Schlumberger

Oxy Iridium MDP1 28-21 Federal Com 3H Gyro + MWD 0-20260'MD Survey
Geodetic Report
(Def Survey)

Report Date:	April 08, 2019 - 10:07 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	358.427 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Iridium MDP1 28-21 Federal Com 3H / Oxy Iridium MDP1 28-21 Federal Com 3H	**TVD Reference Datum:**	RKB=26.5'
Well:	Oxy Iridium MDP1 28-21 Federal Com 3H	**TVD Reference Elevation:**	3412.500 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3386.000 ft above MSL
UWI / API#:	Unknown / 30-015-45244	**Magnetic Declination:**	6.837 °
Survey Name:	Oxy Iridium MDP1 28-21 Federal Com 3H Gyro + MWD 0-20260'MD	**Total Gravity Field Strength:**	998.4499mgn (9.80665 Based)
Survey Date:	February 20, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	219.322 ° / 11022.223 ft / 6.698 / 1.122	**Total Magnetic Field Strength:**	47991.600 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.990 °
Location Lat / Long:	N 32° 16' 2.99203", W 103° 47' 1.05082"	**Declination Date:**	March 23, 2019
Location Grid N/E Y/X:	N 461483.890 ftUS, E 711245.000 ftUS	**Magnetic Declination Model:**	IFR1
CRS Grid Convergence Angle:	0.2935 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99994215	**Grid Convergence Used:**	0.2935 °
Version / Patch:	2.10.753.0	**Total Corr Mag North->Grid North:**	6.5435 °
		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	461483.89	711245.00	N 32 16 2.99	W 103 47 1.05
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	461483.89	711245.00	N 32 16 2.99	W 103 47 1.05
	80.50	0.18	228.67	80.50	-0.05	-0.06	-0.06	0.33	461483.83	711244.94	N 32 16 2.99	W 103 47 1.05
	140.50	0.13	209.60	140.50	-0.17	-0.18	-0.17	0.12	461483.71	711244.83	N 32 16 2.99	W 103 47 1.05
	200.50	0.17	195.44	200.50	-0.32	-0.32	-0.23	0.09	461483.57	711244.77	N 32 16 2.99	W 103 47 1.05
	260.50	0.13	218.42	260.50	-0.45	-0.46	-0.29	0.12	461483.43	711244.71	N 32 16 2.99	W 103 47 1.05
	320.50	0.20	221.88	320.50	-0.58	-0.59	-0.40	0.12	461483.30	711244.60	N 32 16 2.99	W 103 47 1.06
	380.50	0.23	201.24	380.50	-0.77	-0.78	-0.52	0.14	461483.11	711244.48	N 32 16 2.98	W 103 47 1.06
	440.50	0.21	219.30	440.50	-0.96	-0.98	-0.63	0.12	461482.91	711244.37	N 32 16 2.98	W 103 47 1.06
	500.50	0.13	231.83	500.50	-1.09	-1.11	-0.75	0.15	461482.78	711244.25	N 32 16 2.98	W 103 47 1.06
	560.50	0.12	187.48	560.50	-1.19	-1.21	-0.82	0.16	461482.68	711244.18	N 32 16 2.98	W 103 47 1.06
Last Gyro	620.50	0.42	250.77	620.50	-1.32	-1.35	-1.03	0.64	461482.54	711243.97	N 32 16 2.98	W 103 47 1.06
	755.00	0.39	231.68	754.99	-1.74	-1.79	-1.86	0.10	461482.10	711243.14	N 32 16 2.97	W 103 47 1.07
	867.00	0.58	226.66	866.99	-2.35	-2.42	-2.57	0.17	461481.47	711242.43	N 32 16 2.97	W 103 47 1.08
