

## Staner 5-58 1-8 ST01 R1 JL 25JUL12 Proposal Geodetic Report

(Def Plan)

**Report Date:** July 25, 2012 - 01:53 PM  
**Client:** Southwestern Energy  
**Field:** CO, Arapahoe County (NAD 83 CZ) Southwestern 2012  
**Structure / Slot:** SWN 08-5S-58W (Staner 5-58 1-8) - Patterson 166 / Slot 1  
**Well:** Staner 5-58 1-8  
**Borehole:** ST01  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Staner 5-58 1-8 ST01 R1 JL 25JUL12  
**Survey Date:** July 25, 2012  
**Tort / AHD / DDI / ERD Ratio:** 106.002 ° / 4068.739 ft / 5.783 / 0.452  
**Coordinate Reference System:** NAD83 Colorado State Plane, Central Zone, US Feet  
**Location Lat / Long:** N 39° 37' 35.11200", W 103° 54' 32.04000"  
**Location Grid N/E Y/X:** N 1656976.558 ftUS, E 3448154.243 ftUS  
**CRS Grid Convergence Angle:** 1.0035 °  
  
**Grid Scale Factor:** 0.99997789

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 88.989 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** KB  
**TVD Reference Elevation:** 5256.000 ft above MSL  
**Seabed / Ground Elevation:** 5236.000 ft above MSL  
**Magnetic Declination:** 8.259 °  
**Total Gravity Field Strength:** 999.6353 mgn (9.8 based)  
**Total Magnetic Field Strength:** 52618.980 nT  
**Magnetic Dip Angle:** 66.513 °  
**Declination Date:** July 25, 2012  
**Magnetic Declination Model:** BGGM 2012  
**North Reference:** Grid North  
**Grid Convergence Used:** 1.0035 °  
**Total Corr Mag North->Grid North:** 7.2551 °  
**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	1656976.56	3448154.24	N 39 37 35.11	W 103 54 32.04
First Gyro Survey	50.00	0.17	240.13	50.00	-0.06	-0.04	-0.06	0.34	1656976.52	3448154.18	N 39 37 35.11	W 103 54 32.04
	100.00	0.17	240.09	100.00	-0.19	-0.11	-0.19	0.00	1656976.45	3448154.05	N 39 37 35.11	W 103 54 32.04
	149.00	0.17	240.05	149.00	-0.32	-0.18	-0.32	0.00	1656976.37	3448153.92	N 39 37 35.11	W 103 54 32.04
	200.00	0.20	239.81	200.00	-0.47	-0.27	-0.46	0.06	1656976.29	3448153.78	N 39 37 35.11	W 103 54 32.05
	238.00	0.22	239.68	238.00	-0.59	-0.34	-0.58	0.06	1656976.22	3448153.66	N 39 37 35.11	W 103 54 32.05
	300.00	0.27	256.24	300.00	-0.83	-0.43	-0.82	0.13	1656976.13	3448153.42	N 39 37 35.11	W 103 54 32.05
	326.00	0.29	261.45	326.00	-0.95	-0.45	-0.95	0.13	1656976.10	3448153.30	N 39 37 35.11	W 103 54 32.05
	358.00	0.32	293.45	358.00	-1.12	-0.43	-1.11	0.53	1656976.13	3448153.13	N 39 37 35.11	W 103 54 32.05
	400.00	0.10	297.17	400.00	-1.26	-0.37	-1.25	0.52	1656976.19	3448152.99	N 39 37 35.11	W 103 54 32.06
	420.00	0.01	19.26	420.00	-1.27	-0.36	-1.27	0.52	1656976.20	3448152.98	N 39 37 35.11	W 103 54 32.06
	500.00	0.08	154.96	500.00	-1.25	-0.40	-1.24	0.11	1656976.16	3448153.00	N 39 37 35.11	W 103 54 32.06
	509.00	0.09	155.46	509.00	-1.24	-0.41	-1.23	0.11	1656976.14	3448153.01	N 39 37 35.11	W 103 54 32.06
	597.00	0.11	163.10	597.00	-1.19	-0.56	-1.18	0.03	1656976.00	3448153.06	N 39 37 35.11	W 103 54 32.06
	600.00	0.11	161.89	600.00	-1.19	-0.56	-1.18	0.08	1656976.00	3448153.06	N 39 37 35.11	W 103 54 32.06
	660.00	0.10	134.37	660.00	-1.14	-0.65	-1.12	0.08	1656975.90	3448153.12	N 39 37 35.11	W 103 54 32.05
	700.00	0.10	143.51	700.00	-1.09	-0.71	-1.08	0.04	1656975.85	3448153.17	N 39 37 35.11	W 103 54 32.05
	755.00	0.11	154.96	755.00	-1.04	-0.79	-1.03	0.04	1656975.76	3448153.22	N 39 37 35.10	W 103 54 32.05
	800.00	0.13	152.30	800.00	-1.00	-0.88	-0.98	0.05	1656975.68	3448153.26	N 39 37 35.10	W 103 54 32.05
	853.00	0.16	150.15	853.00	-0.94	-1.00	-0.92	0.05	1656975.56	3448153.32	N 39 37 35.10	W 103 54 32.05
	900.00	0.17	136.68	900.00	-0.86	-1.11	-0.84	0.09	1656975.45	3448153.41	N 39 37 35.10	W 103 54 32.05
	949.00	0.19	124.89	949.00	-0.74	-1.20	-0.72	0.09	1656975.35	3448153.52	N 39 37 35.10	W 103 54 32.05
	1000.00	0.21	130.66	1000.00	-0.60	-1.31	-0.58	0.06	1656975.24	3448153.66	N 39 37 35.10	W 103 54 32.05
	1047.00	0.23	135.06	1047.00	-0.47	-1.44	-0.45	0.06	1656975.12	3448153.79	N 39 37 35.10	W 103 54 32.05
	1100.00	0.21	137.25	1100.00	-0.34	-1.58	-0.31	0.04	1656974.97	3448153.93	N 39 37 35.10	W 103 54 32.04
	1144.00	0.19	139.45	1143.99	-0.24	-1.70	-0.21	0.04	1656974.86	3448154.04	N 39 37 35.10	W 103 54 32.04
