 2.93	
	425.40	0.38	272.59	425.39	-0.88	-1.12	-2.20	0.09	441058.10	736981.89	N 32 12 39.47 W 103 42 2.94	
	457.00	0.42	273.40	456.99	-0.83	-1.11	-2.42	0.13	441058.11	736981.67	N 32 12 39.47 W 103 42 2.94	
	488.60	0.40	277.75	488.59	-0.78	-1.09	-2.64	0.12	441058.13	736981.45	N 32 12 39.47 W 103 42 2.94	
	520.10	0.41	277.33	520.09	-0.72	-1.06	-2.86	0.03	441058.18	736981.23	N 32 12 39.47 W 103 42 2.94	
	551.60	0.44	278.55	551.59	-0.67	-1.03	-3.10	0.10	441058.19	736980.99	N 32 12 39.47 W 103 42 2.95	
	583.20	0.36	272.68	583.19	-0.63	-1.01	-3.32	0.27	441058.21	736980.77	N 32 12 39.47 W 103 42 2.95	
	614.70	0.23	250.40	614.69	-0.63	-1.03	-3.47	0.54	441058.19	736980.62	N 32 12 39.47 W 103 42 2.95	
	646.20	0.24	242.39	646.19	-0.68	-1.08	-3.59	0.11	441058.14	736980.50	N 32 12 39.47 W 103 42 2.95	
	677.70	0.22	249.64	677.69	-0.70	-1.13	-3.71	0.11	441058.09	736980.38	N 32 12 39.47 W 103 42 2.95	
	709.20	0.17	242.09	709.19	-0.73	-1.17	-3.81	0.18	441058.05	736980.29	N 32 12 39.47 W 103 42 2.96	
	740.70	0.15	228.88	740.69	-0.77	-1.22	-3.88	0.13	441058.00	736980.21	N 32 12 39.47 W 103 42 2.96	
	772.20	0.13	241.96	772.19	-0.81	-1.27	-3.94	0.12	441057.95	736980.15	N 32 12 39.47 W 103 42 2.96	
	803.70	0.03	319.05	803.69	-0.82	-1.28	-3.98	0.40	441057.94	736980.11	N 32 12 39.47 W 103 42 2.96	
	835.20	0.07	55.57	835.19	-0.80	-1.26	-3.97	0.25	441057.96	736980.12	N 32 12 39.47 W 103 42 2.96	
	866.70	0.05	93.57	866.69	-0.79	-1.25	-3.94	0.14	441057.97	736980.15	N 32 12 39.47 W 103 42 2.96	
	898.20	0.04	85.09	898.19	-0.80	-1.25	-3.91	0.04	441057.97	736980.18	N 32 12 39.47 W 103 42 2.96	
	929.80	0.05	349.50	929.79	-0.78	-1.23	-3.90	0.21	441057.99	736980.19	N 32 12 39.47 W 103 42 2.96	
	961.30	0.06	256.81	961.29	-0.78	-1.23	-3.91	0.82	441057.99	736980.18	N 32 12 39.47 W 103 42 2.96	
	992.80	0.41	210.83	992.79	-0.88	-1.45	-4.07	0.55	441057.77	736980.02	N 32 12 39.48 W 103 42 2.96	
	1024.30	0.19	243.11	1024.29	-1.29	-1.80	-4.38	0.29	441057.42	736979.71	N 32 12 39.48 W 103 42 2.96	
	1055.80	0.11	122.08	1055.79	-1.40	-1.92	-4.44	0.29	441057.30	736979.65	N 32 12 39.48 W 103 42 2.96	
	1087.30	0.22	173.41	1087.29	-1.63	-2.14	-4.34	0.19	441057.08	736979.55	N 32 12 39.48 W 103 42 2.96	
	1118.80	0.11	63.61	1118.79	-1.78	-2.28	-4.24	0.30	441056.94	736979.45	N 32 12 39.48 W 103 42 2.96	
	1150.30	0.02	255.60	1150.29	-1.75	-2.24	-4.18	0.14	441056.88	736979.31	N 32 12 39.48 W 103 42 2.96	
