

Customer : Williams Production Company
Well : Rosa #75A
Rig : Aztec Well Service #124
Field : Mesa Verde
Legal : Sec. 9 - T31N - R06W
County : San Juan
State : New Mexico



Calculation Method : Minimum Curvature
Magnetic Declination Applied : 11.2° East
Vertical Section Direction : 112.94° Azimuth

Note : See attached SSDS Certified Survey Worksheet for all survey information as recorded in the field.

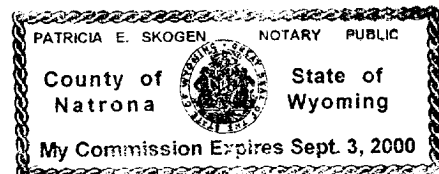
I, Craig Davis, having personal knowledge of all the facts, hereby certify that the above listed Directional Survey is true and correct as determined from all available Sperry-Sun Drilling Services records.

Craig Davis
Directional Drilling Coordinator

On this 15th day of AUGUST, 2000, before me personally appeared CRAIG DAVIS to me known as the person described in and who executed the same as his/her free act and deed.

Patricia E. Skogen
Notary Public in and for the County of Natrona, State of Wyoming

SEPT. 3, 2000
My Commission Expires



Williams Production Company

**Mesa Verde Field
San Juan Co., NM
Sec. 9-T31N-R06W
Rosa Unit # 75A - MWD / SS Survey**

SURVEY REPORT

23 June, 2000



sperry-sun
DRILLING SERVICES
A Halliburton Company

Survey Ref: svy1647

Sperry-Sun Drilling Services

Survey Report for Rosa Unit # 75A - MWD / SS Survey

Williams Production Company
Mesa Verde Field

San Juan Co., NM
Sec. 9-T31N-R06W

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	
530.29	1.300	115.400	530.24	2.58 S	5.43 E	6.01	0.25
560.54	1.200	112.600	560.49	2.85 S	6.04 E	6.67	0.39
590.84	2.200	111.200	590.77	3.18 S	6.87 E	7.57	3.30
621.67	3.700	113.800	621.56	3.80 S	8.33 E	9.15	4.88
651.77	5.000	115.200	651.57	4.75 S	10.41 E	11.44	4.33
681.90	6.000	118.700	681.57	6.06 S	12.98 E	14.32	3.50
712.07	7.500	116.200	711.53	7.69 S	16.13 E	17.85	5.07
742.00	8.700	115.400	741.16	9.52 S	19.93 E	22.06	4.03
772.16	9.900	113.400	770.92	11.53 S	24.37 E	26.93	4.12
802.29	10.500	113.900	800.57	13.67 S	29.25 E	32.27	2.01
832.42	11.900	113.000	830.13	16.00 S	34.62 E	38.12	4.68
862.56	12.700	113.800	859.58	18.55 S	40.52 E	44.54	2.71
892.68	13.500	113.100	888.91	21.26 S	46.78 E	51.37	2.71
922.88	13.900	114.900	918.25	24.18 S	53.31 E	58.52	1.94
954.80	14.600	113.500	949.19	27.39 S	60.48 E	66.37	2.44
985.59	15.200	113.300	978.95	30.54 S	67.74 E	74.29	1.96
1016.29	16.200	114.400	1008.50	33.90 S	75.34 E	82.59	3.40
1046.81	17.500	113.800	1037.71	37.51 S	83.42 E	91.44	4.30
1079.59	18.600	114.700	1068.88	41.68 S	92.68 E	101.59	3.46
1111.52	19.600	114.700	1099.05	46.05 S	102.17 E	112.04	3.13
1143.05	20.000	114.900	1128.71	50.53 S	111.86 E	122.71	1.29
1173.09	20.600	115.800	1156.89	54.99 S	121.28 E	133.12	2.25
1204.88	21.800	115.200	1186.53	59.94 S	131.66 E	144.61	3.84
1236.37	22.700	114.400	1215.67	64.94 S	142.48 E	156.52	3.02
1266.90	23.600	112.600	1243.74	69.72 S	153.49 E	168.53	3.75
1298.27	24.600	112.200	1272.38	74.60 S	165.33 E	181.33	3.23
1329.77	25.300	113.700	1300.94	79.78 S	177.57 E	194.62	3.00
1359.61	26.400	114.900	1327.79	85.14 S	189.42 E	207.63	4.08
1391.37	27.500	115.400	1356.10	91.26 S	202.45 E	222.01	3.54
1422.82	28.900	115.900	1383.82	97.69 S	215.85 E	236.85	4.51
1454.17	30.000	115.100	1411.12	104.33 S	229.76 E	252.25	3.73
1484.01	30.700	115.100	1436.87	110.72 S	243.41 E	267.32	2.35
1514.98	30.700	114.500	1463.50	117.36 S	257.77 E	283.12	0.99
1545.67	31.100	111.400	1489.83	123.50 S	272.28 E	298.88	5.35
1577.13	31.500	110.000	1516.71	129.27 S	287.56 E	315.21	2.64
1608.08	31.300	110.500	1543.13	134.85 S	302.69 E	331.31	1.06
1638.16	31.100	110.500	1568.86	140.31 S	317.29 E	346.88	0.66
1668.29	31.000	110.800	1594.67	145.79 S	331.83 E	362.41	0.61
1700.17	31.800	111.600	1621.89	151.80 S	347.31 E	379.01	2.83