	1200.00	0.22	143.23	1199.99	-0.12	-1.85	-0.08	0.06	1656974.70	3448154.16	N 39 37 35.09	W 103 54 32.04
	1241.00	0.24	145.42	1240.99	-0.02	-1.99	0.01	0.06	1656974.57	3448154.26	N 39 37 35.09	W 103 54 32.04
	1300.00	0.23	149.21	1299.99	0.11	-2.19	0.14	0.03	1656974.37	3448154.39	N 39 37 35.09	W 103 54 32.04
	1339.00	0.23	151.82	1338.99	0.18	-2.33	0.22	0.03	1656974.23	3448154.47	N 39 37 35.09	W 103 54 32.04
	1400.00	0.23	154.85	1399.99	0.29	-2.55	0.33	0.02	1656974.01	3448154.58	N 39 37 35.09	W 103 54 32.04
	1436.00	0.23	156.64	1435.99	0.34	-2.68	0.39	0.02	1656973.88	3448154.63	N 39 37 35.09	W 103 54 32.04
	1500.00	0.20	148.59	1499.99	0.45	-2.89	0.50	0.07	1656973.67	3448154.74	N 39 37 35.08	W 103 54 32.03
	1534.00	0.18	143.14	1533.99	0.51	-2.98	0.56	0.07	1656973.57	3448154.81	N 39 37 35.08	W 103 54 32.03
	1600.00	0.16	137.73	1599.99	0.63	-3.13	0.69	0.04	1656973.42	3448154.93	N 39 37 35.08	W 103 54 32.03
	1632.00	0.15	134.59	1631.99	0.69	-3.20	0.75	0.04	1656973.36	3448154.99	N 39 37 35.08	W 103 54 32.03
	1700.00	0.16	133.72	1699.99	0.82	-3.33	0.88	0.02	1656973.23	3448155.12	N 39 37 35.08	W 103 54 32.03
	1731.00	0.17	133.38	1730.99	0.88	-3.39	0.94	0.02	1656973.17	3448155.19	N 39 37 35.08	W 103 54 32.03
	1800.00	0.22	111.88	1799.99	1.08	-3.51	1.14	0.13	1656973.05	3448155.39	N 39 37 35.08	W 103 54 32.03
	1828.00	0.25	106.08	1827.99	1.19	-3.55	1.25	0.13	1656973.01	3448155.50	N 39 37 35.08	W 103 54 32.02
	1900.00	0.25	107.33	1899.99	1.49	-3.64	1.55	0.01	1656972.92	3448155.80	N 39 37 35.08	W 103 54 32.02
	1926.00	0.25	107.79	1925.99	1.60	-3.67	1.66	0.01	1656972.89	3448155.90	N 39 37 35.08	W 103 54 32.02
	2000.00	0.22	112.85	1999.99	1.88	-3.77	1.95	0.05	1656972.78	3448156.19	N 39 37 35.07	W 103 54 32.02
	2023.00	0.21	114.73	2022.99	1.96	-3.81	2.02	0.05	1656972.75	3448156.27	N 39 37 35.07	W 103 54 32.01
	2100.00	0.17	138.13	2099.99	2.16	-3.95	2.23	0.11	1656972.60	3448156.47	N 39 37 35.07	W 103 54 32.01
	2118.00	0.17	144.72	2117.99	2.19	-4.00	2.26	0.11	1656972.56	3448156.51	N 39 37 35.07	W 103 54 32.01
	2200.00	0.19	152.45	2199.99	2.32	-4.21	2.40	0.04	1656972.34	3448156.64	N 39 37 35.07	W 103 54 32.01
	2213.00	0.19	153.55	2212.99	2.34	-4.25	2.42	0.04	1656972.31	3448156.66	N 39 37 35.07	W 103 54 32.01
	2300.00	0.39	124.32	2299.99	2.65	-4.55	2.73	0.28	1656972.01	3448156.97	N 39 37 35.07	W 103 54 32.01
	2310.00	0.42	122.87	2309.99	2.70	-4.59	2.79	0.28	1656971.97	3448157.03	N 39 37 35.07	W 103 54 32.01
	2400.00	0.52	137.30	2399.98	3.25	-5.07	3.34	0.17	1656971.49	3448157.58	N 39 37 35.06	W 103 54 32.00
	2406.00	0.53	138.06	2405.98	3.29	-5.11	3.38	0.17	1656971.45	3448157.62	N 39 37 35.06	W 103 54 32.00
	2500.00	0.60	134.14	2499.98	3.92	-5.78	4.02	0.08	1656970.78	3448158.26	N 39 37 35.05	W 103 54 31.99
	2501.00	0.60	134.11	2500.98	3.93	-5.78	4.03	0.08	1656970.77	3448158.27	N 39 37 35.05	W 103 54 31.99
	2599.00	0.37	144.83	2598.98	4.47	-6.40	4.58	0.25	1656970.16	3448158.82	N 39 37 35.05	W 103 54 31.98
	2600.00	0.37	145.68	2599.98	4.47	-6.40	4.58	0.62	1656970.15	3448158.83	N 39 37 35.05	W 103 54 31.98
	2697.00	0.54	225.57	2696.97	4.31	-6.98	4.43	0.62	1656969.58	3448158.68	N 39 37 35.04	W 103 54 31.98
	2700.00	0.55	225.36	2699.97	4.29	-7.00	4.41	0.36	1656969.56	3448158.66	N 39 37 35.04	W 103 54 31.99
	2793.00	0.88	221.35	2792.97	3.48	-7.85	3.62	0.36	1656968.71	3448157.87	N 39 37 35.03	W 103 54 32.00
	2800.00	0.87	221.76	2799.96	3.41	-7.93	3.55	0.17	1656968.63	3448157.79	N 39 37 35.03	W 103 54 32.00
	2890.00	0.74	228.01	2889.96	2.51	-8.83	2.66	0.17	1656967.73	3448156.91	N 39 37 35.02	W 103 54 32.01
	2900.00	0.73	226.91	2899.95	2.41	-8.92	2.57	0.17	1656967.64	3448156.81	N 39 37 35.02	W 103 54 32.01
	2988.00	0.66	216.03	2987.95	1.69	-9.71	1.86	0.17	1656966.85	3448156.11	N 39 37 35.02	W 103 54 32.02
	3000.00	0.64	218.70	2999.95	1.61	-9.82	1.78	0.31	1656966.74	3448156.02	N 39 37 35.01	W 103 54 32.02
	3086.00	0.53	243.29	3085.94	0.94	-10.37	1.13	0.31	1656966.19	3448155.37	N 39 37 35.01	W 103 54 32.03
	3100.00	0.55	243.95	3099.94	0.82	-10.43	1.01	0.14	1656966.13	3448155.25	N 39 37 35.01	W 103 54 32.03