	957.00	0.58	255.22	956.99	-2.75	-2.85	-3.34	0.32	461481.04	711241.66	N 32 16 2.96	W 103 47 1.09
	1047.00	0.46	217.90	1046.98	-3.14	-3.25	-4.00	0.39	461480.64	711241.00	N 32 16 2.96	W 103 47 1.10
	1139.00	0.46	218.31	1138.98	-3.71	-3.83	-4.46	0.00	461480.06	711240.54	N 32 16 2.95	W 103 47 1.10
	1230.00	0.44	218.52	1229.98	-4.25	-4.39	-4.90	0.02	461479.50	711240.10	N 32 16 2.95	W 103 47 1.11
	1415.00	0.56	226.88	1414.97	-5.40	-5.56	-6.00	0.08	461478.33	711239.00	N 32 16 2.94	W 103 47 1.12
	1506.00	0.56	214.75	1505.96	-6.05	-6.23	-6.58	0.13	461477.66	711238.42	N 32 16 2.93	W 103 47 1.13
	1596.00	0.44	193.33	1595.96	-6.74	-6.93	-6.91	0.24	461476.96	711238.09	N 32 16 2.92	W 103 47 1.13
	1785.00	0.16	161.14	1784.96	-7.69	-7.89	-6.99	0.17	461476.00	711238.01	N 32 16 2.91	W 103 47 1.13
	1974.00	0.20	223.86	1973.96	-8.17	-8.37	-7.14	0.10	461475.52	711237.86	N 32 16 2.91	W 103 47 1.13
	2163.00	0.18	138.93	2162.96	-8.64	-8.84	-7.17	0.14	461475.06	711237.83	N 32 16 2.90	W 103 47 1.13
	2351.00	0.18	254.34	2350.96	-8.94	-9.14	-7.26	0.16	461474.75	711237.74	N 32 16 2.90	W 103 47 1.14
	2446.00	0.07	1.56	2445.96	-8.91	-9.12	-7.40	0.22	461474.77	711237.60	N 32 16 2.90	W 103 47 1.14
	2540.00	0.23	256.33	2539.96	-8.90	-9.11	-7.58	0.27	461474.78	711237.42	N 32 16 2.90	W 103 47 1.14
	2635.00	0.25	356.35	2634.96	-8.73	-8.95	-7.78	0.39	461474.95	711237.22	N 32 16 2.90	W 103 47 1.14
	2729.00	0.39	322.59	2728.95	-8.26	-8.49	-7.99	0.24	461475.40	711237.01	N 32 16 2.91	W 103 47 1.14
	2823.00	0.21	294.09	2822.95	-7.93	-8.16	-8.34	0.24	461475.73	711236.66	N 32 16 2.91	W 103 47 1.15
	2917.00	0.44	280.51	2916.95	-7.78	-8.03	-8.85	0.26	461475.86	711236.15	N 32 16 2.91	W 103 47 1.15
	3012.00	0.35	250.10	3011.95	-7.79	-8.06	-9.49	0.24	461475.83	711235.51	N 32 16 2.91	W 103 47 1.16
	3106.00	0.12	266.29	3105.95	-7.89	-8.16	-9.85	0.25	461475.73	711235.15	N 32 16 2.91	W 103 47 1.17
	3200.00	0.31	4.55	3199.95	-7.64	-7.92	-9.93	0.37	461475.98	711235.07	N 32 16 2.91	W 103 47 1.17
	3389.00	0.23	40.88	3388.95	-6.85	-7.12	-9.64	0.10	461476.77	711235.36	N 32 16 2.92	W 103 47 1.16
	3483.00	0.91	127.87	3482.94	-7.19	-7.43	-8.93	0.99	461476.46	711236.07	N 32 16 2.92	W 103 47 1.16
	3578.00	1.33	112.99	3577.92	-8.12	-8.33	-7.32	0.53	461475.56	711237.68	N 32 16 2.91	W 103 47 1.14
	3672.00	1.18	126.65	3671.90	-9.18	-9.33	-5.54	0.35	461474.56	711239.46	N 32 16 2.90	W 103 47 1.12
	3766.00	1.84	123.27	3765.87	-10.64	-10.74	-3.50	0.71	461473.15	711241.50	N 32 16 2.89	W 103 47 1.09
	3861.00	1.87	125.33	3860.82	-12.44	-12.47	-0.96	0.08	461471.42	711244.04	N 32 16 2.87	W 103 47 1.06
	3955.00	2.29	125.65	3954.76	-14.50	-14.45	1.82	0.45	461469.44	711246.82	N 32 16 2.85	W 103 47 1.03
	3973.00	2.38	128.38	3972.74	-14.95	-14.89	2.40	0.79	461469.00	711247.40	N 32 16 2.84	W 103 47 1.02
