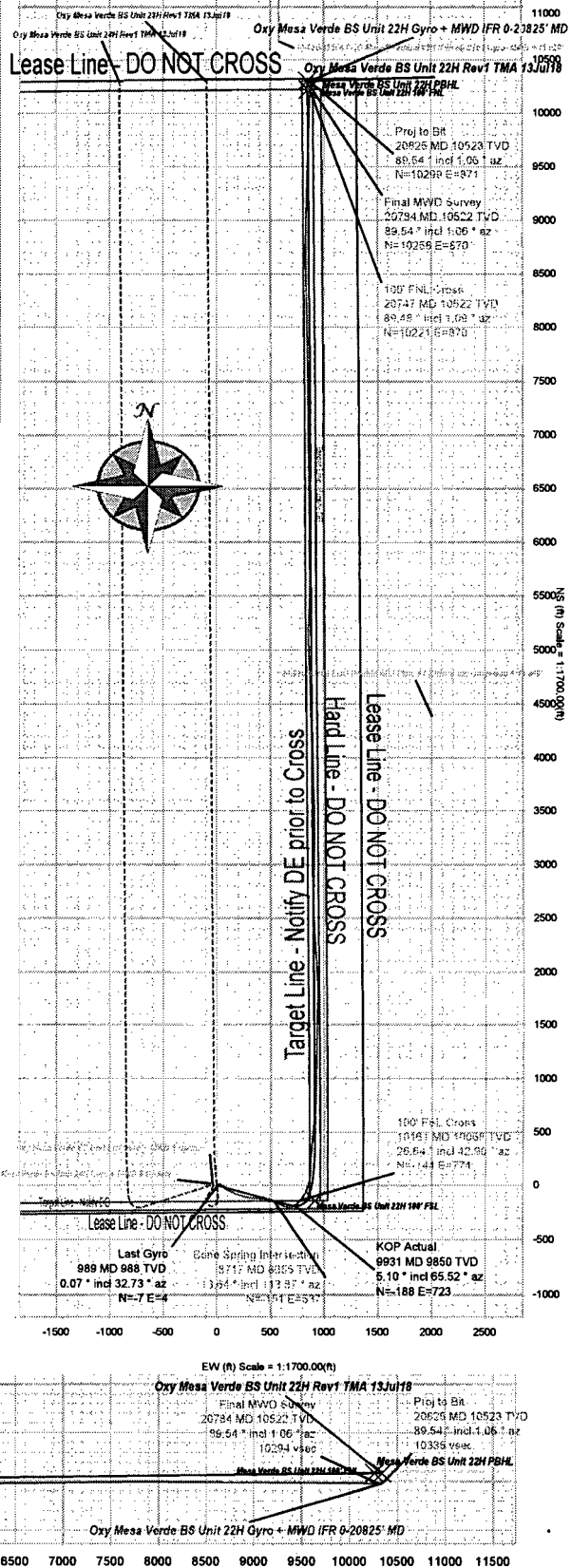
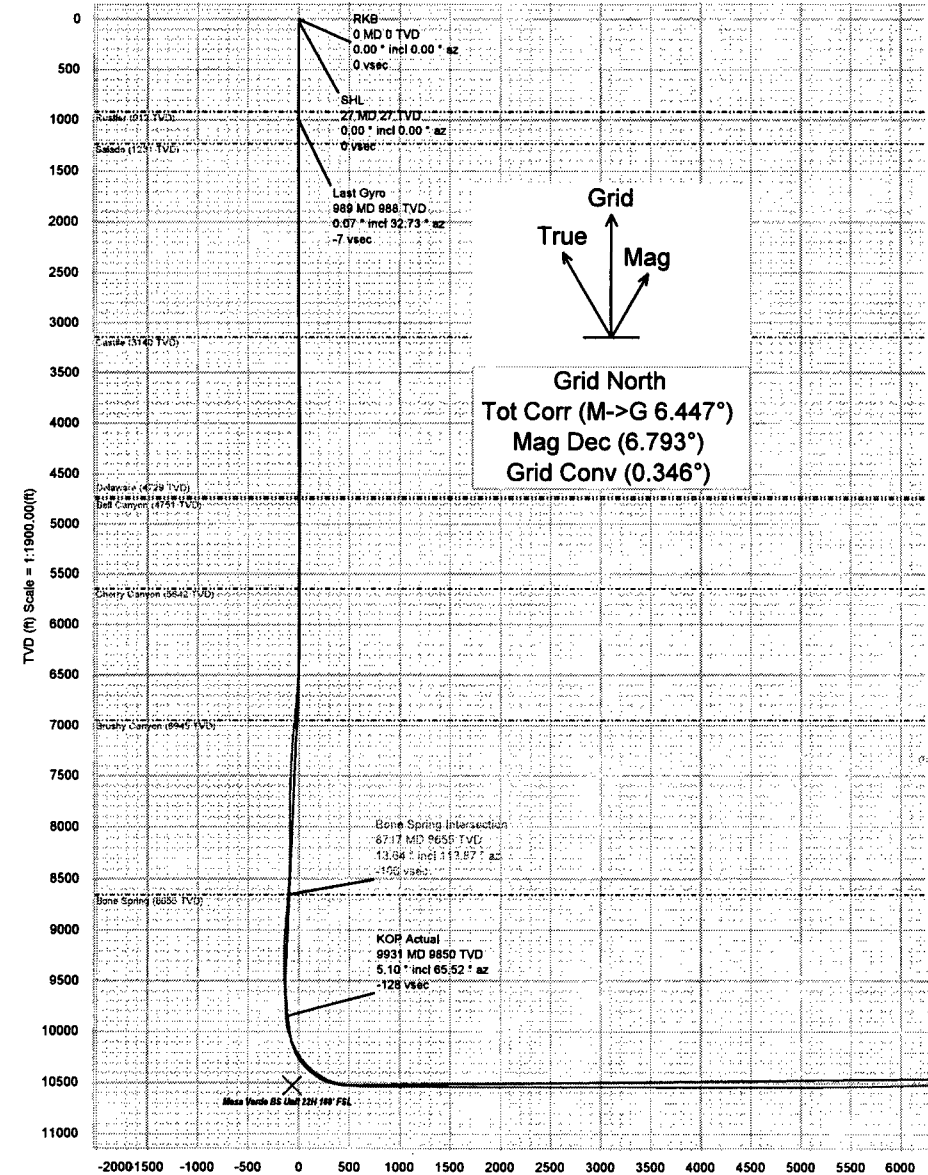


