

Noble Energy

CO, Weld County (NAD 83 NZ)
Sec 20 Twn 06 N Rng 62 W
Wells Ranch AE19-649 Original Hole
05-123-39635
H&P 330



A Schlumberger Company

Final Survey Report

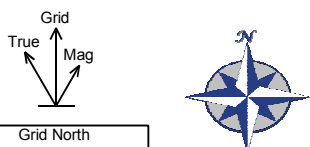
28-Jan-2015

Well Coordinates:	NAD83 Colorado State Plane, NZ, US
	N 40° 28' 10.88400" 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 AE19-649 well head
Vertical Section Azimuth:	276.800 ° (Grid North)
North Reference:	Grid North

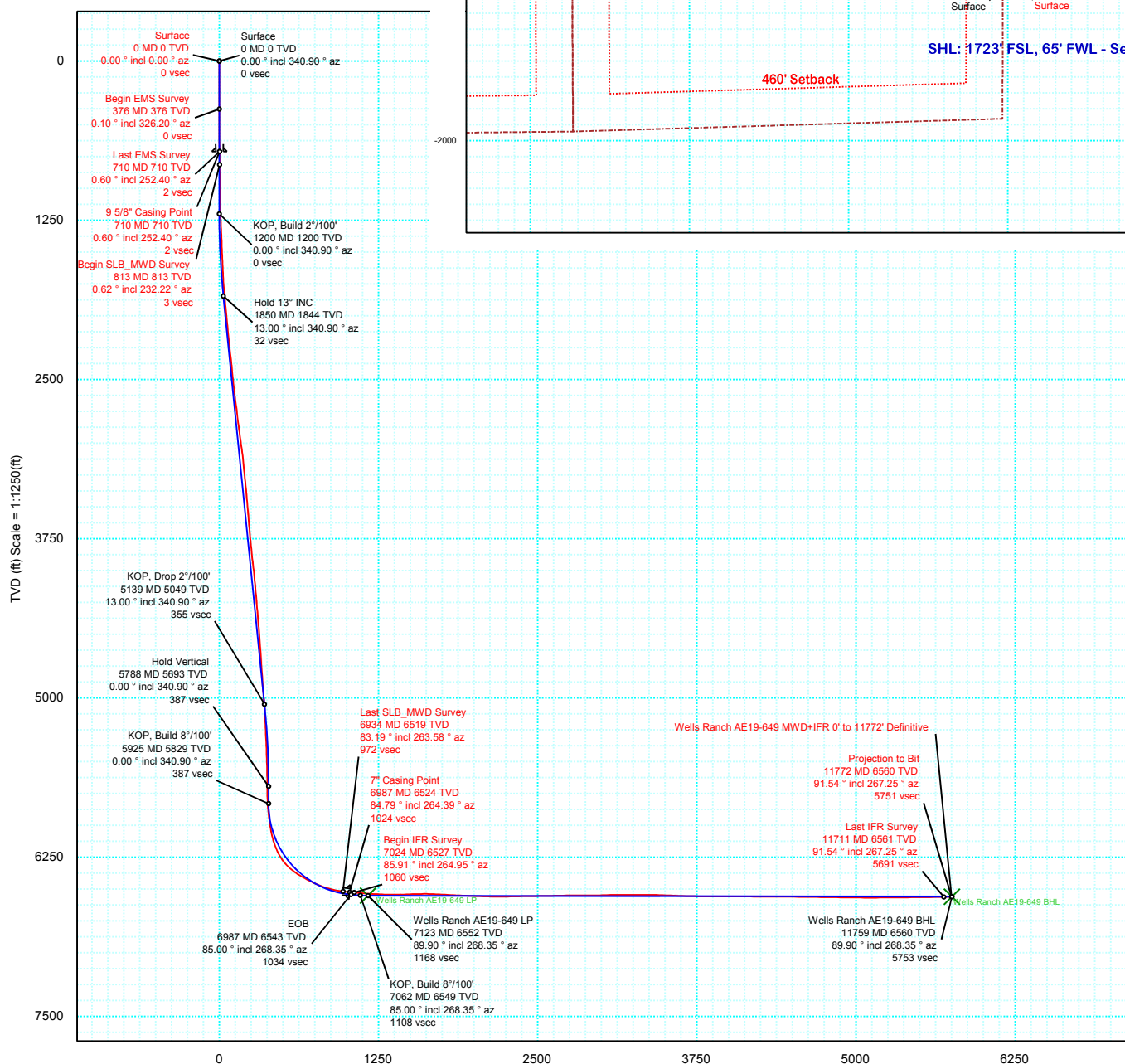
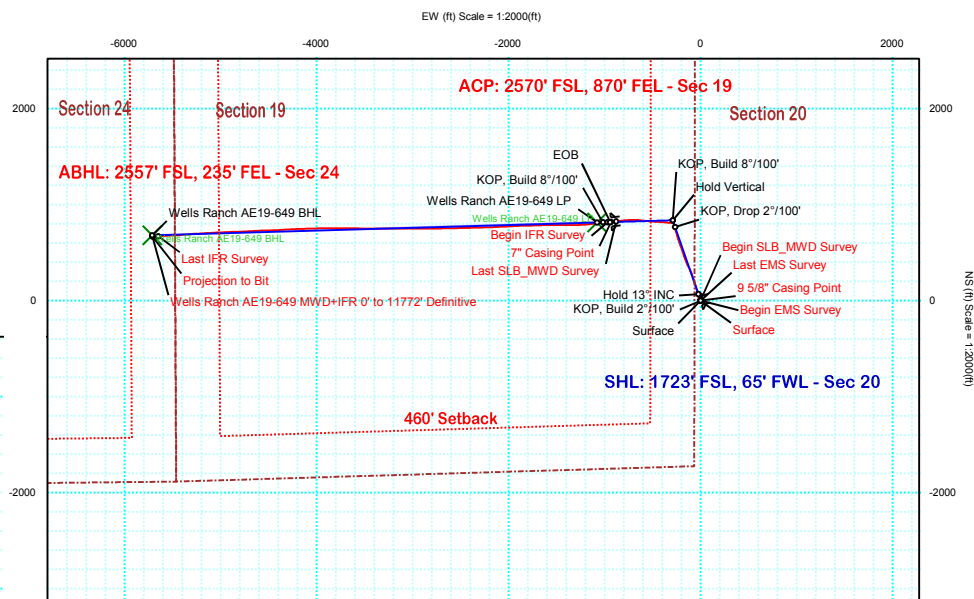
DOX Version: 2.8

