

Noble Energy

CO, Weld County (NAD 83 NZ)
Sec 05 Twn 09 N Rng 58 W
Nugent LD06-655 Original Hole
05-123-40812
H&P 517



Final Survey Report

17-Aug-2016

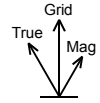
Well Coordinates:	NAD83 Colorado State Plane, NZ, US
	N 40° 46' 52.24800" W 103° 52' 49.18800"
	1531526.3 usFt 3448533.44 usFt
Ground Level:	4761.00 ft MSL
TVD Reference:	KB 30ft @ 4791.00 ft MSL
Local Coordinate Origin:	Nugent LD06-655 well head
Vertical Section Azimuth:	268.986 ° (Grid North)
North Reference:	Grid North

DOX Version: 2.9

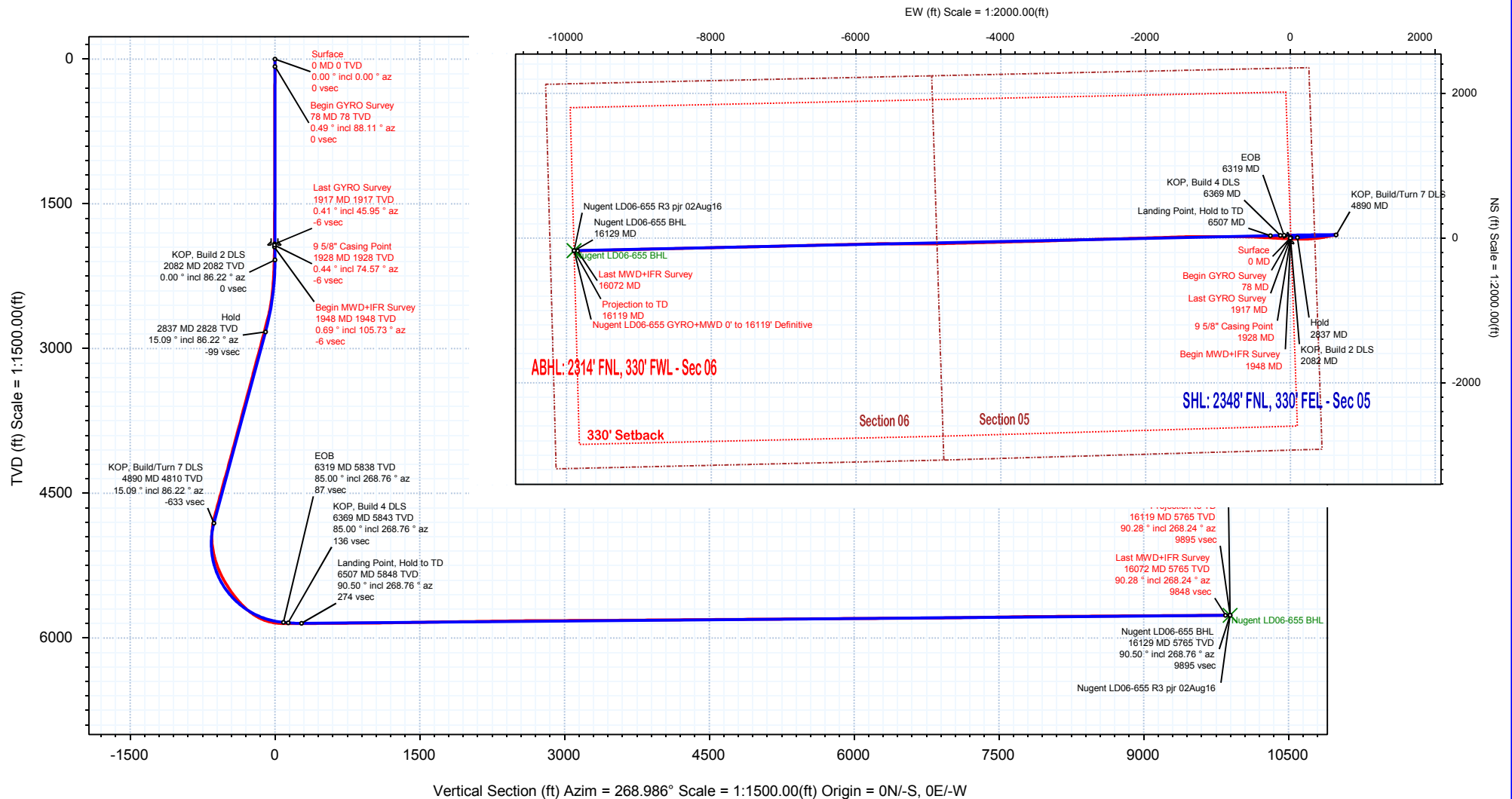
Borehole:	Well:	Field:	Structure:
Original Hole / PVA	Nugent LD06-655	CO, Weld County (NAD 83 NZ)	05-09N-58W (Nugent Pad) - H&P 517

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HDGM 2016 Dip: 67.256° Date: 29-Jul-2016	NAD83 Colorado State Plane, Northern Zone, US Feet	Slot: Nugent LD06-655 TVD Ref: KB 30ft(4791ft above MSL)
MagDec: 7.717° FS: 52812.952T Gravity FS: 999.096mgn (9.80665 Based)	Lat: N 40 46 52.25 Northing: 1531526.3ftUS Grid Conv: 1.0465°	Plan: Nugent LD06-655 GYRO+MWD 0' to 16119' Definitive
	Lon: W 103 52 49.19 Easting: 3448533.44ftUS Scale Fact: 0.99999965	

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)	DLS
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Begin GYRO Survey	78.00	0.49	88.11	78.00	-0.33	0.01	0.33	0.63
Last GYRO Survey	1917.00	0.41	45.95	1916.98	-5.90	1.16	5.88	0.21
9 5/8" Casing Point	1928.00	0.44	74.57	1927.98	-5.97	1.20	5.95	1.93
Begin MWD+IFR Survey	1948.00	0.69	105.73	1947.97	-6.16	1.19	6.14	1.93
Last MWD+IFR Survey	16072.00	90.28	268.24	5765.32	9847.85	-177.69	-9846.25	0.28
Projection to TD	16119.00	90.28	268.24	5765.09	9894.85	-179.13	-9893.23	0.00



Grid North
Tot Corr (M->G 6.670°)
Mag Dec (7.717°)
Grid Conv (1.047°)





Nugent LD06-655 GYRO+MWD 0' to 16119' Definitive Survey Geodetic Report (Def Survey)



Report Date: August 17, 2016 - 09:04 AM
Client: Noble Energy
Field: CO, Weld County (NAD 83 NZ)
Structure / Slot: Noble 05-09N-58W (Nugent Pad) - H&P 517 / Nugent LD06-655
Well: Nugent LD06-655
Borehole: Original Hole
UWI / API#: Unknown / Unknown
Survey Name: Nugent LD06-655 GYRO+MWD 0' to 16119' Definitive
Survey Date: July 29, 2016
Tort / AHD / DDI / ERD Ratio: 173.471 ° / 11217.931 ft / 6.729 / 1.917
Coordinate Reference System: NAD83 Colorado State Plane, Northern Zone, US Feet
Location Lat / Long: N 40° 46' 52.24800", W 103° 52' 49.18800"