Borehole:	Well:	Field:	Structure:
Original Borehole	Mesa Verde BS Unit 22H	NM Lea County (NAD 83)	Oxy Mesa Verde BS Unit 22H

Gravity & Magnetic Parameters				Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HDOM 2018	Dip:	58.912°	Date:	01-Aug-2018	Lat:	N 32 12 39.43	Northing:	441085.18RU5	Grid Conv:	0.3461°
MagDec:	6.793°	FS:	47878.844nT	Gravity FS:	999.432mgn (9.90466 Based)	Lon:	W 103 41 2.52	Easting:	742152.68RU5	Scale Fact:	0.99996528
								Plan: Oxy Mesa Verde BS Unit 22H Gyro + MWD IFR 0-20825' MD			

Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00
Last Gyro	988.50	0.07	32.73	988.46	-6.51	-6.90	4.42
Bone Spring Intersection	8717.00	13.64	113.87	8654.80	-106.12	-150.73	537.31
KOP Actual	9931.00	5.10	65.52	9849.59	-128.27	-188.28	723.36
100' FSL Cross	10161.00	26.64	42.90	10067.82	-79.56	-143.59	774.10
100' FNL Cross	20747.00	89.48	1.09	10521.90	10257.47	10220.57	869.61
Final MWD Survey	20784.00	89.54	1.06	10522.22	10294.39	10257.57	870.30
Proj to Bit	20825.00	89.54	1.06	10522.54	10335.31	10298.56	871.06





Oxy Mesa Verde BS Unit 22H Gyro + MWD IFR 0-20825' MD Survey Geodetic Report

(Def Survey)