	1181.80	0.09	8.11	1181.79	-1.69	-2.17	-4.18	0.10	441057.05	736979.19	N 32 12 39.48 W 103 42 2.96	
	1213.30	0.21	305.53	1213.29	-1.50	-2.00	-4.32	0.20	441057.22	736979.07	N 32 12 39.48 W 103 42 2.96	
	1244.80	0.28	182.60	1244.79	-1.61	-2.13	-4.47	0.46	441057.09	736978.92	N 32 12 39.48 W 103 42 2.96	
	1276.30	0.34	120.88	1276.29	-2.00	-2.50	-4.24	0.34	441056.72	736978.85	N 32 12 39.48 W 103 42 2.96	
	1307.80	0.18	28.58	1307.79	-2.05	-2.51	-3.92	0.41	441056.71	736978.71	N 32 12 39.48 W 103 42 2.96	
	1339.30	0.45	8.02	1339.29	-1.57	-2.02	-3.81	0.31	441057.20	736978.60	N 32 12 39.48 W 103 42 2.96	
	1370.80	0.28	313.16	1370.79	-1.04	-1.49	-3.94	0.38	441057.73	736978.15	N 32 12 39.48 W 103 42 2.96	
	1402.30	0.20	55.01	1402.29	-0.53	-0.99	-4.01	0.20	441058.23	736978.08	N 32 12 39.47 W 103 42 2.96	
	1433.80	0.47	355.14	1433.79	0.41	-0.03	-3.81	0.22	441059.19	736978.29	N 32 12 39.48 W 103 42 2.95	
	1465.30	0.28	302.88	1465.29	0.94	0.48	-4.03	0.40	441059.70	736978.06	N 32 12 39.48 W 103 42 2.96	
	1496.80	0.44	30.50	1496.79	1.37	0.92	-4.04	0.54	441060.14	736978.05	N 32 12 39.49 W 103 42 2.96	
	1528.30	0.34	57.65	1528.29	1.78	1.38	-3.62	0.22	441060.60	736978.47	N 32 12 39.49 W 103 42 2.95	
	1559.80	0.68	90.17	1559.79	1.94	1.53	-2.62	0.46	441060.75	736978.27	N 32 12 39.49 W 103 42 2.94	
	1591.30	0.56	70.12	1591.29	1.88	1.69	-1.83	0.26	441060.91	736978.26	N 32 12 39.50 W 103 42 2.93	
	1622.80	0.70	69.61	1622.79	2.13	2.04	-0.86	0.15	441061.26	736978.23	N 32 12 39.50 W 103 42 2.92	
	1654.30	1.12	59.38	1654.29	2.65	2.72	0.48	0.47	441061.94	736978.47	N 32 12 39.51 W 103 42 2.90	
	1685.80	1.12	39.63	1685.79	3.65	3.89	1.88	0.40	441063.11	736978.95	N 32 12 39.52 W 103 42 2.89	
	1717.30	1.10	49.77	1717.29	4.80	5.19	3.15	0.20	441064.41	736978.24	N 32 12 39.53 W 103 42 2.87	
	1748.80	1.20	54.37	1748.79	5.78	6.35	4.64	0.14	441065.57	736978.73	N 32 12 39.54 W 103 42 2.88	
	1780.30	1.30	52.89	1780.29	6.80	7.57	6.29	0.11	441066.79	736978.38	N 32 12 39.55 W 103 42 2.84	
	1811.80	1.22	37.77	1811.79	8.06	9.00	7.76	0.38	441068.22	736978.85	N 32 12 39.57 W 103 42 2.82	
	1843.30	1.40	50.54	1843.29	9.42	10.54	9.27	0.38	441069.78	736978.36	N 32 12 39.58 W 103 42 2.80	
	1874.80	0.92	29.14	1874.79	10.65	11.93	10.53	0.68	441071.15	736978.61	N 32 12 39.60 W 103 42 2.79	
	1906.30	0.40	76.37	1906.29	11.31	12.68	11.21	0.78	441071.88	736978.30	N 32 12 39.60 W 103 42 2.78	
