Noble Energy

CO, Weld County (NAD 83 NZ)
Sec 29 Twn 6 N Rng 62 W
Wells Ranch AE 30-64-1AHNA Original Hole
05-123-38689
H&P 277

PATHFINDER

A Schlumberger Company

Final Survey Report

29-Oct-2014

Well Coordinates:	NAD83 CO State Plane, N Zone, US Feet	
	N 40° 27' 12.96000"	W 104° 21' 22.39200"
	1410139.62 usFt	3318293.89 usFt
Ground Level:	4754.00 ft MSL	
TVD Reference:	ole: KB @ 4778.00 ft MSL	
Local Coordinate Origin:	Wells Ranch AE 30-64-1AHNA well head	
Vertical Section Azimuth:	274.760 ° (Grid North)	
North Reference:	Grid North	
DOX Version:	2.8	

Noble Energy

PATHFINDER
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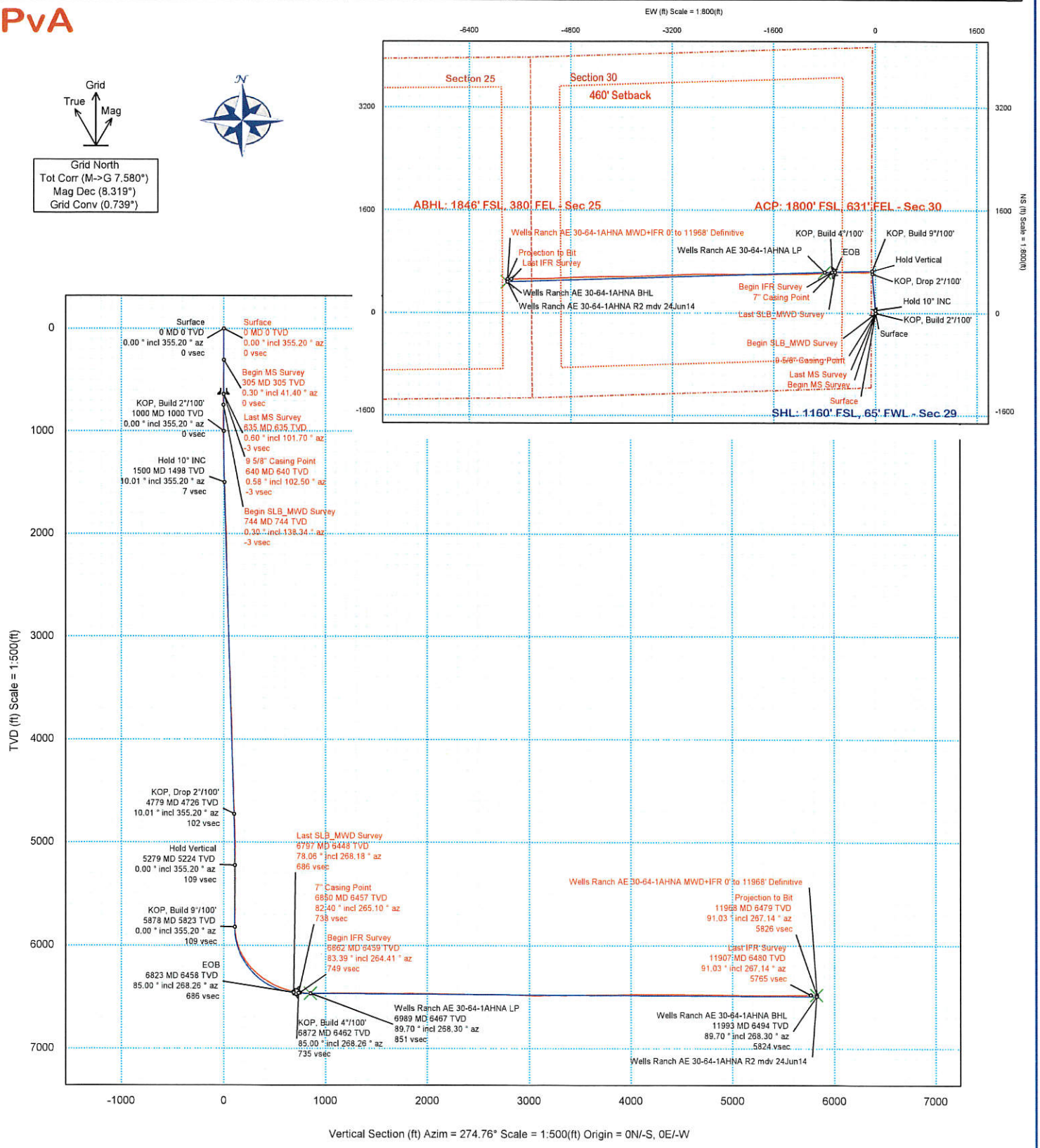
Borehole:	Well:	Field:	Structure:
Original Hole	Wells Ranch AE 30-64-1AHNA	CO, Weld County (NAD 83 NZ)	29-06N-62W (Wells Ranch AE 30-64&65 Pad) - H&P 277