Report Date: August 28, 2018 - 09:34 AM
 Client: OXY
 Field: NM Lea County (NAD 83)
 Structure / Slot: Oxy Mesa Verde BS Unit 22H / Mesa Verde BS Unit 22H
 Well: Mesa Verde BS Unit 22H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Oxy Mesa Verde BS Unit 22H Gyro + MWD IFR 0-20825' MD
 Survey Date: August 01, 2018
 Tort / AHD / DDI / ERD Ratio: 209.691' / 11327.911 ft / 6.871' / 1.074
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 12' 39.42948", W 103° 41' 2.51728"
 Location Grid N/E Y/X: N 441085.180 RUS, E 742152.680 RUS
 CRS Grid Convergence Angle: 0.3461°
 Grid Scale Factor: 0.99995528
 Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 4.708° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB=28.5'
 TVD Reference Elevation: 3594.700 ft above MSL
 Seabed / Ground Elevation: 3568.200 ft above MSL
 Magnetic Declination: 6.793°
 Total Gravity Field Strength: 998.4319mgm (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47878.644 nT
 Magnetic Dip Angle: 59.912°
 Declination Date: August 01, 2018
 Magnetic Declination Model: HDGM 2018
 North Reference: Grid North
 Grid Convergence Used: 0.3461°
 Total Corr Mag North-Grid: 6.4472°
 North: 6.4472°
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	441085.18	742152.68	N 32 12 39.43	W 103 41 2.52
SHL	28.50	0.00	0.00	28.50	0.00	0.00	0.00	0.00	441085.18	742152.68	N 32 12 39.43	W 103 41 2.52
	68.50	0.65	142.71	68.50	-0.18	-0.19	0.14	1.55	441084.99	742152.80	N 32 12 39.43	W 103 41 2.52
	121.50	0.75	149.80	121.50	-0.68	-0.73	0.50	0.25	441084.45	742153.16	N 32 12 39.42	W 103 41 2.51
	213.50	0.69	157.13	213.49	-1.67	-1.76	1.02	0.12	441083.42	742153.68	N 32 12 39.41	W 103 41 2.51
	298.50	0.68	156.41	298.48	-2.57	-2.69	1.42	0.02	441082.49	742154.08	N 32 12 39.40	W 103 41 2.50
	392.50	0.65	154.87	392.48	-3.52	-3.69	1.87	0.04	441081.49	742154.53	N 32 12 39.39	W 103 41 2.50
	487.50	0.50	154.06	487.47	-4.34	-4.55	2.28	0.16	441080.63	742154.94	N 32 12 39.38	W 103 41 2.49
	581.50	0.42	152.18	581.47	-4.99	-5.22	2.62	0.09	441079.96	742155.28	N 32 12 39.38	W 103 41 2.49
	676.50	0.33	141.80	676.47	-5.48	-5.74	2.95	0.12	441079.44	742155.61	N 32 12 39.37	W 103 41 2.48
	770.50	0.40	132.09	770.46	-5.88	-6.18	3.37	0.10	441079.01	742156.03	N 32 12 39.37	W 103 41 2.48
	865.50	0.36	125.24	865.46	-6.23	-6.57	3.86	0.06	441078.61	742156.51	N 32 12 39.36	W 103 41 2.47
	960.50	0.33	118.53	960.46	-6.49	-6.87	4.34	0.05	441078.31	742157.00	N 32 12 39.36	W 103 41 2.47
Last Gyro	988.50	0.07	32.73	988.46	-6.51	-6.90	4.42	1.19	441078.28	742157.08	N 32 12 39.36	W 103 41 2.47
	1032.00	0.26	96.64	1031.96	-6.49	-6.89	4.53	0.55	441078.29	742157.19	N 32 12 39.36	W 103 41 2.47
	1123.00	0.35	76.02	1122.96	-6.41	-6.84	5.01	0.15	441078.34	742157.67	N 32 12 39.36	W 103 41 2.46
	1215.00	0.13	6.46	1214.96	-6.21	-6.67	5.29	0.36	441078.51	742157.95	N 32 12 39.36	W 103 41 2.46
	1307.00	0.18	35.25	1306.96	-5.99	-6.45	5.39	0.10	441078.73	742158.05	N 32 12 39.37	W 103 41 2.46
	1399.00	0.04	76.70	1398.96	-5.85	-6.32	5.50	0.17	441078.86	742158.16	N 32 12 39.37	W 103 41 2.45
	1493.00	0.25	308.73	1492.96	-5.73	-6.19	5.37	0.29	441078.99	742158.03	N 32 12 39.37	W 103 41 2.46
	1588.00	0.21	357.91	1587.96	-5.44	-5.88	5.20	0.21	441079.30	742157.86	N 32 12 39.37	W 103 41 2.46
	1682.00	0.30	337.75	1681.96	-5.05	-5.48	5.11	0.13	441079.70	742157.77	N 32 12 39.37	W 103 41 2.46
	1777.00	0.15	340.48	1776.95	-4.71	-5.14	4.97	0.16	441080.04	742157.63	N 32 12 39.38	W 103 41 2.46
	1872.00	0.10	356.77	1871.95	-4.52	-4.94	4.92	0.06	441080.24	742157.58	N 32 12 39.38	W 103 41 2.46
	1966.00	0.08	54.14	1965.95	-4.39	-4.82	4.97	0.09	441080.36	742157.63	N 32 12 39.38	W 103 41 2.46
	2061.00	0.04	293.58	2060.95	-4.34	-4.76	5.00	0.11	441080.42	742157.65	N 32 12 39.38	W 103 41 2.46
	2155.00	0.24	23.73	2154.95	-4.14	-4.57	5.04	0.26	441080.61	742157.70	N 32 12 39.38	W 103 41 2.46
	2249.00	0.19	68.95	2248.95	-3.89	-4.33	5.27	0.18	441080.85	742157.93	N 32 12 39.39	W 103 41 2.46
	2344.00	0.16	87.26	2343.95	-3.80	-4.27	5.55	0.07	441080.91	742158.21	N 32 12 39.39	W 103 41 2.45
	2438.00	0.24	94.90	2437.95	-3.79	-4.28	5.88	0.09	441080.90	742158.54	N 32 12 39.39	W 103 41 2.45
	2533.00	0.30	85.41	2532.95	-3.75	-4.28	6.32	0.08	441080.90	742158.98	N 32 12 39.39	W 103 41 2.44
