

# Noble Energy

CO, Weld County (NAD 83 NZ)  
Sec 20 Twn 06 N Rng 62 W  
Wells Ranch AE19-636 Original Hole  
05-123-39640  
H&P 330



A Schlumberger Company

## Final Survey Report

8-Jan-2015

Well Coordinates: NAD83 Colorado State Plane, Northern Zone, US Feet

N 40° 28' 10.12800"	W 104° 21' 21.13200"
1415812.59 usFt	3318318.1 usFt

Ground Level:	4786.00 ft MSL
TVD Reference:	KB 30ft @ 4816.00 ft MSL
Local Coordinate Origin:	Wells Ranch AE19-636 well head
Vertical Section Azimuth:	268.902 ° (Grid North)
North Reference:	Grid North

DOX Version: 2.8

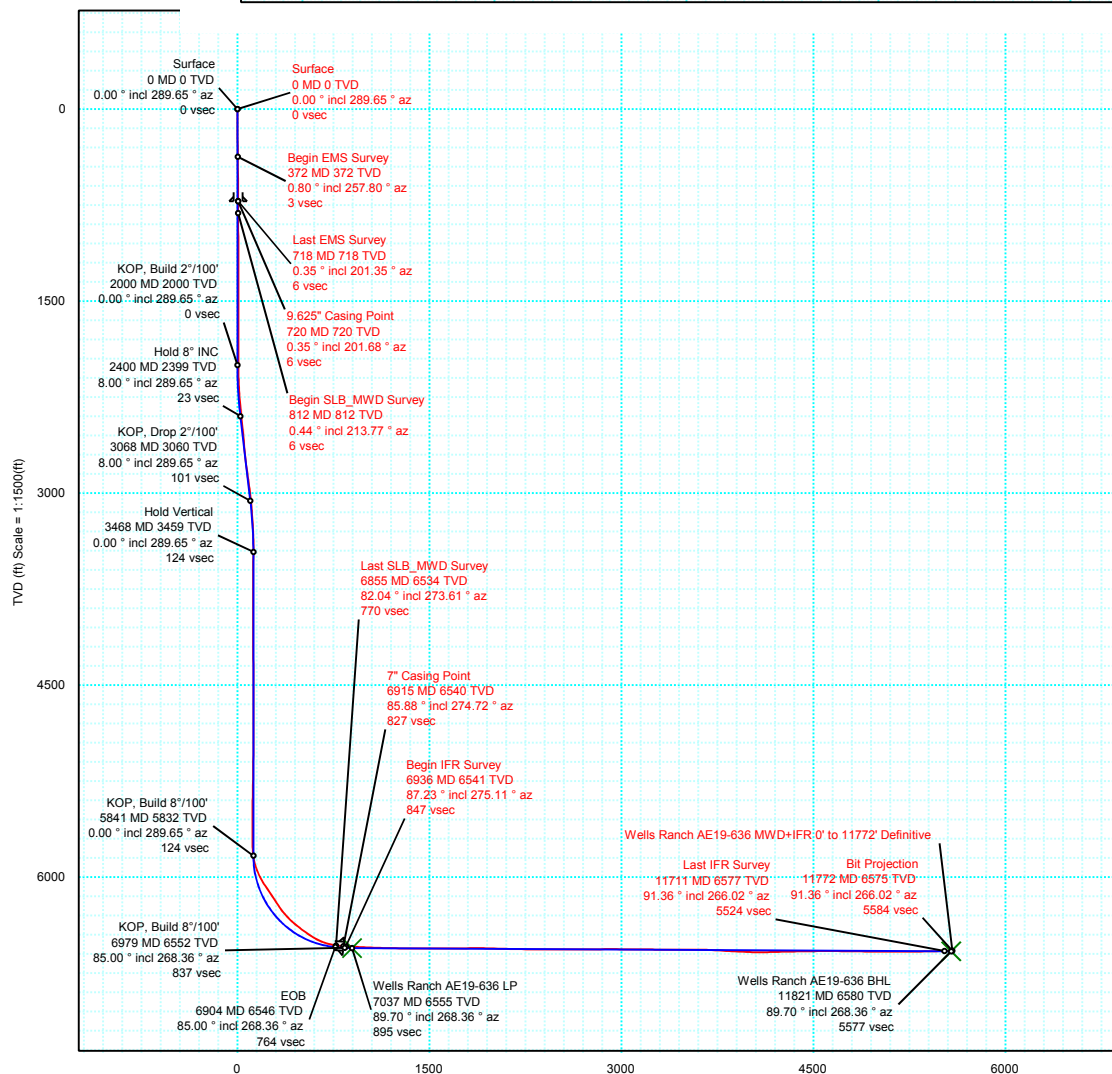
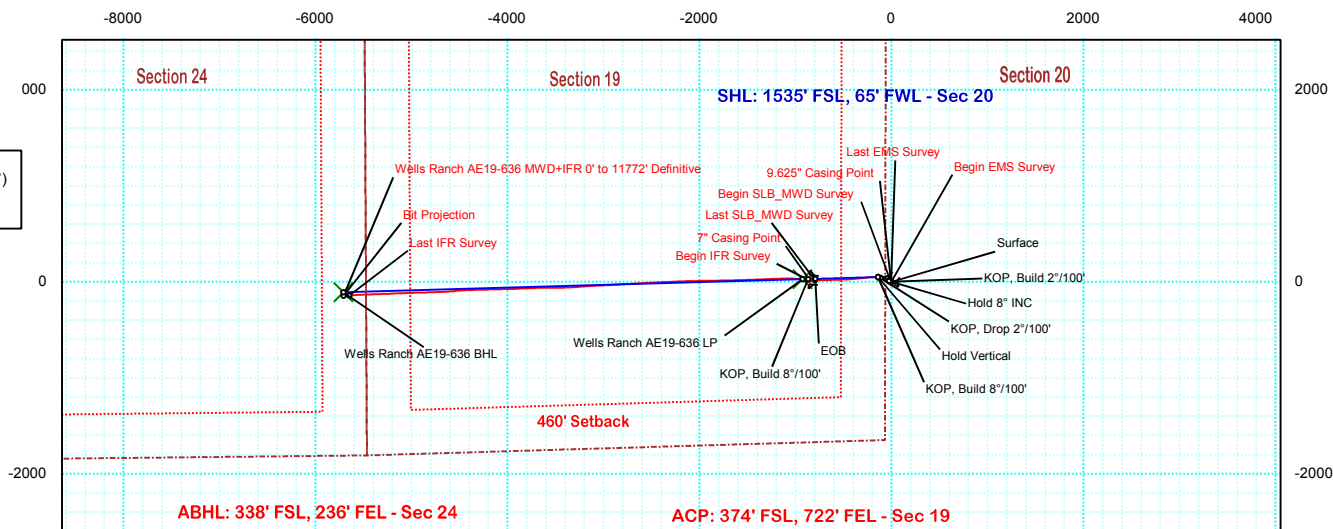
<b>Borehole:</b> Original Hole	<b>Well:</b> Wells Ranch AE19-636	<b>Field:</b> CO, Weld County (NAD 83 NZ)	<b>Structure:</b> Noble 20-06N-62W (Wells Ranch AE19 Pad) - H&P 330
<b>Gravity &amp; Magnetic Parameters</b> Model: BGGM 2014 Dip: 67.041° Date: 26-Dec-2014 MagDec: 8.271° FS: 52724.318nT Gravity FS: 999.058mgn (9.80665 Based)		<b>Surface Location</b> NAD83 Colorado State Plane, Northern Zone, US Feet Lat: N 40 28 10.13 Northing: 1415925.55ftU Grid Conv: 0.7393° Lon: W 104 21 21.10 Easting: S 3318319.42ftU Scale Fact: 0.99996411	
		<b>Miscellaneous</b> Slot: Wells Ranch AE19-636 TVD Ref: KB 30ft(4816ft above MSL) Plan: Wells Ranch AE19-636 MWD+IFR 0' to 11772' Definitive	

PvA

EW (ft) Scale = 1:2000(ft)

Grid  
True  
Mag

Grid North  
Tot Corr (M->G 7.532°)  
Mag Dec (8.271°)  
Grid Conv (0.739°)