Gravity & Magnetic Parameters	Surface Location NAD83 Colorado State Plane, Northern Zone, US Feet	Miscellaneous
Model: BGGM 2014 Dip: 67.049° Date: 25-Jun-2014	Lat: N 40 27 12.96 Northing: 1410139.62ftUS Grid Conv: 0.739°	Slot: Wells Ranch AE 30-64-1AHNA TVD Ref: KB(4778ft above MSL)
MagDec: 8.319° FS: 52784.296nT Gravity FS: 999.059mgn (9.80665 Based)	Lon: W 104 21 22.39 Easting: 3318293.885ftUS Scale Fact: 0.9999631	Plan: Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968' Definitive

PvA



noble energy

Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968' Definitive Survey
Geodetic Report
(Def Survey)

PATHFINDER
A Schlumberger Company

Report Date:	August 07, 2014 - 02:14 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Noble Energy	**Vertical Section Azimuth:**	274.760 ° (Grid North)
Field:	CO, Weld County (NAD 83 NZ)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Noble 29-06N-62W (Wells Ranch AE 30-64&65 Pad) - H&P 277 / Wells Ranch AE 30-64-1AHNA	**TVD Reference Datum:**	KB
Well:	Wells Ranch AE 30-64-1AHNA	**TVD Reference Elevation:**	4778.000 ft above MSL
Borehole:	Original Hole	**Seabed / Ground Elevation:**	4754.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	8.319 °
Survey Name:	Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968' Definitive	**Total Gravity Field Strength:**	999.0586mgn (9.80665 Based)
Survey Date:	June 25, 2014	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	203.313 ° / 6414.544 ft / 6.381 / 0.989	**Total Magnetic Field Strength:**	52784.296 nT
Coordinate Reference System:	NAD83 Colorado State Plane, Northern Zone, US Feet	**Magnetic Dip Angle:**	67.049 °
Location Lat / Long:	N 40° 27' 12.96000", W 104° 21' 22.39200"	**Declination Date:**	June 25, 2014
Location Grid N/E Y/X:	N 1410139.620 ftUS, E 3318293.885 ftUS	**Magnetic Declination Model:**	BGGM 2014
CRS Grid Convergence Angle:	0.7390 °	**North Reference:**	Grid North
Grid Scale Factor:	0.9999631	**Grid Convergence Used:**	0.7390 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->Grid North:**	7.5798 °
		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	355.20	0.00	0.00	0.00	0.00	N/A	1410139.62	3318293.89	N 40 27 12.96	W 104 21 22.39
Begin MS Survey	305.00	0.30	41.40	305.00	-0.48	0.60	0.53	0.10	1410140.22	3318294.41	N 40 27 12.97	W 104 21 22.39
Last MS Survey	635.00	0.60	101.70	634.99	-2.71	0.90	2.79	0.16	1410140.52	3318296.68	N 40 27 12.97	W 104 21 22.36
