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Schlumberger

Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554'MD Survey Geodetic Report (Def Survey)

30-015-44547



NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 20 2018

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Report Date: November 02, 2018 - 11:31 AM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Mesa Verde BS Unit 20H / Oxy Mesa Verde BS Unit 20H
Well: Mesa Verde BS Unit 20H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554'MD
Survey Date: September 27, 2018
Tort / AHD / DDI / ERD Ratio: 223.361' / 5601.131 ft / 6.263 / 0.528
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 12' 38.11140", W 103° 44' 14.00655"
Location Grid N/E Y/X: N 440856.678 RUS, E 725702.120 RUS
CRS Grid Convergence Angle: 0.3178°
Grid Scale Factor: 0.99994802
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 3.960° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3614.900 ft above MSL
Seabed / Ground Elevation: 3588.400 ft above MSL
Magnetic Declination: 6.754°
Total Gravity Field Strength: 998.4253mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47972.300 nT
Magnetic Dip Angle: 59.892°
Declination Date: October 26, 2018
Magnetic Declination Model: IIFR1
North Reference: Grid North
Grid Convergence Used: 0.3178°
Total Corr Mag North→Grid: 6.4362°
North: Well Head
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSECT (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	440856.68	725702.12	N 32 12 38.11	W 103 44 14.01
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	440856.68	725702.12	N 32 12 38.11	W 103 44 14.01
	99.74	0.41	225.08	99.74	-0.20	-0.19	-0.19	0.56	440856.49	725701.93	N 32 12 38.11	W 103 44 14.01
	187.73	0.73	236.78	187.72	-0.77	-0.71	-0.88	0.39	440855.96	725701.24	N 32 12 38.10	W 103 44 14.02
	276.60	0.67	236.51	276.59	-1.43	-1.31	-1.78	0.07	440855.37	725700.34	N 32 12 38.10	W 103 44 14.03
	370.99	0.80	247.39	370.97	-2.06	-1.87	-2.85	0.20	440854.81	725699.27	N 32 12 38.09	W 103 44 14.04
	465.23	1.19	249.71	465.20	-2.76	-2.46	-4.38	0.42	440854.22	725697.74	N 32 12 38.09	W 103 44 14.06
	559.53	1.25	250.99	559.47	-3.56	-3.14	-6.27	0.07	440853.54	725695.85	N 32 12 38.08	W 103 44 14.08
	653.88	1.34	253.88	653.80	-4.34	-3.78	-8.30	0.12	440852.90	725693.82	N 32 12 38.07	W 103 44 14.10