	4050.00	2.43	132.27	4049.67	-17.11	-16.98	4.86	0.22	461466.91	711249.86	N 32 16 2.82	W 103 47 1.00
	4144.00	1.01	123.51	4143.63	-18.97	-18.78	7.03	1.53	461465.11	711252.03	N 32 16 2.81	W 103 47 0.97
	4238.00	0.17	15.56	4237.62	-19.31	-19.11	7.76	1.14	461464.79	711252.76	N 32 16 2.80	W 103 47 0.96
	4400.00	0.08	85.38	4399.62	-19.08	-18.86	7.93	0.10	461465.03	711252.93	N 32 16 2.80	W 103 47 0.96
	4464.00	0.03	170.04	4463.62	-19.09	-18.88	7.98	0.13	461465.01	711252.98	N 32 16 2.80	W 103 47 0.96
	4559.00	0.07	185.50	4558.62	-19.17	-18.96	7.98	0.04	461464.93	711252.98	N 32 16 2.80	W 103 47 0.96
	4653.00	0.03	237.31	4652.62	-19.24	-19.03	7.95	0.06	461464.86	711252.95	N 32 16 2.80	W 103 47 0.96
	4842.00	0.03	306.49	4841.62	-19.24	-19.03	7.87	0.02	461464.86	711252.87	N 32 16 2.80	W 103 47 0.96
	4936.00	0.03	8.21	4935.62	-19.20	-18.99	7.86	0.03	461464.90	711252.86	N 32 16 2.80	W 103 47 0.96
	5125.00	0.03	104.40	5124.62	-19.16	-18.95	7.91	0.02	461464.94	711252.91	N 32 16 2.80	W 103 47 0.96
	5314.00	0.03	179.03	5313.62	-19.22	-19.01	7.96	0.02	461464.88	711252.96	N 32 16 2.80	W 103 47 0.96
	5408.00	0.03	8.46	5407.62	-19.23	-19.01	7.96	0.06	461464.88	711252.96	N 32 16 2.80	W 103 47 0.96
	5502.00	0.03	131.26	5501.62	-19.22	-19.01	7.99	0.06	461464.89	711252.99	N 32 16 2.80	W 103 47 0.96
	5597.00	0.03	147.07	5596.62	-19.26	-19.04	8.02	0.01	461464.85	711253.02	N 32 16 2.80	W 103 47 0.96
	5691.00	0.03	84.34	5690.62	-19.28	-19.06	8.06	0.03	461464.83	711253.06	N 32 16 2.80	W 103 47 0.96
	5785.00	0.03	354.32	5784.62	-19.25	-19.03	8.08	0.05	461464.86	711253.08	N 32 16 2.80	W 103 47 0.96
	5974.00	0.07	235.48	5973.62	-19.26	-19.05	7.98	0.05	461464.84	711252.98	N 32 16 2.80	W 103 47 0.96
	6069.00	0.03	210.93	6068.62	-19.31	-19.10	7.92	0.05	461464.79	711252.92	N 32 16 2.80	W 103 47 0.96
	6163.00	0.08	223.90	6162.62	-19.38	-19.17	7.86	0.05	461464.72	711252.86	N 32 16 2.80	W 103 47 0.96
	6257.00	0.22	337.09	6256.62	-19.26	-19.05	7.74	0.28	461464.84	711252.74	N 32 16 2.80	W 103 47 0.96
	6352.00	0.28	239.62	6351.62	-19.20	-19.00	7.47	0.40	461464.89	711252.47	N 32 16 2.80	W 103 47 0.96
	6446.00	0.15	159.92	6445.62	-19.43	-19.24	7.32	0.31	461464.66	711252.32	N 32 16 2.80	W 103 47 0.97
	6540.00	0.05	157.53	6539.62	-19.58	-19.39	7.37	0.11	461464.50	711252.37	N 32 16 2.80	W 103 47 0.97
	6729.00	1.20	165.24	6728.61	-21.59	-21.38	7.91	0.61	461462.51	711252.91	N 32 16 2.78	W 103 47 0.96
	6824.00	1.59	164.53	6823.58	-23.84	-23.61	8.51	0.41	461460.28	711253.51	N 32 16 2.76	W 103 47 0.95
	6918.00	1.40	165.03	6917.55	-26.22	-25.98	9.16	0.20	461457.91	711254.16	N 32 16 2.73	W 103 47 0.95
	7012.00	0.05	357.79	7011.54	-27.29	-27.05	9.45	1.54	461456.85	711254.45	N 32 16 2.72	W 103 47 0.94
	7107.00	1.86	344.19	7106.52	-25.76	-25.52	9.03	1.91	461458.37	711254.03	N 32 16 2.74	W 103 47 0.95