9 5/8" Casing Point	*640.00*	*0.58*	*102.50*	*639.99*	*-2.76*	*0.89*	*2.84*	*0.37*	*1410140.51*	*3318296.73*	*N 40 27 12.97*	*W 104 21 22.36*
Begin SLB_MWD Survey	744.00	0.30	138.34	743.99	-3.48	0.57	3.54	0.37	1410140.19	3318297.42	N 40 27 12.97	W 104 21 22.35
	839.00	1.19	355.56	838.98	-3.50	1.37	3.62	1.51	1410140.99	3318297.51	N 40 27 12.97	W 104 21 22.34
	934.00	2.12	5.50	933.94	-3.36	4.10	3.72	1.02	1410143.72	3318297.60	N 40 27 13.00	W 104 21 22.34
	1028.00	3.33	359.48	1027.83	-3.13	8.56	3.86	1.32	1410148.18	3318297.74	N 40 27 13.04	W 104 21 22.34
	1123.00	4.89	353.78	1122.59	-2.11	15.34	3.39	1.69	1410154.96	3318297.28	N 40 27 13.11	W 104 21 22.35
	1218.00	6.54	352.31	1217.11	-0.17	24.73	2.23	1.75	1410164.34	3318296.12	N 40 27 13.20	W 104 21 22.36
	1313.00	8.01	351.94	1311.34	2.46	36.64	0.58	1.55	1410176.26	3318294.47	N 40 27 13.32	W 104 21 22.38
	1408.00	9.70	353.12	1405.21	5.54	51.14	-1.30	1.79	1410190.76	3318292.58	N 40 27 13.47	W 104 21 22.40
	1501.00	10.05	354.92	1496.83	8.51	67.00	-2.96	0.50	1410206.62	3318290.92	N 40 27 13.62	W 104 21 22.42
	1596.00	9.72	355.99	1590.42	11.15	83.26	-4.26	0.40	1410222.87	3318289.63	N 40 27 13.78	W 104 21 22.43
	1691.00	9.69	355.27	1684.06	13.69	99.22	-5.48	0.13	1410238.84	3318288.41	N 40 27 13.94	W 104 21 22.45
	1786.00	8.90	351.79	1777.81	16.66	114.47	-7.18	1.02	1410254.08	3318286.70	N 40 27 14.09	W 104 21 22.47
	1880.00	10.12	351.66	1870.52	20.16	129.84	-9.42	1.29	1410269.45	3318284.47	N 40 27 14.24	W 104 21 22.49
	1975.00	9.05	350.88	1964.19	23.85	145.47	-11.81	1.13	1410285.08	3318282.07	N 40 27 14.40	W 104 21 22.52
	2070.00	9.15	357.15	2058.00	26.64	160.39	-13.38	1.05	1410300.00	3318280.51	N 40 27 14.55	W 104 21 22.54
	2165.00	8.08	359.77	2151.93	28.22	174.61	-13.78	1.19	1410314.22	3318280.11	N 40 27 14.69	W 104 21 22.54
	2259.00	9.23	357.40	2244.85	29.76	188.75	-14.15	1.28	1410328.37	3318279.74	N 40 27 14.83	W 104 21 22.54
	2354.00	8.81	357.71	2338.68	31.63	203.64	-14.78	0.45	1410343.25	3318279.10	N 40 27 14.97	W 104 21 22.55
	2449.00	9.81	358.05	2432.42	33.47	219.00	-15.35	1.06	1410358.61	3318278.54	N 40 27 15.13	W 104 21 22.55
	2543.00	9.13	355.80	2525.14	35.57	234.44	-16.17	0.83	1410374.05	3318277.72	N 40 27 15.28	W 104 21 22.56
	2638.00	10.39	355.90	2618.77	38.06	250.50	-17.33	1.33	1410390.11	3318276.56	N 40 27 15.44	W 104 21 22.57
	2732.00	9.38	353.62	2711.37	40.84	266.56	-18.79	1.16	1410406.17	3318275.10	N 40 27 15.60	W 104 21 22.59
	2826.00	10.20	356.65	2804.00	43.50	282.48	-20.13	1.03	1410422.09	3318273.76	N 40 27 15.75	W 104 21 22.61