	1937.80	0.38	32.05	1937.79	11.58	12.99	11.69	0.30	441072.21	736978.78	N 32 12 39.61 W 103 42 2.77	
	1969.30	0.07	344.11	1969.29	11.87	13.30	11.83	0.34	441072.52	736978.92	N 32 12 39.61 W 103 42 2.77	
	2000.80	0.74	87.93	2000.79	11.88	13.38	12.43	0.80	441072.60	736978.52	N 32 12 39.61 W 103 42 2.77	
	2032.30	0.75	84.04	2032.29	12.04	13.67	13.59	0.33	441072.89	736978.89	N 32 12 39.61 W 103 42 2.75	
	2063.80	0.87	96.95	2063.79	12.11	13.87	14.69	0.44	441073.09	736978.78	N 32 12 39.62 W 103 42 2.74	
	2095.30	0.82	24.27	2095.29	12.57	14.42	15.52	0.94	441073.84	736978.91	N 32 12 39.62 W 103 42 2.73	
	2126.80	0.72	4.48	2126.79	13.73	15.63	15.84	0.30	441074.85	736978.93	N 32 12 39.63 W 103 42 2.73	
	2158.30	0.90	322.30	2158.29	14.95	16.81	15.43	0.84	441076.03	736978.92	N 32 12 39.64 W 103 42 2.73	
	2189.80	0.33	263.39	2189.79	15.58	17.36	14.71	0.83	441076.58	736978.80	N 32 12 39.65 W 103 42 2.74	
	2221.30	0.14	176.88	2221.29	15.47	17.22	14.45	0.37	441076.44	736978.54	N 32 12 39.65 W 103 42 2.74	
	2252.80	0.28	238.95	2252.79	15.26	16.98	14.26	0.28	441076.20	736978.35	N 32 12 39.65 W 103 42 2.74	
	2284.30	0.42	131.62	2284.29	14.90	16.84	14.32	0.81	441075.88	736978.41	N 32 12 39.64 W 103 42 2.74	
	2315.80	0.21	73.78	2315.79	14.68	16.46	14.74	0.38	441075.67	736978.83	N 32 12 39.64 W 103 42 2.74	
	2347.30	0.40	243.55	2347.29	14.81	16.26	14.48	0.32	441075.48	736978.57	N 32 12 39.64 W 103 42 2.74	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Eastings (ft)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	5810.00	0.33	162.88	5809.73	14.02	15.81	14.88	0.42	441078.03	736978.97	N 32 12 39.83	W 103 42 2.74
	5904.00	0.17	82.80	5903.73	13.80	15.61	15.09	0.42	441074.83	736978.18	N 32 12 39.83	W 103 42 2.73
	5998.00	0.14	282.14	5997.73	13.89	15.70	15.10	0.31	441074.92	736978.19	N 32 12 39.83	W 103 42 2.73
	6092.00	0.25	238.17	6091.73	13.84	15.82	14.81	0.19	441074.84	736978.90	N 32 12 39.83	W 103 42 2.74
	6187.00	0.40	263.85	6186.73	13.75	15.47	14.31	0.22	441074.69	736978.40	N 32 12 39.83	W 103 42 2.74
	6378.00	0.38	211.01	6376.73	13.28	14.69	13.34	0.18	441074.11	736977.43	N 32 12 39.83	W 103 42 2.75
	6470.00	0.70	247.28	6469.72	12.89	14.42	12.68	0.49	441073.84	736976.75	N 32 12 39.82	W 103 42 2.76
	6565.00	0.56	217.60	6564.72	12.39	13.63	11.84	0.37	441073.05	736975.93	N 32 12 39.81	W 103 42 2.77
	6659.00	0.20	192.95	6658.71	11.88	13.06	11.47	0.25	441072.28	736975.56	N 32 12 39.81	W 103 42 2.78