	7201.00	3.62	340.85	7200.41	-21.45	-21.25	7.64	1.88	461462.64	711252.64	N 32 16 2.78	W 103 47 0.96
	7296.00	4.85	332.94	7295.15	-14.97	-14.84	4.83	1.43	461469.05	711249.83	N 32 16 2.84	W 103 47 1.00
	7390.00	5.71	322.19	7388.75	-7.61	-7.61	0.16	1.39	461476.28	711245.16	N 32 16 2.92	W 103 47 1.05
	7484.00	6.17	312.51	7482.25	-0.32	-0.50	-6.43	1.17	461483.39	711238.57	N 32 16 2.99	W 103 47 1.13
	7673.00	7.32	300.98	7669.95	13.22	12.56	-24.24	0.94	461496.45	711220.76	N 32 16 3.12	W 103 47 1.33
	7768.00	7.75	294.95	7764.13	19.34	18.38	-35.24	0.95	461502.27	711209.76	N 32 16 3.18	W 103 47 1.46
	7862.00	8.14	291.59	7857.23	24.79	23.50	-47.18	0.65	461507.39	711197.83	N 32 16 3.23	W 103 47 1.60

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 ° ' ")	
	7957.00	8.44	287.54	7951.23	29.72	28.08	-60.08	0.69	461511.97	711184.93	N 32 16 3.27	W 103 47 1.75	
	8051.00	8.20	285.01	8044.24	33.89	31.89	-73.13	0.47	461515.78	711171.87	N 32 16 3.31	W 103 47 1.90	
	8145.00	7.44	280.74	8137.37	37.10	34.76	-85.58	1.02	461518.65	711159.42	N 32 16 3.34	W 103 47 2.05	
	8240.00	6.63	275.87	8231.66	39.12	36.47	-97.08	1.06	461520.36	711147.92	N 32 16 3.36	W 103 47 2.18	
	8334.00	7.03	272.09	8324.99	40.19	37.24	-108.23	0.64	461521.12	711136.78	N 32 16 3.37	W 103 47 2.31	
	8429.00	9.09	269.67	8419.05	40.73	37.41	-121.54	2.20	461521.29	711123.46	N 32 16 3.37	W 103 47 2.46	
	8523.00	8.77	276.35	8511.91	41.88	38.16	-136.09	1.15	461522.04	711108.92	N 32 16 3.38	W 103 47 2.63	
	8618.00	7.82	279.30	8605.91	44.09	40.00	-149.67	1.10	461523.89	711095.34	N 32 16 3.40	W 103 47 2.79	
	8806.00	6.31	293.25	8792.49	50.84	46.15	-171.79	1.21	461530.03	711073.23	N 32 16 3.46	W 103 47 3.05	
	8901.00	6.16	303.06	8886.94	55.93	50.99	-180.85	1.13	461534.88	711064.16	N 32 16 3.51	W 103 47 3.15	
	8995.00	6.55	314.92	8980.36	62.69	57.53	-188.88	1.45	461541.41	711056.13	N 32 16 3.57	W 103 47 3.25	
	9114.00	7.82	318.76	9098.43	73.84	68.41	-199.02	1.14	461552.29	711045.99	N 32 16 3.68	W 103 47 3.36	
KOP Actual	9276.00	8.50	325.89	9258.79	92.42	86.61	-213.00	0.75	461570.49	711032.01	N 32 16 3.86	W 103 47 3.53	
	9370.00	16.66	354.92	9350.54	111.78	105.83	-218.10	10.73	461589.71	711026.91	N 32 16 4.05	W 103 47 3.58	
	9465.00	25.50	2.42	9439.11	145.84	139.90	-218.45	9.71	461623.78	711026.57	N 32 16 4.39	W 103 47 3.59	
	9560.00	30.90	359.40	9522.80	190.67	184.76	-217.84	5.88	461668.64	711027.18	N 32 16 4.83	W 103 47 3.58	
	9655.00	42.05	359.34	9599.07	247.05	241.14	-218.46	11.74	461725.02	711026.55	N 32 16 5.39	W 103 47 3.58	
	9749.00	53.04	359.07	9662.43	316.29	310.38	-219.44	11.69	461794.25	711025.58	N 32 16 6.07	W 103 47 3.59	
100' FSL Crossing	*9794.00*	*59.94*	*359.13*	*9687.26*	*353.78*	*347.87*	*-220.03*	*15.33*	*461831.74*	*711024.99*	*N 32 16 6.45*	*W 103 47 3.59*	