Vertical Section (ft) Azim = 256.52° Scale = 1:1500(ft) Origin = 0N/-S, 0E/-W

## Wells Ranch AE19-636 MWD+IFR 0' to 11772' Definitive Survey Report

(Def Survey)

**Report Date:** January 08, 2015 - 02:41 PM  
**Client:** Noble Energy  
**Field:** CO, Weld County (NAD 83 NZ)  
**Structure / Slot:** Noble 20-06N-62W (Wells Ranch AE19 Pad) - H&P 330 / Wells Ranch AE19-636  
**Well:** Wells Ranch AE19-636  
**Borehole:** Original Hole  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Wells Ranch AE19-636 MWD+IFR 0' to 11772' Definitive  
**Survey Date:** December 26, 2014  
**Tort / AHD / DDI / ERD Ratio:** 196.525 ° / 5784.972 ft / 6.308 / 0.878  
**Coordinate Reference System:** NAD83 Colorado State Plane, Northern Zone, US Feet  
**Location Lat / Long:** N 40° 28' 10.12800", W 104° 21' 21.09600"  
**Location Grid N/E Y/X:** N 1415925.546 ftUS, E 3318319.420 ftUS  
**CRS Grid Convergence Angle:** 0.7393 °  
**Grid Scale Factor:** 0.99996411  
**Version / Patch:** 2.8.572.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 268.902 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** KB 30ft  
**TVD Reference Elevation:** 4816.000 ft above MSL  
**Seabed / Ground Elevation:** 4786.000 ft above MSL  
**Magnetic Declination:** 8.271 °  
**Total Gravity Field Strength:** 999.0582mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 52724.318 nT  
**Magnetic Dip Angle:** 67.041 °  
**Declination Date:** December 26, 2014  
**Magnetic Declination Model:** BGGM 2014  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.7393 °  
**Total Corr Mag North->Grid North:** 7.5319 °  
**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	289.65	0.00	0.00	0.00	0.00	N/A	1415925.55	3318319.42	N 40 28 10.13	W 104 21 21.10
Begin EMS	372.00	0.80	257.80	371.99	2.55	-0.55	-2.54	0.22	1415925.00	3318316.88	N 40 28 10.12	W 104 21 21.13
Survey												
Last EMS	718.00	0.35	201.35	717.97	5.32	-2.04	-5.28	0.19	1415923.50	3318314.14	N 40 28 10.11	W 104 21 21.16
Survey												
9.625" Casing	720.00	0.35	201.68	719.97	5.33	-2.05	-5.29	0.13	1415923.49	3318314.13	N 40 28 10.11	W 104 21 21.16
Point												
Begin												
SLB_MWD	812.00	0.44	213.77	811.97	5.64	-2.61	-5.59	0.13	1415922.94	3318313.83	N 40 28 10.10	W 104 21 21.17
Survey												
	903.00	0.26	215.67	902.97	5.96	-3.07	-5.90	0.20	1415922.48	3318313.52	N 40 28 10.10	W 104 21 21.17
	996.00	0.53	194.92	995.97	6.21	-3.66	-6.14	0.32	1415921.89	3318313.28	N 40 28 10.09	W 104 21 21.18
	1089.00	0.35	162.76	1088.96	6.25	-4.34	-6.16	0.32	1415921.20	3318313.26	N 40 28 10.09	W 104 21 21.18
	1182.00	0.35	201.74	1181.96	6.28	-4.88	-6.19	0.25	1415920.67	3318313.24	N 40 28 10.08	W 104 21 21.18
	1276.00	0.35	197.48	1275.96	6.48	-5.42	-6.38	0.03	1415920.13	3318313.04	N 40 28 10.08	W 104 21 21.18
	1296.00	0.44	186.53	1295.96	6.51	-5.55	-6.40	0.59	1415919.99	3318313.02	N 40 28 10.07	W 104 21 21.18
	1390.00	0.35	182.67	1389.96	6.58	-6.20	-6.46	0.10	1415919.35	3318312.96	N 40 28 10.07	W 104 21 21.18