	6848.00	0.29	54.74	6847.71	11.13	12.53	11.89	0.39	441071.75	736975.77	N 32 12 39.80	W 103 42 2.77
	6942.00	0.43	261.13	6941.71	11.23	12.82	11.53	0.75	441071.84	736975.62	N 32 12 39.80	W 103 42 2.78
	7037.00	0.31	279.30	7036.71	11.28	12.60	10.93	0.18	441071.82	736975.01	N 32 12 39.80	W 103 42 2.78
	7225.00	0.95	256.05	7224.70	11.22	12.31	8.91	0.36	441071.53	736973.00	N 32 12 39.80	W 103 42 2.81
	7414.00	0.83	257.40	7413.68	10.87	11.63	8.05	0.08	441070.85	736970.14	N 32 12 39.59	W 103 42 2.84
	7603.00	2.92	255.91	7602.56	10.09	10.18	0.05	1.11	441069.38	736964.14	N 32 12 39.58	W 103 42 2.91
	7791.00	6.31	260.86	7789.93	8.99	7.35	-14.80	1.81	441068.57	736949.29	N 32 12 39.55	W 103 42 3.08
	7880.00	8.96	262.53	7877.24	8.27	3.79	-39.65	1.41	441063.01	736924.44	N 32 12 39.52	W 103 42 3.37
	8075.00	9.77	262.97	8070.97	8.07	1.84	-54.89	0.86	441061.08	736908.11	N 32 12 39.50	W 103 42 3.55
	8169.00	10.33	259.82	8163.53	7.46	-0.62	-71.20	0.83	441058.60	736892.90	N 32 12 39.48	W 103 42 3.74
	8263.00	10.87	257.30	8255.92	5.87	-4.08	-88.14	0.78	441055.16	736875.95	N 32 12 39.44	W 103 42 3.94
	8358.00	11.56	255.72	8349.11	3.72	-8.36	-108.10	0.80	441050.84	736857.99	N 32 12 39.40	W 103 42 4.15
	8452.00	11.65	254.31	8441.19	0.93	-13.27	-124.37	0.32	441045.95	736839.73	N 32 12 39.33	W 103 42 4.36
	8546.00	10.84	253.49	8533.38	-2.12	-18.35	-141.88	0.88	441040.87	736822.12	N 32 12 39.31	W 103 42 4.56
	8641.00	10.01	251.54	8628.81	-5.38	-23.50	-158.38	0.95	441035.72	736805.72	N 32 12 39.26	W 103 42 4.76
	8735.00	10.12	255.32	8719.37	-8.24	-28.18	-174.12	0.71	441031.04	736789.98	N 32 12 39.21	W 103 42 4.94
	8830.00	9.75	259.08	8812.94	-10.04	-31.82	-190.09	0.79	441027.40	736774.01	N 32 12 39.17	W 103 42 5.13
	8924.00	9.68	261.44	8905.60	-10.94	-34.50	-205.72	0.43	441024.72	736758.38	N 32 12 39.15	W 103 42 5.31
	9019.00	10.84	263.39	8999.10	-11.24	-36.70	-222.33	1.07	441022.52	736741.77	N 32 12 39.13	W 103 42 5.50
	9113.00	11.44	264.99	8991.38	-11.00	-38.51	-240.24	0.91	441020.71	736723.87	N 32 12 39.11	W 103 42 5.71
	9207.00	12.26	264.91	8983.38	-10.51	-40.21	-259.48	0.87	441019.01	736704.84	N 32 12 39.10	W 103 42 5.93
	9302.00	13.16	265.54	8976.03	-9.87	-41.95	-280.31	0.98	441017.27	736683.80	N 32 12 39.08	W 103 42 6.18
	9396.00	14.59	263.05	8967.28	-9.58	-44.22	-302.75	1.63	441015.00	736661.36	N 32 12 39.06	W 103 42 6.44
	9490.00	15.76	260.84	9458.00	-10.28	-47.68	-327.10	1.39	441011.54	736637.00	N 32 12 39.03	W 103 42 6.72