Borehole: Original Hole	Well: Wells Ranch AE19-649	Field: CO, Weld County (NAD 83 NZ)	Structure: 20-06N-62W (Wells Ranch AE19 Pad) - H&P 330
Gravity & Magnetic Parameters Model: BGGM 2014 Dip: 67.037° Date: 28-Jan-2015 MagDec: 8.262° FS: 52712.193nT Gravity FS: 999.058mgm (9.80665 Based)	Surface Location NAD83 Colorado State Plane, Northern Zone, US Feet Lat: N 40 28 10.88 Northing: 1416002.04ftU Lon: W 104 21 21.10 Easting: S 3318318.43ftU Grid Conv: 0.7393° Scale Fact: 0.99996413	Miscellaneous Slot: Wells Ranch AE19-649 TVD Ref: KB 30ft(4816ft above MSL) Plan: Wells Ranch AE19-649 MWD+IFR 0' to 11772' Definitive	

PvA



Grid North
 Tot Corr (M→G 7.523°)
 Mag Dec (8.262°)
 Grid Conv (0.739°)



Vertical Section (ft) Azim = 276.8° Scale = 1:1250(ft) Origin = 0N/-S, 0E/-W

Wells Ranch AE19-649 MWD+IFR 0' to 11772' Definitive Survey Geodetic Report (Def Survey)