	748.41	1.14	257.84	748.31	-4.98	-4.28	-10.28	0.23	440852.40	725691.84	N 32 12 38.07	W 103 44 14.13
	842.50	0.97	250.26	842.38	-5.56	-4.75	-11.95	0.23	440851.93	725690.17	N 32 12 38.07	W 103 44 14.15
	937.34	0.65	235.59	937.21	-6.22	-5.32	-13.15	0.40	440851.35	725688.97	N 32 12 38.06	W 103 44 14.16
Last Gyro	1009.14	0.75	253.23	1009.01	-6.64	-5.69	-13.93	0.33	440850.89	725688.19	N 32 12 38.06	W 103 44 14.17
	1129.00	0.70	258.20	1128.86	-7.11	-6.07	-15.40	0.07	440850.61	725688.72	N 32 12 38.05	W 103 44 14.19
	1311.00	0.11	319.59	1310.85	-7.29	-6.16	-16.60	0.38	440850.52	725685.52	N 32 12 38.05	W 103 44 14.20
	1493.00	0.11	54.64	1492.85	-7.06	-5.93	-16.57	0.09	440850.75	725685.55	N 32 12 38.05	W 103 44 14.20
	1585.00	0.05	272.27	1584.85	-7.00	-5.87	-16.54	0.17	440850.81	725685.58	N 32 12 38.05	W 103 44 14.20
	1675.00	0.11	100.21	1674.85	-7.01	-5.89	-16.50	0.18	440850.79	725685.63	N 32 12 38.05	W 103 44 14.20
	1766.00	0.16	99.58	1765.85	-7.03	-5.92	-16.28	0.05	440850.75	725685.84	N 32 12 38.05	W 103 44 14.20
	1948.00	0.11	305.18	1947.85	-6.97	-5.87	-16.18	0.14	440850.81	725685.94	N 32 12 38.05	W 103 44 14.20
	2043.00	0.05	330.79	2042.85	-6.89	-5.78	-16.27	0.07	440850.90	725685.85	N 32 12 38.06	W 103 44 14.20
	2136.00	0.11	275.39	2137.85	-6.85	-5.73	-16.38	0.10	440850.95	725685.74	N 32 12 38.06	W 103 44 14.20
	2232.00	0.16	50.90	2231.85	-6.76	-5.64	-16.37	0.27	440851.04	725685.75	N 32 12 38.06	W 103 44 14.20
	2421.00	0.16	118.20	2420.85	-6.69	-5.60	-15.93	0.09	440851.08	725686.19	N 32 12 38.06	W 103 44 14.19
	2515.00	0.16	205.63	2514.85	-6.86	-5.78	-15.87	0.24	440850.90	725686.25	N 32 12 38.06	W 103 44 14.19
	2704.00	0.18	209.99	2703.85	-7.37	-6.27	-18.14	0.01	440850.40	725685.98	N 32 12 38.05	W 103 44 14.19
	2799.00	0.22	224.97	2798.85	-7.65	-6.53	-16.34	0.07	440850.15	725685.78	N 32 12 38.05	W 103 44 14.20
	2893.00	0.09	174.57	2892.85	-7.85	-6.73	-16.48	0.19	440849.94	725685.86	N 32 12 38.05	W 103 44 14.20
	2988.00	0.11	284.12	2987.85	-7.91	-6.79	-16.54	0.17	440849.89	725685.58	N 32 12 38.05	W 103 44 14.20
	3083.00	0.11	344.33	3082.85	-7.81	-6.88	-16.65	0.12	440850.00	725685.47	N 32 12 38.05	W 103 44 14.20
	3177.00	0.11	353.08	3176.85	-7.64	-6.50	-16.69	0.02	440850.18	725685.43	N 32 12 38.05	W 103 44 14.20
	3272.00	0.04	176.78	3271.85	-7.58	-6.44	-16.70	0.16	440850.24	725685.42	N 32 12 38.05	W 103 44 14.20