	2628.00	0.12	129.32	2627.95	-3.76	-4.32	6.65	0.24	441080.86	742159.31	N 32 12 39.39	W 103 41 2.44
	2722.00	0.20	41.59	2721.95	-3.69	-4.26	6.83	0.24	441080.92	742159.49	N 32 12 39.39	W 103 41 2.44
	2816.00	0.48	44.30	2815.95	-3.25	-3.86	7.22	0.30	441081.32	742159.68	N 32 12 39.39	W 103 41 2.43
	2911.00	0.77	23.02	2910.94	-2.34	-2.99	7.74	0.39	441082.19	742160.40	N 32 12 39.40	W 103 41 2.43
	3006.00	0.88	30.89	3005.93	-1.08	-1.77	8.37	0.17	441083.41	742161.03	N 32 12 39.41	W 103 41 2.42
	3100.00	1.08	38.08	3099.92	0.31	-0.46	9.28	0.25	441084.72	742161.94	N 32 12 39.42	W 103 41 2.41
	3194.00	1.08	40.58	3193.90	1.77	0.91	10.41	0.05	441086.09	742163.07	N 32 12 39.44	W 103 41 2.40
	3289.00	1.15	47.12	3288.88	3.20	2.24	11.69	0.15	441087.42	742164.35	N 32 12 39.45	W 103 41 2.38
	3383.00	0.91	54.07	3382.87	4.38	3.32	12.98	0.29	441088.50	742165.64	N 32 12 39.46	W 103 41 2.37
	3477.00	0.80	48.35	3476.86	5.34	4.20	14.08	0.15	441089.38	742166.74	N 32 12 39.47	W 103 41 2.35
	3568.00	0.77	19.67	3568.84	7.52	6.27	15.49	0.21	441091.45	742168.15	N 32 12 39.49	W 103 41 2.34
	3761.00	0.87	30.30	3760.83	8.79	7.49	16.07	0.19	441092.67	742168.73	N 32 12 39.50	W 103 41 2.33
	3855.00	0.95	16.78	3854.82	10.19	8.86	16.66	0.24	441094.04	742169.31	N 32 12 39.52	W 103 41 2.32
	3950.00	0.83	38.98	3949.81	11.53	10.15	17.32	0.38	441095.32	742169.97	N 32 12 39.53	W 103 41 2.32
	4045.00	1.07	72.28	4044.80	12.44	10.95	18.59	0.62	441096.13	742171.25	N 32 12 39.54	W 103 41 2.30
	4140.00	1.10	75.50	4139.78	13.08	11.45	20.32	0.07	441096.63	742172.98	N 32 12 39.54	W 103 41 2.28
	4235.00	1.39	92.12	4234.78	13.43	11.63	22.36	0.48	441096.81	742175.01	N 32 12 39.54	W 103 41 2.26
	4329.00	1.64	114.13	4328.73	13.03	11.04	24.72	0.67	441096.22	742177.38	N 32 12 39.54	W 103 41 2.23
	4424.00	2.17	122.82	4423.67	11.74	9.52	27.48	0.63	441094.70	742180.14	N 32 12 39.52	W 103 41 2.20
	4518.00	2.23	127.54	4517.60	9.92	7.44	30.43	0.21	441092.62	742183.09	N 32 12 39.50	W 103 41 2.16
	4606.00	2.08	126.90	4605.54	8.14	5.44	33.06	0.17	441090.62	742185.72	N 32 12 39.48	W 103 41 2.13
	4795.00	0.71	127.99	4794.48	5.67	2.66	36.73	0.72	441087.84	742189.39	N 32 12 39.45	W 103 41 2.09
	4890.00	0.11	183.21	4889.48	5.25	2.21	37.19	0.69	441087.39	742189.84	N 32 12 39.45	W 103 41 2.08
	4984.00	0.17	297.51	4983.48	5.22	2.18	37.06	0.25	441087.36	742189.72	N 32 12 39.45	W 103 41 2.09
	5079.00	0.15	141.23	5078.48	5.18	2.15	37.01	0.33	441087.33	742189.67	N 32 12 39.45	W 103 41 2.09
	5173.00	0.20	235.09	5172.48	4.99	1.96	36.95	0.27	441087.14	742189.61	N 32 12 39.45	W 103 41 2.09
	5268.00	0.15	123.80	5267.48	4.82	1.80	36.92	0.31	441086.98	742189.58	N 32 12 39.45	W 103 41 2.09
	5457.00	0.14	49.08	5456.48	4.87	1.81	37.30	0.09	441086.99	742189.96	N 32 12 39.45	W 103 41 2.08
	5552.00	0.17	49.61	5551.48	5.05	1.98	37.50	0.03	441087.16	742190.15	N 32 12 39.45	W 103 41 2.08
	5647.00	0.17	156.54	5646.48	5.02	1.94	37.66	0.29	441087.12	742190.32	N 32 12 39.45	W 103 41 2.08
	5741.00	0.12	17.04	5740.48	5.00	1.91	37.74	0.29	441087.09	742190.40	N 32 12 39.45	W 103 41 2.08
	5836.00	0.15	153.45	5835.48	4.99	1.89	37.83	0.26	441087.07	742190.49	N 32 12 39.45	W 103 41 2.08
	5931.00	0.17	242.63	5930.48	4.81	1.71	37.76	0.24	441086.89	742190.42	N 32 12 39.44	W 103 41 2.08
	6025.00	0.17	191.17	6024.48	4.59	1.51	37.61	0.16	441086.69	742190.27	N 32 12 39.44	W 103 41 2.08
	6120.00	0.13	125.24	6119.48	4.40	1.31	37.67	0.18	441086.49	742190.33	N 32 12 39.44	W 103 41 2.08
	6215.00	1.01	121.30	6214.47	3.97	0.81	38.47	0.93	441085.99	742191.13	N 32 12 39.44	W 103 41 2.07
	6309.00	2.99	125.84	6308.41	2.33	-1.05	41.17	2.11	441084.13	742193.82	N 32 12 39.42	W 103 41 2.04
	6404.00	4.72	129.92	6403.19	-1.20	-5.01	46.17	1.84	441080.17	742198.63	N 32 12 39.38	W 103 41 1.98
	6498.00	6.28	129.63	6496.75	-6.38	-10.77	53.10	1.66	441074.41	742205.76	N 32 12 39.32	W 103 41 1.90
	6593.00	7.98	125.39	6591.02	-12.72	-17.91	62.48	1.87	441067.28	742215.14	N 32 12 39.25	W 103 41 1.79
	6687.00	9.80	123.81	6683.88	-19.94	-26.14	74.45	1.95	441059.04	742227.10	N 32 12 39.17	W 103 41 1.65
	6782.00	11.73	121.80	6777.21	-28.24	-35.70	89.39	2.08	441049.49	742242.05	N 32 12 39.07	W 103 41 1.48
	6877.00	13.48	119.77	6869.91	-37.30	-46.26	107.23	1.89	441038.93	742259.88	N	