Report Date:	January 28, 2015 - 09:57 AM
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 AE19-649
Well:	Wells Ranch AE19-649
Borehole:	Original Hole
UWI / API#:	Unknown / Unknown
Survey Name:	Wells Ranch AE19-649 MWD+IFR 0' to 11772' Definitive
Survey Date:	January 28, 2015
Tort / AHD / DDI / ERD Ratio:	208.367 ° / 6301.822 ft / 6.372 / 0.960
Coordinate Reference System:	NAD83 Colorado State Plane, Northern Zone, US Feet
Location Lat / Long:	N 40° 28' 10.88400", W 104° 21' 21.09600"
Location Grid N/E Y/X:	N 1416002.044 ftUS, E 3318138.433 ftUS
CRS Grid Convergence Angle:	0.7393 °
Grid Scale Factor:	0.99996413
Version / Patch:	2.8.572.0

Survey / DLS Computation:	Minimum Curvature / Lubinski
Vertical Section Azimuth:	276.800 ° (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:	8.262 °
Total Gravity Field Strength:	999.0583mgn (9.80665 Based)
Gravity Model:	GARM
Total Magnetic Field Strength:	52712.193 nT
Magnetic Dip Angle:	67.037 °
Declination Date:	January 28, 2015
Magnetic Declination Model:	BGGM 2014
North Reference:	Grid North
Grid Convergence Used:	0.7393 °
Total Corr Mag North->Grid North:	7.5232 °
Local Coord Referenced To:	Well Head