Location Grid N/E Y/X: N 1531526.303 ftUS, E 3448533.438 ftUS
CRS Grid Convergence Angle: 1.0465 °
Grid Scale Factor: 0.99999965
Version / Patch: 2.9.370.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 268.986 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB 30ft
TVD Reference Elevation: 4791.000 ft above MSL
Seabed / Ground Elevation: 4761.000 ft above MSL
Magnetic Declination: 7.717 °
Total Gravity Field Strength: 999.0962mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 52812.952 nT
Magnetic Dip Angle: 67.256 °
Declination Date: July 29, 2016
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 1.0465 °
Total Corr Mag North→Grid North: 6.6708 °
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 ° ' ")
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	1531526.30	3448533.44	N 40 46 52.25	W 103 52 49.19
Begin GYRO	78.00	0.49	88.11	78.00	-0.33	0.01	0.33	0.63	1531526.31	3448533.77	N 40 46 52.25	W 103 52 49.18
Survey	177.00	0.67	105.91	176.99	-1.31	-0.13	1.31	0.26	1531526.17	3448534.75	N 40 46 52.25	W 103 52 49.17
	271.00	0.23	166.14	270.99	-1.88	-0.47	1.89	0.63	1531525.84	3448535.32	N 40 46 52.24	W 103 52 49.16
	366.00	0.01	318.71	365.99	-1.92	-0.65	1.93	0.25	1531525.66	3448535.36	N 40 46 52.24	W 103 52 49.16
	460.00	0.02	41.19	459.99	-1.92	-0.63	1.93	0.02	1531525.68	3448535.37	N 40 46 52.24	W 103 52 49.16
	555.00	0.10	15.63	554.99	-1.96	-0.54	1.97	0.09	1531525.77	3448535.40	N 40 46 52.24	W 103 52 49.16
	650.00	0.25	70.57	649.99	-2.18	-0.39	2.18	0.22	1531525.92	3448535.62	N 40 46 52.24	W 103 52 49.16
	744.00	0.30	109.13	743.99	-2.60	-0.40	2.61	0.20	1531525.90	3448536.05	N 40 46 52.24	W 103 52 49.15
	839.00	0.29	114.37	838.99	-3.05	-0.58	3.06	0.03	1531525.72	3448536.50	N 40 46 52.24	W 103 52 49.15
	934.00	0.29	48.37	933.99	-3.45	-0.52	3.46	0.33	1531525.78	3448536.90	N 40 46 52.24	W 103 52 49.14
	1028.00	0.21	178.74	1027.99	-3.63	-0.53	3.64	0.48	1531525.77	3448537.08	N 40 46 52.24	W 103 52 49.14
	1123.00	0.14	130.60	1122.99	-3.72	-0.78	3.74	0.16	1531525.52	3448537.17	N 40 46 52.24	W 103 52 49.14
	1217.00	0.17	76.51	1216.99	-3.94	-0.83	3.96	0.15	1531525.48	3448537.40	N 40 46 52.24	W 103 52 49.14
	1311.00	0.30	300.15	1310.99	-3.87	-0.67	3.88	0.47	1531525.63	3448537.32	N 40 46 52.24	W 103 52 49.14
	1406.00	0.37	6.75	1405.98	-3.70	-0.24	3.70	0.39	1531526.06	3448537.14	N 40 46 52.24	W 103 52 49.14
	1501.00	0.34	76.93	1500.98	-4.01	0.13	4.01	0.43	1531526.43	3448537.45	N 40 46 52.25	W 103 52 49.14