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 ° ' ")
	3182.00	0.66	247.10	3181.94	0.03	-10.78	0.22	0.14	1656965.77	3448154.46	N 39 37 35.01	W 103 54 32.04
	3200.00	0.67	246.87	3199.94	-0.16	-10.87	0.03	0.03	1656965.69	3448154.27	N 39 37 35.00	W 103 54 32.04
	3280.00	0.69	245.91	3279.93	-1.04	-11.25	-0.84	0.03	1656965.31	3448153.40	N 39 37 35.00	W 103 54 32.05
	3300.00	0.66	245.61	3299.93	-1.25	-11.34	-1.05	0.13	1656965.22	3448153.19	N 39 37 35.00	W 103 54 32.06
	3378.00	0.56	244.18	3377.93	-2.01	-11.69	-1.81	0.13	1656964.86	3448152.43	N 39 37 35.00	W 103 54 32.07
	3400.00	0.54	251.77	3399.92	-2.21	-11.77	-2.00	0.35	1656964.78	3448152.24	N 39 37 35.00	W 103 54 32.07
	3476.00	0.54	280.05	3475.92	-2.90	-11.82	-2.69	0.35	1656964.73	3448151.55	N 39 37 35.00	W 103 54 32.08
	3500.00	0.55	283.28	3499.92	-3.12	-11.78	-2.92	0.13	1656964.78	3448151.33	N 39 37 35.00	W 103 54 32.08
	3573.00	0.58	292.47	3572.92	-3.80	-11.56	-3.60	0.13	1656965.00	3448150.65	N 39 37 35.00	W 103 54 32.09
	3600.00	0.62	312.84	3599.92	-4.03	-11.40	-3.83	0.79	1656965.15	3448150.41	N 39 37 35.00	W 103 54 32.09
	3670.00	0.96	345.90	3669.91	-4.44	-10.58	-4.25	0.79	1656965.98	3448149.99	N 39 37 35.01	W 103 54 32.10
	3700.00	0.98	345.67	3699.90	-4.55	-10.09	-4.37	0.06	1656966.47	3448149.87	N 39 37 35.01	W 103 54 32.10
	3765.00	1.02	345.22	3764.89	-4.82	-8.99	-4.66	0.06	1656967.57	3448149.58	N 39 37 35.02	W 103 54 32.10
	3800.00	1.02	339.38	3799.89	-5.00	-8.40	-4.85	0.30	1656968.16	3448149.39	N 39 37 35.03	W 103 54 32.10
	3861.00	1.05	329.47	3860.88	-5.45	-7.41	-5.32	0.30	1656969.15	3448148.92	N 39 37 35.04	W 103 54 32.11
	3900.00	0.90	334.03	3899.87	-5.76	-6.82	-5.64	0.44	1656969.73	3448148.60	N 39 37 35.05	W 103 54 32.11
	3959.00	0.68	344.75	3958.87	-6.04	-6.07	-5.93	0.44	1656970.49	3448148.31	N 39 37 35.05	W 103 54 32.12
	4000.00	0.60	339.28	3999.87	-6.17	-5.64	-6.07	0.24	1656970.92	3448148.17	N 39 37 35.06	W 103 54 32.12
	4055.00	0.51	329.47	4054.86	-6.39	-5.15	-6.30	0.24	1656971.40	3448147.94	N 39 37 35.06	W 103 54 32.12
	4100.00	0.53	338.26	4099.86	-6.56	-4.79	-6.48	0.18	1656971.77	3448147.76	N 39 37 35.07	W 103 54 32.12
	4152.00	0.56	347.53	4151.86	-6.70	-4.32	-6.62	0.18	1656972.24	3448147.62	N 39 37 35.07	W 103 54 32.13
	4200.00	0.54	331.05	4199.86	-6.85	-3.89	-6.78	0.33	1656972.66	3448147.46	N 39 37 35.07	W 103 54 32.13
	4247.00	0.56	314.93	4246.85	-7.11	-3.54	-7.05	0.33	1656973.02	3448147.19	N 39 37 35.08	W 103 54 32.13
	4300.00	0.50	303.99	4299.85	-7.48	-3.23	-7.42	0.22	1656973.33	3448146.82	N 39 37 35.08	W 103 54 32.14
	4343.00	0.46	293.20	4342.85	-7.79	-3.06	-7.74	0.22	1656973.50	3448146.51	N 39 37 35.08	W 103 54 32.14
	4400.00	0.39	293.57	4399.85	-8.17	-2.89	-8.12	0.13	1656973.67	3448146.12	N 39 37 35.08	W 103 54 32.14
	4442.00	0.33	293.96	4441.85	-8.41	-2.78	-8.36	0.13	1656973.77	3448145.88	N 39 37 35.09	W 103 54 32.15
	4500.00	0.27	284.80	4499.85	-8.70	-2.68	-8.65	0.13	1656973.88	3448145.59	N 39 37 35.09	W 103 54 32.15
	4540.00	0.24	276.12	4539.85	-8.87	-2.65	-8.83	0.13	1656973.91	3448145.42	N 39 37 35.09	W 103 54 32.15
	4600.00	0.15	279.03	4599.85	-9.07	-2.62	-9.03	0.16	1656973.94	3448145.22	N 39 37 35.09	W 103 54 32.16
	4636.00	0.09	283.69	4635.85	-9.14	-2.61	-9.10	0.16	1656973.95	3448145.14	N 39 37 35.09	W 103 54 32.16
	4700.00	0.09	181.20	4699.85	-9.19	-2.65	-9.15	0.22	1656973.91	3448145.09	N 39 37 35.09	W 103 54 32.16
	4732.00	0.15	164.17	4731.85	-9.18	-2.71	-9.14	0.22	1656973.85	3448145.11	N 39 37 35.09	W 103 54 32.16
	4800.00	0.27	137.38	4799.85	-9.06	-2.91	-9.01	0.22	1656973.64	3448145.24	N 39 37 35.08	W 103 54 32.16
	4877.00	0.43	127.13	4876.84	-8.71	-3.22	-8.65	0.22	1656973.34	3448145.59	N 39 37 35.08	W 103 54 32.15
	4900.00	0.41	134.91	4899.84	-8.58	-3.33	-8.52	0.26	1656973.23	3448145.72	N 39 37 35.08	W 103 54 32.15
	4925.00	0.40	144.01	4924.84	-8.47	-3.47	-8.41	0.26	1656973.09	3448145.83	N 39 37 35.08	W 103 54 32.15
	5000.00	0.35	153.04	4999.84	-8.22	-3.88	-8.15	0.10	1656972.68	3448146.09	N 39 37 35.08	W 103 54 32.15
	5019.00	0.34	155.73	5018.84	-8.17	-3.99	-8.10	0.10	1656972.57	3448146.14	N 39 37 35.07	W 103 54 32.14