	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	1416002.04	3318318.43	N 40 28 10.88	W 104 21 21.10
Begin EMS	376.00	0.10	326.20	376.00	0.21	0.27	-0.18	0.03	1416002.32	3318318.25	N 40 28 10.89	W 104 21 21.10
Survey 9 5/8" Casing												
Point	710.00	0.60	252.40	709.99	2.00	-0.01	-2.01	0.17	1416002.03	3318316.42	N 40 28 10.88	W 104 21 21.12
Last EMS												
Survey												
Begin	813.00	0.62	232.22	812.99	2.88	-0.52	-2.97	0.21	1416001.53	3318315.47	N 40 28 10.88	W 104 21 21.13
SLB_MWD												
Survey												
	906.00	0.79	234.57	905.98	3.72	-1.20	-3.89	0.19	1416000.85	3318314.55	N 40 28 10.87	W 104 21 21.15
	1000.00	0.70	245.33	999.97	4.69	-1.81	-4.94	0.18	1416000.23	3318313.50	N 40 28 10.87	W 104 21 21.16
	1090.00	0.97	247.05	1089.96	5.82	-2.34	-6.14	0.30	1415999.70	3318312.30	N 40 28 10.86	W 104 21 21.18
	1183.00	2.64	305.15	1182.92	8.39	-1.41	-8.61	2.45	1416000.63	3318309.82	N 40 28 10.87	W 104 21 21.21
	1297.00	3.87	324.27	1296.74	13.30	3.22	-13.01	1.42	1416005.26	3318305.43	N 40 28 10.92	W 104 21 21.26
	1390.00	4.75	337.92	1389.47	17.28	9.34	-16.29	1.45	1416011.38	3318302.15	N 40 28 10.98	W 104 21 21.31
	1482.00	5.98	343.13	1481.07	21.04	17.45	-19.11	1.44	1416019.50	3318299.32	N 40 28 11.06	W 104 21 21.34
	1573.00	8.00	350.20	1571.39	24.75	28.23	-21.56	2.41	1416030.27	3318296.87	N 40 28 11.17	W 104 21 21.37
	1666.00	10.02	351.11	1663.24	28.79	42.60	-23.92	2.18	1416044.64	3318294.52	N 40 28 11.31	W 104 21 21.40
	1759.00	12.05	348.30	1754.52	34.06	60.10	-27.14	2.26	1416062.15	3318291.30	N 40 28 11.48	W 104 21 21.44
	1853.00	14.68	346.19	1845.96	41.37	81.28	-31.97	2.85	1416083.32	3318286.47	N 40 28 11.69	W 104 21 21.50
	1944.00	15.04	346.51	1933.92	49.52	103.96	-37.48	0.41	1416106.00	3318280.96	N 40 28 11.92	W 104 21 21.56
	2037.00	14.07	341.75	2023.94	58.49	126.43	-43.83	1.66	1416128.47	3318274.60	N 40 28 12.14	W 104 21 21.64
	2130.00	13.89	342.49	2114.18	67.87	147.81	-50.73	0.27	1416149.85	3318267.71	N 40 28 12.35	W 104 21 21.73
	2316.00	14.33	342.53	2294.57	86.53	191.06	-64.36	0.24	1416193.10	3318254.08	N 40 28 12.78	W 104 21 21.90
	2410.00	14.07	342.81	2385.70	95.95	213.07	-71.23	0.29	1416215.11	3318247.21	N 40 28 13.00	W 104 21 21.98
	2502.00	14.25	342.80	2474.90	105.11	234.57	-77.88	0.20	1416236.61	3318240.56	N 40 28 13.21	W 104 21 22.06
	2596.00	14.60	342.38	2565.94	114.71	256.92	-84.89	0.39	1416258.95	3318233.55	N 40 28 13.43	W 104 21 22.15
	2691.00	13.98	336.67	2658.00	125.42	278.87	-93.06	1.62	1416280.90	3318225.38	N 40 28 13.65	W 104 21 22.25