	1482.00	0.44	146.77	1481.95	6.41	-6.77	-6.28	0.28	1415918.77	3318313.14	N 40 28 10.06	W 104 21 21.18
	1573.00	0.44	170.26	1572.95	6.17	-7.41	-6.03	0.20	1415918.14	3318313.39	N 40 28 10.06	W 104 21 21.18
	1666.00	0.44	172.92	1665.95	6.08	-8.12	-5.92	0.02	1415917.43	3318313.50	N 40 28 10.05	W 104 21 21.17
	1759.00	0.53	149.33	1758.95	5.83	-8.84	-5.66	0.23	1415916.70	3318313.76	N 40 28 10.04	W 104 21 21.17
	1852.00	0.62	159.70	1851.94	5.45	-9.68	-5.27	0.15	1415915.86	3318314.15	N 40 28 10.03	W 104 21 21.17
	1944.00	0.62	176.71	1943.94	5.27	-10.65	-5.07	0.20	1415914.90	3318314.36	N 40 28 10.02	W 104 21 21.16
	2036.00	2.11	336.86	2035.92	5.88	-9.59	-5.70	2.94	1415915.96	3318313.72	N 40 28 10.03	W 104 21 21.17
	2129.00	5.36	320.07	2128.71	9.25	-4.68	-9.16	3.65	1415920.87	3318310.26	N 40 28 10.08	W 104 21 21.22
	2222.00	6.77	313.37	2221.19	15.89	2.41	-15.94	1.69	1415927.96	3318303.48	N 40 28 10.15	W 104 21 21.30
	2316.00	8.88	307.04	2314.31	25.55	10.59	-25.76	2.42	1415936.14	3318293.66	N 40 28 10.24	W 104 21 21.43
	2408.00	8.44	305.81	2405.26	36.53	18.82	-36.90	0.52	1415944.36	3318282.52	N 40 28 10.32	W 104 21 21.57
	2501.00	8.44	305.71	2497.25	47.45	26.80	-47.98	0.02	1415952.34	3318271.44	N 40 28 10.40	W 104 21 21.71
	2596.00	8.27	305.32	2591.25	58.53	34.82	-59.21	0.19	1415960.36	3318260.36	N 40 28 10.48	W 104 21 21.86
	2691.00	8.09	304.58	2685.28	69.46	42.56	-70.29	0.22	1415968.10	3318249.13	N 40 28 10.56	W 104 21 22.00
	2786.00	8.79	290.13	2779.26	81.66	48.85	-82.61	2.34	1415974.40	3318236.81	N 40 28 10.62	W 104 21 22.16
	2880.00	9.41	287.38	2872.08	95.64	53.62	-96.69	0.81	1415979.16	3318222.73	N 40 28 10.67	W 104 21 22.34
	2975.00	7.74	275.27	2966.02	109.37	56.53	-110.47	2.58	1415982.07	3318208.95	N 40 28 10.70	W 104 21 22.52
	3070.00	5.89	262.42	3060.35	120.57	56.47	-121.68	2.51	1415982.02	3318197.75	N 40 28 10.70	W 104 21 22.66
	3164.00	4.40	263.02	3153.97	128.95	55.40	-130.04	1.59	1415980.94	3318189.39	N 40 28 10.69	W 104 21 22.77
	3259.00	3.43	273.36	3248.75	135.41	55.12	-136.49	1.26	1415980.66	3318182.93	N 40 28 10.69	W 104 21 22.85
	3354.00	1.85	273.92	3343.64	139.77	55.39	-140.86	1.66	1415980.94	3318178.57	N 40 28 10.69	W 104 21 22.91
	3449.00	0.97	125.03	3438.63	140.65	55.04	-141.73	2.87	1415980.58	3318177.70	N 40 28 10.69	W 104 21 22.92
	3544.00	1.14	116.37	3533.61	139.16	54.15	-140.22	0.24	1415979.70	3318179.20	N 40 28 10.68	W 104 21 22.90
	3639.00	0.09	320.53	3628.61	138.37	53.79	-139.43	1.29	1415979.34	3318180.00	N 40 28 10.68	W 104 21 22.89
	3734.00	0.35	352.23	3723.61	138.45	54.14	-139.51	0.29	1415979.68	3318179.91	N 40 28 10.68	W 104 21 22.89
	3829.00	0.35	339.54	3818.61	138.58	54.70	-139.65	0.08	1415980.24	3318179.77	N 40 28 10.69	W 104 21 22.89
	3924.00	0.53	348.01	3913.60	138.76	55.40	-139.85	0.20	1415980.94	3318179.58	N 40 28 10.69	W 104 21 22.90
	4018.00	0.70	339.59	4007.60	139.03	56.36	-140.14	0.20	1415981.91	3318179.29	N 40 28 10.70	W 104 21 22.90
	4113.00	0.53	332.63	4102.59	139.42	57.30	-140.54	0.20	1415982.84	3318178.89	N 40 28 10.71	W 104 21 22.90