	5100.00	0.42	147.49	5099.84	-7.92	-4.46	-7.84	0.12	1656972.10	3448146.40	N 39 37 35.07	W 103 54 32.14
	5114.00	0.44	146.40	5113.84	-7.86	-4.55	-7.78	0.12	1656972.01	3448146.46	N 39 37 35.07	W 103 54 32.14
	5200.00	0.19	145.78	5199.84	-7.61	-4.94	-7.52	0.29	1656971.62	3448146.72	N 39 37 35.06	W 103 54 32.14
	5208.00	0.17	145.64	5207.84	-7.59	-4.96	-7.51	0.29	1656971.60	3448146.74	N 39 37 35.06	W 103 54 32.14
	5300.00	0.07	148.26	5299.84	-7.49	-5.12	-7.40	0.11	1656971.43	3448146.85	N 39 37 35.06	W 103 54 32.14
	5303.00	0.07	148.47	5302.84	-7.49	-5.13	-7.40	0.11	1656971.43	3448146.85	N 39 37 35.06	W 103 54 32.14
	5398.00	0.03	172.69	5397.84	-7.45	-5.20	-7.36	0.05	1656971.36	3448146.88	N 39 37 35.06	W 103 54 32.14
	5400.00	0.03	173.98	5399.84	-7.45	-5.20	-7.36	0.11	1656971.35	3448146.88	N 39 37 35.06	W 103 54 32.14
	5494.00	0.08	330.47	5493.84	-7.48	-5.17	-7.39	0.11	1656971.39	3448146.85	N 39 37 35.06	W 103 54 32.14
	5500.00	0.08	334.34	5499.84	-7.49	-5.16	-7.40	0.09	1656971.40	3448146.85	N 39 37 35.06	W 103 54 32.14
	5589.00	0.12	16.23	5588.84	-7.48	-5.02	-7.40	0.09	1656971.54	3448146.85	N 39 37 35.06	W 103 54 32.14
	5600.00	0.12	22.20	5599.84	-7.48	-4.99	-7.39	0.11	1656971.56	3448146.85	N 39 37 35.06	W 103 54 32.14
	5687.00	0.15	63.40	5686.84	-7.34	-4.86	-7.25	0.11	1656971.70	3448146.99	N 39 37 35.07	W 103 54 32.13
	5700.00	0.14	68.11	5699.84	-7.31	-4.85	-7.22	0.15	1656971.71	3448147.02	N 39 37 35.07	W 103 54 32.13
	5784.00	0.09	130.39	5783.84	-7.17	-4.85	-7.08	0.15	1656971.71	3448147.16	N 39 37 35.07	W 103 54 32.13
	5800.00	0.13	130.35	5799.84	-7.14	-4.87	-7.06	0.24	1656971.69	3448147.18	N 39 37 35.07	W 103 54 32.13
	5879.00	0.32	130.30	5878.84	-6.91	-5.07	-6.82	0.24	1656971.49	3448147.42	N 39 37 35.06	W 103 54 32.13
	5900.00	0.27	124.59	5899.84	-6.83	-5.14	-6.74	0.29	1656971.42	3448147.50	N 39 37 35.06	W 103 54 32.13
	5974.00	0.14	71.32	5973.84	-6.60	-5.21	-6.51	0.29	1656971.35	3448147.73	N 39 37 35.06	W 103 54 32.12
	6000.00	0.14	54.05	5999.84	-6.55	-5.18	-6.46	0.16	1656971.38	3448147.79	N 39 37 35.06	W 103 54 32.12
	6070.00	0.18	15.62	6069.84	-6.45	-5.02	-6.36	0.16	1656971.53	3448147.88	N 39 37 35.06	W 103 54 32.12
	6100.00	0.21	8.00	6099.83	-6.43	-4.92	-6.34	0.12	1656971.63	3448147.90	N 39 37 35.06	W 103 54 32.12
	6165.00	0.27	356.97	6164.83	-6.41	-4.66	-6.33	0.12	1656971.90	3448147.91	N 39 37 35.07	W 103 54 32.12
	6200.00	0.26	340.45	6199.83	-6.44	-4.50	-6.36	0.22	1656972.06	3448147.88	N 39 37 35.07	W 103 54 32.12
	6261.00	0.30	313.96	6260.83	-6.60	-4.26	-6.52	0.22	1656972.30	3448147.72	N 39 37 35.07	W 103 54 32.12
	6300.00	0.53	314.23	6299.83	-6.80	-4.06	-6.73	0.58	1656972.50	3448147.52	N 39 37 35.07	W 103 54 32.13
	6359.00	0.87	314.38	6358.83	-7.30	-3.56	-7.24	0.58	1656973.00	3448147.00	N 39 37 35.08	W 103 54 32.13
	6400.00	0.96	317.96	6399.82	-7.75	-3.08	-7.69	0.26	1656973.47	3448146.55	N 39 37 35.08	W 103 54 32.14
	6457.00	1.09	321.95	6456.81	-8.39	-2.30	-8.35	0.26	1656974.25	3448145.90	N 39 37 35.09	W 103 54 32.15
	6500.00	1.21	319.64	6499.80	-8.92	-1.64	-8.89	0.30	1656974.92	3448145.35	N 39 37 35.10	W 103 54 32.15
	6553.00	1.36	317.37	6552.79	-9.69	-0.75	-9.68	0.30	1656975.81	3448144.56	N 39 37 35.11	W 103 54 32.16
	6600.00	1.51	321.46	6599.78	-10.44	0.15	-10.45	0.39	1656976.71	3448143.80	N 39 37 35.12	W 103 54 32.17
	6651.00	1.68	325.05	6650.76	-11.27	1.29	-11.29	0.39	1656977.84	3448142.95	N 39 37 35.13	W 103 54 32.18
	6700.00	1.92	327.17	6699.73	-12.10	2.56	-12.15	0.50	1656979.12	3448142.10	N 39 37 35.14	W 103 54 32.19
	6746.00	2.14	328.73	6745.70	-12.94	3.94	-13.01	0.50	1656980.50	3448141.23	N 39 37 35.15	W 103 54 32.21
	6800.00	2.20	336.55	6799.67	-13.84	5.76	-13.95	0.56	1656982.31	3448140.30	N 39 37 35.17	W 103 54 32.22
	6840.00	2.27	342.01	6839.63	-14.37	7.22	-14.50	0.56	1656983.77	3448139.75	N 39 37 35.19	W 103 54 32.22
	6900.00	2.28	334.88	6899.59	-15.20	9.43	-15.37	0.47	1656985.98	3448138.87	N 39 37 35.21	W 103 54 32.23
	6938.00	2.31	330.45	6937.56	-15.88	10.78	-16.07	0.47	1656987.34	3448138.17	N 39 37 35.22	W 103 54 32.24
	7000.00	2.05	331.39	6999.51	-16.99	12.84	-17.22	0.42	165698			

