

Survey Report for Sec. 24-T30N-R8W - Northeast Blanco Unit 29A -
MWD Surveys

30-045-31309

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	
307.00	0.300	266.400	307.00	0.05 S	0.80 W	-0.51	0.098
369.00	2.500	32.500	368.98	1.08 N	0.24 W	0.73	4.335
430.00	6.400	39.800	429.78	4.82 N	2.65 E	5.46	6.448
490.00	10.100	38.600	489.15	11.50 N	8.08 E	14.05	6.173
550.00	14.100	35.700	547.81	21.55 N	15.63 E	26.62	6.741
612.00	17.000	37.200	607.53	34.90 N	25.52 E	43.24	4.722
671.00	20.700	33.800	663.36	50.45 N	36.54 E	62.29	6.539
731.00	24.800	33.700	718.68	69.73 N	49.42 E	85.47	6.834
791.00	27.800	33.700	772.46	91.85 N	64.17 E	112.03	5.000
852.00	31.800	35.400	825.39	116.79 N	81.38 E	142.32	6.701
913.00	36.000	36.700	876.01	144.28 N	101.42 E	176.34	6.987
973.00	39.700	35.900	923.38	173.95 N	123.20 E	213.15	6.221
1033.00	40.400	35.200	969.31	205.37 N	145.64 E	251.75	1.387
1093.00	40.900	35.400	1014.83	237.26 N	168.23 E	290.83	0.861
1153.00	38.700	37.900	1060.93	268.08 N	191.14 E	329.23	4.534
1213.00	37.500	36.300	1108.14	297.60 N	213.47 E	366.24	2.590
1274.00	37.800	39.600	1156.44	326.97 N	236.38 E	403.47	3.341
1369.00	38.000	33.800	1231.43	373.72 N	271.22 E	461.77	3.755
1428.00	39.100	34.700	1277.57	404.11 N	291.91 E	498.52	2.093
1490.00	39.900	35.100	1325.41	436.46 N	314.48 E	537.94	1.354
1553.00	40.100	34.400	1373.67	469.73 N	337.56 E	578.43	0.782
1616.00	40.600	34.500	1421.69	503.36 N	360.63 E	619.20	0.800
1680.00	40.800	37.300	1470.21	537.16 N	385.10 E	660.93	2.870
1742.00	41.100	36.100	1517.04	569.74 N	409.38 E	701.56	1.358
1803.00	41.300	37.600	1562.94	601.89 N	433.48 E	741.73	1.653
1897.00	42.200	36.400	1633.07	651.88 N	471.14 E	804.31	1.280
1990.00	43.100	35.900	1701.47	702.76 N	508.31 E	867.32	1.034
2048.00	41.400	36.500	1744.40	734.23 N	531.34 E	906.32	3.012
2110.00	42.100	34.900	1790.66	767.76 N	555.43 E	947.60	2.056
2172.00	42.800	35.700	1836.41	801.91 N	579.61 E	989.44	1.426
2236.00	43.200	34.000	1883.21	837.73 N	604.55 E	1033.08	1.916
2299.00	44.300	33.800	1928.72	873.89 N	628.84 E	1076.61	1.760
2362.00	45.400	35.800	1973.39	910.36 N	654.20 E	1121.03	2.839
2425.00	46.300	31.900	2017.28	947.89 N	679.36 E	1166.18	4.665
2486.00	45.800	34.200	2059.62	984.70 N	703.31 E	1210.03	2.835
2547.00	43.900	35.300	2102.86	1020.05 N	727.82 E	1253.04	3.364
2610.00	44.900	35.200	2147.87	1056.05 N	753.26 E	1297.11	1.591
2677.00	44.300	37.000	2195.58	1094.06 N	780.97 E	1344.15	2.088
2738.00	45.300	37.700	2238.86	1128.22 N	807.05 E	1387.12	1.828

