Final PvA - Rev2

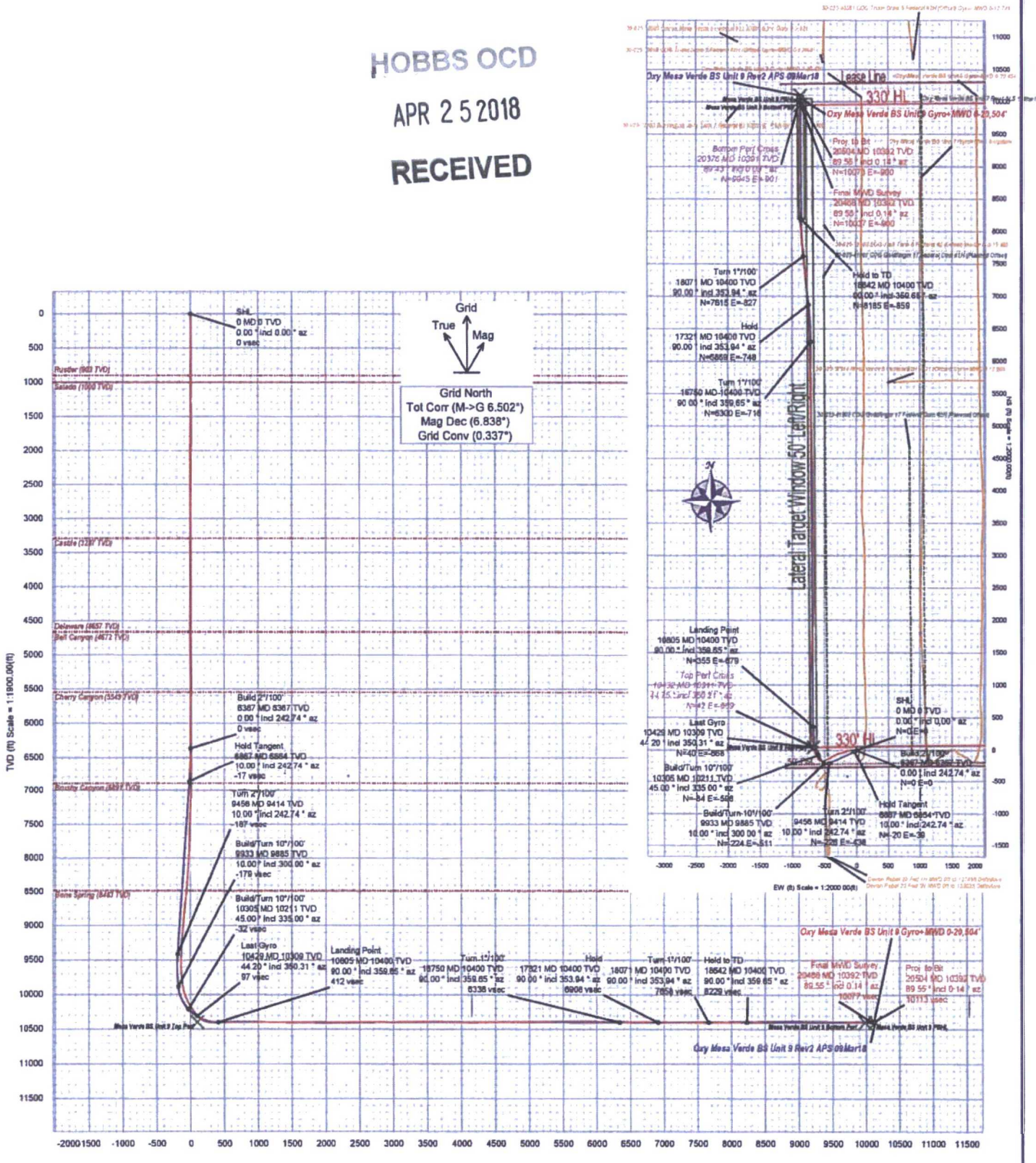
H&P 656 (RKB=26.5')

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Mesa Verde BS Unit 9	NM Lea County (NAD 83)	Oxy Mesa Verde BS Unit 9

Gravity & Magnetic Parameters					Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HDGM 2018	Dip: 59.831°	Date:	09-Mar-2018	Lat:	N 32 12 39.46	Northing:	441068.98ftUS	Grid Conv:	0.3367°	Slot:	Oxy Mesa Verde BS Unit 9	TVD Ref:	RKB=26.5'(3581.3ft above MSL)
MagDec:	6.838°	FS:	48025.337nT	Gravity FS:	998.431mgn (9.80665 Based)	Lon:	W 103 42 6.06	Easting:	738894.99ftUS	Scale Fact:	0.9999528	Plan:	Oxy Mesa Verde BS Unit 9 Rev2 APS 09Mar18	



Schlumberger

Oxy Mesa Verde BS Unit 9 Gyro+MWD 0-20,504' Survey Geodetic Report

(Def Survey)

Report Date:	March 14, 2018 - 04 37 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	355 069 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Mesa Verde BS Unit 9 / Oxy Mesa Verde BS Unit 9	**TVD Reference Datum:**	RKB=26.5'
Well:	Oxy Mesa Verde BS Unit 9	**TVD Reference Elevation:**	3591.300 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3564.800 ft above MSL
UWI / API#:	Unknown / 30-025-44194	**Magnetic Declination:**	6 838 °
Survey Name:	Oxy Mesa Verde BS Unit 9 Gyro+MWD 0-20,504'	**Total Gravity Field Strength:**	998 4308mgn (9 80665 Based)
Survey Date:	March 09, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	237.825 ° / 10918 638 ft / 6.709 / 1.049	**Total Magnetic Field Strength:**	48025 337 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.931 °
Location Lat / Long:	N 32° 12' 39 46218", W 103° 42' 6.05352"	**Declination Date:**	March 09, 2018
Location Grid N/E Y/X:	N 441055 960 ftUS, E 736694.090 ftUS	**Magnetic Declination Model:**	HDGM 2018
CRS Grid Convergence Angle:	0.3367 °	**North Reference:**	Grid North
Grid Scale Factor:	0.9999528	**Grid Convergence Used:**	0 3367 °
Version / Patch:	2.10.706.0	**Total Corr Mag North->Grid North:**	6 5017 °
		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 ° ' ")
RKB	0 00	0.00	0 00	0.00	0 00	0.00	0 00	N/A	441055 96	736694 09	N 32 12 39.46	W 103 42 6.05
SHL	26 50	0.00	0.00	26.50	0 00	0.00	0.00	0.00	441055.96	736694.09	N 32 12 39.46	W 103 42 6.05
	81.30	0 18	10.64	81.30	0 08	0.08	0 02	0.33	441056 04	736694.11	N 32 12 39.46	W 103 42 6.05
	173.20	0 42	73 68	173.20	0 29	0.32	0 37	0 41	441056.28	736694 46	N 32 12 39.47	W 103 42 6.05
	264.40	0 36	49 48	264 40	0 52	0.60	0.90	0.19	441056 56	736694 99	N 32 12 39.47	W 103 42 6.04
	355.50	0.36	32 94	355 49	0 91	1.03	1 28	0 11	441056.99	736695 37	N 32 12 39.47	W 103 42 6.04
	446.20	0 33	25 54	446.19	1.36	1.50	1.55	0.06	441057.46	736695 64	N 32 12 39 48	W 103 42 6 04
	538 60	0.20	5 09	538 59	1.75	1.90	1.87	0.17	441057.86	736695.76	N 32 12 39.48	W 103 42 6.03
	631.00	0.23	10.88	630 99	2 09	2.25	1 72	0.04	441058.21	736695 81	N 32 12 39.48	W 103 42 6.03
	722.40	0.26	25.63	722 39	2 44	2.61	1.85	0.08	441058 57	736695 94	N 32 12 39.49	W 103 42 6.03
	812.90	0.26	47.53	812 89	2 75	2.94	2.09	0.11	441058 90	736696 18	N 32 12 39 49	W 103 42 6 03
	904.30	0 32	52.15	904.29	3 01	3.23	2.44	0.07	441059 19	736696 53	N 32 12 39.49	W 103 42 6.02