	2921.00	9.82	355.06	2897.56	46.05	298.95	-21.32	0.50	1410438.55	3318272.57	N 40 27 15.92	W 104 21 22.62
	3016.00	10.63	354.14	2991.05	49.03	315.73	-22.91	0.87	1410455.34	3318270.98	N 40 27 16.08	W 104 21 22.64
	3110.00	10.03	351.12	3083.52	52.56	332.45	-25.05	0.86	1410472.05	3318268.83	N 40 27 16.25	W 104 21 22.66
	3204.00	8.94	349.30	3176.24	56.43	347.71	-27.67	1.21	1410487.32	3318266.21	N 40 27 16.40	W 104 21 22.69
	3299.00	9.14	353.55	3270.06	59.87	362.46	-29.89	0.74	1410502.07	3318263.99	N 40 27 16.55	W 104 21 22.72
	3393.00	8.95	352.13	3362.89	62.92	377.12	-31.73	0.31	1410516.73	3318262.16	N 40 27 16.69	W 104 21 22.74
	3488.00	9.85	353.89	3456.61	66.07	392.53	-33.61	1.00	1410532.13	3318260.28	N 40 27 16.84	W 104 21 22.76
	3582.00	10.59	356.01	3549.12	68.90	409.14	-35.07	0.88	1410548.74	3318258.82	N 40 27 17.01	W 104 21 22.78
	3677.00	11.21	354.77	3642.41	71.83	427.04	-36.52	0.70	1410566.65	3318257.37	N 40 27 17.18	W 104 21 22.79
	3772.00	12.04	354.82	3735.46	75.14	446.11	-38.25	0.88	1410585.71	3318255.63	N 40 27 17.37	W 104 21 22.81
	3866.00	12.85	355.32	3827.25	78.55	466.29	-39.99	0.87	1410605.90	3318253.90	N 40 27 17.57	W 104 21 22.83
	3961.00	11.10	359.54	3920.18	81.11	485.97	-40.93	2.05	1410625.57	3318252.96	N 40 27 17.77	W 104 21 22.84
	4055.00	10.30	359.36	4012.54	82.73	503.43	-41.09	0.85	1410643.03	3318252.79	N 40 27 17.94	W 104 21 22.84
	4150.00	9.26	0.19	4106.16	84.14	519.57	-41.16	1.11	1410659.17	3318252.72	N 40 27 18.10	W 104 21 22.84
	4244.00	9.93	353.71	4198.85	86.29	535.19	-42.03	1.35	1410674.79	3318251.86	N 40 27 18.25	W 104 21 22.85
	4338.00	8.44	355.33	4291.64	88.98	550.13	-43.48	1.61	1410689.73	3318250.41	N 40 27 18.40	W 104 21 22.86
	4433.00	9.43	348.41	4385.49	92.31	564.70	-45.61	1.53	1410704.30	3318248.28	N 40 27 18.55	W 104 21 22.89
	4527.00	9.64	348.26	4478.19	96.72	579.95	-48.76	0.22	1410719.55	3318245.13	N 40 27 18.70	W 104 21 22.93
	4622.00	9.25	353.22	4571.90	100.50	595.31	-51.28	0.95	1410734.91	3318242.61	N 40 27 18.85	W 104 21 22.96
	4716.00	7.73	351.13	4664.87	103.50	609.06	-53.14	1.65	1410748.66	3318240.74	N 40 27 18.98	W 104 21 22.98
	4810.00	6.71	347.47	4758.12	106.62	620.66	-55.31	1.19	1410760.26	3318238.58	N 40 27 19.10	W 104 21 23.00
	4905.00	5.90	345.50	4852.55	109.88	630.81	-57.74	0.88	1410770.40	3318236.15	N 40 27 19.20	W 104 21 23.03
	5000.00	4.45	347.07	4947.16	112.62	639.13	-59.78	1.53	1410778.72	3318234.10	N 40 27 19.28	W 104 21 23.06
	5095.00	2.51	349.12	5041.98	114.30	644.76	-61.00	2.05	1410784.35	3318232.89	N 40 27 19.34	W 104 21 23.07