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 ° ' ")
	7350.00	13.95	109.01	7328.80	-74.51	-92.23	212.06	0.40	440992.96	742384.71	N 32 12 38.50	W 103 41 0.06
	7444.00	14.21	106.22	7419.88	-79.61	-98.14	233.86	0.77	440986.04	742386.50	N 32 12 38.43	W 103 40 59.80
	7539.00	14.00	103.92	7512.12	-83.78	-105.16	256.21	0.63	440980.02	742408.85	N 32 12 38.37	W 103 40 59.54
	7633.00	14.31	100.89	7603.26	-86.85	-110.09	278.65	0.85	440975.09	742431.30	N 32 12 38.32	W 103 40 59.28
	7728.00	13.95	97.42	7695.39	-88.66	-113.79	301.53	0.97	440971.39	742454.18	N 32 12 38.29	W 103 40 59.02
	7822.00	14.07	95.26	7786.60	-89.30	-116.30	324.15	0.57	440968.88	742476.79	N 32 12 38.26	W 103 40 58.75
	7917.00	14.16	94.46	7878.73	-89.36	-118.28	347.23	0.23	440966.92	742499.88	N 32 12 38.24	W 103 40 58.48
	8012.00	14.04	93.65	7970.86	-89.10	-119.90	370.32	0.24	440965.28	742522.96	N 32 12 38.22	W 103 40 58.22
	8107.00	13.99	92.54	8063.04	-88.45	-121.14	393.29	0.29	440964.04	742545.93	N 32 12 38.21	W 103 40 57.95
	8202.00	13.94	93.43	8155.23	-87.76	-122.34	416.18	0.23	440962.85	742568.82	N 32 12 38.19	W 103 40 57.68
	8296.00	14.26	97.38	8246.40	-88.05	-124.50	438.97	1.08	440960.68	742591.61	N 32 12 38.17	W 103 40 57.42
	8391.00	14.13	98.52	8338.50	-89.57	-127.92	462.01	0.57	440957.26	742614.65	N 32 12 38.14	W 103 40 57.15
	8485.00	14.21	103.62	8429.64	-92.32	-132.54	484.54	1.07	440952.65	742637.17	N 32 12 38.09	W 103 40 56.89
	8579.00	13.95	107.64	8520.82	-96.64	-138.69	506.55	1.08	440946.50	742659.18	N 32 12 38.03	W 103 40 56.63
	8674.00	13.88	113.20	8613.04	-102.82	-146.85	527.93	1.41	440938.54	742680.57	N 32 12 37.95	W 103 40 56.38
Bone Spring Intersection	8717.00	13.64	113.87	8654.80	-106.12	-150.73	537.31	0.68	440934.46	742689.95	N 32 12 37.91	W 103 40 56.27
	8768.00	13.35	114.70	8704.39	-110.11	-155.82	548.18	0.88	440929.56	742700.79	N 32 12 37.86	W 103 40 56.15
	8863.00	13.42	116.29	8796.81	-117.91	-165.09	568.01	0.39	440920.10	742720.64	N 32 12 37.76	W 103 40 55.92
	8958.00	13.27	117.48	8889.25	-126.18	-175.00	587.56	0.33	440910.19	742740.20	N 32 12 37.66	W 103 40 55.69
	9052.00	14.01	115.10	8980.60	-134.32	-184.80	607.44	0.98	440900.39	742760.07	N 32 12 37.56	W 103 40 55.46
	9147.00	13.01	110.10	9072.97	-141.17	-193.35	627.90	1.62	440891.83	742780.53	N 32 12 37.48	W 103 40 55.22
	9242.00	11.46	105.12	9165.81	-145.71	-199.49	647.05	1.97	440885.70	742799.68	N 32 12 37.42	W 103 40 55.00
	9336.00	10.13	97.14	9258.15	-147.75	-202.96	664.27	2.13	440882.23	742816.90	N 32 12 37.38	W 103 40 54.80
	9431.00	8.51	86.03	9351.90	-147.04	-203.51	679.58	2.54	440881.68	742832.20	N 32 12 37.38	W 103 40 54.62
	9525.00	6.87	74.19	9445.08	-144.08	-201.54	691.77	2.56	440883.65	742844.40	N 32 12 37.39	W 103 40 54.48
	9620.00	5.35	62.44	9539.56	-139.78	-197.99	701.00	1.89	440887.20	742853.63	N 32 12 37.43	W 103 40 54.37
	9714.00	4.81	61.17	9633.21	-135.35	-194.14	708.20	0.80	440891.05	742860.83	N 32 12 37.47	W 103 40 54.29
	9809.00	3.86	72.40	9727.95	-132.03	-191.33	714.59	1.17	440893.86	742867.22	N 32 12 37.49	W 103 40 54.21
KOP Actual	9880.00	4.36	72.56	9798.76	-130.11	-189.80	719.44	0.70	440895.39	742872.07	N 32 12 37.51	W 103 40 54.16
	9931.00	5.10	65.52	9849.59	-128.27	-188.28	723.36	1.84	440896.91	742875.98	N 32 12 37.52	W 103 40 54.11
	10025.00	15.98	52.40	9941.88	-117.49	-178.62	737.45	11.78	440906.57	742890.08	N 32 12 37.62	W 103 40 53.95
100' FSL Cross	10120.00	24.74	44.57	10030.87	-93.38	-156.43	761.82	9.64	440928.75	742914.44	N 32 12 37.84	W 103 40 53.68
	10161.00	26.64	42.90	10067.82	-79.56	-143.59	774.10	4.97	440941.60	742926.72	N 32 12 37.96	W 103 40 53.52
	10214.00	29.13	41.05	10114.66	-59.83	-125.15	790.66	4.97	440960.04	742943.29	N 32 12 38.14	W 103 40 53.32
	10309.00	34.09	28.95	10195.82	-16.86	-84.35	818.78	8.45	441000.84	742971.40	N 32 12 38.55	W 103 40 52.99
	10403.00	39.56	18.26	10270.91	36.36	-32.78	840.95	8.95	441052.40	742993.57	N 32 12 39.05	W 103 40 52.73
	10498.00	44.34	15.32	10341.55	98.44	28.01	859.21	5.44	441113.19	743011.83	N 32 12 39.66	W 103 40 52.52
	10593.00	54.22	2.67	10403.60	169.92	98.86	869.83	14.46	441184.04	743022.45	N 32 12 40.36	W 103 40 52.39