	3367.00	0.06	216.41	3366.85	-7.65	-6.51	-16.73	0.04	440850.16	725685.39	N 32 12 38.05	W 103 44 14.20
	3461.00	0.18	81.31	3460.85	-7.66	-6.53	-16.61	0.24	440850.15	725685.51	N 32 12 38.05	W 103 44 14.20
	3556.00	0.06	203.14	3555.85	-7.68	-6.56	-16.48	0.23	440850.12	725685.64	N 32 12 38.05	W 103 44 14.20
	3650.00	0.16	79.27	3649.85	-7.69	-6.58	-16.37	0.21	440850.10	725685.75	N 32 12 38.05	W 103 44 14.20
	3840.00	0.22	143.60	3839.85	-7.90	-6.82	-15.90	0.11	440849.86	725686.23	N 32 12 38.04	W 103 44 14.19
	3935.00	0.14	111.09	3934.85	-8.07	-7.01	-15.68	0.13	440849.67	725686.44	N 32 12 38.04	W 103 44 14.19
	4124.00	0.07	207.52	4123.85	-8.25	-7.19	-15.52	0.09	440849.48	725686.60	N 32 12 38.04	W 103 44 14.19
	4218.00	0.28	194.06	4217.85	-8.53	-7.47	-15.60	0.23	440849.21	725686.82	N 32 12 38.04	W 103 44 14.19
	4313.00	0.21	177.36	4312.85	-8.63	-7.57	-15.65	0.10	440848.81	725686.47	N 32 12 38.03	W 103 44 14.19
	4408.00	0.05	10.93	4407.85	-9.06	-8.00	-15.63	0.27	440848.68	725686.49	N 32 12 38.03	W 103 44 14.19
	4502.00	0.11	164.52	4501.85	-9.11	-8.05	-15.60	0.17	440848.63	725686.52	N 32 12 38.03	W 103 44 14.19
	4597.00	0.11	193.02	4596.85	-9.28	-8.22	-15.60	0.06	440848.45	725686.52	N 32 12 38.03	W 103 44 14.19
	4786.00	0.13	281.29	4785.85	-9.43	-8.36	-15.85	0.09	440848.32	725686.27	N 32 12 38.03	W 103 44 14.19
	4881.00	0.11	37.45	4880.85	-9.34	-8.27	-15.90	0.21	440848.41	725686.22	N 32 12 38.03	W 103 44 14.19
	5070.00	0.16	321.87	5069.84	-9.00	-7.91	-15.95	0.09	440848.76	725686.17	N 32 12 38.03	W 103 44 14.19
	5165.00	0.10	84.63	5164.84	-8.89	-7.80	-15.95	0.24	440848.88	725686.17	N 32 12 38.04	W 103 44 14.19
	5260.00	0.02	305.18	5259.84	-8.86	-7.78	-15.88	0.12	440848.89	725686.24	N 32 12 38.04	W 103 44 14.19
	5354.00	0.11	136.49	5353.84	-8.92	-7.84	-15.83	0.14	440848.84	725686.29	N 32 12 38.03	W 103 44 14.19
	5449.00	0.16	137.53	5448.84	-9.07	-8.00	-15.68	0.05	440848.67	725686.44	N 32 12 38.03	W 103 44 14.19
	5639.00	0.06	282.63	5638.84	-9.24	-8.18	-15.60	0.11	440848.50	725686.52	N 32 12 38.03	W 103 44 14.19
	5733.00	0.11	185.23	5732.84	-9.32	-8.26	-15.65	0.14	440848.42	725686.47	N 32 12 38.03	W 103 44 14.19
	5828.00	0.16	164.35	5827.84	-9.54	-8.48	-15.63	0.07	440848.20	725686.49	N 32 12 38.03	W 103 44 14.19
	5923.00	0.18	136.90	5922.84	-9.76	-8.71	-15.49	0.09	440847.97	725686.63	N 32 12 38.03	W 103 44 14.19
	6112.00	0.05	110.82	6111.84	-9.99	-8.96	-15.21	0.07	440847.72	725686.91	N 32 12 38.02	W 103 44 14.18