	4208.00	0.79	334.73	4197.59	139.88	58.28	-141.02	0.27	1415983.82	3318178.40	N 40 28 10.72	W 104 21 22.91
	4303.00	1.06	321.37	4292.57	140.68	59.56	-141.85	0.36	1415985.10	3318177.58	N 40 28 10.73	W 104 21 22.92
	4397.00	1.32	318.60	4386.55	141.91	61.05	-143.11	0.28	1415986.59	3318176.32	N 40 28 10.75	W 104 21 22.94
	4492.00	0.44	337.12	4481.54	142.76	62.20	-143.97	0.96	1415987.75	3318175.45	N 40 28 10.76	W 104 21 22.95
	4586.00	0.35	8.29	4575.54	142.84	62.82	-144.07	0.24	1415988.37	3318175.35	N 40 28 10.77	W 104 21 22.95
	4680.00	0.44	341.65	4669.54	142.90	63.45	-144.15	0.21	1415988.99	3318175.28	N 40 28 10.77	W 104 21 22.95
	4774.00	1.06	179.53	4763.53	143.02	62.92	-144.25	1.58	1415988.47	3318175.17	N 40 28 10.77	W 104 21 22.95
	4868.00	1.23	188.29	4857.51	143.19	61.05	-144.39	0.26	1415986.60	3318175.04	N 40 28 10.75	W 104 21 22.95
	4962.00	0.70	80.23	4951.51	142.79	60.15	-143.97	1.69	1415985.70	3318175.46	N 40 28 10.74	W 104 21 22.95
	5057.00	0.88	67.36	5046.50	141.54	60.53	-142.72	0.26	1415986.08	3318176.70	N 40 28 10.74	W 104 21 22.93
	5151.00	0.79	67.53	5140.49	140.26	61.06	-141.46	0.10	1415986.60	3318177.97	N 40 28 10.75	W 104 21 22.92
	5246.00	1.06	58.25	5235.47	138.90	61.77	-140.11	0.32	1415987.31	3318179.32	N 40 28 10.76	W 104 21 22.90
	5340.00	1.14	63.97	5329.46	137.30	62.64	-138.53	0.14	1415988.18	3318180.90	N 40 28 10.76	W 104 21 22.88
	5435.00	1.14	150.12	5424.44	135.99	62.23	-137.21	1.64	1415987.78	3318182.22	N 40 28 10.76	W 104 21 22.86
	5529.00	1.14	154.63	5518.43	135.16	60.58	-136.34	0.10	1415986.12	3318183.08	N 40 28 10.74	W 104 21 22.85
	5624.00	0.97	155.64	5613.41	134.45	58.99	-135.60	0.18	1415984.54	3318183.82	N 40 28 10.73	W 104 21 22.84
	5719.00	0.97	159.94	5708.40	133.87	57.50	-135.00	0.08	1415983.05	3318184.43	N 40 28 10.71	W 104 21 22.83
	5813.00	3.61	242.79	5802.33	136.27	55.40	-137.36	3.85	1415980.95	3318182.07	N 40 28 10.69	W 104 21 22.86
	5908.00	15.65	261.87	5895.83	151.73	52.21	-152.76	12.94	1415977.75	3318166.67	N 40 28 10.66	W 104 21 23.06
	6003.00	26.20	267.94	5984.45	185.52	49.64	-186.50	11.32	1415975.18	3318132.92	N 40 28 10.64	W 104 21 23.50
	6097.00	33.94	264.78	6065.74	232.51	46.50	-233.45	8.40	1415972.04	3318085.98	N 40 28 10.62	W 104 21 24.11
	6192.00	33.77	264.05	6144.64	285.27	41.35	-286.12	0.46	1415966.89	3318033.31	N 40 28 10.57	W 104 21 24.79
	6287.00	33.41	264.12	6223.77	337.65	35.93	-338.40	0.38	1415961.48	3317981.04	N 40 28 10.53	W 104 21 25.47
	6381.00	42.38	263.95	6297.87	395.12	29.93	-395.76	9.54	1415955.47	3317923.67	N 40 28 10.47	W 104 21 26.21
	6476.00	50.65	268.26	6363.21	463.88	25.43	-464.45	9.30	1415950.98	3317854.99	N 40 28 10.44	W 104 21 27.10
	6571.00	54.61	268.01	6420.86	539.36	22.97	-539.89	4.17	1415948.52	3317779.55	N 40 28 10.42	W 104 21 28.08
	6665.00	58.83	267.78	6472.43	617.91	20.08	-618.41	4.49	1415945.63	3317701.04	N 40 28 10.41	W 104 21 29.09
	6760.00	71.67	268.21	6512.12	703.99	17.08	-704.45	13.52	1415942.63	3317615.00	N 40 28 10.39	W 104 21 30.21
Last SLB_MWD Survey	6855.00	82.04	273.61	6533.71	796.28	18.64	-796.78	12.23	1415			