	998.70	0.23	46.78	998.69	3.27	3.52	2.79	0.10	441059.48	736696 88	N 32 12 39.50	W 103 42 6.02
	1093.10	0.15	41.20	1093.09	3.47	3.75	3 01	0.09	441059.71	736697.10	N 32 12 39.50	W 103 42 6.02
	1187.40	0.10	4 37	1187.39	3 64	3.92	3.10	0.10	441059.88	736697.19	N 32 12 39.50	W 103 42 6.02
	1281.90	0 11	351.14	1281.89	3 81	4.09	3 09	0.03	441060 05	736697.18	N 32 12 39.50	W 103 42 6.02
	1376.30	0.11	343.74	1376.29	3 99	4.27	3 05	0.02	441060.23	736697.14	N 32 12 39.50	W 103 42 6.02
	1470 80	0 11	333 00	1470.79	4.17	4.44	2.98	0.02	441060.40	736697.07	N 32 12 39.51	W 103 42 6.02
	1565.30	0.10	326.38	1565.29	4.32	4.59	2 90	0.02	441060 55	736696 99	N 32 12 39 51	W 103 42 6.02
	1659 80	0 08	248.38	1659.79	4.38	4.63	2.79	0 12	441060 59	736696.88	N 32 12 39 51	W 103 42 6.02
	1754 30	0 08	227 55	1754.29	4 32	4.56	2.68	0.03	441060 52	736696.77	N 32 12 39.51	W 103 42 6.02
	1848.70	0.10	219.36	1848.69	4.22	4.46	2 58	0.03	441060 42	736696.67	N 32 12 39.51	W 103 42 6.02
	1943.20	0.10	200.26	1943.19	4.08	4.31	2 50	0.04	441060 27	736696.59	N 32 12 39 50	W 103 42 6.02
	2037.80	0.11	187.98	2037.79	3 92	4.15	2.46	0.03	441060.11	736696.55	N 32 12 39.50	W 103 42 6.02
	2132 30	0 12	205.15	2132.29	3.75	3.97	2.40	0.04	441059 93	736696.49	N 32 12 39 50	W 103 42 6.03
	2226 70	0.10	203.61	2226.69	3 59	3.80	2.33	0 02	441059 76	736696.42	N 32 12 39.50	W 103 42 6.03
	2321.20	0.10	197.85	2321.19	3 44	3.65	2.27	0.01	441059 61	736696.36	N 32 12 39.50	W 103 42 6.03
	2415.40	0.11	195.26	2415 39	3 28	3 48	2.22	0.01	441059 44	736696.31	N 32 12 39 50	W 103 42 6.03
	2509.50	0.11	201.86	2509.48	3.11	3.31	2.16	0.01	441059.27	736696.25	N 32 12 39.49	W 103 42 6.03
	2603 80	0.11	70.68	2603.78	3.06	3.26	2.21	0.21	441059.22	736696.30	N 32 12 39.49	W 103 42 6.03
	2698.10	0.11	60.59	2698.08	3.12	3.33	2.38	0.02	441059.29	736696.47	N 32 12 39.50	W 103 42 6.03
	2791.80	0 11	56 00	2791.78	3.20	3.43	2.53	0.01	441059 39	736696.62	N 32 12 39.50	W 103 42 6.02
	2886.00	0.12	68.52	2885 98	3.27	3.51	2.70	0.03	441059.47	736696.79	N 32 12 39.50	W 103 42 6 02
	2980.10	0 11	41 39	2980.08	3 36	3.62	2 85	0 06	441059 58	736696.94	N 32 12 39.50	W 103 42 6.02
	3074.70	0.11	50.86	3074 68	3 47	3.74	2.98	0.02	441059 70	736697.07	N 32 12 39 50	W 103 42 6.02
	3169.40	0 13	47.02	3169.38	3.59	3.87	3.13	0.02	441059 83	736697.22	N 32 12 39.50	W 103 42 6.02
	3264.00	0.11	20 91	3263.98	3.74	4.03	3.24	0 06	441059 99	736697.33	N 32 12 39.50	W 103 42 6.02
	3358.40	0.09	29.73	3358.38	3.88	4.18	3.31	0.03	441060.14	736697.40	N 32 12 39.50	W 103 42 6 01
	3452.90	0 11	13 57	3452.88	4.03	4.33	3 37	0 04	441060.29	736697.46	N 32 12 39.50	W 103 42 6 01
	3547.40	0.11	1.29	3547.38	4.20	4.51	3.39	0.02	441060.47	736697.48	N 32 12 39.51	W 103 42 6 01
	3642.00	0.11	10.56	3641.98	4 38	4.69	3.41	0 02	441060.65	736697.50	N 32 12 39.51	W 103 42 6 01
	3736.50	0 11	326.48	3736.48	4 55	4.86	3.37	0 09	441060.82	736697.46	N 32 12 39.51	W 103 42 6.01
	3831.00	0.07	293.26	3830.98	4 66	4.96	3.27	0.07	441060.92	736697.36	N 32 12 39.51	W 103 42 6 02
	3925.70	0.07	314 51	3925 68	4 73	5.02	3.18	0 03	441060.98	736697.27	N 32 12 39 51	W 103 42 6 02