	6207.00	0.11	353.89	6206.84	-9.91	-8.88	-15.18	0.15	440847.80	725686.94	N 32 12 38.02	W 103 44 14.18
	6396.00	0.79	134.04	6395.84	-10.57	-9.61	-14.26	0.46	440847.07	725687.86	N 32 12 38.02	W 103 44 14.17
	6491.00	2.21	133.70	6490.80	-12.16	-11.33	-12.47	1.49	440845.35	725689.65	N 32 12 38.00	W 103 44 14.15
	6586.00	3.80	134.87	6585.67	-15.40	-14.82	-8.91	1.67	440841.86	725693.21	N 32 12 37.97	W 103 44 14.11
	6680.00	5.28	135.27	6679.37	-20.29	-20.09	-3.66	1.57	440836.59	725698.46	N 32 12 37.91	W 103 44 14.05
	6775.00	5.77	134.39	6773.93	-26.27	-26.53	2.83	0.52	440830.15	725704.95	N 32 12 37.85	W 103 44 13.98
	6869.00	6.11	124.83	6867.43	-31.91	-32.70	10.31	1.11	440823.98	725712.43	N 32 12 37.79	W 103 44 13.89
	6964.00	5.99	120.81	6961.90	-38.74	-38.12	18.72	0.46	440818.56	725720.84	N 32 12 37.73	W 103 44 13.78
	7059.00	6.14	116.73	7056.37	-40.94	-42.95	27.51	0.48	440813.73	725729.63	N 32 12 37.68	W 103 44 13.69
	7153.00	6.10	113.68	7149.83	-44.57	-47.21	36.58	0.35	440809.47	725738.70	N 32 12 37.64	W 103 44 13.58
	7248.00	6.24	107.80	7244.28	-47.51	-50.82	46.12	0.68	440805.86	725748.23	N 32 12 37.61	W 103 44 13.47
	7342.00	6.44	103.72	7337.71	-49.63	-53.63	56.10	0.52	440803.05	725758.22	N 32 12 37.58	W 103 44 13.36
	7437.00	6.21	97.37	7432.13	-50.84	-55.55	66.37	0.77	440801.13	725768.49	N 32 12 37.56	W 103 44 13.24
	7532.00	6.23	97.89	7526.57	-51.50	-56.92	76.57	0.06	440799.76	725778.69	N 32 12 37.54	W 103 44 13.12
	7628.00	6.28	96.49	7620.01	-52.07	-58.20	86.73	0.17	440798.48	725788.85	N 32 12 37.53	W 103 44 13.00
	7721.00	6.41	95.46	7714.43	-52.44	-59.29	97.18	0.18	440797.39	725799.29	N 32 12 37.52	W 103 44 12.88
	7816.00	5.90	99.23	7808.88	-53.03	-60.58	107.27	0.88	440796.10	725809.39	N 32 12 37.51	W 103 44 12.76
	7910.00	5.98	105.33	7902.38	-54.44	-62.65	116.77	0.68	440794.03	725818.88	N 32 12 37.49	W 103 44 12.64
	8006.00	5.56	116.40	7997.89	-57.20	-66.04	125.75	1.24	440790.64	725827.87		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ° ' '')	Longitude (E/W ° ° ' '')
Bone Spring Intersection	8443.79	6.51	128.20	8433.00	-82.48	-94.10	165.01	0.19	440782.58	725867.12	N 32 12 37.17 W 103 44 12.09	
	8479.00	6.48	128.59	8467.98	-84.73	-96.57	168.13	0.19	440760.11	725870.24	N 32 12 37.15 W 103 44 12.06	
	8668.00	5.27	126.33	8655.99	-95.42	-108.35	183.43	0.64	440748.34	725885.54	N 32 12 37.03 W 103 44 11.88	