	9844.00	67.60	359.18	9709.34	398.60	392.69	-220.69	15.33	461876.55	711024.33	N 32 16 6.89	W 103 47 3.60	
	9939.00	68.85	356.91	9744.59	486.81	480.85	-223.70	2.58	461964.71	711021.31	N 32 16 7.76	W 103 47 3.63	
2nd Bone Spring Intersection	*9960.22*	*70.26*	*356.61*	*9752.00*	*506.68*	*500.70*	*-224.83*	*6.79*	*461984.56*	*711020.18*	*N 32 16 7.96*	*W 103 47 3.64*	
	10033.00	75.11	355.60	9773.65	576.08	570.00	-229.56	6.79	462053.85	711015.46	N 32 16 8.64	W 103 47 3.69	
	10128.00	85.11	356.92	9789.95	669.48	663.27	-235.64	10.61	462147.12	711009.38	N 32 16 9.57	W 103 47 3.76	
	10223.00	89.69	356.26	9794.26	764.31	757.97	-241.28	4.87	462241.82	711003.73	N 32 16 10.50	W 103 47 3.82	
	10260.00	90.20	356.19	9794.29	801.28	794.89	-243.72	1.39	462278.74	711001.30	N 32 16 10.87	W 103 47 3.84	
	10458.00	87.80	358.18	9797.75	999.18	992.60	-253.44	1.57	462476.43	710991.57	N 32 16 12.83	W 103 47 3.94	
	10551.00	89.38	358.32	9800.04	1092.15	1085.53	-256.28	1.71	462569.35	710988.74	N 32 16 13.75	W 103 47 3.97	
	10645.00	90.66	358.67	9800.00	1186.15	1179.49	-258.75	1.41	462663.31	710986.27	N 32 16 14.68	W 103 47 3.99	
	10738.00	90.38	358.13	9799.16	1279.15	1272.45	-261.35	0.65	462756.26	710983.67	N 32 16 15.60	W 103 47 4.02	
	10925.00	91.59	0.57	9795.95	1466.08	1459.39	-263.47	1.46	462943.20	710981.55	N 32 16 17.45	W 103 47 4.03	
	11113.00	90.93	0.07	9791.81	1653.93	1647.34	-262.42	0.44	463131.13	710982.60	N 32 16 19.31	W 103 47 4.01	
	11303.00	90.21	0.32	9789.92	1843.83	1837.33	-261.77	0.40	463321.11	710983.24	N 32 16 21.19	W 103 47 3.99	
	11492.00	90.38	0.35	9788.95	2032.72	2026.33	-260.67	0.09	463510.09	710984.35	N 32 16 23.06	W 103 47 3.97	
	11682.00	91.45	1.19	9785.91	2222.53	2216.28	-258.11	0.72	463700.04	710986.90	N 32 16 24.94	W 103 47 3.92	
	11777.00	89.53	1.20	9785.10	2317.41	2311.25	-256.13	2.02	463795.00	710988.88	N 32 16 25.87	W 103 47 3.90	
	11872.00	89.05	1.65	9786.28	2412.27	2406.21	-253.77	0.69	463889.96	710991.25	N 32 16 26.81	W 103 47 3.86	
	11967.00	90.42	2.59	9786.72	2507.07	2501.14	-250.26	1.75	463984.89	710994.76	N 32 16 27.75	W 103 47 3.82	
	12061.00	90.52	0.69	9785.95	2600.92	2595.10	-247.57	2.02	464078.83	710997.45	N 32 16 28.68	W 103 47 3.78	
	12156.00	90.08	0.23	9785.45	2695.86	2690.09	-246.80	0.67	464173.82	710998.21	N 32 16 29.62	W 103 47 3.76	
	12345.00	90.52	0.06	9784.46	2884.77	2879.09	-246.32	0.25	464362.81	710998.69	N 32 16 31.49	W 103 47 3.75	
	12535.00	89.42	359.81	9784.56	3074.70	3069.09	-246.54	0.59	464552.79	710998.47	N 32 16 33.37	W 103 47 3.74	
	12630.00	89.49	359.36	9785.46	3169.67	3164.08	-247.23	0.48	464647.78	710997.79	N 32 16 34.31	W 103 47 3.74	
	12724.00	90.35	0.05	9785.59	3263.65	3258.08	-247.71	1.17	464741.77	710997.30	N 32 16 35.24	W 103 47 3.74	