	4020.00	0.07	296 92	4019 98	4 80	5.09	3.08	0.02	441061 04	736697.17	N 32 12 39.51	W 103 42 6.02
	4114.50	0.08	304.40	4114 48	4 87	5.15	2.98	0.01	441061 11	736697.07	N 32 12 39.51	W 103 42 6.02
	4209.00	0.10	288 96	4208 98	4 95	5.21	2.85	0.03	441061.17	736696.94	N 32 12 39.51	W 103 42 6.02
	4303.30	0.10	284.25	4303.28	5 01	5.26	2.69	0.01	441061.22	736696 78	N 32 12 39.51	W 103 42 6.02
	4397 90	0.11	273.31	4397 88	5 05	5.29	2.52	0 02	441061.24	736696 61	N 32 12 39.51	W 103 42 6.02
	4492.30	0 10	286 93	4492.28	5 09	5.31	2.35	0.03	441061.27	736696 44	N 32 12 39.51	W 103 42 6.03
	4586.70	0.12	282.17	4586 68	5.15	5.36	2.17	0.02	441061.32	736696.26	N 32 12 39.52	W 103 42 6.03
	4681.20	0.10	307.37	4681.18	5 24	5.43	2.01	0.05	441061 39	736696 10	N 32 12 39.52	W 103 42 6.03
	4775.10	0 05	314 94	4775 08	5.32	5 51	1.92	0.05	441061 47	736696.01	N 32 12 39.52	W 103 42 6.03
	4869 60	0.11	168.14	4869 58	5.27	5.45	1.91	0.16	441061.41	736696.00	N 32 12 39.52	W 103 42 6.03
	4964.10	0.12	187.73	4964.08	5.08	5.26	1.91	0.04	441061.22	736696.00	N 32 12 39.51	W 103 42 6.03
	5058 50	0.11	188 55	5058.48	4.89	5.07	1.88	0.01	441061 03	736695.97	N 32 12 39.51	W 103 42 6.03
	5152 80	0.11	183.64	5152.78	4.72	4.89	1.87	0.01	441060.85	736695 96	N 32 12 39.51	W 103 42 6.03
	5247 30	0.11	192.25	5247.28	4.54	4.72	1 84	0.02	441060.68	736695.93	N 32 12 39 51	W 103 42 6.03
	5341.20	0 10	189 53	5341.18	4.37	4.55	1 81	0.01	441060 51	736695 90	N 32 12 39 51	W 103 42 6.03
	5435 20	0 11	175.18	5435.18	4.20	4.38	1 80	0.03	441060 34	736695 89	N 32 12 39 51	W 103 42 6.03
	5529 30	0 11	177.43	5529.28	4.02	4.20	1 81	0.00	441060 16	736695.90	N 32 12 39.50	W 103 42 6.03
	5623 50	0 09	176 53	5623.48	3.86	4.03	1 82	0.02	441059 99	736695.91	N 32 12 39.50	W 103 42 6.03
	5717 80	0 10	164 80	5717.78	3.71	3.88	1 85	0.02	441059 84	736695.94	N 32 12 39.50	W 103 42 6.03
	5811.90	0 09	166.09	5811.88	3.55	3.73	1 89	0.01	441059.69	736695.98	N 32 12 39.50	W 103 42 6.03
	5906.20	0.11	63.74	5906.18	3.51	3.70	1.99	0.17	441059 66	736696.08	N 32 12 39.50	W 103 42 6.03
	6000.70	0.10	69.07	6000 68	3.57	3.77	2.14	0.01	441059.72	736696.23	N 32 12 39.50	W 103 42 6.03
	6095.00	0.11	82.17	6094.98	3.59	3.81	2.31	0.03	441059.77	736696.40	N 32 12 39.50	W 103 42 6.03
	6189.40	0.13	87.84	6189.38	3.59	3.82	2.51	0.02	441059 78	736696.60	N 32 12 39 50	W 103 42 6.02
	6283 90	0.15	77.03	6283.88	3.61	3.85	2.74	0.03	441059 81	736696.83	N 32 12 39 50	W 103 42 6.02
	6378.50	0.92	266.05	6378.48	3.64	3.83	2.10	1.13	441059 79	736696.19	N 32 12 39 50	W 103 42 6.03
	6472.70	3.20	266.91	6472.61	3.73	3.64	-1.28	2.42	441059 60	736692.81	N 32 12 39.50	W 103 42 6.07
	6567 10	5.20	269.29	6566.75	4 13	3.44	-8 19	2.13	441059 40	736685.90	N 32 12 39 50	W 103 42 6.15
	6661.30	7.22	269.44	6660.39	4.90	3.33	-18 38	2.14	441059 29	736675.71	N 32 12 39.50	W 103 42 6.27
	6755.80	9.13	268.49	6753.93	5.80	3.08	-31.81	2.03	441059.03	736662.28	N 32 12 39.49	W 103 42 6.42
	6849.90	10 61	265.23	6846.63	6.27	2.16	-47.91	1.68	441058 12	736646.18	N 32 12 39.49	W 103 42 6.61
	6944.30	12.13	263.90	6939.18	6.09	0.38	-68.43	1.63	441056.34	736627.66	N 32 12 39.47	W 103 42 6.83