	2786.00	14.25	336.16	2750.13	137.14	300.10	-102.33	0.31	1416302.13	3318216.11	N 40 28 13.86	W 104 21 22.37
	2881.00	14.42	336.79	2842.18	149.01	321.66	-111.71	0.24	1416323.70	3318206.72	N 40 28 14.08	W 104 21 22.49
	2976.00	13.54	332.33	2934.36	161.23	342.39	-121.54	1.46	1416344.42	3318196.90	N 40 28 14.28	W 104 21 22.61
	3070.00	13.54	330.96	3025.75	173.90	361.75	-131.99	0.34	1416363.78	3318186.45	N 40 28 14.48	W 104 21 22.74
	3165.00	12.05	336.96	3118.40	185.34	380.60	-141.27	2.10	1416382.63	3318177.17	N 40 28 14.66	W 104 21 22.86
	3260.00	12.05	337.86	3211.30	195.08	398.91	-148.89	0.20	1416400.94	3318169.55	N 40 28 14.84	W 104 21 22.96
	3354.00	11.70	338.91	3303.29	204.28	416.89	-156.02	0.44	1416418.92	3318162.42	N 40 28 15.02	W 104 21 23.04
	3449.00	10.90	339.33	3396.45	212.93	434.28	-162.65	0.85	1416436.31	3318155.78	N 40 28 15.20	W 104 21 23.13
	3545.00	10.29	338.97	3490.81	221.12	450.78	-168.94	0.64	1416452.81	3318149.50	N 40 28 15.36	W 104 21 23.21
	3640.00	11.52	341.62	3584.09	229.12	467.70	-174.97	1.40	1416469.73	3318143.47	N 40 28 15.53	W 104 21 23.28
	3734.00	12.31	343.03	3676.07	237.15	486.19	-180.86	0.90	1416488.22	3318137.58	N 40 28 15.71	W 104 21 23.35
	3829.00	13.19	342.88	3768.72	245.63	506.24	-187.00	0.93	1416508.26	3318131.44	N 40 28 15.91	W 104 21 23.43
	3924.00	13.89	342.81	3861.08	254.66	527.49	-193.56	0.74	1416529.52	3318124.88	N 40 28 16.12	W 104 21 23.51
	4019.00	13.98	337.37	3953.29	264.93	548.98	-201.35	1.38	1416551.00	3318117.09	N 40 28 16.33	W 104 21 23.61
	4114.00	12.22	340.51	4045.82	275.03	569.05	-209.12	2.00	1416571.07	3318109.32	N 40 28 16.53	W 104 21 23.71
	4209.00	11.70	340.29	4138.75	283.78	587.60	-215.72	0.55	1416589.62	3318102.72	N 40 28 16.72	W 104 21 23.79
	4303.00	10.99	340.92	4230.92	291.94	605.04	-221.87	0.77	1416607.06	3318096.58	N 40 28 16.89	W 104 21 23.87
	4397.00	10.20	339.47	4323.31	299.68	621.30	-227.71	0.89	1416623.32	3318090.73	N 40 28 17.05	W 104 21 23.94
	4492.00	11.08	342.17	4416.68	307.34	637.87	-233.46	1.06	1416639.89	3318084.98	N 40 28 17.22	W 104 21 24.01
	4586.00	10.38	342.42	4509.04	314.60	654.54	-238.78	0.75	1416656.56	3318079.66	N 40 28 17.38	W 104 21 24.08
	4681.00	9.50	343.90	4602.61	321.19	670.23	-243.54	0.96	1416672.25	3318074.90	N 40 28 17.54	W 104 21 24.14
	4775.00	10.64	345.28	4695.16	327.39	686.08	-247.90	1.24	1416688.09	3318070.54	N 40 28 17.69	W 104 21 24.19
	4869.00	10.20	342.81	4787.61	333.96	702.42	-252.56	0.67	1416704.44	3318065.88	N 40 28 17.86	W 104 21 24.25
