

Williams Production Company

*Ignacio-Blanco Field
La Plata Co., Colorado
Sec. 7 - T33N - R9W
Bondad 33-9 #17A - Strg. Tool/ SS Survey - ST #1*

SURVEY REPORT

21 December, 1999

Your Ref: 90130

Surface Coordinates: 0.00 N, 0.00 E

Kelly Bushing: 6446.00ft above Mean Sea Level

sperry-sun
DRILLING SERVICES
A HALLIBURTON COMPANY

Sperry-Sun Drilling Services

Survey Report for Bondad 33-9 #17A

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Your Ref: 90130



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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	
418.15	4.300	256.800	417.76	3.58 S	15.27 W	5.96	1.028
480.23	3.500	246.500	479.69	4.87 S	19.27 W	7.87	1.708
542.03	1.900	232.500	541.42	6.24 S	21.82 W	9.63	2.781
604.08	0.900	217.500	603.45	7.26 S	22.93 W	10.81	1.703
666.08	1.000	106.300	665.45	7.80 S	22.71 W	11.31	2.530
728.31	1.100	106.800	727.67	8.12 S	21.61 W	11.45	0.161
790.21	1.000	101.000	789.56	8.40 S	20.51 W	11.55	0.236
851.67	1.000	100.200	851.01	8.59 S	19.46 W	11.58	0.023
943.01	0.800	102.300	942.34	8.87 S	18.05 W	11.63	0.222
1036.34	1.000	106.100	1035.66	9.23 S	16.63 W	11.76	0.224
1130.22	0.900	105.500	1129.52	9.66 S	15.14 W	11.94	0.107
1188.66	1.400	161.900	1187.95	10.46 S	14.47 W	12.63	2.007
1220.58	2.400	182.100	1219.86	11.50 S	14.37 W	13.64	3.724
1250.82	3.500	188.100	1250.06	13.04 S	14.53 W	15.19	3.773
1282.19	4.500	191.400	1281.35	15.20 S	14.91 W	17.38	3.270
1313.14	5.400	190.000	1312.18	17.82 S	15.40 W	20.05	2.934
1344.50	6.100	193.200	1343.39	20.90 S	16.04 W	23.18	2.454
1375.87	6.800	192.800	1374.56	24.33 S	16.83 W	26.70	2.236
1407.00	7.000	191.700	1405.46	27.99 S	17.62 W	30.43	0.770
1438.92	7.700	193.500	1437.12	31.97 S	18.51 W	34.51	2.308
1470.37	8.200	188.200	1468.27	36.24 S	19.33 W	38.85	2.820
1500.37	9.100	181.700	1497.93	40.73 S	19.70 W	43.34	4.425
1532.06	10.000	180.500	1529.18	45.99 S	19.80 W	48.55	2.909
1561.91	10.800	179.800	1558.54	51.37 S	19.81 W	53.87	2.713
1592.91	11.400	180.500	1588.96	57.34 S	19.83 W	59.77	1.984
1623.61	12.000	184.400	1619.02	63.56 S	20.10 W	65.95	3.233
1654.86	12.600	186.100	1649.55	70.19 S	20.71 W	72.59	2.242
1685.23	13.400	184.700	1679.14	76.99 S	21.35 W	79.40	2.831
1715.90	14.000	185.900	1708.94	84.22 S	22.03 W	86.65	2.165
1746.40	14.600	182.800	1738.50	91.73 S	22.59 W	94.15	3.189
1778.27	15.900	183.000	1769.24	100.10 S	23.02 W	102.49	4.082
1808.02	17.000	180.800	1797.77	108.52 S	23.29 W	110.84	4.249
1839.02	17.600	178.900	1827.37	117.74 S	23.26 W	119.94	2.658
1869.89	18.300	176.800	1856.74	127.24 S	22.90 W	129.27	3.088
1901.49	19.200	177.700	1886.66	137.39 S	22.42 W	139.20	2.992
1932.88	20.300	178.700	1916.21	147.99 S	22.09 W	149.62	3.666
1963.69	21.400	178.900	1945.00	158.95 S	21.86 W	160.41	3.578
1993.62	22.600	179.600	1972.75	170.16 S	21.71 W	171.45	4.104
2023.80	23.700	179.600	2000.50	182.03 S	21.63 W	183.15	3.645

Continued...

