

Williams Production Company

30-039-27013

New Mexico

Rio Arriba County

Sec. 6-T31N-R5W

Rosa Unit #171-B

Rosa Unit 171-B MWD & Single-Shot Survey

SRF: 725/S 1235/E
BHL: 247/N 2232/E Sec 7 T31N 05W

SURVEY REPORT

14 August, 2002

sperry-sun
DRILLING SERVICES
A Halliburton Company

Survey Ref: svy7595

Sperry-Sun Drilling Services

Survey Report for Rosa Unit #171-B
Rosa Unit 171-B MWD & Single-Shot Survey



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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	
324.00	0.200	286.500	324.00	0.16 N	0.54 W	0.18	0.062
384.00	0.300	328.000	384.00	0.32 N	0.73 W	0.15	0.334
444.00	0.400	296.400	444.00	0.55 N	1.00 W	0.13	0.356
504.00	0.800	237.700	503.99	0.42 N	1.54 W	0.54	1.140
565.00	2.500	226.000	564.97	0.73 S	2.86 W	2.25	2.827
655.00	7.000	216.500	654.64	6.51 S	7.53 W	9.66	5.059
745.00	9.900	213.400	743.65	17.38 S	15.05 W	22.88	3.261
836.00	11.700	213.400	833.03	31.61 S	24.44 W	39.92	1.978
926.00	11.700	214.900	921.17	46.72 S	34.69 W	58.17	0.338
1020.00	13.600	215.600	1012.88	63.52 S	46.57 W	78.75	2.028
1113.00	14.900	216.700	1103.02	82.00 S	60.08 W	101.64	1.428
1207.00	16.600	216.500	1193.48	102.48 S	75.29 W	127.15	1.809
1300.00	17.600	215.200	1282.37	124.65 S	91.30 W	154.49	1.151
1393.00	19.200	215.200	1370.61	148.64 S	108.22 W	183.84	1.720
1486.00	20.300	214.600	1458.14	174.41 S	126.20 W	215.27	1.203
1578.00	21.500	215.000	1544.09	201.36 S	144.93 W	248.09	1.314
1670.00	22.200	214.600	1629.48	229.48 S	164.47 W	282.33	0.778
1764.00	24.300	215.200	1715.84	259.90 S	185.71 W	319.43	2.248
1858.00	25.100	216.100	1801.24	291.82 S	208.60 W	358.70	0.940
1983.00	26.000	218.700	1914.02	334.63 S	241.36 W	412.57	1.150
2077.00	25.500	218.500	1998.68	366.54 S	266.83 W	453.33	0.540
2171.00	23.800	216.700	2084.11	397.59 S	290.77 W	492.50	1.977
2263.00	23.500	214.200	2168.39	427.64 S	312.17 W	529.39	1.138
2357.00	23.900	215.000	2254.46	458.74 S	333.63 W	567.17	0.546
2451.00	23.000	215.900	2340.70	489.21 S	355.32 W	604.58	1.030
2543.00	21.800	215.800	2425.75	517.63 S	375.85 W	639.64	1.305
2635.00	22.100	211.800	2511.09	546.19 S	394.97 W	673.99	1.657
2729.00	22.600	211.700	2598.03	576.59 S	413.77 W	709.67	0.533
2821.00	23.400	214.200	2682.72	606.74 S	433.33 W	745.59	1.372
2916.00	21.800	212.600	2770.42	637.21 S	453.44 W	782.07	1.804
3009.00	21.800	213.700	2856.77	666.12 S	472.33 W	816.58	0.439
3104.00	20.800	213.200	2945.28	694.91 S	491.35 W	851.08	1.070
3197.00	21.200	214.200	3032.10	722.64 S	509.84 W	884.39	0.577
3291.00	22.400	210.300	3119.38	752.16 S	528.44 W	919.23	2.000
3382.00	21.000	214.600	3203.94	780.56 S	546.44 W	952.81	2.327
3476.00	21.200	213.700	3291.63	808.56 S	565.44 W	986.65	0.405
3569.00	20.000	211.400	3378.69	836.13 S	583.06 W	1019.33	1.556
3664.00	17.800	211.200	3468.56	862.42 S	599.04 W	1050.03	2.317
3759.00	17.900	212.100	3558.99	887.21 S	614.33 W	1079.09	0.309
3852.00	17.300	216.900	3647.64	910.37 S	630.22 W	1107.18	1.688
3945.00	15.600	216.700	3736.83	931.46 S	646.00 W	1133.51	1.829
4039.00	13.200	215.900	3827.87	950.29 S	659.85 W	1156.88	2.562
4133.00	9.000	217.400	3920.09	964.83 S	670.61 W	1174.96	4.478
4359.00	8.500	230.800	4143.48	989.43 S	694.30 W	1208.72	0.926

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4551.00	10.250	258.800	4333.01	1001.73 S	722.07 W	1234.78	2.513
4821.00	13.250	262.200	4597.32	1010.59 S	776.30 W	1273.31	1.140
5078.00	11.000	274.200	4848.61	1012.79 S	829.95 W	1306.05	1.310
5360.00	9.000	284.200	5126.34	1005.41 S	878.17 W	1327.84	0.937
5675.00	6.750	282.200	5438.35	995.45 S	920.16 W	1343.93	0.719
5954.00	7.250	277.200	5715.27	989.78 S	953.65 W	1358.61	0.282
6348.00	5.500	300.800	6106.88	977.00 S	994.54 W	1371.76	0.791
6388.00	5.250	300.800	6146.71	975.08 S	997.76 W	1372.04	0.625

All data is in Feet (US) 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).
Vertical Section is from Well and calculated along an Azimuth of 215.228° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6388.00ft.,
The Bottom Hole Displacement is 1395.10ft., in the Direction of 225.659° (True).

Comments

Measured Depth (ft)	Station Coordinates			Comment
	TVD (ft)	Northings (ft)	Eastings (ft)	
324.00	324.00	0.16 N	0.54 W	First MWD Survey
4133.00	3920.09	964.83 S	670.61 W	Final MWD Survey
4359.00	4143.48	989.43 S	694.30 W	Surveys from 4359' through 6348' are Single-Shot Surveys
6388.00	6146.71	975.08 S	997.76 W	Survey Projection to TD