	12914.00	90.56	359.99	9784.09	3453.57	3448.07	-247.65	0.11	464931.75	710997.37	N 32 16 37.12	W 103 47 3.73	
	13103.00	90.63	0.63	9782.12	3642.46	3637.06	-246.62	0.34	465120.73	710998.39	N 32 16 38.99	W 103 47 3.71	
	13198.00	89.32	0.26	9782.16	3737.40	3732.05	-245.89	1.43	465215.72	710999.13	N 32 16 39.93	W 103 47 3.69	
	13292.00	90.08	0.10	9782.66	3831.35	3826.05	-245.59	0.83	465309.71	710999.42	N 32 16 40.86	W 103 47 3.68	
	13481.00	88.87	1.14	9784.39	4020.20	4015.02	-243.55	0.84	465498.67	711001.47	N 32 16 42.73	W 103 47 3.65	
	13576.00	88.98	0.56	9786.17	4115.09	4110.00	-242.14	0.62	465593.64	711002.88	N 32 16 43.67	W 103 47 3.63	
	13670.00	88.19	359.97	9788.49	4209.02	4203.97	-241.70	1.05	465687.60	711003.31	N 32 16 44.60	W 103 47 3.62	
	13765.00	88.74	0.18	9791.04	4303.94	4298.93	-241.58	0.62	465782.56	711003.44	N 32 16 45.54	W 103 47 3.61	
	13955.00	88.67	0.60	9795.33	4493.78	4488.88	-240.28	0.22	465972.50	711004.73	N 32 16 47.42	W 103 47 3.58	
	14144.00	88.70	0.30	9799.67	4682.61	4677.82	-238.80	0.16	466161.43	711006.21	N 32 16 49.29	W 103 47 3.55	
	14239.00	88.67	359.42	9801.85	4777.56	4772.80	-239.03	0.93	466256.40	711005.98	N 32 16 50.23	W 103 47 3.55	
	14333.00	89.25	359.59	9803.55	4871.53	4866.78	-239.84	0.64	466350.38	711005.17	N 32 16 51.16	W 103 47 3.55	
	14428.00	88.77	359.64	9805.20	4966.49	4961.76	-240.48	0.51	466445.35	711004.53	N 32 16 52.10	W 103 47 3.56	
	14523.00	88.74	359.15	9807.26	5061.46	5056.73	-241.49	0.52	466540.32	711003.53	N 32 16 53.04	W 103 47 3.56	
	14618.00	88.87	358.79	9809.24	5156.43	5151.70	-243.19	0.40	466635.28	711001.82	N 32 16 53.98	W 103 47 3.58	
	14712.00	90.18	358.02	9810.02	5250.42	5245.65	-245.81	1.62	466729.23	710999.21	N 32 16 54.91	W 103 47 3.60	
	14807.00	90.28	357.96	9809.64	5345.42	5340.59	-249.14	0.12	466824.16	710995.87	N 32 16 55.85	W 103 47 3.63	
	14901.00	90.08	358.42	9809.34	5439.42	5434.55	-252.11	0.53	466918.11	710992.90	N 32 16 56.78	W 103 47 3.66	
	14996.00	90.32	357.82	9809.01	5534.42	5529.49	-255.23	0.68	467013.05	710989.79	N 32 16 57.72	W 103 47 3.69	
	15091.00	91.59	0.34	9807.43	5629.39	5624.46	-256.75	2.97	467108.01	710988.26	N 32 16 58.66	W 103 47 3.71	
	15185.00	90.39	358.87	9805.80	5723.35	5718.44	-257.40	2.02	467201.99	710987.62	N 32 16 59.59	W 103 47 3.71	
	15375.00	89.66	357.99	9805.72	5913.35	5908.36	-262.61	0.60	467391.90	710982.41	N 32 17 1.47	W 103 47 3.76	
	15469.00	89.25	358.52	9806.62	6007.34	6002.32	-265.47	0.71	467485.85	710979.55	N 32 17 2.40	W 103 47 3.78	
	15564.00	89.36	0.54	9807.77	6102.31	6097.30	-266.25	2.13	467580.83	710978.77	N 32 17 3.34	W 103 47 3.79	
	15658.00	89.11	1.86	9809.02	6196.19	6191.27	-264.28	1.43	467674.79	710980.74	N 32 17 4.27	W 103 47 3.76	
	15753.00	88.94	1.97	9810.64	6291.00	6286.20	-261.10	0.21	467769.72	710983.91	N 32 17 5.21	W 103 47 3.72	