	7038.70	11.59	264.01	7031.56	5.71	-1.66	-85.73	0.57	441054 30	736608.37	N 32 12 39.45	W 103 42 7.05
	7133.00	11.67	257.14	7123.93	4.22	-4.77	-104 45	1.47	441051.19	736589 65	N 32 12 39 42	W 103 42 7.27
	7227.50	11.69	255.04	7216.47	1.24	-9.37	-123 01	0.45	441046 59	736571.08	N 32 12 39 38	W 103 42 7.49

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 ° ' ")
	7321.90	11.78	255.10	7308.90	-2.10	-14.32	-141.57	0.10	441041.84	736552.53	N 32 12 39.33	W 103 42 7.70
	7416.00	11.74	254.87	7401.03	-5.46	-19.29	-160.09	0.07	441036.67	736534.01	N 32 12 39.28	W 103 42 7.92
	7510.20	11.65	254.64	7493.27	-8.87	-24.31	-178.51	0.11	441031.65	736515.59	N 32 12 39.23	W 103 42 8.13
	7604.50	11.35	254.85	7585.68	-12.24	-29.26	-196.65	0.32	441026.71	736497.45	N 32 12 39.18	W 103 42 8.34
	7698.90	11.42	255.26	7678.22	-15.48	-34.06	-214.65	0.11	441021.90	736479.45	N 32 12 39.14	W 103 42 8.55
	7793.10	11.73	254.64	7770.50	-18.81	-38.97	-232.91	0.35	441016.99	736461.19	N 32 12 39.09	W 103 42 8.77
	7887.30	11.58	254.56	7862.78	-22.26	-44.02	-251.25	0.16	441011.94	736442.85	N 32 12 39.04	W 103 42 8.98
	7981.50	11.51	254.47	7955.06	-25.72	-49.06	-269.42	0.08	441006.91	736424.68	N 32 12 38.99	W 103 42 9.19
	8076.00	11.48	247.85	8047.66	-30.23	-55.13	-287.22	1.40	441000.84	736406.89	N 32 12 38.93	W 103 42 9.40
	8170.50	11.61	244.99	8140.25	-36.28	-62.69	-304.54	0.62	440993.27	736389.56	N 32 12 38.86	W 103 42 9.60
	8264.80	11.32	245.08	8232.67	-42.70	-70.60	-321.54	0.31	440985.36	736372.57	N 32 12 38.78	W 103 42 9.80
	8359.00	11.44	244.56	8325.02	-49.14	-78.51	-338.36	0.17	440977.45	736355.75	N 32 12 38.70	W 103 42 10.00
	8453.00	10.98	242.88	8417.23	-55.79	-86.60	-354.74	0.60	440969.37	736339.36	N 32 12 38.63	W 103 42 10.19
	8547.10	11.06	237.73	8509.59	-63.31	-95.50	-370.35	1.05	440960.46	736323.76	N 32 12 38.54	W 103 42 10.37
	8641.60	10.61	238.19	8602.38	-71.76	-105.27	-385.38	0.41	440950.69	736308.73	N 32 12 38.44	W 103 42 10.55
	8735.80	11.02	235.90	8694.87	-80.41	-115.24	-400.17	0.23	440940.73	736293.94	N 32 12 38.35	W 103 42 10.72
	8830.30	10.36	236.95	8787.73	-88.82	-124.93	-414.78	0.73	440931.03	736279.33	N 32 12 38.25	W 103 42 10.89
	8924.40	11.07	237.51	8880.19	-96.99	-134.40	-429.49	0.76	440921.57	736264.62	N 32 12 38.16	W 103 42 11.06
	9018.70	11.11	236.42	8972.73	-105.53	-144.29	-444.69	0.23	440911.68	736249.42	N 32 12 38.06	W 103 42 11.24
	9112.70	10.82	238.39	9065.02	-113.83	-153.92	-459.75	0.50	440902.04	736234.36	N 32 12 37.97	W 103 42 11.41
	9206.80	10.44	238.91	9157.50	-121.56	-162.95	-474.58	0.42	440893.01	736219.54	N 32 12 37.88	W 103 42 11.59
	9300.70	10.24	236.04	9249.88	-129.36	-172.01	-488.78	0.59	440883.96	736205.33	N 32 12 37.79	W 103 42 11.75
	9395.00	8.79	244.58	9342.88	-135.95	-179.79	-502.25	2.14	440876.18	736191.87	N 32 12 37.71	W 103 42 11.91
	9489.20	7.87	254.53	9436.09	-139.65	-184.60	-514.96	1.81	440871.37	736179.15	N 32 12 37.67	W 103 42 12.06
	9583.40	7.46	266.73	9529.46	-140.65	-186.67	-527.28	1.78	440869.30	736166.83	N 32 12 37.65	W 103 42 12.20
	9677.30	7.94	284.80	9622.52	-138.28	-185.36	-539.64	2.62	440870.61	736154.47	N 32 12 37.66	W 103 42 12.35