	4963.00	10.02	342.81	4880.15	340.66	718.18	-257.44	0.19	1416720.20	3318061.00	N 40 28 18.01	W 104 21 24.31
	5057.00	9.50	342.01	4972.79	347.24	733.37	-262.25	0.57	1416735.39	3318056.19	N 40 28 18.16	W 104 21 24.37
	5152.00	8.62	340.99	5066.60	353.63	747.56	-266.99	0.94	1416749.58	3318051.45	N 40 28 18.30	W 104 21 24.43
	5246.00	7.74	340.10	5159.65	359.54	760.17	-271.44	0.95	1416762.19	3318047.00	N 40 28 18.43	W 104 21 24.48
	5341.00	6.42	345.77	5253.92	364.32	771.34	-274.93	1.57	1416773.35	3318043.52	N 40 28 18.54	W 104 21 24.52
	5436.00	6.16	342.75	5348.35	368.30	781.35	-277.74	0.44	1416783.37	3318040.70	N 40 28 18.64	W 104 21 24.56
	5530.00	4.75	342.70	5441.92	371.95	789.89	-280.40	1.50	1416791.90	3318038.05	N 40 28 18.72	W 104 21 24.59
	5625.00	4.04	346.11	5536.64	374.74	796.89	-282.37	0.80	1416798.91	3318036.08	N 40 28 18.79	W 104 21 24.62
	5719.00	2.73	350.46	5630.48	376.54	802.31	-283.53	1.42	1416804.33	3318034.91	N 40 28 18.85	W 104 21 24.63
	5814.00	1.41	358.65	5725.41	377.34	805.71	-283.94	1.42	1416807.73	3318034.51	N 40 28 18.88	W 104 21 24.64
	5908.00	2.81	306.33	5819.35	379.51	808.24	-285.82	2.39	1416810.25	3318032.62	N 40 28 18.91	W 104 21 24.66
	6003.00	6.77	277.55	5914.01	387.14	810.35	-293.25	4.75	1416812.36	3318025.19	N 40 28 18.93	W 104 21 24.75
	6098.00	9.41	270.23	6008.06	400.45	811.12	-306.57	2.98	1416813.13	3318011.87	N 40 28 18.94	W 104 21 24.93
	6195.00	14.25	271.77	6102.97	420.24	811.52	-326.45	5.00	1416813.53	3317992.00	N 40 28 18.94	W 104 21 25.18
	6289.00	23.92	276.99	6191.71	450.89	814.20	-357.00	10.44	1416816.22	3317961.45	N 40 28 18.97	W 104 21 25.58
	6384.00	35.79	273.24	6273.96	498.05	818.13	-404.02	12.64	1416820.14	3317914.43	N 40 28 19.02	W 104 21 26.19
	6478.00	50.21	273.16	6342.53	561.86	821.69	-467.86	15.34	1416823.71	3317850.59	N 40 28 19.06	W 104 21 27.01
	6573.00	59.79	276.36	6396.96	639.53	828.27	-545.29	10.45	1416830.28	3317773.16	N 40 28 19.14	W 104 21 28.01
	6668.00	63.22	276.68	6442.28	723.01	837.75	-628.23	3.62	1416839.76	3317690.22	N 40 28 19.24	W 104 21 29.08
	6762.00	70.17	269.14	6479.49	808.99	841.98	-714.33	10.43	1416843.99	3317604.13	N 40 28 19.29	W 104 21 30.20
	6857.00	77.65	262.44	6505.83	898.45	835.19	-805.23	10.38	1416837.20	3317513.24	N 40 28 19.24	W 104 21 31.37
Last SLB_MWD												
Survey	6934.00	83.19	263.58	6518.64	972.16	825.96	-880.56	7.34	1416827.97	3317437.91	N 40 28 19.16	W 104 21 32.35
7" Casing Point	6987.00	84.79	264.39	6524.19	1023.55	820.43	-932.97	3.38	1416822.45	3317385.49	N 40 28 19.11	W 104 21 33.03

