



**Williams Production Co. - San
Juan Basin**

New Mexico

Rio Arriba County 30-039-27041

Sec 11-T31N-R06W

Rosa Unit #381 - #381 SDTK Survey

Surface 1425/N 495/W Sec 11 31N 6W
BHL 1189/N 836/E Sec 10 31N 6W

Sperry-Sun

Survey Report

1 November, 2002

Surface Coordinates: 2153411.81 N, 615105.60 E (36° 55' 02.4000" N, 107° 26' 22.5000" W)
Grid Coordinate System: NAD27 New Mexico State Planes, Western Zone

Surface Coordinates relative to Global Coordinates: 648420.68 N, 317424.84 E (Grid)

Surface Coordinates relative to Structure: 1173.01 N, 2087.04 W (True)

Kelly Bushing: 6332.00ft above Mean Sea Level

Survey Ref: svy1442

HALLIBURTON

HALLIBURTON

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SDTK Survey

Measured Depth (ft)	Incl.	Azlm.	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	
1009.00	1.000	250.800	1008.95	2.90 S	8.32 W	7.69	0.099
1490.00	1.500	275.800	1489.84	3.64 S	18.54 W	17.63	0.152
2003.00	1.500	280.800	2002.66	1.70 S	31.82 W	31.04	0.026
2377.00	0.800	351.500	2376.60	1.80 N	37.01 W	36.76	0.387
2408.00	0.900	338.300	2407.59	2.24 N	37.13 W	36.96	0.707
2440.00	2.100	299.600	2439.58	2.76 N	37.74 W	37.64	4.708
2471.00	3.900	280.800	2470.54	3.24 N	39.27 W	39.23	6.542
2503.00	5.500	275.400	2502.43	3.59 N	41.86 W	41.85	5.182
2534.00	7.600	275.300	2533.23	3.92 N	45.38 W	45.37	6.774
2566.00	10.600	274.300	2564.82	4.33 N	50.43 W	50.41	9.388
2597.00	13.600	275.400	2595.13	4.89 N	56.90 W	56.88	9.706
2629.00	15.500	275.500	2626.10	5.65 N	64.90 W	64.90	5.938
2661.00	18.700	277.900	2656.68	6.77 N	74.24 W	74.29	10.238
2692.00	22.200	279.700	2685.73	8.44 N	84.94 W	85.12	11.470
2724.00	25.800	281.400	2714.96	10.83 N	97.73 W	98.13	11.455
2756.00	29.400	282.200	2743.31	13.87 N	112.24 W	112.94	11.309
2787.00	32.700	281.000	2769.86	17.08 N	127.90 W	128.92	10.830
2819.00	36.000	280.200	2796.28	20.39 N	145.65 W	146.97	10.408
2850.00	39.400	280.200	2820.80	23.75 N	164.30 W	165.93	10.968
2882.00	43.300	281.000	2844.82	27.64 N	185.08 W	187.06	12.299
2913.00	46.500	283.500	2866.78	32.30 N	206.45 W	208.92	11.787
2944.00	49.100	282.800	2887.60	37.52 N	228.81 W	231.85	8.552
2976.00	52.500	281.900	2907.82	42.82 N	253.03 W	256.62	10.846
3008.00	55.500	281.200	2926.63	48.00 N	278.39 W	282.50	9.540
3040.00	58.600	280.500	2944.03	53.05 N	304.76 W	309.35	9.860
3071.00	62.300	280.500	2959.32	57.96 N	331.28 W	336.31	11.935
3103.00	66.000	279.800	2973.27	63.03 N	359.62 W	365.10	11.729
3135.00	69.300	279.100	2985.44	67.89 N	388.81 W	394.69	10.509
3167.00	72.900	278.700	2995.80	72.57 N	418.71 W	424.96	11.312
3198.00	76.500	278.900	3003.98	77.15 N	448.26 W	454.85	11.630
3230.00	80.400	278.700	3010.38	81.94 N	479.24 W	486.18	12.203
3313.00	84.300	270.000	3021.45	88.15 N	561.17 W	567.95	11.400
3343.00	85.600	272.900	3024.09	88.90 N	591.04 W	597.49	10.559
3373.00	88.600	275.500	3025.61	91.10 N	620.91 W	627.30	13.225
3403.00	91.400	277.800	3025.61	94.57 N	650.70 W	657.24	12.078
3434.00	91.700	278.000	3024.77	98.83 N	681.40 W	688.21	1.163
3465.00	89.300	277.200	3024.50	102.93 N	712.12 W	719.18	8.161
3496.00	88.100	276.900	3025.21	106.73 N	742.88 W	750.13	3.990
3526.00	89.400	278.800	3025.86	110.83 N	772.59 W	780.10	7.673

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Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3557.00	89.000	277.700	3026.29	115.28 N	803.26 W	811.08	3.775
3587.00	86.900	276.300	3027.37	118.93 N	833.02 W	841.02	8.411
3618.00	86.800	277.500	3029.07	122.65 N	863.75 W	871.92	3.879
3649.00	88.400	279.300	3030.37	127.17 N	894.39 W	902.88	7.765
3679.00	89.500	281.900	3030.92	132.69 N	923.87 W	932.87	9.409
3710.00	90.300	282.800	3030.97	139.32 N	954.15 W	963.85	3.884
3741.00	91.200	283.200	3030.57	146.29 N	984.35 W	994.80	3.177
3772.00	93.700	283.500	3029.24	153.44 N	1014.48 W	1025.72	8.122
3802.00	96.000	283.900	3026.70	160.52 N	1043.52 W	1055.54	7.781
3833.00	95.100	286.100	3023.71	168.51 N	1073.32 W	1086.28	7.637
3864.00	92.400	286.600	3021.68	177.22 N	1103.00 W	1117.02	8.857
3895.00	89.100	284.900	3021.27	185.63 N	1132.83 W	1147.86	11.974
3926.00	89.600	285.300	3021.62	193.70 N	1162.76 W	1178.73	2.065
3957.00	89.700	285.000	3021.81	201.81 N	1192.68 W	1209.61	1.020
3987.00	90.900	284.300	3021.66	209.39 N	1221.71 W	1239.51	4.631
4018.00	90.700	283.900	3021.22	216.94 N	1251.77 W	1270.42	1.443
4049.00	91.600	283.700	3020.60	224.34 N	1281.87 W	1301.35	2.974
4100.00	89.000	283.000	3020.34	236.11 N	1331.48 W	1352.26	5.280

All data is in Feet (US Survey) unless otherwise stated. Directions and coordinates are relative to True North. Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet (US Survey).
Vertical Section is from Well and calculated along an Azimuth of 280.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 4100.00ft.,
The Bottom Hole Displacement is 1352.26ft., in the Direction of 280.056° (True).

Comments

Measured Depth (ft)	TVD (ft)	Northings (ft)	Eastings (ft)	Comment
4049.00	3020.60	224.34 N	1281.87 W	Last MWD Survey
4100.00	3020.34	236.11 N	1331.48 W	Projection to TD