	9771.70	9.39	292.65	9715.85	-132.52	-180.72	-553.05	1.98	440875.24	736141.06	N 32 12 37.71	W 103 42 12.50
	9866.00	10.44	296.46	9808.74	-124.51	-173.96	-567.80	1.31	440882.01	736126.32	N 32 12 37.77	W 103 42 12.67
	9960.40	14.93	306.71	9900.82	-111.96	-162.87	-585.22	5.30	440893.10	736108.90	N 32 12 37.88	W 103 42 12.88
	10055.00	21.42	330.56	9990.77	-88.09	-140.49	-603.52	10.31	440915.48	736090.60	N 32 12 38.11	W 103 42 13.09
	10149.70	25.43	342.56	10077.70	-52.47	-106.00	-618.13	6.56	440949.97	736075.99	N 32 12 38.45	W 103 42 13.26
	10244.10	30.78	336.25	10160.96	-9.78	-64.51	-633.95	6.48	440991.45	736060.17	N 32 12 38.86	W 103 42 13.44
	10338.50	36.21	339.50	10239.66	39.98	-16.24	-653.46	6.06	441039.72	736040.66	N 32 12 39.34	W 103 42 13.66
Last Gyro	10428.80	44.20	350.31	10308.65	97.21	39.93	-668.14	11.72	441095.88	736025.98	N 32 12 39.90	W 103 42 13.83
	10478.00	52.68	348.96	10341.27	133.81	76.09	-674.78	17.32	441132.05	736019.34	N 32 12 40.25	W 103 42 13.90
	10573.00	70.76	347.56	10385.11	216.52	157.64	-691.82	19.10	441213.59	736002.31	N 32 12 41.06	W 103 42 14.09
	10667.00	86.07	349.12	10404.93	307.70	247.56	-710.34	16.37	441303.51	735983.79	N 32 12 41.95	W 103 42 14.30
	10761.00	92.69	356.91	10405.95	401.51	340.88	-720.12	12.57	441396.82	735974.01	N 32 12 42.88	W 103 42 14.41
	10808.00	95.28	0.65	10402.68	448.23	387.76	-720.30	6.63	441443.70	735973.83	N 32 12 43.34	W 103 42 14.41
	10906.00	94.72	359.64	10394.14	545.48	485.38	-720.05	1.17	441541.32	735974.07	N 32 12 44.31	W 103 42 14.40
	10998.00	92.07	359.19	10388.69	637.04	577.21	-720.99	2.92	441633.14	735973.14	N 32 12 45.22	W 103 42 14.41
	11090.00	89.94	359.50	10387.08	728.77	669.18	-722.04	2.34	441725.11	735972.08	N 32 12 46.13	W 103 42 14.41
	11182.00	87.98	357.23	10388.75	820.59	761.12	-724.66	3.26	441817.04	735969.46	N 32 12 47.04	W 103 42 14.44
	11272.00	88.37	359.64	10391.62	910.38	851.03	-727.12	2.71	441906.95	735967.00	N 32 12 47.93	W 103 42 14.46
	11364.00	88.09	2.44	10394.46	1001.83	942.96	-725.45	3.06	441998.88	735968.67	N 32 12 48.83	W 103 42 14.43
	11457.00	88.43	3.23	10397.28	1093.93	1035.81	-720.85	0.92	442091.71	735973.27	N 32 12 49.75	W 103 42 14.37
	11552.00	88.82	2.40	10399.56	1188.04	1130.66	-716.19	0.97	442186.57	735977.93	N 32 12 50.69	W 103 42 14.31
	11646.00	88.71	2.62	10401.59	1281.23	1224.55	-712.07	0.26	442280.45	735982.05	N 32 12 51.62	W 103 42 14.26
	11740.00	89.05	2.34	10403.43	1374.42	1318.44	-708.01	0.47	442374.34	735986.12	N 32 12 52.55	W 103 42 14.20
	11834.00	89.05	2.95	10404.98	1467.59	1412.33	-703.67	0.65	442468.22	735990.45	N 32 12 53.48	W 103 42 14.15
	11929.00	89.61	3.04	10406.10	1561.67	1507.19	-698.71	0.60	442563.08	735995.42	N 32 12 54.42	W 103 42 14.08
	12023.00	90.45	2.68	10406.05	1654.81	1601.06	-694.02	0.97	442656.96	736000.11	N 32 12 55.35	W 103 42 14.02
	12117.00	89.66	2.38	10405.96	1748.01	1694.98	-689.87	0.90	442750.86	736004.26	N 32 12 56.27	W 103 42 13.97
	12211.00	87.98	2.06	10407.89	1841.25	1788.89	-686.23	1.82	442844.76	736007.90	N 32 12 57.20	W 103 42 13.92
	12306.00	90.34	2.67	10409.28	1935.47	1883.79	-682.31	2.57	442939.66	736011.82	N 32 12 58.14	W 103 42 13.87