	1595.00	0.09	141.35	1594.98	-4.33	0.13	4.33	0.33	1531526.44	3448537.77	N 40 46 52.25	W 103 52 49.13
	1689.00	0.36	86.70	1688.98	-4.67	0.09	4.67	0.34	1531526.40	3448538.11	N 40 46 52.25	W 103 52 49.13
	1784.00	0.45	43.63	1783.98	-5.23	0.38	5.23	0.33	1531526.68	3448538.66	N 40 46 52.25	W 103 52 49.12
	1879.00	0.44	35.70	1878.98	-5.71	0.95	5.70	0.07	1531527.25	3448539.14	N 40 46 52.26	W 103 52 49.11
Last GYRO	1917.00	0.41	45.95	1916.98	-5.90	1.16	5.88	0.21	1531527.46	3448539.32	N 40 46 52.26	W 103 52 49.11
Survey	1928.00	0.44	74.57	1927.98	-5.97	1.20	5.95	1.93	1531527.50	3448539.39	N 40 46 52.26	W 103 52 49.11
9 5/8" Casing												
Point												
Begin												
MWD+IFR	1948.00	0.69	105.73	1947.97	-6.16	1.19	6.14	1.93	1531527.49	3448539.58	N 40 46 52.26	W 103 52 49.11
Survey	2042.00	0.89	109.57	2041.97	-7.38	0.79	7.37	0.22	1531527.09	3448540.81	N 40 46 52.25	W 103 52 49.09
	2137.00	1.71	76.92	2136.94	-9.46	0.86	9.45	1.13	1531527.17	3448542.89	N 40 46 52.25	W 103 52 49.07
	2232.00	3.07	76.01	2231.86	-13.33	1.80	13.30	1.43	1531528.10	3448546.74	N 40 46 52.26	W 103 52 49.01
	2326.00	4.57	74.26	2325.64	-19.40	3.42	19.34	1.60	1531529.73	3448552.78	N 40 46 52.28	W 103 52 48.94
	2420.00	6.21	74.47	2419.23	-27.95	5.80	27.85	1.74	1531532.10	3448561.29	N 40 46 52.30	W 103 52 48.82
	2515.00	8.78	78.76	2513.41	-40.06	8.59	39.91	2.77	1531534.89	3448573.35	N 40 46 52.33	W 103 52 48.67
	2609.00	11.49	80.36	2605.93	-56.38	11.56	56.18	2.90	1531537.86	3448589.62	N 40 46 52.35	W 103 52 48.46
	2704.00	14.37	82.91	2698.51	-77.46	14.60	77.21	3.09	1531540.90	3448610.65	N 40 46 52.38	W 103 52 48.18
	2798.00	14.80	83.88	2789.49	-101.02	17.32	100.73	0.53	1531543.62	3448634.16	N 40 46 52.40	W 103 52 47.87
	2892.00	15.17	83.33	2880.29	-125.21	20.02	124.88	0.42	1531546.33	3448658.32	N 40 46 52.42	W 103 52 47.56
	2987.00	14.90	82.76	2972.04	-149.73	23.01	149.34	0.32	1531549.31	3448682.78	N 40 46 52.45	W 103 52 47.24
	3082.00	14.87	82.79	3063.85	-173.99	26.08	173.55	0.03	1531552.38	3448706.99	N 40 46 52.47	W 103 52 46.93
	3176.00	14.92	83.51	3154.69	-198.02	28.96	197.54	0.20	1531555.26	3448730.98	N 40 46 52.50	W 103 52 46.61
	3271.00	15.11	84.44	3246.45	-222.54	31.54	222.02	0.32	1531557.84	3448755.45	N 40 46 52.52	W 103 52 46.30
	3365.00	15.09	90.99	3337.21	-246.98	32.52	246.45	1.81	1531558.82	3448779.88	N 40 46 52.52	W 103 52 45.98
	3460.00	15.04	91.08	3428.94	-271.66	32.07	271.13	0.06	1531558.37	3448804.57	N 40 46 52.52	W 103 52 45.66