	9585.00	16.51	257.45	9549.26	-12.27	-52.87	-353.02	1.27	441008.55	736611.09	N 32 12 38.98	W 103 42 7.02
	9774.00	17.33	257.83	9730.08	-17.87	-64.44	-406.75	0.44	440994.78	736557.36	N 32 12 38.86	W 103 42 7.65
	9862.00	17.20	244.70	9809.68	-29.58	-82.23	-459.27	2.07	440977.00	736504.84	N 32 12 38.69	W 103 42 8.26
	10057.00	17.12	244.84	10000.45	-38.57	-94.18	-484.62	0.09	440965.05	736479.49	N 32 12 38.56	W 103 42 8.58
	10151.00	16.28	244.20	10090.48	-47.35	-105.79	-509.01	0.91	440953.43	736455.11	N 32 12 38.46	W 103 42 8.84
	10245.00	16.15	243.84	10180.74	-56.09	-117.29	-532.81	0.17	440941.93	736431.51	N 32 12 38.35	W 103 42 9.12
	10340.00	14.79	244.41	10382.89	-72.81	-139.30	-577.96	0.72	440919.93	736388.16	N 32 12 38.13	W 103 42 9.65
	10434.00	14.52	244.08	10454.74	-88.57	-160.08	-621.03	0.15	440899.15	736343.10	N 32 12 37.93	W 103 42 10.15
	10528.00	13.97	242.95	10638.85	-96.46	-170.39	-641.73	0.68	440888.84	736322.39	N 32 12 37.83	W 103 42 10.39
	10612.00	13.99	243.18	10729.04	-104.47	-180.78	-662.19	0.06	440878.45	736301.93	N 32 12 37.73	W 103 42 10.63
	10696.00	13.90	243.15	10820.27	-112.34	-191.01	-682.40	0.10	440868.22	736281.72	N 32 12 37.63	W 103 42 10.87
	11001.00	13.81	243.59	10912.50	-120.16	-201.21	-702.74	0.15	440858.02	736261.39	N 32 12 37.53	W 103 42 11.10
	11095.00	13.69	248.28	11003.81	-127.27	-210.67	-722.97	0.69	440848.56	736241.15	N 32 12 37.44	W 103 42 11.34
	11189.00	13.57	253.87	11095.17	-132.44	-218.25	-743.74	1.86	440840.98	736220.38	N 32 12 37.36	W 103 42 11.58
	11284.00	13.25	261.28	11187.59	-134.78	-223.03	-765.20	1.89	440838.20	736198.93	N 32 12 37.32	W 103 42 11.83
	11378.00	13.38	265.73	11279.08	-134.75	-225.47	-786.69	1.10	440833.76	736177.44	N 32 12 37.29	W 103 42 12.08
	11436.00	13.67	268.59	11335.45	-134.11	-228.38	-800.23	0.61	440832.85	736163.90	N 32 12 37.29	W 103 42 12.24
	11544.00	14.82	281.48	11440.21	-129.21	-224.43	-826.33	3.47	440834.80	736137.80	N 32 12 37.31	W 103 42 12.54
	11639.00	22.20	316.15	11530.54	-111.16	-209.04	-850.82	13.70	440850.19	736113.51	N 32 12 37.46	W 103 42 12.83
KOP Actual	11696.00	26.91	324.48	11582.39	-91.30	-190.76	-865.59	10.23	440868.47	736098.55	N 32 12 37.64	W 103 42 13.00
100' FSL Crossed	11733.00	30.16	328.54	11614.89	-75.55	-178.01	-875.31	10.23	440863.21	736088.83	N 32 12 37.79	W 103 42 13.11
	11829.00	36.86	337.93	11684.11	-26.37	-129.17	-886.51	8.90	440850.08	736065.83	N 32 12 38.25	W 103 42 13.36
