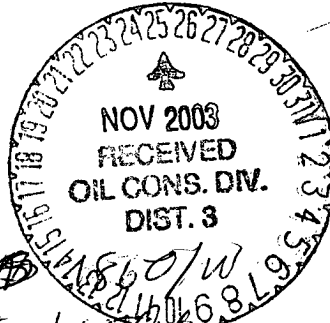


30-045-31711



Surface: 1975/1660/W
BHL2333/N 1660/W

Williams Production Company
New Mexico
San Juan County
Rosa Unit # 277A
Rosa Unit 277A Single-Shot & MWD
Survey

Sperry-Sun

Survey Report

10 October, 2003

Survey Ref: svy6296

HALLIBURTON

Survey Report for Rosa Unit # 277A - Rosa Unit 277A Single-Shot & MWD Survey

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
102.00	1.000	250.000	101.99	0.30 S	0.84 W	-0.13	0.980
255.00	1.500	257.000	254.96	1.21 S	4.04 W	-0.35	0.341
318.00	0.720	252.420	317.95	1.52 S	5.22 W	-0.41	1.245
348.00	0.470	245.400	347.94	1.62 S	5.51 W	-0.45	0.866
378.00	0.180	328.050	377.94	1.64 S	5.65 W	-0.43	1.604
408.00	0.970	335.430	407.94	1.37 S	5.78 W	-0.14	2.639
438.00	1.310	346.010	437.94	0.80 S	5.97 W	0.45	1.328
469.00	1.900	350.990	468.92	0.05 N	6.14 W	1.32	1.954
499.00	2.880	349.130	498.90	1.28 N	6.36 W	2.57	3.276
528.00	3.610	346.490	527.85	2.88 N	6.71 W	4.21	2.569
558.00	4.230	346.580	557.78	4.88 N	7.18 W	6.26	2.067
588.00	5.420	344.830	587.67	7.32 N	7.81 W	8.78	3.996
618.00	6.620	346.050	617.51	10.37 N	8.60 W	11.92	4.022
648.00	7.320	345.980	647.29	13.90 N	9.48 W	15.56	2.334
689.00	8.040	346.660	687.92	19.23 N	10.77 W	21.04	1.770
710.00	9.000	348.960	708.69	22.27 N	11.43 W	24.15	4.850
742.00	10.030	348.540	740.24	27.45 N	12.46 W	29.44	3.226
772.00	11.510	348.610	769.72	32.95 N	13.57 W	35.04	4.934
803.00	12.830	348.260	800.02	39.35 N	14.88 W	41.58	4.265
834.00	13.970	348.090	830.17	46.38 N	16.35 W	48.76	3.680
866.00	14.940	347.910	861.16	54.20 N	18.02 W	56.75	3.034
897.00	15.910	348.090	891.04	62.26 N	19.73 W	64.99	3.133
928.00	16.790	348.440	920.79	70.81 N	21.50 W	73.72	2.856
959.00	17.670	348.440	950.40	79.80 N	23.34 W	82.90	2.839
991.00	18.540	348.440	980.81	89.54 N	25.34 W	92.85	2.719
1022.00	19.690	348.610	1010.10	99.49 N	27.36 W	103.00	3.714
1054.00	20.650	348.610	1040.14	110.31 N	29.53 W	114.03	3.000
1084.00	21.800	348.790	1068.11	120.96 N	31.66 W	124.89	3.839
1116.00	22.590	348.260	1097.73	132.81 N	34.07 W	136.98	2.547
1147.00	23.550	348.260	1126.25	144.70 N	36.54 W	149.13	3.097
1179.00	24.080	347.910	1155.53	157.34 N	39.21 W	162.05	1.714
1210.00	24.960	347.910	1183.73	169.92 N	41.90 W	174.91	2.839
1241.00	25.660	348.260	1211.76	182.89 N	44.64 W	188.16	2.309
1272.00	26.720	349.140	1239.58	196.30 N	47.32 W	201.84	3.642
1302.00	27.330	351.080	1266.30	209.73 N	49.66 W	215.47	3.573
1334.00	28.040	352.480	1294.64	224.45 N	51.78 W	230.30	3.009
1365.00	29.090	352.830	1321.86	239.15 N	53.67 W	245.08	3.430
1427.00	30.590	353.180	1375.64	269.77 N	57.43 W	275.81	2.436
1487.00	31.110	352.830	1427.15	300.31 N	61.18 W	306.47	0.917
1548.00	31.820	352.130	1479.18	331.87 N	65.34 W	338.21	1.309
1609.00	32.080	351.600	1530.94	363.83 N	69.91 W	370.42	0.627
1671.00	31.640	350.020	1583.60	396.13 N	75.14 W	403.11	1.521
1733.00	31.820	347.370	1636.34	428.10 N	81.53 W	435.71	2.266
1796.00	31.900	345.980	1689.85	460.45 N	89.19 W	468.95	1.171