	3554.00	14.96	91.64	3519.74	-295.97	31.49	295.46	0.18	1531557.80	3448828.89	N 40 46 52.51	W 103 52 45.34
	3649.00	15.14	91.10	3611.48	-320.61	30.90	320.12	0.24	1531557.21	3448853.55	N 40 46 52.50	W 103 52 45.02
	3743.00	14.99	91.37	3702.25	-345.03	30.38	344.54	0.18	1531556.68	3448877.98	N 40 46 52.49	W 103 52 44.70
	3838.00	15.05	90.63	3794.00	-369.63	29.95	369.16	0.21	1531556.25	3448902.60	N 40 46 52.48	W 103 52 44.38
	3932.00	15.05	90.19	3884.78	-394.03	29.77	393.57	0.12	1531556.08	3448927.00	N 40 46 52.47	W 103 52 44.07
	4027.00	15.19	90.78	3976.49	-418.80	29.56	418.34	0.22	1531555.87	3448951.78	N 40 46 52.46	W 103 52 43.74
	4122.00	14.89	91.36	4068.24	-443.44	29.10	442.99	0.35	1531555.41	3448976.43	N 40 46 52.46	W 103 52 43.42
	4216.00	15.07	82.03	4159.06	-467.64	30.51	467.17	2.57	1531556.81	3449000.61	N 40 46 52.47	W 103 52 43.11
	4311.00	15.17	83.01	4250.77	-492.26	33.74	491.74	0.29	1531560.04	3449025.18	N 40 46 52.49	W 103 52 42.79
	4406.00	15.75	82.44	4342.33	-517.43	36.95	516.86	0.63	1531563.25	3449050.30	N 40 46 52.52	W 103 52 42.46
	4500.00	15.59	82.16	4432.84	-542.65	40.35	542.02	0.19	1531566.65	3449075.46	N 40 46 52.55	W 103 52 42.13
	4595.00	15.45	84.73	4524.37	-567.94	43.25	567.27	0.74	1531569.55	3449100.70	N 40 46 52.57	W 103 52 41.81
	4690.00	15.30	82.60	4615.97	-593.02	46.03	592.30	0.62	1531572.33	3449125.73	N 40 46 52.60	W 103 52 41.48
	4785.00	15.59	81.48	4707.54	-618.13	49.53	617.35	0.44	1531575.84	3449150.79	N 40 46 52.63	W 103 52 41.15
	4879.00	10.88	91.66	4799.03	-639.53	51.15	638.73	5.57	1531577.45	3449172.16	N 40 46 52.64	W 103 52 40.87
	4974.00	4.97	113.54	4893.10	-652.24	49.24	651.47	6.88	1531575.55	3449184.91	N 40 46 52.62	W 103 52 40.71
	5068.00	3.35	227.02	4986.96	-653.91	45.74	653.20	7.46	1531572.04	3449186.64	N 40 46 52.58	W 103 52 40.69
	5163.00	9.74	257.61	5081.32	-643.95	42.12	643.31	7.43	1531568.42	3449176.74	N 40 46 52.55	W 103 52 40.82
	5258.00	15.53	262.55	5173.98	-623.42	38.74	622.83	6.19	1531565.05	3449156.27	N 40 46 52.52	W 103 52 41.08
	5352.00	21.12	262.18	5263.18	-594.07	34.80	593.55	5.95	1531561.11	3449126.99	N 40 46 52.48	W 103 52 41.47
	5447.00	26.49	259.66	5350.07	-556.14	28.67	555.72	5.75	1531554.97	3449089.16	N 40 46 52.43	W 103 52 41.96
	5541.00	31.28	258.71	5432.35	-511.42	20.12	511.14	5.12	1531546.43	3449044.58	N 40 46 52.35	W 103 52 42.54
	5636.00	35.42	259.51	5511.69	-459.98	10.28	459.87	4.38	1531536.58	3448993.30	N 40 46 52.27	W 103 52 43.21