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 ° ' ")
Tie-In	7521.00	0.68	26.77	7520.38	-17.76	23.56	-18.18	0.07	1657000.11	3448136.07	N	39 37 35.35	W 103 54 32.27
	7600.00	0.66	30.48	7599.37	-17.31	24.36	-17.74	0.06	1657000.92	3448136.51	N	39 37 35.36	W 103 54 32.26
	7618.00	0.65	31.37	7617.37	-17.20	24.54	-17.63	0.06	1657001.10	3448136.61	N	39 37 35.36	W 103 54 32.26
	7700.00	0.41	19.34	7699.37	-16.85	25.21	-17.29	0.32	1657001.77	3448136.95	N	39 37 35.36	W 103 54 32.26
	7714.00	0.37	15.76	7713.37	-16.82	25.30	-17.26	0.32	1657001.86	3448136.98	N	39 37 35.37	W 103 54 32.25
KOP, Build @ 10°/100' Hold Inc and Azimuth	7800.00	0.37	15.76	7799.36	-16.66	25.84	-17.11	0.00	1657002.39	3448137.13	N	39 37 35.37	W 103 54 32.25
	7899.02	10.00	89.37	7897.88	-7.94	26.24	-8.41	10.00	1657002.80	3448145.83	N	39 37 35.37	W 103 54 32.14
	7900.00	10.00	89.37	7898.84	-7.77	26.24	-8.24	0.00	1657002.80	3448146.01	N	39 37 35.37	W 103 54 32.14
	8000.00	10.00	89.37	7997.32	9.59	26.43	9.13	0.00	1657002.99	3448163.37	N	39 37 35.37	W 103 54 31.92
	8100.00	10.00	89.37	8095.80	26.95	26.62	26.49	0.00	1657003.18	3448180.73	N	39 37 35.37	W 103 54 31.70
KOP, Build @ 10°/100'	8200.00	10.00	89.37	8194.28	44.32	26.82	43.85	0.00	1657003.37	3448198.10	N	39 37 35.37	W 103 54 31.47
	8300.00	10.00	89.37	8292.77	61.68	27.01	61.22	0.00	1657003.56	3448215.46	N	39 37 35.37	W 103 54 31.25
	8400.00	10.00	89.37	8391.25	79.05	27.20	78.58	0.00	1657003.75	3448232.82	N	39 37 35.37	W 103 54 31.03
	8500.00	10.00	89.37	8489.73	96.41	27.39	95.94	0.00	1657003.95	3448250.19	N	39 37 35.37	W 103 54 30.81
	8537.38	10.00	89.37	8526.54	102.90	27.46	102.43	0.00	1657004.02	3448256.68	N	39 37 35.37	W 103 54 30.72
Landing Point, Hold to TD	8600.00	16.26	89.37	8587.49	117.12	27.62	116.65	10.00	1657004.17	3448270.89	N	39 37 35.36	W 103 54 30.54
	8700.00	26.26	89.37	8680.57	153.34	28.02	152.87	10.00	1657004.57	3448307.11	N	39 37 35.36	W 103 54 30.08
	8800.00	36.26	89.37	8765.94	205.17	28.59	204.70	10.00	1657005.14	3448358.93	N	39 37 35.36	W 103 54 29.42
	8900.00	46.26	89.37	8841.01	271.03	29.31	270.56	10.00	1657005.87	3448424.80	N	39 37 35.35	W 103 54 28.58
	9000.00	56.26	89.37	8903.51	348.94	30.17	348.46	10.00	1657006.73	3448502.69	N	39 37 35.35	W 103 54 27.58
Landing Point, Hold to TD	9100.00	66.26	89.37	8951.53	436.51	31.14	436.02	10.00	1657007.69	3448590.26	N	39 37 35.34	W 103 54 26.46
	9200.00	76.26	89.37	8983.61	531.08	32.18	530.60	10.00	1657008.74	3448684.83	N	39 37 35.34	W 103 54 25.25
	9300.00	86.26	89.37	8998.78	629.79	33.27	629.31	10.00	1657009.82	3448783.53	N	39 37 35.33	W 103 54 23.99
	9337.38	90.00	89.37	9000.00	667.14	33.68	666.65	10.00	1657010.24	3448820.88	N	39 37 35.33	W 103 54 23.51
	9400.00	90.00	89.37	9000.00	729.77	34.37	729.27	0.00	1657010.93	3448883.50	N	39 37 35.33	W 103 54 22.71
Landing Point, Hold to TD	9500.00	90.00	89.37	9000.00	829.76	35.47	829.27	0.00	1657012.03	3448983.49	N	39 37 35.32	W 103 54 21.44
	9600.00	90.00	89.37	9000.00	929.76	36.57	929.26	0.00	1657013.13	3449083.48	N	39 37 35.31	W 103 54 20.16
	9700.00	90.00	89.37	9000.00	1029.76	37.68	1029.25	0.00	1657014.23	3449183.47	N	39 37 35.31	W 103 54 18.88
	9800.00	90.00	89.37	9000.00	1129.76	38.78	1129.25	0.00	1657015.34	3449283.46	N	39 37 35.30	W 103 54 17.60