	11922.00	41.08	346.60	11767.23	31.52	-72.93	-916.28	7.33	440868.30	736047.85	N 32 12 38.81	W 103 42 13.58
	12016.00	50.84	346.79	11832.50	98.54	7.25	-931.80	10.36	441051.87	736032.33	N 32 12 39.48	W 103 42 13.76
	12111.00	64.32	350.64	11890.23	173.70	68.72	-946.50	4.88	441125.94	736017.63	N 32 12 40.19	W 103 42 13.92
	12205.00	61.06	354.00	11940.46	253.06	145.40	-957.03	7.78	441204.61	736007.11	N 32 12 40.87	W 103 42 14.04
	12299.00	71.88	357.69	11977.95	339.02	231.21	-963.15	12.04	441290.42	736000.99	N 32 12 41.62	W 103 42 14.10
	12394.00	74.84	1.99	12005.18	429.44	322.20	-963.37	5.35	441381.40	736000.78	N 32 12 42.72	W 103 42 14.10
	12489.00	69.71	1.73	12017.82	522.31	418.02	-960.33	15.85	441475.22	736003.81	N 32 12 43.65	W 103 42 14.06
	12539.00	69.88	1.43	12018.10	571.81	468.00	-958.95	0.69	441525.20	736005.19	N 32 12 44.15	W 103 42 14.04
	12636.00	69.87	1.09	12018.31	667.92	562.98	-956.82	0.35	441622.17	736007.32	N 32 12 45.10	W 103 42 14.01
	12731.00	69.70	0.99	12018.68	762.09	657.96	-955.09	0.21	441717.15	736009.04	N 32 12 46.04	W 103 42 13.98
	12821.00	90.22	1.40	12018.80	850.37	847.92	-951.13	0.35	441807.10	736013.00	N 32 12 47.92	W 103 42 13.92
	13110.00	91.04	2.53	12018.72	1137.29	1036.78	-944.65	0.74	442095.98	736019.48	N 32 12 49.78	W 103 42 13.83
	13299.00	69.67	0.05	12015.55	1324.52	1225.72	-940.40	1.50	442284.88	736023.74	N 32 12 51.68	W 103 42 13.77
	13487.00	69.43	359.87	12017.02	1511.31	1413.71	-940.53	0.18	442472.88	736021.81	N 32 12 53.52	W 103 42 13.76
	13676.00	69.28	359.68	12019.18	1699.16	1602.70	-941.27	0.13	442681.84	736022.86	N 32 12 55.39	W 103 42 13.76
	13771.00	69.02	358.82	12020.61	1793.67	1697.68	-942.51	0.94	442756.82	736021.62	N 32 12 56.33	W 103 42 13.76
	13865.00	68.40	357.59	12022.73	1887.32	1791.61	-945.46	1.47	442850.74	736018.88	N 32 12 57.26	W 103 42 13.79
	14055.00	69.22	357.20	12026.87	2076.84	1981.37	-954.09	0.48	443040.49	736010.04	N 32 12 59.14	W 103 42 13.88
	14149.00	69.63	357.63	12028.60	2170.81	2075.27	-958.33	1.57	443134.39	736005.81	N 32 13 0.07	W 103 42 13.92
	14339.00	91.05	358.02	12024.01	2360.05	2265.11	-965.64	0.30	443324.22	735998.60	N 32 13 1.95	W 103 42 13.99
	14433.00	91.59	357.36	12021.84	2453.77	2359.01	-969.33	0.91	443418.11	735994.81	N 32 13 2.88	W 103 42 14.03
	14528.00	91.32	357.24	12019.43	2546.53	2453.87	-973.80	0.31	443512.97	735990.34	N 32 13 3.82</	