	5189.00	1.56	353.73	5135.92	115.09	648.05	-61.53	1.02	1410787.65	3318232.36	N 40 27 19.37	W 104 21 23.08
	5284.00	0.96	347.09	5230.90	115.58	650.11	-61.85	0.65	1410789.71	3318232.04	N 40 27 19.39	W 104 21 23.08
	5379.00	0.93	323.93	5325.88	116.33	651.51	-62.48	0.40	1410791.11	3318231.41	N 40 27 19.41	W 104 21 23.09
	5474.00	0.64	50.76	5420.88	116.45	652.47	-62.52	1.15	1410792.06	3318231.37	N 40 27 19.41	W 104 21 23.09
	5569.00	0.83	82.59	5515.87	115.39	652.89	-61.43	0.46	1410792.49	3318232.46	N 40 27 19.42	W 104 21 23.08
	5664.00	0.75	137.87	5610.86	114.27	652.52	-60.33	0.78	1410792.11	3318233.56	N 40 27 19.42	W 104 21 23.06
	5758.00	0.66	144.10	5704.86	113.46	651.62	-59.59	0.13	1410791.21	3318234.29	N 40 27 19.41	W 104 21 23.05
	5822.00	0.83	146.39	5768.85	112.93	650.93	-59.12	0.26	1410790.52	3318234.77	N 40 27 19.40	W 104 21 23.05
	5849.00	0.74	142.57	5795.85	112.69	650.63	-58.90	0.37	1410790.22	3318234.98	N 40 27 19.40	W 104 21 23.05
	5881.00	1.56	218.65	5827.84	112.80	650.12	-59.05	4.88	1410789.72	3318234.84	N 40 27 19.39	W 104 21 23.05
	5912.00	4.78	238.89	5858.79	114.08	649.12	-60.42	10.82	1410788.72	3318233.47	N 40 27 19.38	W 104 21 23.07
	5944.00	8.05	242.22	5890.59	117.05	647.39	-63.55	10.30	1410786.99	3318230.34	N 40 27 19.36	W 104 21 23.11
	5976.00	11.40	246.41	5922.12	121.72	645.08	-68.43	10.68	1410784.67	3318225.46	N 40 27 19.34	W 104 21 23.17
	6007.00	14.33	251.41	5952.34	127.94	642.63	-74.87	10.12	1410782.23	3318219.01	N 40 27 19.32	W 104 21 23.25
	6039.00	17.13	255.98	5983.14	136.04	640.22	-83.20	9.54	1410779.82	3318210.69	N 40 27 19.30	W 104 21 23.36
	6071.00	20.19	261.05	6013.46	145.87	638.22	-93.23	10.81	1410777.82	3318200.66	N 40 27 19.28	W 104 21 23.49
	6102.00	23.15	264.80	6042.27	157.07	636.84	-104.59	10.55	1410776.43	3318189.30	N 40 27 19.27	W 104 21 23.64
	6134.00	26.03	266.53	6071.36	170.22	635.84	-117.86	9.26	1410775.44	3318176.03	N 40 27 19.26	W 104 21 23.81
	6165.00	28.86	265.68	6098.87	184.34	634.87	-132.11	9.23	1410774.46	3318161.78	N 40 27 19.25	W 104 21 23.99
	6197.00	32.22	264.93	6126.43	200.38	633.53	-148.32	10.57	1410773.13	3318145.58	N 40 27 19.24	W 104 21 24.20
	6228.00	34.30	265.74	6152.35	217.15	632.15	-165.26	6.86	1410771.75	3318128.63	N 40 27 19.23	W 104 21 24.42
	6260.00	37.09	269.09	6178.34	235.66	631.33	-183.90	10.65	1410770.92	3318109.99	N 40 27 19.22	W 104 21 24.67
	6291.00	40.45	272.70	6202.51	255.02	631.65	-203.30	13.05	1410771.25	3318090.59	N 40 27 19.23	W 104 21 24.92