	9900.00	90.00	89.37	9000.00	1229.76	39.88	1229.24	0.00	1657016.44	3449383.46	N	39 37 35.29	W 103 54 16.32
Landing Point, Hold to TD	10000.00	90.00	89.37	9000.00	1329.75	40.99	1329.24	0.00	1657017.54	3449483.45	N	39 37 35.29	W 103 54 15.05
	10100.00	90.00	89.37	9000.00	1429.75	42.09	1429.23	0.00	1657018.64	3449583.44	N	39 37 35.28	W 103 54 13.77
	10200.00	90.00	89.37	9000.00	1529.75	43.19	1529.22	0.00	1657019.75	3449683.43	N	39 37 35.27	W 103 54 12.49
	10300.00	90.00	89.37	9000.00	1629.75	44.29	1629.22	0.00	1657020.85	3449783.42	N	39 37 35.27	W 103 54 11.21
	10400.00	90.00	89.37	9000.00	1729.74	45.40	1729.21	0.00	1657021.95	3449883.41	N	39 37 35.26	W 103 54 9.93
Landing Point, Hold to TD	10500.00	90.00	89.37	9000.00	1829.74	46.50	1829.21	0.00	1657023.05	3449983.41	N	39 37 35.25	W 103 54 8.66
	10600.00	90.00	89.37	9000.00	1929.74	47.60	1929.20	0.00	1657024.16	3450083.40	N	39 37 35.25	W 103 54 7.38
	10700.00	90.00	89.37	9000.00	2029.74	48.70	2029.19	0.00	1657025.26	3450183.39	N	39 37 35.24	W 103 54 6.10
	10800.00	90.00	89.37	9000.00	2129.74	49.81	2129.19	0.00	1657026.36	3450283.38	N	39 37 35.23	W 103 54 4.82
	10900.00	90.00	89.37	9000.00	2229.73	50.91	2229.18	0.00	1657027.47	3450383.37	N	39 37 35.23	W 103 54 3.54
Landing Point, Hold to TD	11000.00	90.00	89.37	9000.00	2329.73	52.01	2329.18	0.00	1657028.57	3450483.36	N	39 37 35.22	W 103 54 2.27
	11100.00	90.00	89.37	9000.00	2429.73	53.11	2429.17	0.00	1657029.67	3450583.35	N	39 37 35.22	W 103 54 0.99
	11200.00	90.00	89.37	9000.00	2529.73	54.22	2529.16	0.00	1657030.77	3450683.35	N	39 37 35.21	W 103 53 59.71
	11300.00	90.00	89.37	9000.00	2629.72	55.32	2629.16	0.00	1657031.88	3450783.34	N	39 37 35.20	W 103 53 58.43
	11400.00	90.00	89.37	9000.00	2729.72	56.42	2729.15	0.00	1657032.98	3450883.33	N	39 37 35.20	W 103 53 57.15
Landing Point, Hold to TD	11500.00	90.00	89.37	9000.00	2829.72	57.52	2829.15	0.00	1657034.08	3450983.32	N	39 37 35.19	W 103 53 55.88
	11600.00	90.00	89.37	9000.00	2929.72	58.63	2929.14	0.00	1657035.18	3451083.31	N	39 37 35.18	W 103 53 54.60
	11700.00	90.00	89.37	9000.00	3029.72	59.73	3029.13	0.00	1657036.29	3451183.30	N	39 37 35.18	W 103 53 53.32
	11800.00	90.00	89.37	9000.00	3129.71	60.83	3129.13	0.00	1657037.39	3451283.30	N	39 37 35.17	W 103 53 52.04
	11900.00	90.00	89.37	9000.00	3229.71	61.94	3229.12	0.00	1657038.49	3451383.29	N	39 37 35.16	W 103 53 50.76
Landing Point, Hold to TD	12000.00	90.00	89.37	9000.00	3329.71	63.04	3329.12	0.00	1657039.59	3451483.28	N	39 37 35.16	W 103 53 49.49
	12100.00	90.00	89.37	9000.00	3429.71	64.14	3429.11	0.00	1657040.70	3451583.27	N	39 37 35.15	W 103 53 48.21
	12200.00	90.00	89.37	9000.00	3529.70	65.24	3529.10	0.00	1657041.80	3451683.26	N	39 37 35.14	W 103 53 46.93
	12300.00	90.00	89.37	9000.00	3629.70	66.35	3629.10	0.00	1657042.90	3451783.25	N	39 37 35.14	W 103 53 45.65
	12400.00	90.00	89.37	9000.00	3729.70	67.45	3729.09	0.00	1657044.00	3451883.24	N	39 37 35.13	W 103 53 44.37
Staner 5-58 1-8 PBHL/TD	12500.00	90.00	89.37	9000.00	3829.70	68.55	3829.08	0.00	1657045.11	3451983.24	N	39 37 35.12	W 103 53 43.10
	12600.00	90.00	89.37	9000.00	3929.70	69.65	3929.08	0.00	1657046.21	3452083.23	N	39 37 35.12	W 103 53 41.82
	12650.92	90.00	89.37	9000.00	3980.62	70.22	3980.00	0.00	1657046.77	3452134.15	N	39 37 35.11	W 103 53 41.17