	15942.00	88.98	2.07	9814.07	6479.60	6475.05	-254.44	0.06	467958.56	710990.57	N 32 17 7.08	W 103 47 3.63	
	16037.00	89.46	1.68	9815.36	6574.42	6569.99	-251.34	0.65	468053.49	710993.68	N 32 17 8.01	W 103 47 3.59	
	16132.00	90.35	1.09	9815.52	6669.29	6664.96	-249.04	1.12	468148.46	710995.97	N 32 17 8.95	W 103 47 3.55	
	16226.00	90.39	358.44	9814.91	6763.25	6758.95	-249.43	2.82	468242.44	710995.59	N 32 17 9.88	W 103 47 3.55	
	16415.00	90.32	357.96	9813.74	6952.25	6947.86	-255.36	0.26	468431.33	710989.65	N 32 17 11.75	W 103 47 3.61	
	16509.00	90.25	358.19	9813.27	7046.24	7041.80	-258.52	0.26	468525.27	710986.50	N 32 17 12.68	W 103 47 3.64	
	16604.00	90.15	357.84	9812.94	7141.24	7136.74	-261.81	0.38	468620.21	710983.21	N 32 17 13.62	W 103 47 3.67	
	16699.00	89.94	358.69	9812.87	7236.24	7231.70	-264.69	0.92	468715.16	710980.33	N 32 17 14.56	W 103 47 3.70	
	16794.00	90.42	358.73	9812.57	7331.24	7326.67	-266.83	0.51	468810.13	710978.19	N 32 17 15.50	W 103 47 3.72	
	16888.00	90.46	358.80	9811.85	7425.23	7420.65	-268.85	0.09	468904.10	710976.17	N 32 17 16.43	W 103 47 3.74	
	16983.00	90.21	358.71	9811.29	7520.23	7515.63	-270.92	0.28	468999.07	710974.10	N 32 17 17.37	W 103 47 3.76	
	17078.00	90.42	358.05	9810.77	7615.23	7610.59	-273.60	0.73	469094.02	710971.42	N 32 17 18.31	W 103 47 3.78	
	17172.00	88.32	358.31	9811.80	7709.22	7704.53	-276.59	2.25	469187.96	710968.43	N 32 17 19.24	W 103 47 3.81	
	17267.00	89.29	358.43	9813.79	7804.19	7799.47	-279.29	1.03	469282.89	710965.73	N 32 17 20.18	W 103 47 3.84	
	17361.00	86.74	357.52	9817.04	7898.13	7893.34	-282.61	2.88	469376.76	710962.41	N 32 17 21.11	W 103 47 3.87	
	17456.00	90.08	358.46	9819.68	7993.07	7988.23	-285.94	3.65	469471.65	710959.08	N 32 17 22.05	W 103 47 3.90	
	17551.00	89.87	358.97	9819.72	8088.07	8083.21	-288.07	0.58	469566.62	710956.95	N 32 17 22.99	W 103 47 3.92	
	17645.00	90.18	358.50	9819.68	8182.07	8177.19	-290.14	0.60	469660.59	710954.88	N 32 17 23.92	W 103 47 3.94	
	17834.00	89.66	358.00	9819.94	8371.07	8366.10	-295.91	0.38	469849.49	710949.10	N 32 17 25.79	W 103 47 4.00	
	17929.00	89.94	359.04	9820.27	8466.07	8461.06	-298.37	1.13	469944.45	710946.65	N 32 17 26.73	W 103 47 4.02	
	18023.00	89.97	358.89	9820.35	8560.06	8555.05	-300.06	0.16	470038.43	710944.95	N 32 17 27.66	W 103 47 4.04	
	18117.00	90.01	358.73	9820.36	8654.06	8649.03	-302.02	0.18	470132.40	710943.00	N 32 17 28.59	W 103 47 4.05	
	18306.00	89.84	358.39	9820.61	8843.06	8837.97	-306.77	0.20	470321.33	710938.25	N 32 17 30.46	W 103 47 4.10	
	18400.00	89.87	359.22	9820.85	8937.05	8931.95	-308.73	0.88	470415.30	710936.29	N 32 17 31.39	W 103 47 4.11	
	18494.00	90.28	0.13	9820.73	9031.03	9025.94	-309.26	1.06	470509.29	710935.76	N 32 17 32.32	W 103 47 4.11	