Sperry-Sun Drilling Services

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Ignacio-Blanco Field

La Plata Co., Colorado
Sec. 7 - T33N - R9W

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2054.38	24.300	179.600	2028.43	194.47 S	21.54 W	195.42	1.962
2085.38	25.400	180.700	2056.56	207.49 S	21.58 W	208.28	3.849
2115.58	26.500	180.100	2083.72	220.71 S	21.67 W	221.34	3.745
2147.23	27.400	179.600	2111.93	235.05 S	21.63 W	235.50	2.932
2176.78	28.300	179.600	2138.06	248.85 S	21.54 W	249.11	3.046
2207.87	28.900	179.800	2165.35	263.74 S	21.46 W	263.79	1.954
2238.72	29.400	180.000	2192.30	278.76 S	21.43 W	278.63	1.651
2270.42	29.400	180.100	2219.91	294.33 S	21.45 W	293.99	0.155
2302.07	30.100	179.600	2247.39	310.03 S	21.40 W	309.49	2.346
2333.53	30.800	179.600	2274.51	325.97 S	21.29 W	325.21	2.225
2363.93	31.000	180.000	2300.60	341.58 S	21.24 W	340.62	0.943
2394.86	31.600	180.800	2327.03	357.65 S	21.35 W	356.50	2.360
2426.76	32.200	179.800	2354.11	374.51 S	21.44 W	373.15	2.506
2458.19	33.100	180.500	2380.57	391.47 S	21.48 W	389.90	3.105
2498.34	33.700	180.800	2414.09	413.57 S	21.74 W	411.76	1.550
2520.36	34.000	181.000	2432.38	425.83 S	21.93 W	423.90	1.453
2551.71	34.700	181.200	2458.26	443.52 S	22.27 W	441.41	2.262
2611.53	35.800	179.100	2507.11	478.04 S	22.35 W	475.51	2.736
2671.93	34.700	179.100	2556.44	512.89 S	21.80 W	509.83	1.821
2703.77	34.300	178.900	2582.68	530.92 S	21.49 W	527.58	1.306
2735.15	34.000	178.900	2608.65	548.53 S	21.15 W	544.92	0.956
2767.27	33.400	179.600	2635.37	566.35 S	20.92 W	562.47	2.225
2829.81	35.100	181.200	2687.06	601.55 S	21.17 W	597.26	3.076
2861.78	35.900	181.700	2713.09	620.11 S	21.64 W	615.66	2.662
2893.42	35.500	182.400	2738.79	638.56 S	22.30 W	633.98	1.807
2924.42	36.200	182.300	2763.91	656.70 S	23.05 W	652.01	2.266
2955.38	36.200	182.400	2788.90	674.97 S	23.80 W	670.16	0.191
3017.70	37.500	181.700	2838.76	712.32 S	25.13 W	707.25	2.192
3080.38	38.500	180.300	2888.16	750.90 S	25.80 W	745.45	2.106
3143.53	39.000	179.800	2937.41	790.42 S	25.83 W	784.48	0.934
3206.19	39.000	178.700	2986.10	829.85 S	25.32 W	823.32	1.105
3268.98	38.000	179.800	3035.24	868.93 S	24.80 W	861.82	1.930
3354.48	38.100	181.700	3102.57	921.62 S	25.49 W	913.95	1.375
3416.93	38.500	181.700	3151.58	960.31 S	26.64 W	952.33	0.641
3480.25	39.100	181.700	3200.93	999.97 S	27.82 W	991.67	0.948
3541.45	38.500	182.100	3248.63	1038.30 S	29.09 W	1029.71	1.062
3603.94	38.600	184.200	3297.50	1077.18 S	31.23 W	1068.44	2.100
3665.96	39.000	185.100	3345.83	1115.91 S	34.38 W	1107.18	1.115
3728.87	39.700	183.800	3394.48	1155.68 S	37.47 W	1146.93	1.719
3790.05	39.700	183.700	3441.55	1194.67 S	40.03 W	1185.84	0.104

Continued...

Sperry-Sun Drilling Services

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La Plata Co., Colorado
Sec. 7 - T33N - R9W