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma  
Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	20.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Hole / Staner 5-58 1-8 MWD 7873' to 8680' Definitive
	20.000	7714.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Hole / Staner 5-58 1-8 MWD 7873' to 8680' Definitive
	7714.000	12650.924	1/100.000	30.000	30.000	SLB_MWD-STD	ST01 / Staner 5-58 1-8 ST01 R1 JL 25JUL12



WELL Staner 5-58 1-8			FIELD Arapahoe County, CO			STRUCTURE Sec. 08-5S-58W		
Magnetic Parameters Model: BGGM 2012 Dip: 66.513° Mag Dec: 8.259°			Surface Location Lat: N 39 37 35.112 Lon: W 103 54 32.040 Northing: 1656976.56 RUS Easting: 3448154.24 RUS NAD83 Colorado State Plane, Central Zone, US Feet Grid Conv: 1.003° Scale Fact: 0.99997789			Miscellaneous Slot: Slot 1 Plan: Staner 5-58 1-8 ST01 R1 JL 25JUL12 TVD Ref: KB(5256ft above MSL) Date: July 25, 2012		



Grid North
Tot Corr (M->G 7.2551° )
Mag Dec (8.259° )
Grid Conv (1.003° )

Proposal

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(+) / W(-)	DLS
Tie-In	7714.00	0.37	15.76	7713.37	-16.82	25.30	-17.26	
KOP, Build @ 10° /100'	7800.00	0.37	15.76	7799.36	-16.66	25.84	-17.11	0.00
Hold Inc and Azimuth	7899.02	10.00	89.37	7897.88	-7.94	26.24	-8.41	10.00
KOP, Build @ 10° /100'	8537.38	10.00	89.37	8526.54	102.90	27.46	102.43	0.00
Landing Point, Hold to TD	9337.38	90.00	89.37	9000.00	667.14	33.68	666.65	10.00
Staner 5-58 1-8 PBHL/TD	12650.92	90.00	89.37	9000.00	3980.62	70.22	3980.00	0.00