	12400.00	90.28	2.82	10408.78	2028.62	1977.68	-677.81	0.17	443033.54	736016.32	N 32 12 59.07	W 103 42 13.81
	12494.00	90.90	2.66	10407.81	2121.76	2071.56	-673.15	0.66	443127.42	736020.97	N 32 13 0.00	W 103 42 13.75
	12588.00	90.73	2.54	10406.47	2214.91	2165.45	-668.72	0.39	443221.30	736025.40	N 32 13 0.93	W 103 42 13.69
	12683.00	90.28	1.74	10405.63	2309.19	2260.36	-665.17	0.97	443316.22	736028.95	N 32 13 1.87	W 103 42 13.64
	12777.00	90.62	359.99	10404.90	2402.70	2354.36	-663.76	1.90	443410.20	736030.37	N 32 13 2.80	W 103 42 13.62
	12871.00	90.78	0.34	10403.75	2496.32	2448.35	-663.48	0.41	443504.19	736030.64	N 32 13 3.73	W 103 42 13.61
	12965.00	90.79	0.22	10402.46	2589.92	2542.34	-663.03	0.13	443598.18	736031.10	N 32 13 4.66	W 103 42 13.60
	13059.00	90.90	0.76	10401.07	2683.49	2636.33	-662.22	0.59	443692.16	736031.90	N 32 13 5.59	W 103 42 13.58
	13154.00	90.79	0.61	10399.67	2778.03	2731.31	-661.09	0.20	443787.14	736033.04	N 32 13 6.53	W 103 42 13.56
	13249.00	90.39	358.45	10398.69	2872.73	2826.30	-661.87	2.31	443882.12	736032.26	N 32 13 7.47	W 103 42 13.56
	13438.00	90.45	358.64	10397.31	3061.37	3015.23	-666.66	0.11	444071.04	736027.48	N 32 13 9.34	W 103 42 13.61
	13532.00	90.84	358.35	10396.25	3155.20	3109.19	-669.13	0.52	444165.00	736024.99	N 32 13 10.27	W 103 42 13.63
	13626.00	90.79	358.47	10394.91	3249.03	3203.15	-671.74	0.14	444258.95	736022.38	N 32 13 11.20	W 103 42 13.65
	13721.00	90.51	358.42	10393.83	3343.86	3298.10	-674.32	0.30	444353.90	736019.80	N 32 13 12.14	W 103 42 13.68
	13815.00	90.73	358.52	10392.82	3437.69	3392.06	-676.83	0.26	444447.86	736017.29	N 32 13 13.07	W 103 42 13.70
	13910.00	90.62	358.72	10391.70	3532.50	3487.03	-679.12	0.24	444542.82	736015.01	N 32 13 14.01	W 103 42 13.72
	14004.00	90.56	358.67	10390.73	3626.31	3581.00	-681.26	0.08	444636.79	736012.87	N 32 13 14.94	W 103 42 13.74
	14099.00	86.41	359.76	10393.24	3721.00	3675.94	-682.56	4.52	444731.72	736011.56	N 32 13 15.88	W 103 42 13.75
	14193.00	90.50	359.01	10395.78	3814.68	3769.88	-683.57	4.42	444825.65	736010.56	N 32 13 16.80	W 103 42 13.75
	14287.00	90.79	358.63	10394.72	3908.47	3863.86	-685.50	0.51	444919.62	736008.62	N 32 13 17.73	W 103 42 13.77
	14381.00	85.46	0.58	10397.79	4002.09	3957.76	-686.15	6.04	445013.52	736007.97	N 32 13 18.66	W 103 42 13.77
	14476.00	87.70	0.45	10403.46	4096.49	4052.58	-685.30	2.36	445108.34	736008.82	N 32 13 19.60	W 103 42 13.75
	14570.00	90.45	358.89	10404.98	4190.16	4146.55	-685.84	3.36	445202.31	736008.28	N 32 13 20.53	W 103 42 13.75
	14664.00	91.74	359.55	10403.18	4283.89	4240.53	-687.12	1.54	445296.28	736007.00	N 32 13 21.46	W 103 42 13.76
	14759.00	91.12	358.21	10400.81	4378.65	4335.48	-688.98	1.55	445391.22	736005.15	N 32 13 22.40	W 103 42 13.78
	14853.00	91.07	358.76	10399.01	4472.47	4429.43	-691.46	0.59	445485.17	736002.66	N 32 13 23.33	W 103 42 13.80
	14948.00	91.07	358.61	10397.24	4567.26	4524.38	-693.64	0.16	445580.12	736000.48	N 32 13 24.27	W 103 42 13.82
	15043.00	90.62	358.89	10395.84	4662.06	4619.35	-695.72	0.56	445675.08	735998.41	N 32 13 25.21	W 103 42 13.84
	15137.00	90.62	358.35	10394.82	4755.87	4713.32	-697.98	0.57	445769.05	735996.15	N 32 13 26.14	W 103 42 13.86