	5730.00	39.38	262.77	5586.35	-403.44	1.56	403.47	4.71	1531527.86	3448936.91	N 40 46 52.19	W 103 52 43.94
	5825.00	44.10	264.22	5657.22	-340.50	-5.57	340.65	5.07	1531520.74	3448874.09	N 40 46 52.13	W 103 52 44.76
	5920.00	50.68	266.09	5721.51	-270.78	-11.41	271.02	7.08	1531514.90	3448804.46	N 40 46 52.09	W 103 52 45.67
	6003.00	57.81	268.93	5769.98	-203.49	-14.26	203.78	9.03	1531512.05	3448737.22	N 40 46 52.07	W 103 52 46.54
	6035.00	60.96	268.53	5786.27	-175.96	-14.87	176.25	9.90	1531511.44	3448709.69	N 40 46 52.07	W 103 52 46.90
	6067.00	65.09	269.52	5800.79	-147.45	-15.35	147.74	13.20	1531510.95	3448681.18	N 40 46 52.07	W 103 52 47.27
	6099.00	68.91	270.19	5813.29	-118.00	-15.42	118.29	12.09	1531510.88	3448651.73	N 40 46 52.07	W 103 52 47.65

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 ° ' ")
	6487.00	90.28	273.10	5850.41	264.66	2.25	-264.74	0.55	1531528.55	3448268.69	N 40 46 52.32	W 103 52 52.63
	6582.00	90.36	273.19	5849.88	359.41	7.46	-359.60	0.13	1531533.77	3448173.84	N 40 46 52.39	W 103 52 53.86
	6676.00	90.54	272.90	5849.14	453.17	12.46	-453.46	0.36	1531538.76	3448079.98	N 40 46 52.45	W 103 52 55.08
	6771.00	90.40	271.51	5848.36	548.02	16.11	-548.39	1.47	1531542.41	3447985.05	N 40 46 52.51	W 103 52 56.31
	6865.00	90.38	271.26	5847.72	641.93	18.38	-642.36	0.27	1531544.69	3447891.08	N 40 46 52.55	W 103 52 57.53
	6960.00	90.55	270.09	5846.95	736.89	19.50	-737.35	1.24	1531545.80	3447796.09	N 40 46 52.57	W 103 52 58.77
	7055.00	90.34	269.54	5846.21	831.87	19.19	-832.34	0.62	1531545.50	3447701.10	N 40 46 52.59	W 103 53 0.00
	7150.00	90.28	269.66	5845.70	926.87	18.53	-927.34	0.14	1531544.83	3447606.10	N 40 46 52.60	W 103 53 1.24
	7244.00	90.37	269.78	5845.16	1020.86	18.07	-1021.34	0.16	1531544.37	3447512.10	N 40 46 52.61	W 103 53 2.46
	7339.00	90.85	270.18	5844.15	1115.84	18.04	-1116.33	0.66	1531544.34	3447417.11	N 40 46 52.63	W 103 53 3.69
	7434.00	90.99	270.28	5842.63	1210.80	18.42	-1211.32	0.18	1531544.72	3447322.12	N 40 46 52.65	W 103 53 4.93
	7528.00	90.89	269.98	5841.08	1304.77	18.63	-1305.30	0.34	1531544.94	3447228.14	N 40 46 52.67	W 103 53 6.15
	7623.00	91.06	269.82	5839.47	1399.74	18.47	-1400.29	0.25	1531544.77	3447133.15	N 40 46 52.68	W 103 53 7.38
	7717.00	91.03	267.89	5837.75	1493.72	16.59	-1494.25	2.05	1531542.89	3447039.19	N 40 46 52.68	W 103 53 8.60
	7812.00	90.78	268.05	5836.25	1588.70	13.22	-1589.18	0.31	1531539.53	3446944.26	N 40 46 52.66	W 103 53 9.84