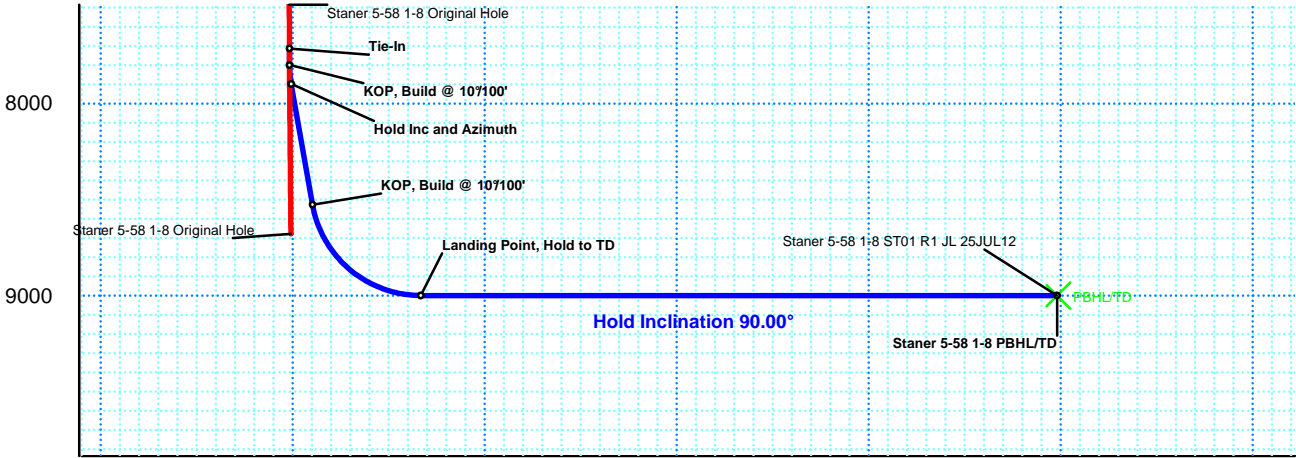
Surface Location

Northing: 1656976.56 Easting: 3448154.24

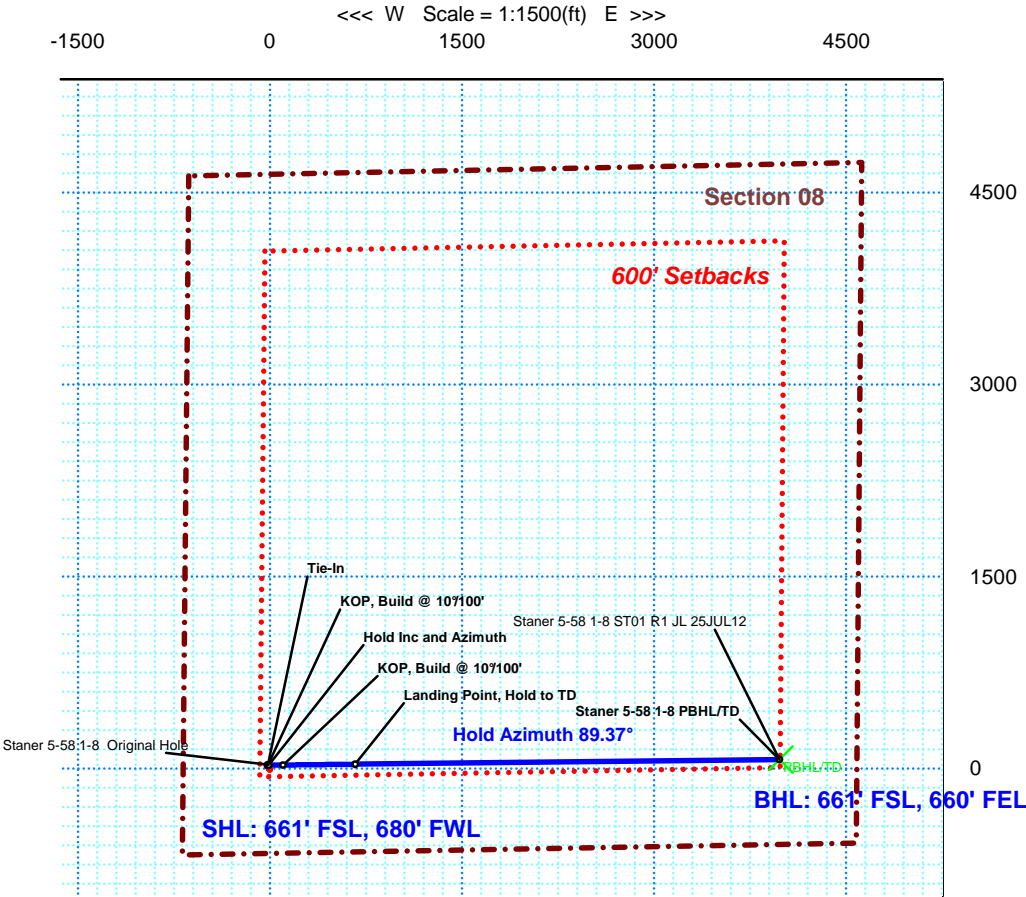
Target Description

Target Name	Shape	Major Axis	N(+) / S(-)	E(+) / W(-)	TVD	VSec	N(+) / S(-)	E(+) / W(-)
Staner 5-58 1-8 600' Setbacks	Polyline	0.00	1656976.56	3448154.24	5256.00	-0.00	-0.00	0.00
Staner 5-58 1-8 PBHL/TD	Point	0.00	1657046.77	3452134.15	9000.00	3980.62	70.22	3980.00
Staner 5-58 1-8 Section Lines	Polyline	0.00	1656976.56	3448154.24	5256.00	-0.00	-0.00	0.00

TVD Scale = 1:1000(ft)



Vertical Section (ft) Azim = 88.99° Scale = 1:1000(ft) Origin = 0 N-S, 0 E-W



Scale = 1:1500(ft) N >>>