	8750.56	5.73	137.49	8750.56	-101.02	-114.43	190.15	1.22	440742.26	725892.26	N 32 12 36.97 W 103 44 11.80	
	8894.00	5.85	146.32	8880.89	-110.81	-124.81	198.27	0.69	440731.88	725900.38	N 32 12 36.87 W 103 44 11.71	
	8988.00	7.44	125.69	8974.27	-117.81	-132.34	205.87	3.03	440724.34	725907.98	N 32 12 36.79 W 103 44 11.62	
	9083.00	5.87	109.15	9068.64	-122.32	-137.53	215.46	2.59	440719.16	725917.57	N 32 12 36.74 W 103 44 11.51	
	9178.00	4.65	101.03	9163.24	-124.07	-138.86	223.83	1.50	440716.83	725925.94	N 32 12 36.72 W 103 44 11.41	
	9272.00	5.51	91.78	9256.87	-124.36	-140.73	232.08	1.26	440715.96	725934.19	N 32 12 36.71 W 103 44 11.31	
	9367.00	3.78	70.44	9351.56	-122.95	-139.62	239.58	2.56	440716.86	725941.86	N 32 12 36.71 W 103 44 11.23	
	9462.00	5.13	44.85	9446.28	-118.49	-135.77	245.51	2.50	440720.92	725947.61	N 32 12 36.75 W 103 44 11.16	
	9556.00	7.24	48.51	9539.73	-111.09	-128.87	252.91	2.28	440727.82	725955.02	N 32 12 36.82 W 103 44 11.07	
	9651.00	9.08	47.83	9633.76	-101.42	-119.87	262.95	1.94	440736.82	725965.06	N 32 12 36.91 W 103 44 10.95	
	9746.00	9.35	54.98	9727.54	-91.16	-110.41	274.83	1.24	440746.28	725976.93	N 32 12 37.00 W 103 44 10.82	
	9841.00	8.57	55.16	9821.38	-81.87	-101.93	286.96	0.82	440754.75	725989.06	N 32 12 37.09 W 103 44 10.67	
	9894.00	8.12	53.40	9873.82	-76.96	-97.45	293.20	0.98	440759.24	725995.31	N 32 12 37.13 W 103 44 10.60	
KOP Actual	10053.00	5.25	60.36	10031.72	-65.63	-87.15	308.54	1.87	440769.53	726010.65	N 32 12 37.23 W 103 44 10.42	
	10147.00	11.87	39.79	10124.64	-58.31	-77.48	318.35	7.71	440779.21	726020.45	N 32 12 37.33 W 103 44 10.31	
100' FSL Cross	10199.86	16.17	27.93	10166.23	-48.23	-68.78	323.91	11.72	440787.92	726028.01	N 32 12 37.41 W 103 44 10.24	
	10242.00	21.81	20.64	10215.51	-30.30	-53.27	330.73	11.72	440803.41	726032.83	N 32 12 37.57 W 103 44 10.16	
	10337.00	30.73	12.74	10300.64	10.69	-12.99	342.33	10.07	440843.69	726044.43	N 32 12 37.96 W 103 44 10.02	
	10432.00	36.51	7.05	10378.78	64.30	40.14	351.33	8.86	440896.81	726053.43	N 32 12 38.49 W 103 44 9.91	
	10526.00	45.70	358.89	10448.53	127.16	102.94	354.28	9.60	440959.61	726056.38	N 32 12 39.11 W 103 44 9.88	
	10621.00	55.75	354.51	10508.61	199.98	176.22	349.85	11.16	441032.89	726051.95	N 32 12 39.84 W 103 44 9.92	
	10715.00	69.86	355.74	10551.46	282.38	259.32	342.82	15.06	441115.98	726044.92	N 32 12 40.56 W 103 44 10.00	