	18588.00	90.76	0.77	9819.87	9124.97	9119.94	-308.52	0.85	470603.28	710936.50	N 32 17 33.25	W 103 47 4.10	
	18682.00	89.15	0.28	9819.95	9218.90	9213.93	-307.66	1.79	470697.27	710937.36	N 32 17 34.18	W 103 47 4.08	
	18777.00	90.73	0.22	9820.05	9313.85	9308.92	-307.25	1.66	470792.26	710937.77	N 32 17 35.12	W 103 47 4.07	
	18872.00	93.03	1.09	9816.93	9408.72	9403.86	-306.16	2.59	470887.19	710938.86	N 32 17 36.06	W 103 47 4.06	
	18966.00	90.39	0.13	9814.12	9502.60	9497.80	-305.16	2.99	470981.12	710939.86	N 32 17 36.99	W 103 47 4.04	
	19061.00	88.94	0.33	9814.68	9597.55	9592.80	-304.78	1.54	471076.11	710940.24	N 32 17 37.93	W 103 47 4.03	
	19155.00	89.73	0.22	9815.77	9691.49	9686.79	-304.33	0.85	471170.10	710940.69	N 32 17 38.86	W 103 47 4.02	
	19250.00	89.84	359.79	9816.13	9786.46	9781.79	-304.32	0.47	471265.09	710940.70	N 32 17 39.80	W 103 47 4.01	
	19344.00	90.42	0.53	9815.91	9880.41	9875.79	-304.06	1.00	471359.09	710940.96	N 32 17 40.73	W 103 47 4.00	
	19439.00	90.49	1.10	9815.16	9975.33	9970.77	-302.71	0.60	471454.07	710942.31	N 32 17 41.67	W 103 47 3.98	
	19534.00	90.01	0.86	9814.74	10070.23	10065.76	-301.08	0.56	471549.05	710943.94	N 32 17 42.61	W 103 47 3.96	

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 ° ' ")
	19628.00	91.14	1.80	9813.80	10164.10	10159.73	-298.90	1.56	471643.01	710946.12	N 32 17 43.54	W 103 47 3.93
	19723.00	90.66	0.43	9812.31	10258.98	10254.69	-297.05	1.53	471737.97	710947.97	N 32 17 44.48	W 103 47 3.90
	19818.00	89.53	0.56	9812.15	10353.92	10349.69	-296.23	1.20	471832.96	710948.79	N 32 17 45.42	W 103 47 3.88
	19912.00	89.91	0.67	9812.61	10447.85	10443.68	-295.22	0.42	471926.95	710949.80	N 32 17 46.35	W 103 47 3.87
	20007.00	88.22	0.63	9814.16	10542.76	10538.66	-294.15	1.78	472021.92	710950.87	N 32 17 47.29	W 103 47 3.85
	20101.00	90.28	0.24	9815.39	10636.69	10632.64	-293.43	2.23	472115.90	710951.59	N 32 17 48.22	W 103 47 3.83
100' FNL Crossing	*20179.00*	*90.45*	*0.25*	*9814.89*	*10714.65*	*10710.64*	*-293.10*	*0.22*	*472193.89*	*710951.92*	*N 32 17 48.99*	*W 103 47 3.83*
Final MWD	20196.00	90.49	0.25	9814.75	10731.64	10727.64	-293.03	0.22	472210.89	710951.99	N 32 17 49.16	W 103 47 3.82
Proj to TD	20260.00	90.49	0.25	9814.21	10795.61	10791.64	-292.75	0.00	472274.88	710952.27	N 32 17 49.79	W 103 47 3.82

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 Iridium MDP1 28-21 Federal Com 3H Gyro + MWD 0-20260'MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 3H Gyro + MWD 0-20260'MD
	1	26.500	620.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 3H
	1	620.500	3973.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 3H
	1	3973.000	4238.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 3H
	1	4238.000	20260.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 3H