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 ° ' ")
Begin IFR Survey	7024.00	85.91	264.95	6527.19	1059.61	817.01	-969.69	3.38	1416819.02	3317348.78	N 40 28 19.08	W 104 21 33.51
	7117.00	85.91	263.60	6533.82	1150.16	807.76	-1061.99	1.45	1416809.77	3317256.48	N 40 28 19.00	W 104 21 34.70
	7210.00	86.61	263.90	6539.88	1240.57	797.65	-1154.24	0.82	1416799.67	3317164.24	N 40 28 18.91	W 104 21 35.90
	7303.00	88.81	266.73	6543.60	1331.62	790.07	-1246.84	3.85	1416792.08	3317071.64	N 40 28 18.85	W 104 21 37.10
	7397.00	91.89	269.40	6543.03	1424.51	786.89	-1340.77	4.34	1416788.91	3316977.72	N 40 28 18.83	W 104 21 38.31
	7490.00	92.07	270.91	6539.81	1516.82	787.14	-1433.71	1.63	1416789.16	3316884.78	N 40 28 18.84	W 104 21 39.51
	7582.00	90.40	269.57	6537.83	1608.19	787.53	-1525.68	2.33	1416789.54	3316792.81	N 40 28 18.86	W 104 21 40.70
	7676.00	86.79	269.37	6540.14	1701.38	786.66	-1619.63	3.85	1416788.67	3316698.86	N 40 28 18.86	W 104 21 41.92
	7771.00	86.97	268.01	6545.31	1795.29	784.49	-1714.46	1.44	1416786.50	3316604.03	N 40 28 18.85	W 104 21 43.15
	7866.00	87.32	268.63	6550.04	1889.13	781.71	-1809.30	0.75	1416783.72	3316509.20	N 40 28 18.84	W 104 21 44.37
	7961.00	87.93	267.40	6553.97	1982.94	778.42	-1904.16	1.44	1416780.43	3316414.34	N 40 28 18.82	W 104 21 45.60
	8055.00	88.29	267.35	6557.08	2075.62	774.12	-1998.01	0.39	1416776.13	3316320.49	N 40 28 18.79	W 104 21 46.82
	8150.00	88.72	266.98	6559.55	2169.25	769.42	-2092.87	0.60	1416771.44	3316225.65	N 40 28 18.75	W 104 21 48.05
	8245.00	91.36	268.06	6559.49	2262.99	765.31	-2187.77	3.00	1416767.33	3316130.75	N 40 28 18.72	W 104 21 49.27
	8339.00	91.80	267.74	6556.90	2355.82	761.87	-2281.67	0.58	1416763.88	3316036.85	N 40 28 18.70	W 104 21 50.49
	8434.00	90.40	269.49	6555.07	2449.83	759.67	-2376.62	2.36	1416761.59	3315941.91	N 40 28 18.69	W 104 21 51.72
	8528.00	90.48	268.37	6554.35	2542.94	757.82	-2470.60	1.19	1416759.83	3315847.93	N 40 28 18.69	W 104 21 52.93
	8622.00	91.80	268.27	6552.48	2635.90	755.06	-2564.53	1.41	1416757.08	3315754.00	N 40 28 18.67	W 104 21 54.15
	8717.00	91.28	269.41	6549.93	2729.94	753.14	-2659.48	1.32	1416755.15	3315659.06	N 40 28 18.66	W 104 21 55.38
	8812.00	88.99	269.86	6549.70	2824.20	752.53	-2754.47	2.46	1416754.55	3315564.07	N 40 28 18.67	W 104 21 56.61
	8906.00	90.57	270.05	6550.06	2917.52	752.46	-2848.47	1.69	1416754.48	3315470.08	N 40 28 18.68	W 104 21 57.82
	9000.00	91.98	269.39	6547.97	3010.78	752.00	-2942.44	1.66	1416754.02	3315376.11	N 40 28 18.69	W 104 21 59.04
	9095.00	91.01	269.74	6545.49	3104.99	751.28	-3037.40	1.09	1416753.30	3315281.15	N 40 28 18.69	W 104 22 0.27
	9189.00	89.43	269.73	6545.13	3198.27	750.85	-3131.40	1.68	1416752.86	3315187.15	N 40 28 18.70	W 104 22 1.48
	9284.00	90.84	269.76	6544.91	3292.55	750.42	-3226.39	1.48	1416752.44	3315092.16	N 40 28 18.71	W 104 22 2.71
	9378.00	89.16	270.25	6544.91	3385.89	750.43	-3320.39	1.86	1416752.45	3314998.17	N 40 28 18.72	W 104 22 3.93
	9472.00	87.58	271.23	6547.58	3479.32	751.64	-3414.34	1.98	1416753.66	3314904.22	N 40 28 18.74	W 104 22 5.15
	9566.00	87.67	270.02	6551.48	3572.69	752.67	-3508.25	1.29	1416754.68	3314810.31	N 40 28 18.77	W 104 22 6.36
	9661.00	88.29	270.33	6554.83	3667.00	752.96	-3603.19	0.73	1416754.97	3314715.38	N 40 28 18.78	W 104 22 7.59