	10810.00	79.04	355.05	10576.90	372.78	350.45	335.47	9.69	441207.11	726037.57	N 32 12 41.56 W 103 44 10.08	
	10905.00	86.87	359.52	10588.72	466.31	444.51	331.04	9.29	441301.17	726033.14	N 32 12 42.49 W 103 44 10.12	
	11000.00	88.56	359.59	10592.67	560.95	539.42	330.30	1.99	441396.07	726032.40	N 32 12 43.43 W 103 44 10.13	
	11047.00	87.51	359.84	10594.28	607.79	586.39	330.06	2.30	441443.04	726032.17	N 32 12 43.90 W 103 44 10.13	
	11236.00	86.89	359.01	10603.51	795.97	775.16	328.17	0.55	441631.79	726030.27	N 32 12 45.76 W 103 44 10.14	
	11425.00	88.75	9.68	10610.72	984.55	963.20	342.47	5.73	441819.82	726044.57	N 32 12 47.82 W 103 44 9.96	
	11615.00	89.10	7.44	10614.29	1173.89	1151.03	370.74	1.19	442007.65	726072.84	N 32 12 49.48 W 103 44 9.82	
	11710.00	90.30	5.18	10614.79	1268.80	1245.45	381.18	2.69	442102.06	726083.28	N 32 12 50.41 W 103 44 9.49	
	11804.00	91.26	1.08	10613.51	1362.76	1339.28	386.31	4.48	442195.88	726088.41	N 32 12 51.34 W 103 44 9.42	
	11899.00	91.37	0.63	10611.33	1457.60	1434.24	387.73	0.49	442290.84	726089.83	N 32 12 52.28 W 103 44 9.40	
	12089.00	90.57	4.62	10608.11	1647.48	1623.98	396.43	2.14	442480.57	726098.53	N 32 12 54.16 W 103 44 9.29	
	12183.00	91.06	2.26	10606.77	1741.48	1717.79	402.07	2.56	442574.38	726104.17	N 32 12 55.09 W 103 44 9.22	
	12278.00	90.99	2.59	10605.07	1836.41	1812.69	406.09	0.36	442669.27	726108.19	N 32 12 56.03 W 103 44 9.16	
	12373.00	90.75	2.84	10603.63	1931.37	1907.57	410.59	0.36	442764.15	726112.69	N 32 12 56.96 W 103 44 9.10	
	12467.00	91.30	0.83	10601.95	2025.29	2001.50	413.60	2.22	442858.07	726115.70	N 32 12 57.89 W 103 44 9.06	
	12562.00	90.54	1.62	10600.42	2120.17	2096.47	415.63	1.15	442953.03	726117.73	N 32 12 58.83 W 103 44 9.03	
	12657.00	90.47	1.04	10599.58	2215.06	2191.44	417.83	0.61	443048.00	726119.93	N 32 12 59.77 W 103 44 9.00	
	12751.00	90.06	0.10	10599.15	2308.90	2285.43	418.77	1.09	443141.99	726120.87	N 32 13 0.70 W 103 44 8.98	
	12840.00	91.28	351.96	10596.97	2495.92	2473.80	405.70	4.35	443330.35	726107.80	N 32 13 2.57 W 103 44 9.12	
	13035.00	91.23	351.68	10594.90	2586.77	2567.82	392.18	0.30	443424.35	726094.28	N 32 13 3.50 W 103 44 9.28	
	13130.00	90.61	353.70	10593.38	2681.92	2662.03	380.10	2.22	443518.58	726082.20	N 32 13 4.43 W 103 44 9.41	
	13224.00	90.44	353.64	10592.52	2774.40	2755.45	369.73	0.19	443611.98	726071.83	N 32 13 5.36 W 103 44 9.53	