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 ° ' ")
	6323.00	44.40	273.83	6226.12	276.59	632.89	-224.85	12.59	1410772.48	3318069.04	N 40 27 19.24	W 104 21 25.19
	6355.00	47.18	273.50	6248.43	299.53	634.35	-247.74	8.70	1410773.95	3318046.16	N 40 27 19.26	W 104 21 25.49
	6386.00	48.59	271.96	6269.22	322.50	635.45	-270.71	5.86	1410775.04	3318023.19	N 40 27 19.27	W 104 21 25.79
	6418.00	50.98	270.96	6289.88	346.90	636.06	-295.13	7.86	1410775.66	3317998.76	N 40 27 19.28	W 104 21 26.10
	6450.00	54.01	271.06	6309.36	372.23	636.51	-320.51	9.46	1410776.10	3317973.39	N 40 27 19.29	W 104 21 26.43
	6481.00	56.78	270.99	6326.97	397.68	636.97	-346.02	8.94	1410776.56	3317947.88	N 40 27 19.30	W 104 21 26.76
	6513.00	58.75	271.02	6344.04	424.69	637.44	-373.08	6.15	1410777.03	3317920.82	N 40 27 19.31	W 104 21 27.11
	6608.00	63.63	267.70	6389.81	507.52	636.45	-456.28	5.98	1410776.05	3317837.63	N 40 27 19.31	W 104 21 28.19
	6639.00	67.82	267.53	6402.56	535.55	635.28	-484.50	13.51	1410774.87	3317809.40	N 40 27 19.30	W 104 21 28.55
	6671.00	70.84	269.78	6413.85	565.31	634.58	-514.43	11.52	1410774.17	3317779.48	N 40 27 19.30	W 104 21 28.94
	6702.00	72.04	270.88	6423.72	594.61	634.75	-543.82	5.12	1410774.34	3317750.09	N 40 27 19.30	W 104 21 29.32
Last SLB_MWD Survey	6797.00	78.06	268.18	6448.22	685.96	633.96	-635.54	6.90	1410773.56	3317658.37	N 40 27 19.30	W 104 21 30.51
7" Casing Point	*6850.00*	*82.40*	*265.10*	*6457.22*	*737.65*	*630.89*	*-687.67*	*10.00*	*1410770.49*	*3317606.25*	*N 40 27 19.28*	*W 104 21 31.18*
Begin IFR Survey	6862.00	83.39	264.41	6458.70	749.37	629.80	-699.52	10.00	1410769.40	3317594.39	N 40 27 19.27	W 104 21 31.34
	6925.00	85.11	267.04	6465.01	811.27	625.13	-762.02	4.97	1410764.73	3317531.89	N 40 27 19.23	W 104 21 32.14
	6957.00	87.39	267.13	6467.10	842.92	623.51	-793.91	7.13	1410763.10	3317500.00	N 40 27 19.22	W 104 21 32.56
	7051.00	91.55	265.74	6467.97	935.90	617.66	-887.70	4.67	1410757.26	3317406.22	N 40 27 19.18	W 104 21 33.77
	7146.00	91.13	267.64	6465.75	1029.93	612.18	-982.51	2.05	1410751.78	3317311.41	N 40 27 19.13	W 104 21 35.00
	7240.00	89.93	269.55	6464.88	1123.37	609.88	-1076.48	2.40	1410749.47	3317217.45	N 40 27 19.12	W 104 21 36.21
	7335.00	90.34	269.69	6464.66	1217.99	609.25	-1171.47	0.46	1410748.84	3317122.46	N 40 27 19.13	W 104 21 37.44
	7430.00	89.28	270.28	6464.97	1312.66	609.22	-1266.47	1.28	1410748.82	3317027.46	N 40 27 19.14	W 104 21 38.67
	7524.00	89.21	269.83	6466.21	1406.33	609.31	-1360.46	0.48	1410748.91	3316933.48	N 40 27 19.15	W 104 21 39.89
	7618.00	89.62	269.19	6467.17	1499.93	608.51	-1454.45	0.81	1410748.10	3316839.49	N 40 27 19.16	W 104 21 41.10
	7713.00	89.62	267.98	6467.80	1594.38	606.16	-1549.42	1.27	1410745.76	3316744.52	N 40 27 19.15	W 104 21 42.33
	7807.00	89.90	267.76	6468.20	1687.70	602.67	-1643.36	0.38	1410742.27	3316650.59	N 40 27 19.12	W 104 21 43.55
	7902.00	90.72	269.38	6467.68	1782.14	600.30	-1738.32	1.91	1410739.89	3316555.63	N 40 27 19.11	W 104 21 44.78
