

Customer : Williams Production Company

Well : Rosa #181A

Rig : Bearcat #2

Field : Mesa Verde

Legal : Sec. 15 - T31N - R06W

County : Rio Arriba

State : New Mexico

Calculation Method :

Magnetic Declination Applied :

Vertical Section Direction :

Minimum Curvature

11.302° East

352.534° Azimuth

BHL: 898' FSL, 895' FEL, Sec 10, T31N, R6W

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

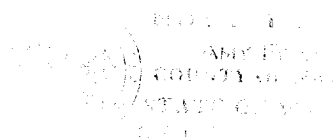
I, Craig Davis, having personal knowledge of all the facts, hereby certify that the above listed Directional Survey is true and correct as determined from all available Sperry-Sun Drilling Services records.

Craig J. Davis
Directional Drilling Coordinator

On this 18th day of Oct, 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.

Amy Franje
Notary Public in and for the County of
Natrona, State of Wyoming

2-24-03
My Commission Expires



For the attention of : Mr. Gary Sizemore

Dear Sir,

Please find enclosed one (1) copy of our certified survey results on the well described below.

Customer : Williams Production Company

Well : Rosa #181A

Rig : Bearcat #2

Field : Mesa Verde

Legal : Sec. 15 – T31N – R06W

County : Rio Arriba

State : New Mexico

Please feel free to call upon me at any time should you have any questions regarding the enclosed information.

Sincerely,

A handwritten signature in black ink, appearing to read "Craig Davis". The signature is fluid and cursive, with the first name "Craig" and last name "Davis" clearly distinguishable.

Craig Davis
Directional Drilling Coordinator

**New Mexico Oil Conservation
Oil & Gas Division
1000 Rio Brazos Road
Aztec New Mexico
87410**

For the attention of : Frank Chavez

Dear Sir,

Please find enclosed two (2) copies of our certified survey results on the well described below.

Customer : Williams Production Company

Well : Rosa #181A

Rig : Bearcat #2

Field : Mesa Verde

Legal : Sec. 15 – T31N – R06W

County : Rio Arriba

State : New Mexico

Please feel free to call upon me at any time should you have any questions regarding the enclosed information.

Sincerely,



Craig Davis

**Directional Drilling Coordinator
7197 W. Derrick Drive
Casper, Wyoming 82604
(307) 472-5757**

Williams Production Company

New Mexico
Rio Arriba County
Sec. 15-T31N-R06W
Rosa #181A - MWD Survey
BHL: 898/S, 895/E, Sec 10, T31N, R 6W