	10687.00	62.85	1.00	10452.62	249.92	178.92	872.34	9.30	441264.09	743024.96	N 32 12 41.15	W 103 40 52.35
	10782.00	70.32	3.73	10490.35	336.95	265.95	875.99	8.29	441351.12	743028.61	N 32 12 42.01	W 103 40 52.30
	10877.00	80.32	4.41	10514.39	428.73	357.50	882.52	10.55	441442.66	743035.14	N 32 12 42.91	W 103 40 52.22
	11003.00	85.24	6.48	10530.23	553.67	481.89	894.39	4.23	441567.05	743047.01	N 32 12 44.14	W 103 40 52.07
	11130.00	88.61	5.39	10537.04	680.44	608.01	907.50	2.79	441693.16	743060.12	N 32 12 45.39	W 103 40 51.91
	11221.00	90.06	4.19	10538.09	771.43	698.68	915.10	2.07	441783.83	743067.71	N 32 12 46.29	W 103 40 51.82
	11312.00	89.85	1.43	10538.17	862.37	789.58	919.56	3.04	441874.70	743072.17	N 32 12 47.19	W 103 40 51.76
	11404.00	89.78	0.84	10538.46	954.19	881.54	921.38	0.65	441966.68	743074.00	N 32 12 48.10	W 103 40 51.73
	11495.00	89.75	0.70	10538.84	1044.98	972.53	922.80	0.16	442057.67	743075.22	N 32 12 49.00	W 103 40 51.71
	11587.00	89.92	1.13	10539.10	1136.77	1064.52	924.07	0.50	442149.65	743076.69	N 32 12 49.91	W 103 40 51.69
	11679.00	89.89	0.85	10539.25	1228.58	1156.51	925.66	0.31	442241.63	743078.28	N 32 12 50.82	W 103 40 51.66
	11771.00	89.85	1.18	10539.46	1320.39	1248.49	927.29	0.36	442333.61	743079.91	N 32 12 51.73	W 103 40 51.64
	11863.00	89.82	1.35	10539.73	1412.22	1340.47	928.32	0.19	442425.59	743081.94	N 32 12 52.64	W 103 40 51.61
	11955.00	89.82	1.28	10540.02	1504.06	1432.44	931.42	0.10	442517.56	743084.03	N 32 12 53.55	W 103 40 51.58
	12046.00	89.85	1.24	10540.28	1594.89	1523.42	933.40	0.04	442608.53	743086.02	N 32 12 54.45	W 103 40 51.55
	12137.00	89.92	1.45	10540.46	1685.74	1614.40	935.54	0.24	442699.50	743088.16	N 32 12 55.35	W 103 40 51.51
	12229.00	89.92	1.38	10540.59	1777.58	1706.37	937.81	0.08	442791.47	743090.43	N 32 12 56.26	W 103 40 51.48
	12323.00	89.96	0.86	10540.89	1871.40	1800.35	939.85	0.55	442885.45	743092.26	N 32 12 57.19	W 103 40 51.45
	12512.00	89.82	356.38	10541.05	2059.29	1989.25	935.10	2.37	443074.33	743087.71	N 32 12 59.06	W 103 40 51.49
	12606.00	89.78	356.14	10541.38	2152.27	2083.05	928.97	0.26	443168.13	743081.58	N 32 12 59.99	W 103 40 51.56
	12701.00	89.78	355.94	10541.74	2246.18	2177.82	922.41	0.21	443262.90	743075.02	N 32 13 0.82	W 103 40 51.63
	12890.00	89.78	356.39	10542.47	2433.08	2366.39	909.76	0.24	443451.46	743062.38	N 32 13 2.79	W 103 40 51.76
	12984.00	89.78	356.60	10542.83	2526.12	2460.22	904.02	0.22	443545.28	743056.64	N 32 13 3.72	W 103 40 51.82
	13079.00	89.89	358.50	10543.10	2620.37	2555.13	899.96	2.00	443640.19	743052.57	N 32 13 4.66	W 103 40 51.86
	13268.00	90.57	1.65	10542.35	2808.73	2744.10	900.20	1.71	443829.15	743052.82	N 32 13 6.53	W 103 40 51.85
	13363.00	89.85	1.06	10542.00	2903.58	2839.07	902.45	0.98	443924.12	743055.07	N 32 13 7.47	W 103 40 51.81
	13458.00	89.78	0.75	10542.30	2998.35	2934.06	903.95	0.33	444019.10	743056.57	N 32 13 8.41	W 103 40 51.79
	13552.00	89.82	1.05	10542.63	3092.14	3028.05	905.43	0.32	444113.08	743058.05	N 32 13 9.34	W 103 40 51.77
	13741.00	89.96	0.60	10542.99	3280.71	3217.03	908.15	0.25	444302.05	743060.77	N 32 13 11.21	W 103 40 51.72
	13836.00	90.09	0.06	10542.95	3375.43	3312.02	908.70	0.58	444397.05	743061.31	N 32 13 12.15	W 103 40 51.71
	14025.00	89.82	358.34	10543.10	3563.55	3501.00	906.08	0.92	444586.01	743058.67	N 32 13 14.02	W 103 40 51.72
	14119.00	89.92	358.38	10543.31	3656.98	3594.96	903.37	0.11	444679.97	743055.98	N 32 13 14.95	W 103 40 51.75
	14308.00	89.89	358.37	10543.63	3844.82	3783.88	898.01	0.02	444868.89	743050.63	N 32 13 16.82	W 103 40 51.80
	14403.00	89.89	358.48	10543.81	3939.25	3878.85	895.40	0.12	444963.85	743048.01	N 32 13 17.76	W 103 40 51.82
	14497.00	89.85	358.52	10544.02	4032.70	3972.81	892.94	0.06	445057.81	743045.55	N 32 13 18.69	W 103 40 51.84
	14592.00	90.02	358.20	10544.13	4127.12	4067.77	890.22	0.38	445152.78	743042.84	N 32 13 19.63	W 103 40 51.87
	14687.00	90.06	358.43	10544.07	4221.53	4162.73	887.42	0.25	445247.72	743040.04	N 32 13 20.57	W 103 40 51.89
	14782.00	89.96	358.41	10544.05	4315.95	4257.70	884.80	0.11	445342.68	743037.42	N 32 13 21.51	W 103 40 51.92