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3851.54	39.900	183.100	3488.80	1233.96 S	42.36 W	1225.00	0.704
3912.69	39.900	182.100	3535.71	1273.15 S	44.14 W	1263.97	1.049
3976.40	40.100	180.800	3584.51	1314.08 S	45.17 W	1304.55	1.349
4070.15	39.200	180.100	3656.70	1373.90 S	45.65 W	1363.68	1.072
4165.95	41.800	178.100	3729.54	1436.10 S	44.64 W	1424.93	3.034
4230.31	42.900	170.800	3777.13	1479.19 S	40.43 W	1466.80	7.826
4292.13	40.600	169.000	3823.25	1519.71 S	33.22 W	1505.66	4.195
4355.64	37.500	170.900	3872.57	1559.09 S	26.22 W	1543.43	5.232
4387.86	35.500	170.100	3898.47	1578.00 S	23.06 W	1561.59	6.380
4450.98	34.900	174.300	3950.06	1614.02 S	18.12 W	1596.37	3.951
4514.82	34.100	183.900	4002.71	1650.08 S	17.52 W	1631.87	8.602
4577.43	31.900	182.300	4055.21	1684.12 S	19.38 W	1665.78	3.779
4669.49	26.700	195.300	4135.55	1728.45 S	25.82 W	1710.57	8.897
4878.00	16.000	213.400	4329.67	1797.90 S	54.11 W	1783.63	5.971
5131.00	16.000	232.400	4573.04	1848.32 S	100.96 W	1840.86	2.061
5383.00	7.750	228.400	4819.44	1880.85 S	141.26 W	1879.38	3.288
5636.00	4.500	227.400	5070.96	1898.89 S	161.32 W	1900.39	1.285
5824.00	6.500	215.400	5258.09	1912.56 S	172.92 W	1915.73	1.222
6045.00	0.000	0.000	5478.61	1922.77 S	180.17 W	1926.96	2.941
6107.00	0.000	0.000	5540.61	1922.77 S	180.17 W	1926.96	0.000

All data is in feet 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 100ft.

Vertical Section is from Well and calculated along an Azimuth of 189.149° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6107.00ft.,
The Bottom Hole Displacement is 1931.19ft., in the Direction of 185.353° (True).

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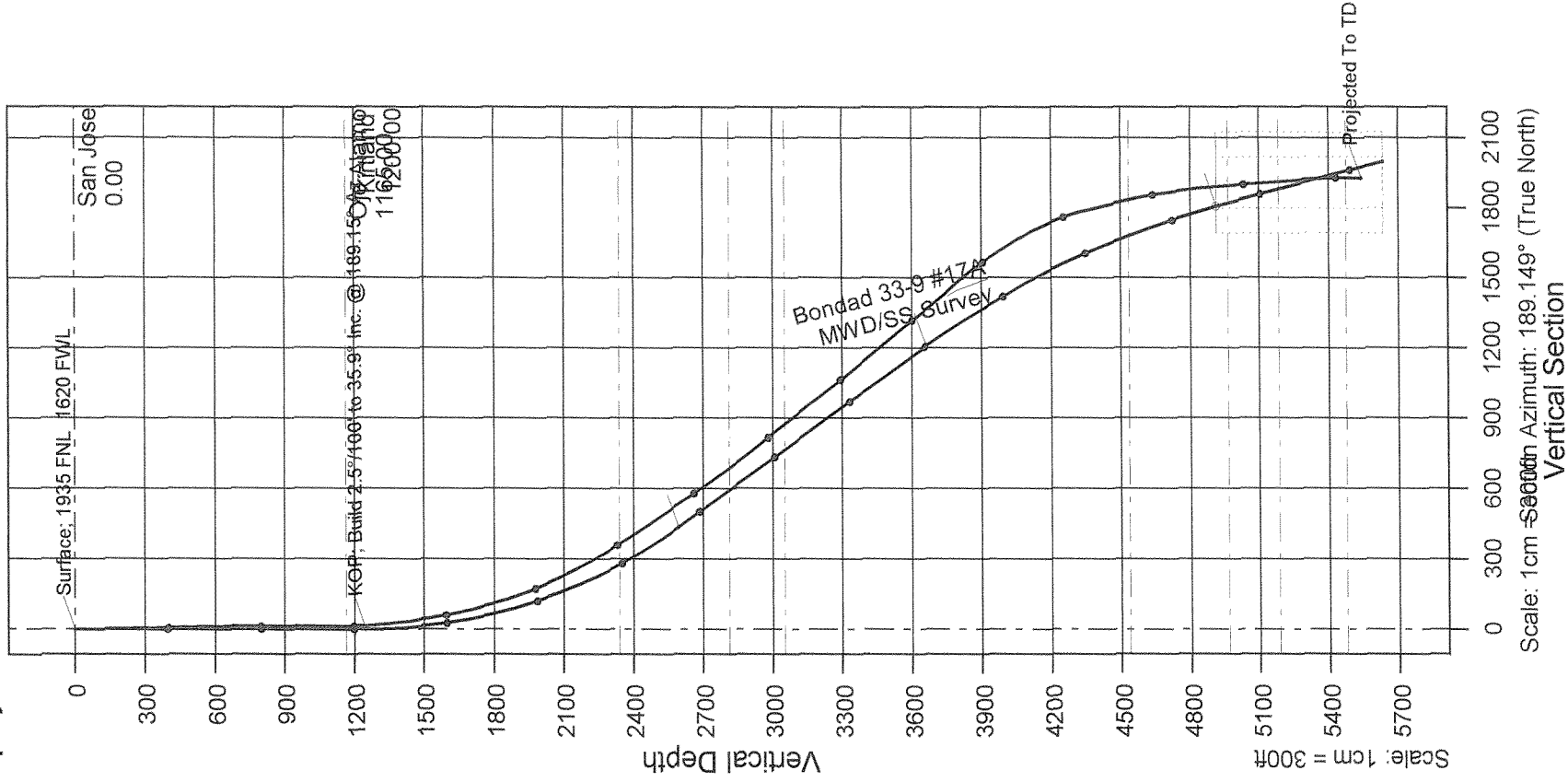
La Plata Co., Colorado
Sec. 7 - T33N - R9W