SURVEY REPORT

22 August, 2000

sperry-sun
DRILLING SERVICES
A Halliburton Company

Survey Ref: svy3247

Sperry-Sun Drilling Services

Survey Report for Rosa #181A - MWD Survey

Williams Production Company
New Mexico

Rio Arriba County
Sec. 15-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	
522.00	0.000	0.000	522.00	0.00 N	0.00 E	0.00	0.00
531.00	2.800	4.311	531.00	0.22 N	0.02 E	0.21	31.11
561.00	2.200	342.611	560.97	1.50 N	0.10 W	1.50	3.70
591.00	3.400	351.511	590.93	2.93 N	0.40 W	2.96	4.24
622.00	4.500	353.211	621.86	5.05 N	0.68 W	5.09	3.57
652.00	6.000	353.111	651.73	7.77 N	1.01 W	7.84	5.00
683.00	7.400	350.111	682.52	11.35 N	1.55 W	11.45	4.65
713.00	8.700	349.811	712.22	15.48 N	2.28 W	15.65	4.34
743.00	9.800	348.611	741.83	20.22 N	3.19 W	20.46	3.72
774.00	11.100	348.211	772.32	25.73 N	4.32 W	26.08	4.20
804.00	12.500	349.111	801.68	31.74 N	5.52 W	32.20	4.71
834.00	13.600	350.811	830.91	38.41 N	6.70 W	38.97	3.88
864.00	14.800	353.111	859.99	45.70 N	7.72 W	46.32	4.42
885.00	15.700	353.611	880.25	51.19 N	8.36 W	51.85	4.33
916.00	16.800	355.311	910.01	59.82 N	9.19 W	60.51	3.87
947.00	18.300	355.811	939.57	69.14 N	9.91 W	69.84	4.86
978.00	19.500	356.511	968.90	79.16 N	10.58 W	79.86	3.94
1010.00	20.500	355.011	998.97	90.07 N	11.40 W	90.78	3.51
1041.00	21.500	354.711	1027.91	101.13 N	12.39 W	101.88	3.24
1071.00	22.600	354.411	1055.71	112.35 N	13.46 W	113.13	3.69
1101.00	23.600	352.811	1083.31	124.04 N	14.77 W	124.90	3.94
1133.00	24.600	352.611	1112.52	137.00 N	16.43 W	137.96	3.14
1165.00	25.800	351.711	1141.47	150.50 N	18.29 W	151.59	3.94
1196.00	27.100	350.811	1169.23	164.15 N	20.39 W	165.39	4.39
1227.00	28.500	350.811	1196.65	178.42 N	22.70 W	179.85	4.52
1257.00	29.900	351.211	1222.83	192.87 N	24.99 W	194.48	4.71
1289.00	31.200	351.911	1250.39	208.96 N	27.37 W	210.74	4.21
1321.00	32.700	352.111	1277.54	225.73 N	29.73 W	227.68	4.70
1352.00	33.800	352.011	1303.47	242.57 N	32.07 W	244.67	3.55
1382.00	34.800	352.011	1328.25	259.31 N	34.42 W	261.58	3.33
1413.00	36.600	352.411	1353.42	277.23 N	36.87 W	279.67	5.86
1443.00	37.800	352.111	1377.32	295.20 N	39.32 W	297.80	4.05
1474.00	39.200	351.511	1401.58	314.30 N	42.07 W	317.10	4.67
1505.00	40.600	351.211	1425.36	333.96 N	45.05 W	336.98	4.56
1537.00	41.900	351.011	1449.42	354.81 N	48.32 W	358.08	4.08
1599.00	44.400	351.511	1494.65	396.71 N	54.75 W	400.47	4.07
1692.00	45.700	351.911	1560.35	461.84 N	64.24 W	466.29	1.43
1786.00	45.400	351.511	1626.18	528.24 N	73.91 W	533.39	0.44
1877.00	46.700	351.911	1689.33	593.07 N	83.36 W	598.90	1.46

Continued...

Sperry-Sun Drilling Services

Survey Report for Rosa #181A - MWD Survey

Williams Production Company
New Mexico

Rio Arriba County
Sec. 15-T31N-R06W

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
1969.00	46.100	351.711	1752.78	659.02 N	92.85 W	665.52	0.67
2060.00	45.900	350.711	1815.99	723.71 N	102.85 W	730.97	0.82
2153.00	46.500	353.311	1880.37	790.17 N	112.17 W	798.08	2.12
2246.00	46.500	353.611	1944.39	857.19 N	119.85 W	865.53	0.23
2340.00	46.000	353.311	2009.39	924.65 N	127.58 W	933.41	0.58
2431.00	45.400	353.811	2072.94	989.37 N	134.89 W	998.52	0.77
2553.00	46.100	352.111	2158.08	1076.09 N	145.61 W	1085.89	1.15
2647.00	45.400	351.911	2223.67	1142.77 N	154.96 W	1153.22	0.76
2740.00	44.200	351.211	2289.66	1207.59 N	164.58 W	1218.75	1.40
2832.00	45.900	351.211	2354.65	1271.93 N	174.52 W	1283.85	1.85
2923.00	46.000	350.911	2417.92	1336.54 N	184.69 W	1349.24	0.26
3017.00	45.900	351.411	2483.28	1403.30 N	195.07 W	1416.79	0.40
3080.00	44.300	351.711	2527.75	1447.44 N	201.62 W	1461.41	2.56
3143.00	41.600	352.211	2573.86	1489.94 N	207.63 W	1504.33	4.32
3203.00	39.300	352.811	2619.51	1528.53 N	212.71 W	1543.26	3.89
3263.00	37.100	352.211	2666.66	1565.31 N	217.54 W	1580.36	3.72
3325.00	34.400	353.111	2716.97	1601.24 N	222.17 W	1616.58	4.44
3388.00	32.000	352.611	2769.69	1635.46 N	226.46 W	1651.07	3.83
3478.00	30.500	354.011	2846.63	1681.83 N	231.91 W	1697.74	1.85
3571.00	27.100	351.511	2928.12	1726.27 N	237.50 W	1742.53	3.88
3665.00	25.400	351.411	3012.42	1767.38 N	243.67 W	1784.10	1.81
3729.00	26.400	352.611	3069.99	1795.06 N	247.55 W	1812.05	1.76
3822.00	27.700	352.611	3152.82	1837.00 N	252.99 W	1854.34	1.40
3916.00	25.900	350.311	3236.72	1878.91 N	259.26 W	1896.71	2.21
4009.00	23.900	348.611	3321.07	1917.40 N	266.40 W	1935.82	2.28
4102.00	19.700	349.611	3407.40	1951.31 N	272.95 W	1970.30	4.53
4223.00	13.700	347.111	3523.24	1985.37 N	279.83 W	2004.98	4.99
4275.00	11.500	347.111	3573.99	1996.42 N	282.36 W	2016.28	4.23
4359.00	8.250	345.611	3656.73	2010.43 N	285.72 W	2030.61	3.88
4677.00	13.750	347.611	3968.77	2069.48 N	299.51 W	2091.00	1.73
4997.00	11.000	25.611	4281.81	2134.27 N	294.47 W	2154.49	2.63
5278.00	6.000	61.611	4559.81	2165.47 N	269.93 W	2182.04	2.52
5785.00	3.750	120.611	5065.23	2169.63 N	232.32 W	2181.02	1.02
6833.00	3.250	173.611	6111.52	2122.64 N	199.51 W	2129.99	0.30