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 ° ' ")
	18376.00	89.75	359.46	10506.97	7893.03	7850.33	842.94	0.52	448935.15	742995.56	N 32 13 57.06	W 103 40 52.15
	18470.00	89.61	359.23	10507.50	7886.62	7944.33	841.87	0.29	448029.14	742994.49	N 32 13 57.99	W 103 40 52.16
	18660.00	89.61	358.57	10508.79	8175.64	8134.29	838.22	0.35	449219.09	742990.84	N 32 13 59.87	W 103 40 52.19
	18849.00	89.85	359.21	10509.68	8363.66	8323.25	834.56	0.36	449408.04	742987.18	N 32 14 1.74	W 103 40 52.22
	18943.00	89.65	359.07	10510.09	8457.22	8417.24	833.15	0.28	449502.02	742985.77	N 32 14 2.67	W 103 40 52.23
	19133.00	89.61	359.05	10511.32	8646.29	8607.21	830.03	0.02	449691.98	742982.65	N 32 14 4.55	W 103 40 52.25
	19322.00	89.71	0.77	10512.44	8834.62	8796.20	829.73	0.91	449880.96	742982.35	N 32 14 6.42	W 103 40 52.24
	19417.00	89.61	0.96	10513.01	8929.40	8891.18	831.17	0.23	449975.95	742983.79	N 32 14 7.36	W 103 40 52.22
	19511.00	89.47	0.94	10513.76	9023.20	8985.17	832.72	0.15	450069.93	742985.35	N 32 14 8.29	W 103 40 52.19
	19606.00	89.71	1.73	10514.44	9118.03	9080.14	834.94	0.87	450164.89	742987.56	N 32 14 9.23	W 103 40 52.16
	19795.00	89.58	1.83	10515.61	9306.78	9269.04	840.81	0.09	450353.79	742993.43	N 32 14 11.10	W 103 40 52.08
	19890.00	89.82	1.82	10516.11	9401.66	9363.99	843.92	0.27	450448.73	742996.54	N 32 14 12.04	W 103 40 52.03
	20079.00	89.51	2.01	10517.21	9590.44	9552.88	850.40	0.17	450637.61	743003.02	N 32 14 13.90	W 103 40 51.94
	20268.00	89.61	1.20	10518.67	9779.16	9741.79	855.89	0.43	450826.52	743008.31	N 32 14 15.77	W 103 40 51.87
	20457.00	89.58	2.17	10520.00	9967.89	9930.71	861.25	0.51	451015.42	743013.87	N 32 14 17.64	W 103 40 51.79
	20552.00	89.75	1.87	10520.58	10062.78	10025.85	864.80	0.36	451110.36	743017.22	N 32 14 18.58	W 103 40 51.75
	20741.00	89.47	1.10	10521.84	10251.48	10214.58	869.49	0.43	451299.28	743022.11	N 32 14 20.45	W 103 40 51.68
100' FNL Cross	20747.00	89.48	1.09	10521.90	10257.47	10220.57	869.61	0.19	451305.28	743022.23	N 32 14 20.51	W 103 40 51.67
Final MWD	20784.00	89.54	1.06	10522.22	10294.39	10257.57	870.30	0.19	451342.27	743022.92	N 32 14 20.88	W 103 40 51.66
Survey	20741.00	89.47	1.10	10521.84	10251.48	10214.58	869.49	0.43	451299.28	743022.11	N 32 14 20.45	W 103 40 51.68
Proj to Bit	20825.00	89.54	1.06	10522.54	10335.31	10298.56	871.06	0.00	451383.26	743023.68	N 32 14 21.28	W 103 40 51.65