	7907.00	90.81	268.25	5834.94	1683.68	10.16	-1684.12	0.21	1531536.46	3446849.32	N 40 46 52.65	W 103 53 11.07
	8001.00	90.76	268.11	5833.65	1777.66	7.17	-1777.07	0.16	1531533.48	3446755.38	N 40 46 52.64	W 103 53 12.30
	8095.00	90.81	268.50	5832.36	1871.64	4.39	-1872.02	0.42	1531530.70	3446661.43	N 40 46 52.63	W 103 53 13.52
	8190.00	90.77	268.31	5831.05	1966.63	1.75	-1966.97	0.20	1531528.05	3446566.47	N 40 46 52.62	W 103 53 14.75
	8285.00	90.75	268.11	5829.79	2061.61	-1.22	-2061.91	0.21	1531525.08	3446471.53	N 40 46 52.61	W 103 53 15.99
	8379.00	91.02	268.62	5828.34	2155.60	-3.90	-2155.86	0.61	1531522.40	3446377.58	N 40 46 52.60	W 103 53 17.21
	8474.00	90.81	268.25	5826.82	2250.58	-6.49	-2250.82	0.45	1531519.81	3446282.63	N 40 46 52.59	W 103 53 18.44
	8568.00	90.88	268.29	5825.43	2344.56	-9.33	-2344.76	0.09	1531516.97	3446188.68	N 40 46 52.58	W 103 53 19.66
	8663.00	90.84	268.32	5824.01	2439.54	-12.14	-2439.71	0.05	1531514.16	3446093.73	N 40 46 52.57	W 103 53 20.90
	8758.00	90.95	268.58	5822.52	2534.53	-14.71	-2534.67	0.30	1531511.59	3445998.78	N 40 46 52.56	W 103 53 22.13
	8852.00	90.40	268.35	5821.42	2628.52	-17.23	-2628.62	0.63	1531509.07	3445904.82	N 40 46 52.55	W 103 53 23.36
	8946.00	90.39	268.35	5820.77	2722.51	-19.94	-2722.58	0.01	1531506.37	3445810.86	N 40 46 52.54	W 103 53 24.58
	9041.00	90.27	268.31	5820.22	2817.50	-22.70	-2817.54	0.13	1531503.60	3445715.90	N 40 46 52.53	W 103 53 25.81
	9136.00	90.23	268.21	5819.81	2912.49	-25.59	-2912.50	0.11	1531500.71	3445620.95	N 40 46 52.52	W 103 53 27.05
	9230.00	90.23	268.09	5819.43	3006.48	-28.62	-3006.45	0.13	1531497.68	3445527.00	N 40 46 52.51	W 103 53 28.27
	9325.00	90.29	268.23	5819.00	3101.47	-31.67	-3101.40	0.16	1531494.63	3445432.05	N 40 46 52.49	W 103 53 29.50
	9420.00	90.29	268.23	5818.52	3196.46	-34.61	-3196.35	0.00	1531491.70	3445337.10	N 40 46 52.48	W 103 53 30.74
	9514.00	90.23	267.93	5818.09	3290.45	-37.76	-3290.30	0.33	1531488.55	3445243.15	N 40 46 52.47	W 103 53 31.96
	9609.00	90.27	268.04	5817.68	3385.43	-41.10	-3385.24	0.12	1531485.21	3445148.21	N 40 46 52.45	W 103 53 33.20
	9703.00	90.27	268.29	5817.23	3479.42	-44.11	-3479.19	0.27	1531482.20	3445054.26	N 40 46 52.44	W 103 53 34.42
	9798.00	90.46	268.61	5816.63	3574.42	-46.68	-3574.15	0.39	1531479.63	3444959.30	N 40 46 52.43	W 103 53 35.65
	9892.00	90.50	268.82	5815.84	3668.41	-48.78	-3668.12	0.23	1531477.52	3444865.32	N 40 46 52.43	W 103 53 36.87