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Sperry-Sun Drilling Services

Survey Report for Rosa Unit # 75A - MWD / SS Survey

Williams Production Company
Mesa Verde Field

San Juan Co., NM
Sec. 9-T31N-R06W

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
1731.30	33.200	111.400	1648.14	157.93 S	362.88 E	395.73	4.51
1762.12	33.600	111.700	1673.87	164.16 S	378.66 E	412.69	1.40
1824.70	33.000	112.200	1726.17	177.00 S	410.52 E	447.05	1.05
1915.73	31.300	112.300	1803.24	195.34 S	455.36 E	495.48	1.87
2008.88	32.500	110.200	1882.33	213.17 S	501.23 E	544.68	1.75
2104.40	31.700	112.100	1963.24	231.47 S	548.57 E	595.40	1.35
2195.37	30.600	110.700	2041.10	248.65 S	592.38 E	642.44	1.45
2289.00	31.800	114.400	2121.19	267.26 S	637.14 E	690.92	2.41
2380.30	31.600	114.500	2198.87	287.12 S	680.81 E	738.88	0.23
2473.59	31.400	113.800	2278.41	307.06 S	725.29 E	787.61	0.45
2566.95	31.300	113.300	2358.14	326.47 S	769.82 E	836.18	0.30
2661.04	31.000	111.900	2438.67	345.18 S	814.75 E	884.85	0.83
2724.21	30.400	113.700	2492.99	357.67 S	844.48 E	917.10	1.74
2785.66	30.600	114.400	2545.93	370.38 S	872.96 E	948.28	0.66
2876.45	29.400	115.400	2624.56	389.48 S	914.13 E	993.64	1.43
2971.39	30.800	114.900	2706.69	409.71 S	957.23 E	1041.22	1.50
3066.03	31.000	113.100	2787.90	429.48 S	1001.63 E	1089.81	1.00
3160.14	30.800	114.700	2868.66	449.06 S	1045.81 E	1138.13	0.90
3223.18	30.500	117.400	2922.89	463.16 S	1074.68 E	1170.21	2.23
3253.96	31.400	117.200	2949.29	470.42 S	1088.74 E	1185.99	2.94
3348.07	31.900	109.100	3029.44	489.77 S	1134.07 E	1235.27	4.54
3441.56	34.700	104.200	3107.59	504.39 S	1183.23 E	1286.24	4.15
3535.26	33.800	105.000	3185.04	517.68 S	1234.26 E	1338.42	1.07
3627.10	32.100	104.500	3262.10	530.40 S	1282.56 E	1387.86	1.87
3721.45	32.200	109.100	3342.00	544.91 S	1330.59 E	1437.75	2.60
3815.46	30.800	114.400	3422.17	563.05 S	1376.19 E	1486.81	3.30
3895.00	30.800	114.200	3490.49	579.81 S	1413.31 E	1527.53	0.13
4051.00	20.000	111.200	3631.20	605.91 S	1474.80 E	1594.32	6.97
4174.00	11.000	101.200	3749.63	615.81 S	1505.99 E	1626.91	7.61
4429.00	9.000	91.200	4000.76	620.96 S	1549.80 E	1669.26	1.04
4677.00	10.500	73.200	4245.23	614.83 S	1590.84 E	1704.67	1.36
4928.00	5.250	49.200	4493.84	600.70 S	1621.46 E	1727.36	2.42
5427.00	2.000	19.200	4991.81	577.56 S	1641.61 E	1736.90	0.73
5926.00	1.500	355.200	5490.58	562.82 S	1643.93 E	1733.29	0.18
6452.00	1.000	298.000	6016.47	553.81 S	1639.30 E	1725.51	0.24
6500.00	1.000	298.000	6064.46	553.42 S	1638.56 E	1724.68	0.00

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Sperry-Sun Drilling Services

Survey Report for Rosa Unit # 75A - MWD / SS Survey

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All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to RKB. Northings and Eastings are relative to Wellhead.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Wellhead and calculated along an Azimuth of 112.938° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6500.00ft.,
The Bottom Hole Displacement is 1729.49ft., in the Direction of 108.662° (True).

Station at 6500` is an extrapolation to the bit at T.D.

Survey tool program

From		To		Survey Tool Description
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	
0.00	0.00	3895.00	3490.49	Sperry-Sun MWD (Sys)
3895.00	3490.49	6500.00	6064.46	SSDS Single Shot