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 (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde BS Unit 22H Gyro + MWD IFR 0-20825' MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde BS Unit 22H Gyro + MWD IFR 0-20825' MD
	1	26.500	988.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Mesa Verde BS Unit 22H Gyro + MWD
	1	988.500	20825.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Mesa Verde BS Unit 22H Gyro + MWD

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

September 10, 2018

OXY USA INC.

HOBBS OCD

FEB 20 2019

RECEIVED

16, 24S, 32E, Lea NM
N 32.21095 W -103.68403

Re:

CLIENT: OXY USA INC.
WELL: Mesa Verde BS unit 22H
FIELD: Mesa Verde Bone Spring

RIG: H&P 617
COUNTY: Lea
API NO: 30-025-44559
JOB NO: 18MLD3930

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>
Tyler Matthews FE	Mesa Verde BS unit 22H Original Hole	1032.00 Ft to 20784.00 Ft	August 13, 2018 to August 25, 2018	TelePacer/SlimPulse Third Party Corrected

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

Field Service Manager

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

Well Reference:
16, 24S, 32E, Lea NM
N 32.21095 W -103.68403

I, Tyler Matthews certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 13, 2018 through August 25, 2018, conduct or supervise the taking of the TelePacer/SlimPulse & Third Party Corrected surveys from a depth of 1032.00 feet to a depth of 20784.00 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 INC. for the Mesa Verde BS unit 22H Well (Original Hole) API No. 30-025-44559 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 Tyler Matthews
Tyler Matthews
FE

Subscribed and Sworn to before me this 10th day of September (month) 2018 (yr)

My Commission expires:

2-16-2022

D. Adams
Notary Public

(signature)

Adams County Colorado
(County State)