	9755.00	89.43	270.44	6556.70	3760.39	753.59	-3697.17	1.22	1416755.61	3314621.40	N 40 28 18.80	W 104 22 8.80
	9849.00	89.87	270.14	6557.27	3853.78	754.07	-3791.17	0.57	1416756.08	3314527.41	N 40 28 18.82	W 104 22 10.02
	9943.00	90.22	269.95	6557.20	3947.13	754.14	-3885.17	0.42	1416756.15	3314433.41	N 40 28 18.83	W 104 22 11.24
	10037.00	89.52	268.93	6557.41	4040.35	753.22	-3979.16	1.32	1416755.24	3314339.42	N 40 28 18.83	W 104 22 12.45
	10132.00	89.43	268.22	6558.28	4134.37	750.86	-4074.13	0.75	1416752.87	3314244.46	N 40 28 18.82	W 104 22 13.68
	10226.00	89.52	267.68	6559.14	4227.25	747.50	-4168.06	0.58	1416749.51	3314150.53	N 40 28 18.80	W 104 22 14.90
	10320.00	89.69	267.02	6559.79	4319.97	743.15	-4261.96	0.73	1416745.17	3314056.64	N 40 28 18.77	W 104 22 16.11
	10415.00	90.22	267.06	6559.86	4413.59	738.24	-4356.83	0.56	1416740.26	3313961.77	N 40 28 18.73	W 104 22 17.34
	10509.00	89.16	267.82	6560.37	4506.34	734.05	-4450.73	1.39	1416736.06	3313867.87	N 40 28 18.70	W 104 22 18.56
	10603.00	89.16	268.06	6561.75	4599.21	730.67	-4544.66	0.26	1416732.68	3313773.94	N 40 28 18.68	W 104 22 19.77
	10698.00	89.43	267.20	6562.92	4692.99	726.74	-4639.57	0.95	1416728.76	3313679.04	N 40 28 18.65	W 104 22 21.00
	10792.00	89.08	266.98	6564.14	4785.63	721.97	-4733.44	0.44	1416723.98	3313585.17	N 40 28 18.62	W 104 22 22.22
	10887.00	89.60	268.01	6565.24	4879.37	717.82	-4828.35	1.21	1416719.83	3313490.27	N 40 28 18.59	W 104 22 23.45
	10981.00	89.43	267.95	6566.03	4972.26	714.50	-4922.28	0.19	1416716.52	3313396.34	N 40 28 18.57	W 104 22 24.66
	11076.00	89.08	267.39	6567.27	5066.05	710.64	-5017.20	0.70	1416712.66	3313301.43	N 40 28 18.54	W 104 22 25.89
	11170.00	90.75	266.95	6567.41	5158.72	706.00	-5111.08	1.84	1416708.02	3313207.55	N 40 28 18.51	W 104 22 27.11
	11265.00	90.40	266.77	6566.45	5252.29	700.80	-5205.93	0.41	1416702.81	3313112.70	N 40 28 18.47	W 104 22 28.33
	11359.00	90.13	265.32	6566.02	5344.63	694.31	-5299.70	1.57	1416696.33	3313018.93	N 40 28 18.41	W 104 22 29.55
	11454.00	91.28	264.95	6564.85	5437.66	686.26	-5394.35	1.27	1416688.28	3312924.29	N 40 28 18.35	W 104 22 30.77
	11548.00	90.48	267.38	6563.41	5530.03	679.97	-5488.12	2.72	1416681.99	3312830.52	N 40 28 18.30	W 104 22 31.99
	11644.00	90.48	267.27	6562.60	5624.71	675.49	-5584.01	0.11	1416677.51	3312734.63	N 40 28 18.26	W 104 22 33.23
Last IFR Survey	11711.00	91.54	267.25	6561.42	5690.78	672.29	-5650.93	1.58	1416674.31	3312667.72	N 40 28 18.24	W 104 22 34.10
Projection to Bit	11772.00	91.54	267.25	6559.78	5750.91	669.36	-5711.83	0.00	1416671.38	3312606.82	N 40 28 18.22	W 104 22 34.88

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	13.750	SLB_EMS-STD-Depth Only	Original Hole / Wells Ranch AE19-649 MWD+IFR 0' to 11772'
Surface	1	30.000	710.000	1/98.425	13.750	13.750	SLB_EMS-STD	Original Hole / Wells Ranch AE19-649 MWD+IFR 0' to 11772'
Intermediate	1	710.000	6934.000	Act Stns	8.750	7.000	SLB_MWD-STD	Original Hole / Wells Ranch AE19-649 MWD+IFR 0' to 11772'
* Lateral	1	6934.000	11711.000	Act Stns	6.125	4.500	SLB_MWD+IFR1+MS	Original Hole / Wells Ranch AE19-649 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 AE19-649 MWD+IFR 0' to 11772'

* SLB_MWD+IFR+MS =
MWD+IFR1+MS_WY