	13319.00	91.06	356.56	10591.27	2868.25	2850.08	361.62	3.14	443706.61	726063.72	N 32 13 6.29 W 103 44 9.61	
	13413.00	90.23	356.40	10590.22	2961.45	2943.90	355.85	0.90	443800.42	726057.95	N 32 13 7.22 W 103 44 9.67	
	13508.00	90.78	355.23	10589.38	3055.48	3038.64	348.92	1.36	443895.15	726051.02	N 32 13 8.16 W 103 44 9.75	
	13603.00	89.16	356.35	10589.43	3149.51	3133.38	341.94	2.07	443989.89	726044.05	N 32 13 9.10 W 103 44 9.82	
	13698.00	88.92	356.31	10591.02	3243.66	3228.17	335.86	0.26	444084.67	726037.97	N 32 13 10.04 W 103 44 9.89	
	13792.00	89.58	358.45	10592.25	3337.02	3322.06	331.57	2.38	444178.58	726033.67	N 32 13 10.96 W 103 44 9.93	
	13887.00	89.58	1.11	10592.95	3431.76	3417.05	331.20	2.80	444273.54	726033.31	N 32 13 11.90 W 103 44 9.93	
	13981.00	89.54	2.97	10593.67	3525.70	3510.98	334.55	1.98	444367.47	726036.65	N 32 13 12.83 W 103 44 9.89	
	14076.00	90.16	2.94	10593.92	3620.69	3605.85	339.45	0.65	444462.34	726041.55	N 32 13 13.77 W 103 44 9.82	
	14170.00	89.65	3.72	10594.07	3714.68	3699.69	344.91	0.99	444556.17	726047.01	N 32 13 14.70 W 103 44 9.75	
	14265.00	89.82	5.42	10594.51	3809.87	3794.39	352.48	1.80	444650.86	726054.58	N 32 13 15.64 W 103 44 9.68	
	14360.00	89.71	1.84	10594.90	3904.65	3889.19	358.32	3.98	444745.66	726060.42	N 32 13 16.58 W 103 44 9.58	
	14455.00	90.33	2.67	10594.87	3999.60	3984.12	361.90	1.27	444840.58	726068.00	N 32 13 17.51 W 103 44 9.54	
	14549.00	90.13	0.92	10594.49	4093.53	4078.07	364.84	1.97	444934.53	726076.94	N 32 13 18.44 W 103 44 9.50	
	14643.00	90.08	0.52	10594.34	4187.38	4172.06	368.02	0.43	445028.51	726086.12	N 32 13 19.37 W 103 44 9.48	
	14738.00	89.82	0.23	10594.44	4282.19	4267.06	369.64	0.40	445123.51	726096.74	N 32 13 20.31 W 103 44 9.46	
	14832.00	89.85	0.42	10594.71	4376.00	4361.06	367.18	0.20	445217.50	726108.28	N 32 13 21.24 W 103 44 9.45	
	14927.00	91.54	359.92	10593.55	4470.78	4456.05	367.46	1.86	445312.48	726120.56	N 32 13 22.18 W 103 44 9.44	
	15021.00	91.09	358.81	10591.40	4564.45	4550.01	366.42	1.27	445406.45	726132.84	N 32 13 23.11 W 103 44 9.45	
	15115.00	91.48	358.98	10589.26	4658.06	4643.97	364.60	0.45	445500.40	726145.12	N 32 13 24.04 W 103 44 9.46	
	15210.00	91.83	0.57	10586.54	4752.77	4738.93	364.23	1.71	445595.35	726157.40	N 32 13 24.98 W 103 44 9.46	