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	18218.00	88.74	358.10	12019.09	6212.09	8142.10	-868.39	0.20	447201.02	735897.79	N 32 13 40.31	W 103 42 13.74
	18407.00	90.56	354.07	12020.25	6400.89	8330.38	-882.58	1.44	447369.29	735861.68	N 32 13 42.17	W 103 42 13.82
	18597.00	90.12	354.09	12019.12	6590.88	8519.36	-1002.17	0.23	447578.28	735861.98	N 32 13 44.05	W 103 42 14.13
	18892.00	90.49	354.21	12018.82	6885.97	8813.87	-1011.88	0.41	447872.78	735852.28	N 32 13 44.88	W 103 42 14.24
	18891.00	90.56	354.85	12018.88	6874.93	8802.00	-1020.87	0.34	447860.88	735834.27	N 32 13 46.84	W 103 42 14.43
	19071.00	89.50	354.40	12018.78	7084.89	8991.16	-1047.87	0.81	448050.04	735818.47	N 32 13 48.72	W 103 42 14.83
	19260.00	89.22	353.40	12018.90	7253.87	9179.07	-1087.75	0.55	448237.94	735806.39	N 32 13 50.58	W 103 42 14.85
	19449.00	88.02	353.84	12021.80	7442.85	9368.84	-1089.08	0.17	448425.70	735875.06	N 32 13 52.44	W 103 42 15.08
	19638.00	90.25	353.82	12023.00	7631.84	9554.71	-1108.72	0.86	448613.58	735854.42	N 32 13 54.30	W 103 42 15.31
	19733.00	90.53	352.70	12022.38	7726.83	9649.05	-1120.87	1.22	448707.89	735843.28	N 32 13 55.23	W 103 42 15.44
	19828.00	91.77	355.08	12020.45	7821.80	9743.48	-1131.00	2.81	448802.32	735833.15	N 32 13 56.17	W 103 42 15.55
	19922.00	90.18	358.05	12018.85	7915.84	9837.28	-1136.84	3.60	448896.12	735827.50	N 32 13 57.09	W 103 42 15.81
	20017.00	92.15	358.70	12018.92	8010.39	9932.15	-1140.89	2.51	448980.88	735823.16	N 32 13 58.03	W 103 42 15.85
	20207.00	90.73	357.39	12012.14	8198.98	8121.84	-1150.78	0.83	449180.68	735813.38	N 32 13 59.91	W 103 42 15.75
	20397.00	89.50	357.93	12011.78	8389.45	8311.87	-1158.54	0.71	449370.48	735805.81	N 32 14 1.79	W 103 42 15.83
	20586.00	89.77	358.13	12012.97	8577.71	8500.60	-1183.39	0.85	449559.41	735800.78	N 32 14 3.68	W 103 42 15.87
	20681.00	89.53	358.40	12013.55	8772.31	8595.58	-1185.43	0.81	449654.38	735798.71	N 32 14 4.60	W 103 42 15.89
	20776.00	89.80	358.78	12014.27	8766.93	8690.55	-1187.77	0.41	449749.34	735796.37	N 32 14 5.54	W 103 42 15.93
	20871.00	89.88	358.44	12014.70	8861.55	8785.52	-1170.08	0.46	449844.31	735794.07	N 32 14 6.48	W 103 42 15.91
	21060.00	90.05	358.33	12014.81	9049.85	8974.44	-1175.40	0.11	450033.22	735788.74	N 32 14 8.35	W 103 42 15.88
	21155.00	90.32	358.39	12014.51	9144.51	9069.40	-1178.12	0.29	450128.18	735786.03	N 32 14 9.29	W 103 42 16.00
	21344.00	89.43	358.10	12014.92	9332.88	9258.31	-1183.91	0.50	450317.08	735780.24	N 32 14 11.16	W 103 42 16.06
	21533.00	89.60	358.85	12016.52	9521.13	9447.24	-1188.94	0.41	450505.99	735775.21	N 32 14 13.03	W 103 42 16.10
	21628.00	90.53	4.40	12016.41	9615.14	9542.16	-1188.25	5.92	450600.91	735777.90	N 32 14 13.97	W 103 42 16.07
	21723.00	89.46	3.80	12016.42	9708.51	9638.81	-1179.46	1.29	450695.88	735784.69	N 32 14 14.90	W 103 42 15.88
	21818.00	89.80	3.59	12017.20	9802.00	9731.71	-1173.33	0.27	450790.46	735790.81	N 32 14 15.84	W 103 42 15.90
	22008.00	89.77	0.28	12018.24	9889.99	9921.58	-1168.95	1.75	450980.31	735797.20	N 32 14 17.72	W 103 42 15.82
	22103.00	90.80	1.29	12017.77	10084.14	10018.56	-1165.87	1.53	451075.29	735798.48	N 32 14 18.68	W 103 42 15.80
	22197.00	91.22	2.57	12016.11	10177.10	10110.49	-1182.50	1.43	451169.22	735801.85	N 32 14 19.59	W 103 42 15.75
100' FNL	22259.00	89.80	0.88	12015.56	10238.48	10172.48	-1180.65	3.58	451231.18	735803.50	N 32 14 20.20	W 103 42 15.73
Crossed												
Final MWD	22292.00	89.05	359.85	12015.89	10271.22	10205.46	-1180.41	3.58	451264.18	735803.73	N 32 14 20.53	W 103 42 15.72
Proj to TD	22337.00	89.05	359.85	12016.84	10315.92	10250.45	-1180.45	0.00	451309.17	735803.89	N 32 14 20.97	W 103 42 15.72