	15231.00	90.67	358.80	10393.76	4849.69	4807.28	-700.32	0.48	445863.01	735993.81	N 32 13 27.07	W 103 42 13.88
	15326.00	89.66	359.03	10393.49	4944.47	4902.26	-702.12	1.09	445957.98	735992.01	N 32 13 28.01	W 103 42 13.89
	15420.00	90.73	358.54	10393.17	5038.27	4996.24	-704.11	1.25	446051.95	735990.02	N 32 13 28.94	W 103 42 13.91
	15515.00	90.95	358.84	10391.78	5133.07	5091.21	-706.28	0.39	446146.91	735987.84	N 32 13 29.88	W 103 42 13.93
	15610.00	90.78	358.56	10390.34	5227.87	5186.17	-708.44	0.34	446241.87	735985.69	N 32 13 30.82	W 103 42 13.95
	15704.00	90.90	358.80	10388.96	5321.67	5280.13	-710.60	0.29	446335.83	735983.52	N 32 13 31.75	W 103 42 13.96
	15799.00	90.50	358.48	10387.80	5416.48	5375.10	-712.85	0.54	446430.80	735981.27	N 32 13 32.69	W 103 42 13.98
	15893.00	90.17	358.93	10387.25	5510.29	5469.07	-714.98	0.59	446524.77	735979.15	N 32 13 33.62	W 103 42 14.00
	15988.00	90.06	358.97	10387.06	5605.07	5564.06	-716.72	0.12	446619.74	735977.41	N 32 13 34.56	W 103 42 14.02
	16082.00	89.89	358.86	10387.10	5698.86	5658.04	-718.50	0.22	446713.72	735975.63	N 32 13 35.49	W 103 42 14.03
	16177.00	89.44	358.96	10387.66	5793.64	5753.02	-720.31	0.49	446808.70	735973.82	N 32 13 36.43	W 103 42 14.04
	16271.00	90.22	358.84	10387.94	5887.43	5847.00	-722.11	0.84	446902.68	735972.01	N 32 13 37.36	W 103 42 14.06
	16460.00	88.77	357.91	10389.60	6076.10	6035.91	-727.47	0.91	447091.58	735966.66	N 32 13 39.23	W 103 42 14.11
	16554.00	89.61	359.42	10390.93	6169.91	6129.88	-729.66	1.84	447185.53	735964.47	N 32 13 40.16	W 103 42 14.13
	16649.00	89.78	359.04	10391.44	6264.85	6224.86	-730.94	0.44	447280.52	735963.19	N 32 13 41.10	W 103 42 14.14
	16838.00	89.61	358.57	10392.45	6453.25	6413.82	-734.88	0.26	447469.45	735959.25	N 32 13 42.97	W 103 42 14.17
	16932.00	89.33	356.51	10393.31	6547.15	6507.72	-738.91	2.21	447563.36	735955.21	N 32 13 43.90	W 103 42 14.21
	17027.00	89.38	356.90	10394.38	6642.11	6602.56	-744.37	0.41	447658.20	735949.75	N 32 13 44.84	W 103 42 14.27
	17121.00	89.66	357.30	10395.17	6736.05	6696.44	-749.13	0.52	447752.07	735945.00	N 32 13 45.77	W 103 42 14.32
	17216.00	90.17	357.47	10395.31	6830.97	6791.34	-753.46	0.57	447846.96	735940.66	N 32 13 46.71	W 103 42 14.36
	17310.00	89.94	356.72	10395.22	6924.91	6885.22	-758.23	0.83	447940.84	735935.90	N 32 13 47.64	W 103 42 14.41
	17405.00	90.00	357.02	10395.27	7019.86	6980.07	-763.41	0.32	448035.69	735930.71	N 32 13 48.57	W 103 42 14.46
	17499.00	89.66	354.55	10395.55	7113.85	7073.81	-770.32	2.65	448129.42	735923.81	N 32 13 49.50	W 103 42 14.54
	17688.00	90.11	354.56	10395.93	7302.84	7261.96	-788.26	0.24	448317.56	735905.87	N 32 13 51.36	W 103 42 14.73
	17783.00	90.00	355.47	10395.84	7397.84	7356.60	-796.51	0.96	448412.20	735897.62	N 32 13 52.30	W 103 42 14.82

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 ° ' ")
	17877 00	90 00	355 05	10395 84	7491 84	7450.28	-804.28	0 45	448505.87	735889 85	N 32 13 53 23	W 103 42 14 91
	17971 00	89 83	354 46	10395 98	7585 83	7543 88	-812.87	0 65	448599.47	735881 26	N 32 13 54 16	W 103 42 15 00
	18066 00	90 06	353 38	10396 07	7680 81	7638 35	-822.93	1 16	448693 93	735871.20	N 32 13 55 09	W 103 42 15 11