Survey Report for Rosa Unit # 277A - Rosa Unit 277A Single-Shot & MWD Survey

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
1859.00	31.110	345.800	1743.56	492.38 N	97.22 W	501.85	1.263
1921.00	31.730	346.500	1796.47	523.76 N	104.95 W	534.15	1.160
1983.00	32.440	345.950	1849.00	555.75 N	112.80 W	567.06	1.238
2044.00	32.170	345.630	1900.56	587.35 N	120.80 W	599.64	0.524
2106.00	31.200	345.800	1953.31	618.91 N	128.83 W	632.17	1.571
2169.00	30.320	347.030	2007.45	650.23 N	136.41 W	664.38	1.717
2231.00	28.920	347.380	2061.35	680.11 N	143.19 W	695.02	2.275
2294.00	27.690	347.030	2116.81	709.24 N	149.81 W	724.89	1.970
2356.00	26.720	347.560	2171.96	736.89 N	156.04 W	753.23	1.613
2418.00	24.780	348.790	2227.80	763.25 N	161.57 W	780.16	3.245
2449.00	24.170	350.020	2256.01	775.87 N	163.94 W	793.00	2.564
2481.00	23.640	352.130	2285.27	788.68 N	165.95 W	805.95	3.143
2511.00	22.500	353.010	2312.87	800.33 N	167.47 W	817.67	3.970
2543.00	21.710	353.540	2342.51	812.29 N	168.88 W	829.66	2.546
2574.00	21.090	353.180	2371.38	823.53 N	170.19 W	840.92	2.044
2606.00	20.650	352.660	2401.28	834.84 N	171.60 W	852.28	1.492
2637.00	20.300	350.550	2430.32	845.57 N	173.18 W	863.10	2.635
2668.00	19.600	349.490	2459.46	855.98 N	175.01 W	873.67	2.542
2700.00	18.900	348.440	2489.67	866.34 N	177.03 W	884.22	2.440
2730.00	18.110	346.680	2518.12	875.64 N	179.07 W	893.74	3.225
2761.00	16.520	345.270	2547.71	884.59 N	181.30 W	902.96	5.304
2793.00	15.560	345.450	2578.47	893.14 N	183.54 W	911.79	3.004
2824.00	14.680	346.860	2608.39	900.99 N	185.48 W	919.87	3.076
2855.00	13.890	347.560	2638.43	908.45 N	187.17 W	927.52	2.609
2885.00	13.180	348.970	2667.60	915.32 N	188.60 W	934.54	2.610
2916.00	12.740	351.430	2697.81	922.17 N	189.79 W	941.49	2.276
2948.00	11.870	351.950	2729.08	928.92 N	190.77 W	948.29	2.741
2978.00	10.990	351.950	2758.48	934.81 N	191.61 W	954.23	2.933
3010.00	10.280	350.900	2789.93	940.65 N	192.49 W	960.12	2.300
3040.00	9.930	348.610	2819.47	945.83 N	193.42 W	965.38	1.776
3072.00	9.140	347.210	2851.02	951.01 N	194.53 W	970.68	2.573
3103.00	8.090	348.440	2881.67	955.55 N	195.51 W	975.32	3.439
3135.00	6.770	348.260	2913.40	959.60 N	196.34 W	979.46	4.126
3166.00	5.980	343.160	2944.21	962.93 N	197.18 W	982.90	3.133
3198.00	5.540	341.230	2976.05	965.99 N	198.16 W	986.09	1.502
3263.00	5.540	341.230	3040.75	971.93 N	200.18 W	992.32	0.000

All data is in Feet (US Survey) unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to RKB (6404' + 15'). Northings and Eastings are relative to 1975' FSL/1860' FWL.

The Dogleg Severity is in Degrees per 100 feet (US Survey).
Vertical Section is from 1975' FSL/1860' FWL and calculated along an Azimuth of 348.080° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 3263.00ft.,
The Bottom Hole Displacement is 992.34ft., in the Direction of 348.362° (True).

Survey Report for Rosa Unit # 277A - Rosa Unit 277A Single-Shot & MWD Survey

Comments

Measured Depth (ft)	Station Coordinates			Comment
	TVD (ft)	Northings (ft)	Eastings (ft)	
102.00	101.99	0.30 S	0.84 W	Surveys at 102' and 255' are Single-Shot Surveys
318.00	317.95	1.52 S	5.22 W	First MWD Survey
3198.00	2976.05	965.99 N	198.16 W	Final MWD Survey
3263.00	3040.75	971.93 N	200.18 W	Survey Projection to TD of Directional Work