Comments

Measured Depth (ft)	Station Coordinates		Comment
	TVD (ft)	Northings (ft) Eastings (ft)	
6107.00	5540.61	1922.77 S 180.17 W	Projected To TD

SPERRY-SUN DRILLING SERVICES VERTICAL SECTION

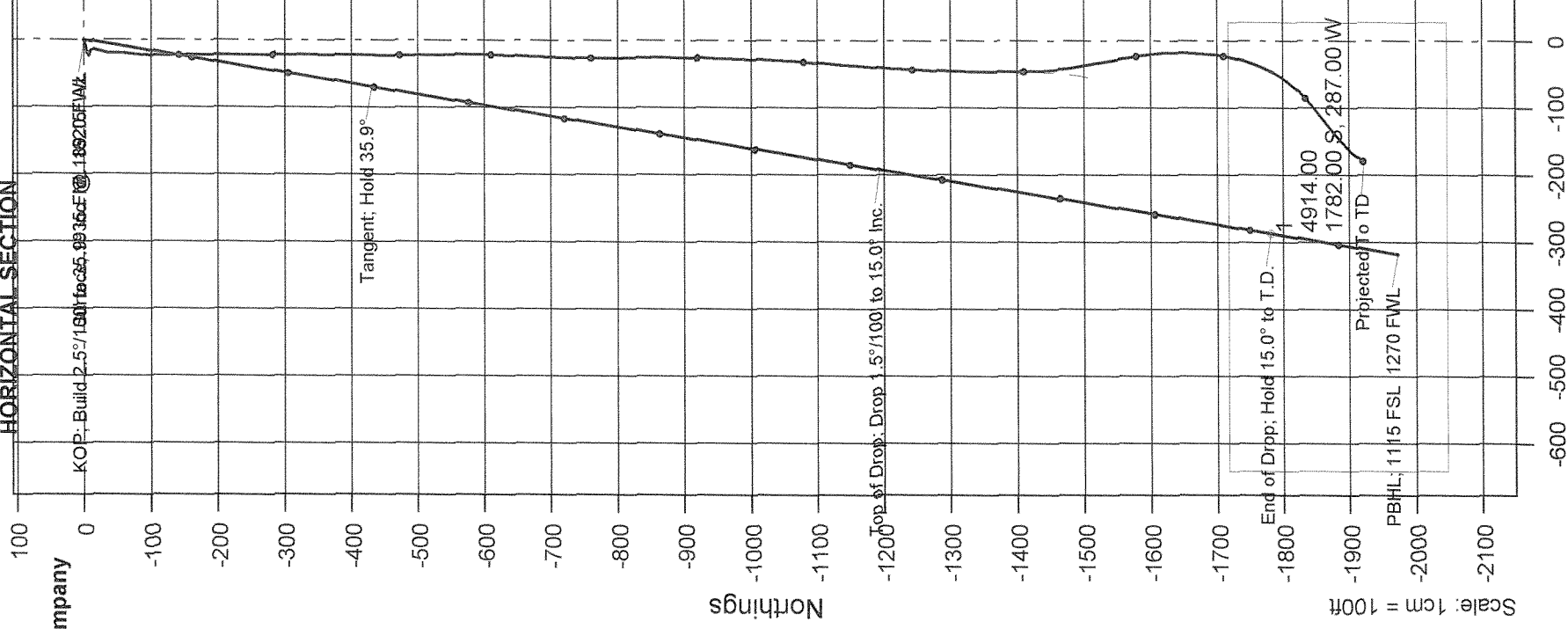
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SPERRY-SUN DRILLING SERVICES

HORIZONTAL SECTION

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Scale: 1cm = 100ft Reference is True North
Eastings