	18255 00	90 45	354 78	10395 23	7869 78	7826 33	-842.43	0 77	448881 91	735851 71	N 32 13 56.95	W 103 42 15 33
	18350 00	90 73	356.29	10394 25	7964.77	7921.04	-849 82	1 62	448976 61	735844 31	N 32 13 57 89	W 103 42 15 40
	18445 00	91 18	354.84	10392.67	8059.75	8015.74	-857 17	1 60	449071 30	735836 97	N 32 13 58 83	W 103 42 15 48
	18539 00	90 51	354.15	10391.28	8153.73	8109.29	-866 18	1 02	449164 85	735827 95	N 32 13 59 75	W 103 42 15 58
	18634 00	90 67	353.49	10390.30	8248.70	8203.73	-876 41	0 71	449259 29	735817 72	N 32 14 0 69	W 103 42 15 69
	18728 00	90 84	355.16	10389.06	8342.68	8297.26	-885 70	1 79	449352 81	735808 43	N 32 14 1 61	W 103 42 15 80
	18823 00	90 84	357.45	10387.67	8437.64	8392.05	-891 82	2 41	449447 59	735802 31	N 32 14 2 55	W 103 42 15 86
	18917 00	90 84	358.61	10386.29	8531.51	8485.98	-895 06	1 23	449541 52	735799 08	N 32 14 3 48	W 103 42 15 89
	19012 00	91 01	359.07	10384.76	8626.29	8580.95	-896 98	0 52	449636 49	735797 16	N 32 14 4 42	W 103 42 15 91
	19106 00	91 07	359.69	10383.05	8720.01	8674.93	-898 00	0 66	449730 46	735796 14	N 32 14 5 35	W 103 42 15 91
	19295 00	89 94	0.33	10381.39	8908.29	8863.91	-897 96	0 69	449919 44	735796 17	N 32 14 7 22	W 103 42 15 90
	19389 00	89 66	359.70	10381.72	9001.94	8957.91	-897 94	0 73	450013 43	735796 20	N 32 14 8 15	W 103 42 15 89
	19484 00	89 78	359.44	10382.18	9096 65	9052.91	-898 65	0 30	450108 42	735795 48	N 32 14 9 09	W 103 42 15 90
	19578 00	89 50	359.61	10382 77	9190.36	9146.90	-899 43	0 35	450202 41	735794 70	N 32 14 10 02	W 103 42 15 90
	19673 00	89 27	0.40	10383.79	9285.00	9241.90	-899 42	0 87	450297 40	735794 71	N 32 14 10 96	W 103 42 15 89
	19767 00	89 38	359.67	10384.90	9378.64	9335.89	-899.36	0 79	450391 39	735794 77	N 32 14 11 89	W 103 42 15 89
	19862 00	89 05	359.52	10386 20	9473.34	9430.88	-900 04	0 38	450486 38	735794 10	N 32 14 12 83	W 103 42 15 89
	19956 00	89 38	359.19	10387.49	9567.07	9524.86	-901 09	0 50	450580 36	735793 04	N 32 14 13 76	W 103 42 15 89
	20050 00	89 44	359.71	10388 45	9660.79	9618.85	-902 00	0 56	450674 34	735792 14	N 32 14 14 69	W 103 42 15 90
	20145 00	89 61	0.68	10389.24	9755.40	9713.85	-901 67	1 04	450769 33	735792 46	N 32 14 15 63	W 103 42 15 89
	20334 00	89 38	359.79	10390 91	9943 63	9902.84	-900 90	0 49	450958 31	735793 24	N 32 14 17 50	W 103 42 15 86
	20428 00	89 50	0.47	10391.83	10037.25	9996.83	-900 68	0 73	451052 30	735793 45	N 32 14 18 43	W 103 42 15 86
Final MWD Survey Proj to Bit	20468 00	89 55	0.14	10392.16	10077.09	10036.83	-900 47	0 83	451092 30	735793 66	N 32 14 18 83	W 103 42 15 85
	20504 00	89 55	0 14	10392.44	10112.94	10072.83	-900 38	0 00	451128 29	735793 75	N 32 14 19 18	W 103 42 15 85

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 9 Gyro+MWD 0-20,504'
	1	26 500	26 500	Act Stns	30.000	30 000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde BS Unit 9 Gyro+MWD 0-20,504'
	1	26 500	10428 800	Act Stns	30 000	30 000	NAL_NSG+MSHOT	Original Borehole / Oxy Mesa Verde BS Unit 9 Gyro+MWD 0-
	1	10428 800	20504 000	Act Stns	30 000	30 000	NAL_MWD_PLUS_0 5_DEG	Original Borehole / Oxy Mesa Verde BS Unit 9 Gyro+MWD 0-