	9987.00	90.60	268.99	5814.93	3763.41	-50.60	-3763.10	0.21	1531475.70	3444770.34	N 40 46 52.42	W 103 53 38.11
	10082.00	90.27	268.08	5814.21	3858.40	-53.03	-3858.07	1.02	1531473.27	3444675.38	N 40 46 52.42	W 103 53 39.34
	10176.00	90.35	268.53	5813.70	3952.39	-55.81	-3952.02	0.49	1531470.49	3444581.42	N 40 46 52.41	W 103 53 40.56
	10271.00	90.50	268.48	5812.99	4047.39	-58.29	-4046.99	0.17	1531468.02	3444486.46	N 40 46 52.40	W 103 53 41.80
	10365.00	90.35	268.54	5812.30	4141.38	-60.73	-4140.95	0.17	1531465.57	3444392.49	N 40 46 52.39	W 103 53 43.02
	10460.00	90.46	268.80	5811.63	4236.38	-62.94	-4235.93	0.30	1531463.37	3444297.52	N 40 46 52.39	W 103 53 44.26
	10554.00	90.42	268.57	5810.90	4330.37	-65.09	-4329.90	0.25	1531461.21	3444203.55	N 40 46 52.38	W 103 53 45.48
	10649.00	90.35	268.40	5810.27	4425.37	-67.61	-4424.86	0.19	1531458.70	3444108.58	N 40 46 52.37	W 103 53 46.71
	10744.00	90.49	268.75	5809.57	4520.36	-69.97	-4519.83	0.40	1531456.34	3444013.62	N 40 46 52.37	W 103 53 47.95
	10838.00	90.53	268.84	5808.73	4614.36	-71.94	-4613.81	0.10	1531454.36	3443919.64	N 40 46 52.37	W 103 53 49.17
	10933.00	90.28	268.26	5808.06	4709.35	-74.35	-4708.77	0.66	1531451.95	3443824.68	N 40 46 52.36	W 103 53 50.40
	11027.00	90.42	268.65	5807.49	4803.35	-76.88	-4802.74	0.44	1531449.42	3443730.71	N 40 46 52.35	W 103 53 51.63
	11122.00	90.42	268.71	5806.79	4898.34	-79.07	-4897.71	0.06	1531447.23	3443635.74	N 40 46 52.35	W 103 53 52.86
	11217.00	90.42	268.71	5806.09	4993.34	-81.21	-4992.68	0.00	1531445.09	3443540.77	N 40 46 52.34	W 103 53 54.10
	11311.00	90.31	270.22	5805.50	5087.33	-82.09	-5086.67	1.61	1531444.22	3443446.78	N 40 46 52.35	W 103 53 55.32
	11406.00	90.35	270.31	5804.95	5182.31	-81.65	-5181.67	0.10	1531444.66	3443351.78	N 40 46 52.37	W 103 53 56.55
	11500.00	90.42	270.23	5804.32	5276.28	-81.21	-5275.67	0.11	1531445.10	3443257.78	N 40 46 52.39	W 103 53 57.77
	11595.00	90.46	270.30	5803.59	5371.25	-80.77	-5370.67	0.08	1531445.54	3443162.79	N 40 46 52.41	W 103 53 59.01
	11689.00	90.64	270.71	5802.68	5465.22	-79.94	-5464.66	0.48	1531446.37	3443068.79	N 40 46 52.44	W 103 54 0.23
	11784.00	90.56	270.68	5801.69	5560.17	-78.79	-5559.64	0.09	1531447.52	3442973.81	N 40 46 52.47	W 103 54 1.46
	11879.00	90.53	269.93	5800.79	5655.14	-78.28	-5654.64	0.79	1531448.02	3442878.81	N 40 46 52.49	W 103 54 2.70
	11973.00	90.31	268.46	5800.10	5749.13	-79.60	-5748.62	1.58	1531446.70	3442784.83	N 40 46 52.49	W 103 54 3.92