HALLIBURTON**Sperry-Sun Drilling Services**
New Mexico
San Juan County**Survey Report for Sec. 24-T30N-R8W - Northeast Blanco Unit 29A -
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Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2801.00	45.000	37.000	2283.29	1163.73 N	834.15 E	1431.77	0.920
2864.00	44.400	39.100	2328.08	1198.62 N	861.45 E	1476.05	2.531
2927.00	44.100	38.300	2373.20	1232.93 N	888.94 E	1519.97	1.006
2989.00	44.800	34.500	2417.47	1267.87 N	914.69 E	1563.37	4.438
3052.00	45.100	33.700	2462.06	1304.73 N	939.64 E	1607.85	1.016
3115.00	44.100	33.500	2506.92	1341.57 N	964.12 E	1652.04	1.603
3178.00	44.700	33.100	2551.93	1378.41 N	988.32 E	1696.07	1.051
3241.00	44.700	33.900	2596.71	1415.36 N	1012.78 E	1740.34	0.893
3303.00	44.300	36.500	2640.93	1450.87 N	1037.82 E	1783.79	3.009
3363.00	44.300	35.700	2683.88	1484.73 N	1062.51 E	1825.69	0.931
3424.00	43.600	36.200	2727.79	1519.00 N	1087.36 E	1868.03	1.281
3485.00	43.200	38.400	2772.12	1552.34 N	1112.76 E	1909.92	2.563
3548.00	42.900	37.300	2818.15	1586.29 N	1139.15 E	1952.91	1.283
3611.00	42.200	37.500	2864.56	1620.14 N	1165.02 E	1995.50	1.132
3672.00	41.700	36.900	2909.93	1652.62 N	1189.68 E	2036.26	1.051
3735.00	38.800	37.600	2958.01	1685.02 N	1214.31 E	2076.96	4.659
3798.00	36.100	39.100	3008.02	1715.07 N	1238.06 E	2115.23	4.523
3861.00	34.600	39.000	3059.41	1743.37 N	1261.02 E	2151.63	2.383
3923.00	32.900	39.300	3110.95	1770.09 N	1282.77 E	2186.02	2.755
3985.00	31.700	42.300	3163.36	1795.17 N	1304.40 E	2219.03	3.229
4048.00	30.800	39.700	3217.22	1819.82 N	1325.84 E	2251.58	2.574
4108.00	30.900	38.000	3268.74	1843.78 N	1345.14 E	2282.30	1.462
4171.00	30.900	34.700	3322.80	1869.83 N	1364.31 E	2314.65	2.690
4235.00	28.800	37.100	3378.31	1895.64 N	1382.97 E	2346.49	3.774
4298.00	25.600	36.000	3434.33	1918.76 N	1400.12 E	2375.28	5.141
4361.00	22.900	35.100	3491.77	1939.80 N	1415.18 E	2401.16	4.326
4424.00	20.400	32.100	3550.32	1959.14 N	1428.06 E	2424.37	4.339
4487.00	19.000	36.700	3609.64	1976.66 N	1440.03 E	2445.58	3.315
4550.00	16.900	36.000	3669.57	1992.30 N	1451.54 E	2465.00	3.351
4613.00	14.000	36.200	3730.28	2005.86 N	1461.42 E	2481.78	4.604
4676.00	11.600	30.700	3791.72	2017.45 N	1469.16 E	2495.71	4.268
4740.00	8.800	34.600	3854.70	2027.02 N	1475.23 E	2507.01	4.504
4803.00	7.200	33.200	3917.08	2034.29 N	1480.12 E	2515.77	2.558
4863.00	3.700	37.500	3976.80	2038.97 N	1483.36 E	2521.46	5.869
4916.00	1.600	39.100	4029.74	2040.90 N	1484.87 E	2523.91	3.964
4954.00	1.000	39.100	4067.73	2041.57 N	1485.41 E	2524.77	1.579

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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 36.027° (True).

Magnetic Declination at Surface is 10.860°(08-Jul-03)

Based upon Minimum Curvature type calculations, at a Measured Depth of 4954.00ft.,
The Bottom Hole Displacement is 2524.77ft., in the Direction of 36.039° (True).

Comments

Measured Depth (ft)	TVD (ft)	Station Coordinates		Comment
		Northings (ft)	Eastings (ft)	
4954.00	4067.73	2041.57 N	1485.41 E	Projection to bit