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to Mean Sea Level. Northings and Eastings are relative to Well Head.

The Dogleg Severity is in Degrees per 100 feet.

Vertical Section is from Well Head and calculated along an Azimuth of 352.145° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6833.00ft.,
The Bottom Hole Displacement is 2132.00ft., in the Direction of 354.630° (True).

Williams Production Company

**New Mexico
Rio Arriba County
Sec. 15-T31N-R06W
Rosa #181A - MWD Survey**

BHL 845'S, 875'E, Sec. 10, T31N, R6W

SURVEY REPORT

22 August, 2000

sperry-sun
DRILLING SERVICES
A Halliburton Company

Survey Ref: svy3247

Sperry-Sun Drilling Services

Survey Report for Rosa #181A - MWD Survey

Williams Production Company
New Mexico

Rio Arriba County
Sec. 15-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	
522.00	0.000	0.000	522.00	0.00 N	0.00 E	0.00	0.00
531.00	2.800	4.311	531.00	0.22 N	0.02 E	0.21	31.11
561.00	2.200	342.611	560.97	1.50 N	0.10 W	1.50	3.70
591.00	3.400	351.511	590.93	2.93 N	0.40 W	2.96	4.24
622.00	4.500	353.211	621.86	5.05 N	0.68 W	5.09	3.57
652.00	6.000	353.111	651.73	7.77 N	1.01 W	7.84	5.00
683.00	7.400	350.111	682.52	11.35 N	1.55 W	11.45	4.65
713.00	8.700	349.811	712.22	15.48 N	2.28 W	15.65	4.34
743.00	9.800	348.611	741.83	20.22 N	3.19 W	20.46	3.72
774.00	11.100	348.211	772.32	25.73 N	4.32 W	26.08	4.20
804.00	12.500	349.111	801.68	31.74 N	5.52 W	32.20	4.71
834.00	13.600	350.811	830.91	38.41 N	6.70 W	38.97	3.88
864.00	14.800	353.111	859.99	45.70 N	7.72 W	46.32	4.42
885.00	15.700	353.611	880.25	51.19 N	8.36 W	51.85	4.33
916.00	16.800	355.311	910.01	59.82 N	9.19 W	60.51	3.87
947.00	18.300	355.811	939.57	69.14 N	9.91 W	69.84	4.86
978.00	19.500	356.511	968.90	79.16 N	10.58 W	79.86	3.94
1010.00	20.500	355.011	998.97	90.07 N	11.40 W	90.78	3.51
1041.00	21.500	354.711	1027.91	101.13 N	12.39 W	101.88	3.24
1071.00	22.600	354.411	1055.71	112.35 N	13.46 W	113.13	3.69
1101.00	23.600	352.811	1083.31	124.04 N	14.77 W	124.90	3.94
1133.00	24.600	352.611	1112.52	137.00 N	16.43 W	137.96	3.14
1165.00	25.800	351.711	1141.47	150.50 N	18.29 W	151.59	3.94
1196.00	27.100	350.811	1169.23	164.15 N	20.39 W	165.39	4.39
1227.00	28.500	350.811	1196.65	178.42 N	22.70 W	179.85	4.52
1257.00	29.900	351.211	1222.83	192.87 N	24.99 W	194.48	4.71
1289.00	31.200	351.911	1250.39	208.96 N	27.37 W	210.74	4.21
1321.00	32.700	352.111	1277.54	225.73 N	29.73 W	227.68	4.70
1352.00	33.800	352.011	1303.47	242.57 N	32.07 W	244.67	3.55
1382.00	34.800	352.011	1328.25	259.31 N	34.42 W	261.58	3.33
1413.00	36.600	352.411	1353.42	277.23 N	36.87 W	279.67	5.86
1443.00	37.800	352.111	1377.32	295.20 N	39.32 W	297.80	4.05
1474.00	39.200	351.511	1401.58	314.30 N	42.07 W	317.10	4.67
1505.00	40.600	351.211	1425.36	333.96 N	45.05 W	336.98	4.56
1537.00	41.900	351.011	1449.42	354.81 N	48.32 W	358.08	4.08
1599.00	44.400	351.511	1494.65	396.71 N	54.75 W	400.47	4.07
1692.00	45.700	351.911	1560.35	461.84 N	64.24 W	466.29	1.43
1786.00	45.400	351.511	1626.18	528.24 N	73.91 W	533.39	0.44
1877.00	46.700	351.911	1639.33	593.07 N	83.36 W	598.90	1.46