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 ° ' ")
Begin IFR Survey	6936.00	87.23	275.11	6541.28	876.53	24.78	-877.16	6.67	1415950.32	3317442.29	N 40 28 10.48 W 104 21 32.44	
	7027.00	87.67	273.28	6545.33	967.05	31.43	-967.83	2.07	1415956.97	3317351.63	N 40 28 10.56 W 104 21 33.61	
	7120.00	87.58	270.27	6549.18	1059.84	34.30	-1060.69	3.24	1415959.85	3317258.77	N 40 28 10.60 W 104 21 34.81	
	7213.00	88.29	268.66	6552.54	1152.77	33.44	-1153.62	1.89	1415958.98	3317165.84	N 40 28 10.61 W 104 21 36.02	
	7306.00	88.99	267.16	6554.74	1245.73	30.05	-1246.53	1.78	1415955.59	3317072.94	N 40 28 10.58 W 104 21 37.22	
	7399.00	89.16	268.25	6556.24	1338.69	26.32	-1339.44	1.19	1415951.87	3316980.03	N 40 28 10.56 W 104 21 38.42	
	7492.00	90.22	267.30	6556.75	1431.67	22.71	-1432.37	1.53	1415948.26	3316887.10	N 40 28 10.53 W 104 21 39.62	
	7584.00	89.78	268.47	6556.75	1523.66	19.32	-1524.31	1.36	1415944.86	3316795.17	N 40 28 10.51 W 104 21 40.81	
	7679.00	90.40	268.34	6556.60	1618.65	16.67	-1619.27	0.67	1415942.22	3316700.21	N 40 28 10.50 W 104 21 42.04	
	7774.00	89.96	269.47	6556.30	1713.65	14.86	-1714.25	1.28	1415940.40	3316605.24	N 40 28 10.49 W 104 21 43.27	
	7870.00	90.48	268.59	6555.93	1809.65	13.23	-1810.23	1.06	1415938.78	3316509.26	N 40 28 10.49 W 104 21 44.51	
	7965.00	90.84	269.51	6554.84	1904.64	11.66	-1905.21	1.04	1415937.20	3316414.28	N 40 28 10.49 W 104 21 45.74	
	8059.00	87.93	268.81	6555.85	1998.62	10.28	-1999.19	3.18	1415935.82	3316320.31	N 40 28 10.48 W 104 21 46.96	
	8154.00	88.37	268.22	6558.91	2093.57	7.82	-2094.10	0.77	1415933.36	3316225.40	N 40 28 10.47 W 104 21 48.19	
	8249.00	88.90	267.89	6561.18	2188.53	4.59	-2189.02	0.66	1415930.14	3316130.48	N 40 28 10.45 W 104 21 49.42	
	8343.00	89.25	267.61	6562.69	2282.50	0.90	-2282.94	0.48	1415926.45	3316036.57	N 40 28 10.43 W 104 21 50.63	
	8438.00	89.25	267.29	6563.94	2377.46	-3.32	-2377.83	0.34	1415922.22	3315941.68	N 40 28 10.40 W 104 21 51.86	
	8532.00	89.78	267.31	6564.73	2471.42	-7.75	-2471.73	0.56	1415917.80	3315847.79	N 40 28 10.37 W 104 21 53.08	
	8626.00	89.69	266.41	6565.17	2565.36	-12.90	-2565.58	0.96	1415912.65	3315753.93	N 40 28 10.33 W 104 21 54.29	
	8721.00	90.40	267.11	6565.09	2660.29	-18.27	-2660.43	1.05	1415907.28	3315659.09	N 40 28 10.29 W 104 21 55.52	