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)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/88.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde WC Unit 8H Gyro + MWD 0-22337MD
	1	26.500	26.500	Act Strs	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde WC Unit 8H Gyro + MWD 0-22337MD
	1	26.500	939.500	Act Strs	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Mesa Verde WC Unit 8H Gyro + MWD 0-22337MD
	1	939.500	22337.000	Act Strs	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Mesa Verde WC Unit 8H Gyro + MWD 0-

Oilfield Services - Central U.S. Land
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

August 5, 2019

OXY USA Incorporated
Greenway Plaza Suite 110
Houston, TX, 77046

HOBBS OCD
SEP 13 2019
RECEIVED

HOBBS OCD
SEP 13 2019
RECEIVED

S17, T24S, R32E Lea, NM
N 32.21097 W -103.70081

Re: CLIENT: OXY USA Incorporated
WELL: Mesa Verde WC Unit 8H
FIELD: Mesa Verde Wolfcamp

RIG: H&P 657
COUNTY: Lea
API NO: 30-025-45921
JOB NO: 19MLH0314

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, 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>
Maria Zapata FE	Mesa Verde WC Unit 8H Original Hole	1007.00 Ft to 22292.00 Ft	June 21, 2019 to July 24, 2019	SlimPulse 3rd Party Corrected

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

Andrew Salomon
Field Service Manager

Oilfield Services, Limited U.S. and
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

Well Reference:
S17, T24S, R32E Lea, NM
N 32.21097 W -103.70081

I, Maria Zapata certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 21, 2019 through July 24, 2019, conduct or supervise the taking of the SlimPulse & 3rd Party Corrected surveys from a depth of 1007.00 feet to a depth of 22292.00 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 USA Incorporated for the Mesa Verde WC Unit 8H Well (Original Hole) API No. 30-025-45921 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
Maria Zapata
FE



Subscribed and Sworn to before me this 5 day of August (month) 2019 (yr)

My Commission expires:

6/14/2023



(signature)

Notary Public

Comanche Oklahoma

(County State)