	15304.00	90.83	1.18	10584.36	4846.60	4832.89	365.87	1.25	445689.31	726169.68	N 32 13 25.91 W 103 44 9.44	
	15398.00	89.38	1.31	10584.19	4940.50	4926.87	367.71	1.55	445783.28	726181.96	N 32 13 26.84 W 103 44 9.41	
100' FNL Cross	15494.80	88.02	2.25	10587.68	5027.15	5013.54	370.40	4.02	445879.95	726194.24	N 32 13 27.77 W 103 44 9.37	
	15493.00	85.70	2.34	10588.27	5035.33	5021.71	370.73	4.02	445878.12	726193.83	N 32 13 27.78 W 103 44 9.37	
Final Surety	15512.00	87.35	1.88	10589.42	5054.28	5040.66	371.43	9.01	445897.07	726193.53	N 32 13 27.97 W 103 44 9.36	
Proj to TD	15554.00	87.35	1.88	10591.36	5096.21	5082.60	372.80	0.00	445939.00	726194.90	N 32 13 28.38 W 103 44 9.34	

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	1/98.425	30.000	30.000 NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554MD
	1	26.500	26.500	Act Strs	30.000	30.000 NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554MD
	1	26.500	1009.140	Act Strs	30.000	30.000 NAL_NSG+MSHOT	Original Borehole / Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554MD
	1	1009.140	7626.000	Act Strs	30.000	30.000 NAL_MWD_IFR1+MS	Original Borehole / Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554MD
	1	7626.000	8763.000	Act Strs	30.000	30.000 NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554MD
	1	8763.000	15554.000	Act Strs	30.000	30.000 NAL_MWD_IFR1+MS	Original Borehole / Oxy Mesa Verde BS Unit 20H Gyro+MWD 0-15554MD



Structure:

Oxy Mesa Verde BS Unit 20H

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

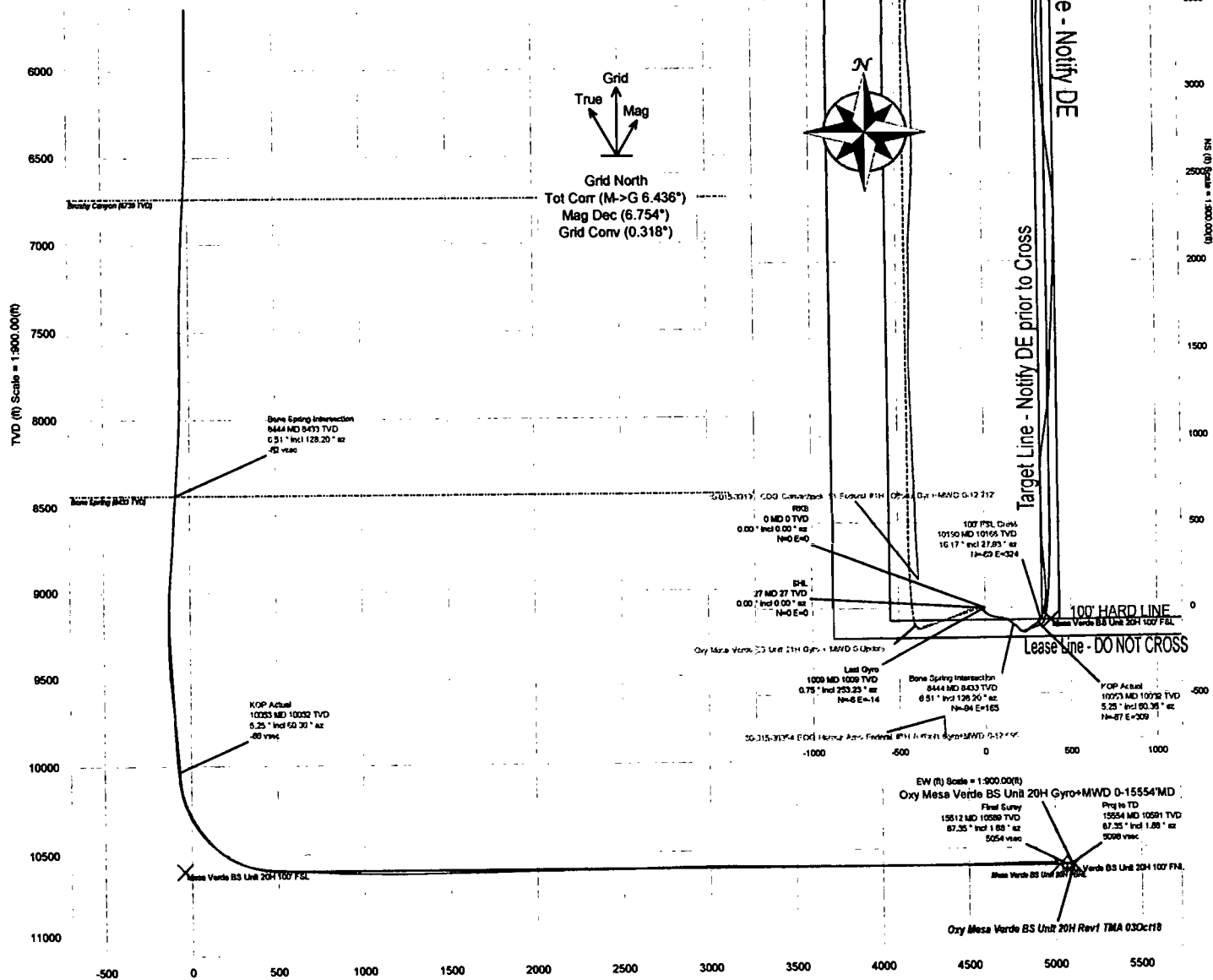
Miscellaneous

Slot: Oxy Mesa Verde TVD Ref: R06(3814.9ft above BSL)
 Plan: Oxy Mesa Verde ES Unit 20H Gyro-MWD 0-163541MD

Chavira SMD 12 01 FED 002 2H Rev0 umt 19Sep18

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
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	0.00
Last Gyro	1009.14	0.75	253.23	1009.01	-6.64	-5.69	-13.93	0.33
Bone Spring Intersection	8443.79	6.51	128.20	8433.00	-82.48	-94.10	165.01	0.19
KOP Actual	10053.00	5.25	60.36	10031.72	-65.63	-87.15	308.54	1.87
100' FSL Cross	10189.88	16.17	27.93	10166.23	-46.23	-68.76	323.91	11.72
100' FNIL Cross	15484.80	86.02	2.25	10587.68	5027.15	5013.54	370.40	4.02
Final Survey	15512.00	87.35	1.88	10589.42	5054.28	5040.66	371.43	9.01
Proj to TD	15554.00	87.35	1.88	10591.36	5096.21	5082.60	372.80	0.00



Vertical Section (ft) Azim = 3.96° Scale = 1:900.00(ft) Origin = 0N/-S, 0E/-W