	7997.00	89.24	270.07	6467.72	1876.77	599.84	-1833.32	1.72	1410739.44	3316460.64	N 40 27 19.12	W 104 21 46.01
	8091.00	89.48	269.69	6468.76	1970.42	599.65	-1927.31	0.48	1410739.24	3316366.65	N 40 27 19.13	W 104 21 47.22
	8186.00	89.11	271.10	6469.93	2065.14	600.30	-2022.30	1.53	1410739.90	3316271.67	N 40 27 19.15	W 104 21 48.45
	8280.00	89.11	270.69	6471.39	2158.91	601.77	-2116.27	0.44	1410741.36	3316177.69	N 40 27 19.17	W 104 21 49.67
	8375.00	89.79	270.56	6472.31	2253.66	602.80	-2211.26	0.73	1410742.40	3316082.71	N 40 27 19.20	W 104 21 50.89
	8470.00	88.83	270.45	6473.45	2348.39	603.64	-2306.25	1.02	1410743.24	3315987.72	N 40 27 19.22	W 104 21 52.12
	8564.00	89.31	269.97	6474.98	2442.08	603.99	-2400.24	0.72	1410743.58	3315893.74	N 40 27 19.23	W 104 21 53.34
	8659.00	90.21	270.19	6475.37	2536.76	604.12	-2495.24	0.98	1410743.72	3315798.75	N 40 27 19.25	W 104 21 54.57
	8754.00	89.45	271.10	6475.66	2631.52	605.19	-2590.23	1.25	1410744.78	3315703.76	N 40 27 19.27	W 104 21 55.80
	8848.00	88.69	269.55	6477.18	2725.22	605.72	-2684.21	1.84	1410745.32	3315609.78	N 40 27 19.29	W 104 21 57.01
	8943.00	89.28	270.12	6478.86	2819.85	605.45	-2779.20	0.86	1410745.04	3315514.80	N 40 27 19.29	W 104 21 58.24
	9038.00	88.11	268.44	6481.03	2914.39	604.26	-2874.16	2.15	1410743.85	3315419.84	N 40 27 19.30	W 104 21 59.47
	9132.00	88.11	267.61	6484.13	3007.69	601.02	-2968.05	0.88	1410740.61	3315325.95	N 40 27 19.28	W 104 22 0.68
	9227.00	91.27	267.43	6484.64	3101.92	596.91	-3062.95	3.33	1410736.50	3315231.06	N 40 27 19.25	W 104 22 1.91
	9322.00	91.03	268.08	6482.74	3196.19	593.19	-3157.86	0.73	1410732.78	3315136.15	N 40 27 19.22	W 104 22 3.14
	9416.00	89.35	267.58	6482.42	3289.50	589.63	-3251.78	1.86	1410729.22	3315042.23	N 40 27 19.20	W 104 22 4.36
	9511.00	90.55	268.02	6482.51	3383.80	585.98	-3346.71	1.35	1410725.58	3314947.30	N 40 27 19.17	W 104 22 5.58
	9606.00	90.93	268.66	6481.28	3478.19	583.23	-3441.66	0.78	1410722.83	3314852.36	N 40 27 19.16	W 104 22 6.81
	9700.00	90.28	267.91	6480.29	3571.58	580.42	-3535.61	1.06	1410720.01	3314758.41	N 40 27 19.14	W 104 22 8.03
	9795.00	90.31	267.43	6479.80	3665.86	576.55	-3630.53	0.51	1410716.15	3314663.49	N 40 27 19.12	W 104 22 9.26
	9889.00	90.34	267.36	6479.26	3759.08	572.28	-3724.44	0.08	1410711.88	3314569.59	N 40 27 19.09	W 104 22 10.47
	9984.00	90.69	268.62	6478.41	3853.41	568.95	-3819.37	1.38	1410708.55	3314474.66	N 40 27 19.07	W 104 22 11.70
	10079.00	91.13	268.19	6476.90	3947.82	566.31	-3914.32	0.65	1410705.90	3314379.72	N 40 27 19.05	W 104 22 12.93
	10173.00	90.62	269.41	6475.47	4041.29	564.34	-4008.29	1.41	1410703.94	3314285.75	N 40 27 19.04	W 104 22 14.14
	10268.00	89.76	270.32	6475.15	4135.95	564.11	-4103.29	1.32	1410703.71	3314190.76	N 40 27 19.05	W 104 22 15.37
	10362.00	89.66	269.82	6475.63	4229.63	564.23	-4197.28	0.54	1410703.83	3314096.76	N 40 27 19.07	W 104 22 16.59
	10457.00	90.00	269.69	6475.91	4324.27	563.82	-4292.28	0.38	1410703.42	3314001.77	N 40 27 19.07	W 104 22 17.82