	8816.00	90.84	267.31	6564.06	2755.24	-22.89	-2755.31	0.51	1415902.66	3315564.21	N 40 28 10.25 W 104 21 56.75	
	8910.00	89.96	266.66	6563.41	2849.19	-27.84	-2849.18	1.16	1415897.71	3315470.35	N 40 28 10.21 W 104 21 57.96	
	9004.00	90.48	266.18	6563.05	2943.10	-33.70	-2942.99	0.75	1415891.84	3315376.54	N 40 28 10.17 W 104 21 59.18	
	9099.00	89.52	267.87	6563.05	3038.04	-38.64	-3037.86	2.05	1415886.91	3315281.68	N 40 28 10.13 W 104 22 0.41	
	9193.00	89.43	266.78	6563.91	3132.00	-43.02	-3131.75	1.16	1415882.53	3315187.79	N 40 28 10.10 W 104 22 1.62	
	9288.00	89.52	265.36	6564.78	3226.88	-49.53	-3226.52	1.50	1415876.02	3315093.02	N 40 28 10.05 W 104 22 2.85	
	9382.00	89.60	266.18	6565.50	3320.74	-56.47	-3320.26	0.88	1415869.08	3314999.28	N 40 28 9.99 W 104 22 4.06	
	9476.00	89.08	269.30	6566.58	3414.70	-60.17	-3414.17	3.36	1415865.38	3314905.38	N 40 28 9.97 W 104 22 5.28	
	9570.00	89.52	269.66	6567.73	3508.69	-61.03	-3508.16	0.60	1415864.52	3314811.39	N 40 28 9.97 W 104 22 6.49	
	9665.00	90.13	269.46	6568.02	3603.68	-61.75	-3603.16	0.68	1415863.79	3314716.40	N 40 28 9.97 W 104 22 7.72	
	9759.00	90.75	268.58	6567.30	3697.67	-63.36	-3697.14	1.15	1415862.19	3314622.42	N 40 28 9.97 W 104 22 8.94	
	9853.00	86.97	267.20	6569.17	3791.62	-66.82	-3791.04	4.28	1415858.73	3314528.53	N 40 28 9.95 W 104 22 10.15	
	9947.00	86.35	266.78	6574.65	3885.41	-71.75	-3884.75	0.80	1415853.80	3314434.82	N 40 28 9.91 W 104 22 11.37	
	10041.00	87.49	269.10	6579.70	3979.25	-75.12	-3978.54	2.75	1415850.43	3314341.03	N 40 28 9.89 W 104 22 12.58	
	10135.00	87.32	268.45	6583.95	4073.15	-77.13	-4072.42	0.71	1415848.42	3314247.15	N 40 28 9.88 W 104 22 13.80	
	10230.00	89.52	269.01	6586.57	4168.11	-79.23	-4167.36	2.39	1415846.32	3314152.22	N 40 28 9.87 W 104 22 15.02	
	10324.00	91.80	268.76	6585.49	4262.10	-81.06	-4261.33	2.44	1415844.49	3314058.25	N 40 28 9.87 W 104 22 16.24	
	10419.00	91.36	268.17	6582.87	4357.06	-83.61	-4356.26	0.77	1415841.94	3313963.33	N 40 28 9.85 W 104 22 17.47	
	10513.00	91.36	266.57	6580.64	4451.00	-87.92	-4450.13	1.70	1415837.63	3313869.46	N 40 28 9.82 W 104 22 18.68	
	10607.00	90.84	264.66	6578.84	4544.82	-95.10	-4543.83	2.11	1415830.45	3313775.76	N 40 28 9.76 W 104 22 19.90	