	12068.00	90.35	268.44	5799.55	5844.13	-82.17	-5843.59	0.05	1531444.13	3442689.86	N 40 46 52.48	W 103 54 5.16
	12163.00	90.31	268.33	5799.00	5939.12	-84.85	-5938.55	0.12	1531441.46	3442594.90	N 40 46 52.47	W 103 54 6.39
	12257.00	90.53	268.87	5798.31	6033.11	-87.14	-6032.52	0.62	1531439.16	3442500.93	N 40 46 52.47	W 103 54 7.61
	12352.00	90.28	268.51	5797.64	6128.11	-89.32	-6127.49	0.46	1531436.99	3442405.96	N 40 46 52.46	W 103 54 8.85
	12446.00	90.53	269.11	5796.98	6222.11	-91.27	-6221.47	0.69	1531435.04	3442311.99	N 40 46 52.46	W 103 54 10.07
	12541.00	90.46	268.93	5796.16	6317.10	-92.89	-6316.45	0.20	1531433.41	3442217.00	N 40 46 52.46	W 103 54 11.30
	12635.00	90.28	268.37	5795.55	6411.10	-95.11	-6410.42	0.63	1531431.20	3442123.03	N 40 46 52.46	W 103 54 12.53
	12730.00	90.28	268.37	5795.09	6506.09	-97.81	-6505.38	0.00	1531428.49	3442028.07	N 40 46 52.45	W 103 54 13.76
	12824.00	90.46	268.69	5794.48	6600.09	-100.22	-6599.35	0.39	1531426.08	3441934.11	N 40 46 52.44	W 103 54 14.98
	12919.00	90.28	268.38	5793.87	6695.08	-102.65	-6694.31	0.38	1531423.65	3441839.14	N 40 46 52.43	W 103 54 16.22
	13014.00	90.46	268.55	5793.25	6790.08	-105.19	-6789.28	0.26	1531421.11	3441744.18	N 40 46 52.42	W 103 54 17.45
	13108.00	90.53	268.70	5792.44	6884.07	-107.45	-6883.25	0.18	1531418.85	3441650.21	N 40 46 52.42	W 103 54 18.67
	13203.00	90.74	268.26	5791.39	6979.06	-109.97	-6978.21	0.51	1531416.33	3441555.25	N 40 46 52.41	W 103 54 19.91
	13298.00	90.83	268.35	5790.09	7074.05	-112.78	-7073.16	0.13	1531413.52	3441460.30	N 40 46 52.40	W 103 54 21.14
	13392.00	90.83	268.76	5788.72	7168.03	-115.15	-7167.12	0.44	1531411.15	3441366.34	N 40 46 52.39	W 103 54 22.37
	13487.00	90.94	268.86	5787.26	7263.02	-117.12	-7262.09	0.16	1531409.18	3441271.37	N 40 46 52.39	

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 ° ' ")
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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	30.000	1/98.425	13.750	9.625 NAL_NSG+MSHOT-Depth Only	Original Hole / Nugent LD06-655 GYRO+MWD 0' to 16119' Definitive
	1	30.000	30.000	Act Stns	13.750	9.625 NAL_NSG+MSHOT-Depth Only	Original Hole / Nugent LD06-655 GYRO+MWD 0' to 16119' Definitive
	1	30.000	1917.000	Act Stns	13.750	9.625 NAL_NSG+MSHOT	Original Hole / Nugent LD06-655 GYRO+MWD 0' to 16119'
	1	1917.000	16119.000	Act Stns	8.500	7.000 NAL_MWD_IFR1+MS	Original Hole / Nugent LD06-655 GYRO+MWD 0' to 16119'