Continued...

Sperry-Sun Drilling Services

Survey Report for Rosa #181A - MWD Survey

Williams Production Company
New Mexico

Rio Arriba County
Sec. 15-T31N-R06W

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
1969.00	46.100	351.711	1752.78	659.02 N	92.85 W	665.52	0.67
2060.00	45.900	350.711	1815.99	723.71 N	102.85 W	730.97	0.82
2153.00	46.500	353.311	1880.37	790.17 N	112.17 W	798.08	2.12
2246.00	46.500	353.611	1944.39	857.19 N	119.85 W	865.53	0.23
2340.00	46.000	353.311	2009.39	924.65 N	127.58 W	933.41	0.58
2431.00	45.400	353.811	2072.94	989.37 N	134.89 W	998.52	0.77
2553.00	46.100	352.111	2158.08	1076.09 N	145.61 W	1085.89	1.15
2647.00	45.400	351.911	2223.67	1142.77 N	154.96 W	1153.22	0.76
2740.00	44.200	351.211	2289.66	1207.59 N	164.58 W	1218.75	1.40
2832.00	45.900	351.211	2354.65	1271.93 N	174.52 W	1283.85	1.85
2923.00	46.000	350.911	2417.92	1336.54 N	184.69 W	1349.24	0.26
3017.00	45.900	351.411	2483.28	1403.30 N	195.07 W	1416.79	0.40
3080.00	44.300	351.711	2527.75	1447.44 N	201.62 W	1461.41	2.56
3143.00	41.600	352.211	2573.86	1489.94 N	207.63 W	1504.33	4.32
3203.00	39.300	352.811	2619.51	1528.53 N	212.71 W	1543.26	3.89
3263.00	37.100	352.211	2666.66	1565.31 N	217.54 W	1580.36	3.72
3325.00	34.400	353.111	2716.97	1601.24 N	222.17 W	1616.58	4.44
3388.00	32.000	352.611	2769.69	1635.46 N	226.46 W	1651.07	3.83
3478.00	30.500	354.011	2846.63	1681.83 N	231.91 W	1697.74	1.85
3571.00	27.100	351.511	2928.12	1726.27 N	237.50 W	1742.53	3.88
3665.00	25.400	351.411	3012.42	1767.38 N	243.67 W	1784.10	1.81
3729.00	26.400	352.611	3069.99	1795.06 N	247.55 W	1812.05	1.76
3822.00	27.700	352.611	3152.82	1837.00 N	252.99 W	1854.34	1.40
3916.00	25.900	350.311	3236.72	1878.91 N	259.26 W	1896.71	2.21
4009.00	23.900	348.611	3321.07	1917.40 N	266.40 W	1935.82	2.28
4102.00	19.700	349.611	3407.40	1951.31 N	272.95 W	1970.30	4.53
4223.00	13.700	347.111	3523.24	1985.37 N	279.83 W	2004.98	4.99
4275.00	11.500	347.111	3573.99	1996.42 N	282.36 W	2016.28	4.23
4359.00	8.250	345.611	3656.73	2010.43 N	285.72 W	2030.61	3.88
4677.00	13.750	347.611	3968.77	2069.48 N	299.51 W	2091.00	1.73
4997.00	11.000	25.611	4281.81	2134.27 N	294.47 W	2154.49	2.63
5278.00	6.000	61.611	4559.81	2165.47 N	269.93 W	2182.04	2.52
5785.00	3.750	120.611	5065.23	2169.63 N	232.32 W	2181.02	1.02
6833.00	3.250	173.611	6111.52	2122.64 N	199.51 W	2129.99	0.30

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Vertical depths are relative to Mean Sea Level. Northings and Eastings are relative to Well Head.

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Vertical Section is from Well Head and calculated along an Azimuth of 352.145° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 6833.00ft.,
The Bottom Hole Displacement is 2132.00ft., in the Direction of 354.630° (True).