	10702.00	90.13	266.98	6578.03	4639.67	-102.03	-4638.57	2.55	1415823.52	3313681.03	N 40 28 9.71 W 104 22 21.12	
	10796.00	90.13	267.79	6577.82	4733.64	-106.32	-4732.47	0.86	1415819.23	3313587.13	N 40 28 9.68 W 104 22 22.34	
	10890.00	89.16	268.04	6578.40	4827.62	-109.74	-4826.40	1.07	1415815.82	3313493.20	N 40 28 9.65 W 104 22 23.56	
	10985.00	89.16	268.98	6579.79	4922.61	-112.21	-4921.36	0.99	1415813.35	3313398.25	N 40 28 9.64 W 104 22 24.79	
	11079.00	89.87	268.11	6580.59	5016.60	-114.59	-5015.33	1.19	1415810.96	3313304.28	N 40 28 9.63 W 104 22 26.00	
	11174.00	89.87	267.65	6580.80	5111.59	-118.11	-5110.26	0.48	1415807.44	3313209.35	N 40 28 9.61 W 104 22 27.23	
	11268.00	89.60	267.13	6581.24	5205.55	-122.39	-5204.16	0.62	1415803.16	3313115.46	N 40 28 9.58 W 104 22 28.45	
	11363.00	89.78	267.88	6581.75	5300.52	-126.52	-5299.07	0.81	1415799.03	3313020.55	N 40 28 9.55 W 104 22 29.67	
	11458.00	90.57	268.11	6581.46	5395.51	-129.85	-5394.01	0.87	1415795.71	3312925.61	N 40 28 9.53 W 104 22 30.90	
	11552.00	90.57	267.72	6580.53	5489.49	-133.27	-5487.94	0.41	1415792.29	3312831.68	N 40 28 9.50 W 104 22 32.12	
	11647.00	91.80	266.92	6578.56	5584.43	-137.71	-5582.82	1.54	1415787.85	3312736.82	N 40 28 9.47 W 104 22 33.35	
Last IFR Survey	11711.00	91.36	266.02	6576.80	5648.35	-141.65	-5646.67	1.56	1415783.91	3312672.96	N 40 28 9.44 W 104 22 34.17	
Bit Projection	11772.00	91.36	266.02	6575.35	5709.25	-145.88	-5707.51	0.00	1415779.67	3312612.13	N 40 28 9.41 W 104 22 34.96	

Survey Type: Def Survey

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

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
Surface	1	0.000	30.000	Act Stns	13.750	9.625	SLB_EMS-STD-Depth Only	Original Hole / Wells Ranch AE19-636 MWD+IFR 0' to 11772'
Surface	1	30.000	720.000	1/98.425	13.750	9.625	SLB_EMS-STD	Original Hole / Wells Ranch AE19-636 MWD+IFR 0' to 11772'
Intermediate	1	720.000	6915.000	Act Stns	8.750	7.000	SLB_MWD-STD	Original Hole / Wells Ranch AE19-636 MWD+IFR 0' to 11772'
Lateral*	1	6915.000	11711.000	Act Stns	6.125	4.500	SLB_MWD+IFR1+MS	Original Hole / Wells Ranch AE19-636 MWD+IFR 0' to 11772'
Bit Projection	1	11711.000	11772.000	Act Stns	6.125	4.500	SLB_BLIND+TREND	Original Hole / Wells Ranch AE19-636 MWD+IFR 0' to 11772'
* SLB_MWD+IFR+MS = MWD+IFR1+MS_WY								