	10552.00	90.21	269.24	6475.73	4418.86	562.94	-4387.28	0.52	1410702.53	3313906.78	N 40 27 19.08	W 104 22 19.05
	10646.00	89.48	269.25	6475.99	4512.42	561.70	-4481.27	0.78	1410701.29	3313812.79	N 40 27 19.08	W 104 22 20.26
	10741.00	89.28	268.39	6477.02	4606.91	559.74	-4576.24	0.93	1410699.34	3313717.82	N 40 27 19.07	W 104 22 21.49
	10836.00	89.28	268.22	6478.21	4701.30	556.93	-4671.19	0.18	1410696.53	3313622.87	N 40 27 19.05	W 104 22 22.72
	10930.00	89.45	267.68	6479.25	4794.63	553.57	-4765.13	0.60	1410693.17	3313528.94	N 40 27 19.03	W 104 22 23.94
	11025.00	89.42	267.33	6480.19	4888.86	549.43	-4860.03	0.37	1410689.03	3313434.04	N 40 27 19.00	W 104 22 25.16
	11120.00	89.18	266.88	6481.35	4983.01	544.64	-4954.90	0.54	1410684.23	3313339.17	N 40 27 18.97	W 104 22 26.39
	11214.00	89.11	267.29	6482.75	5076.16	539.86	-5048.77	0.44	1410679.45	3313245.31	N 40 27 18.93	W 104 22 27.61
	11309.00	89.93	268.86	6483.55	5170.50	536.66	-5143.71	1.86	1410676.26	3313150.37	N 40 27 18.91	W 104 22 28.84
	11403.00	90.00	268.63	6483.61	5263.99	534.61	-5237.69	0.26	1410674.20	3313056.40	N 40 27 18.90	W 104 22 30.05
	11498.00	90.38	269.78	6483.29	5358.54	533.29	-5332.68	1.27	1410672.89	3312961.42	N 40 27 18.90	W 104 22 31.28
	11593.00	90.24	269.74	6482.78	5453.17	532.89	-5427.67	0.15	1410672.49	3312866.42	N 40 27 18.91	W 104 22 32.51
	11688.00	90.24	268.80	6482.38	5547.74	531.68	-5522.66	0.99	1410671.28	3312771.44	N 40 27 18.91	W 104 22 33.74
	11783.00	90.72	269.00	6481.58	5642.24	529.86	-5617.64	0.55	1410669.45	3312676.46	N 40 27 18.91	W 104 22 34.97
	11877.00	91.00	267.98	6480.17	5735.66	527.38	-5711.60	1.13	1410666.98	3312582.51	N 40 27 18.89	W 104 22 36.18
Last IFR Survey	11907.00	91.03	267.14	6479.64	5765.42	526.10	-5741.57	2.80	1410665.70	3312552.54	N 40 27 18.88	W 104 22 36.57
Projection to Bit	11968.00	91.03	267.14	6478.54	5825.87	523.06	-5802.48	0.00	1410662.66	3312491.63	N 40 27 18.86	W 104 22 37.36

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
Vert/Build	1	0.000	24.000	Act Stns	13.750	9.625	SLB_EMS-STD-Depth Only	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'
Vert/Build	1	24.000	305.000	Act Stns	13.750	9.625	SLB_EMS-STD	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'
Vert/Build	1	305.000	635.000	1/98.425	13.750	9.625	SLB_EMS-STD	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'
Vert/Build	1	635.000	635.000	Act Stns	13.750	9.625	SLB_EMS-STD	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'
Vert/Build	1	635.000	6850.000	Act Stns	8.750	7.000	SLB_MWD-STD	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'
* Lateral	1	6850.000	11907.000	Act Stns	6.125	4.500	SLB_MWD+IFR+DMAG	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'
Bit Projection	1	11907.000	11968.000	Act Stns	6.125	4.500	SLB_BLIND+TREND	Original Hole / Wells Ranch AE 30-64-1AHNA MWD+IFR 0' to 11968'

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