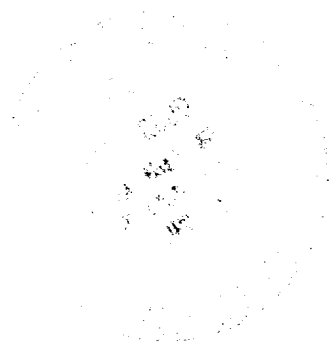


045-30200

**sperry-sun**  
**DRILLING SERVICES**

**Customer :** Williams Production Company  
**Well :** Rosa #341  
**Rig :** Aztec Well Service #124  
**Field :** Mesa Verde  
**Legal :** I Sec. 17-T31N-R06W  
**County :** San Juan  
**State :** New Mexico



**Calculation Method :** Minimum Curvature  
**Magnetic Declination Applied :** 11.356° East  
**Vertical Section Direction :** 90° Azimuth

JH

BHL 2175' S, 735' W, Sec 16, 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.

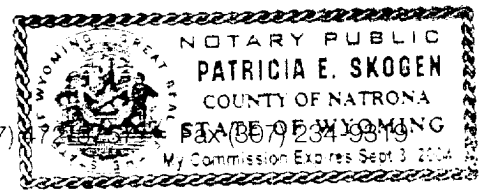
*Craig Davis James R. Davidson P.E.*

**Directional Drilling Coordinator**

On this 2<sup>nd</sup> day of October, 2000, before me personally appeared JAMES R. DAVIDSON 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, 2004  
**My Commission Expires**



**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 #341**

**Rig : Aztec Well Service #124**

**Field : Mesa Verde**

**Legal : Sec. 17-T31N-R06W**

**County : San Juan**

**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 P.E.**

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

**For the attention of :**

Dear Sir,

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

**Customer :** Williams Production Company

**Well :** Rosa #341

**Rig :** Aztec Well Service #124

**Field :** Mesa Verde

**Legal :** Sec. 17-T31N-R06W

**County :** San Juan

**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 James R. Davidson P.E.*

**Craig Davis**  
**Directional Drilling Coordinator**

***Williams Production Company***

***New Mexico  
San Juan County  
Sec. 17-T31N-R06W  
Rosa Unit # 341 - MWD Survey***

***SURVEY REPORT***

***22 August, 2000***

**sperry-sun**  
**DRILLING SERVICES**  
A Halliburton Company

**Survey Ref: svy3249**

# Sperry-Sun Drilling Services

Survey Report for Rosa Unit # 341 - MWD Survey

Williams Production Company  
New Mexico

San Juan County  
Sec. 17-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	
559.00	0.700	213.751	558.99	2.84 S	1.90 W	-1.90	0.13
590.00	1.400	224.051	589.98	3.27 S	2.27 W	-2.27	2.33
621.00	0.600	195.951	620.98	3.70 S	2.57 W	-2.58	2.95
651.00	1.700	145.851	650.97	4.22 S	2.37 W	-2.38	4.64
681.00	2.900	116.651	680.95	4.93 S	1.44 W	-1.45	5.47
711.00	4.100	100.351	710.89	5.46 S	0.29 E	0.28	5.16
741.00	5.800	100.451	740.78	5.93 S	2.84 E	2.83	5.67
771.00	7.100	90.951	770.59	6.23 S	6.19 E	6.17	5.59
801.00	7.800	96.951	800.33	6.51 S	10.06 E	10.04	3.49
862.00	9.600	92.951	860.63	7.27 S	19.25 E	19.23	3.11
892.00	11.300	91.751	890.13	7.49 S	24.69 E	24.67	5.71
922.00	12.600	88.551	919.48	7.50 S	30.89 E	30.88	4.86
954.00	13.600	87.651	950.65	7.25 S	38.14 E	38.12	3.19
984.00	15.000	85.551	979.72	6.81 S	45.54 E	45.52	4.98
1016.00	16.300	86.251	1010.53	6.19 S	54.15 E	54.13	4.11
1078.00	19.000	86.251	1069.61	4.96 S	72.91 E	72.89	4.35
1110.00	20.300	85.351	1099.74	4.17 S	83.64 E	83.63	4.17
1140.00	21.400	84.451	1127.78	3.22 S	94.27 E	94.26	3.82
1171.00	22.600	83.851	1156.52	2.04 S	105.82 E	105.82	3.94
1203.00	23.900	83.451	1185.92	0.64 S	118.38 E	118.37	4.09
1234.00	25.000	83.851	1214.14	0.78 N	131.13 E	131.13	3.59
1265.00	26.100	84.651	1242.11	2.12 N	144.43 E	144.44	3.72
1297.00	27.100	86.751	1270.72	3.19 N	158.72 E	158.73	4.29
1327.00	28.200	88.351	1297.30	3.78 N	172.63 E	172.63	4.42
1358.00	29.400	89.051	1324.46	4.11 N	187.56 E	187.57	4.02
1390.00	30.900	89.751	1352.13	4.28 N	203.63 E	203.64	4.81
1421.00	32.700	90.151	1378.48	4.29 N	219.96 E	219.97	5.85
1453.00	34.500	90.251	1405.13	4.23 N	237.67 E	237.68	5.63
1514.00	35.800	89.951	1455.01	4.17 N	272.79 E	272.80	2.15
1578.00	37.000	89.751	1506.52	4.27 N	310.77 E	310.78	1.88
1637.00	37.700	89.251	1553.42	4.58 N	346.56 E	346.57	1.29
1728.00	37.400	88.851	1625.57	5.50 N	402.01 E	402.02	0.42
1821.00	36.900	87.451	1699.69	7.31 N	458.14 E	458.16	1.06
1912.00	38.100	88.151	1771.89	9.43 N	513.50 E	513.52	1.40
2006.00	37.400	90.151	1846.21	10.29 N	571.03 E	571.06	1.50
2098.00	37.700	88.351	1919.16	11.03 N	627.09 E	627.12	1.24
2192.00	37.400	88.551	1993.68	12.58 N	684.36 E	684.39	0.34
2222.00	37.500	88.351	2017.50	13.07 N	702.59 E	702.62	0.52
2254.00	37.000	88.551	2042.97	13.59 N	721.96 E	721.99	1.61

Continued...

# Sperry-Sun Drilling Services

Survey Report for Rosa Unit # 341 - MWD Survey

Williams Production Company  
New Mexico

San Juan County  
Sec. 17-T31N-R06W

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2285.00	36.300	89.751	2067.84	13.87 N	740.46 E	740.49	3.23
2316.00	35.100	90.851	2093.02	13.78 N	758.55 E	758.58	4.39
2346.00	34.100	92.251	2117.71	13.32 N	775.57 E	775.61	4.26
2378.00	33.500	92.451	2144.30	12.59 N	793.36 E	793.39	1.91
2409.00	32.400	92.451	2170.31	11.87 N	810.21 E	810.23	3.55
2441.00	31.600	92.251	2197.45	11.17 N	827.15 E	827.17	2.52
2472.00	30.200	92.451	2224.05	10.52 N	843.05 E	843.08	4.53
2503.00	29.000	92.751	2251.01	9.83 N	858.35 E	858.37	3.90
2535.00	28.000	92.551	2279.13	9.12 N	873.60 E	873.62	3.14
2567.00	27.000	93.651	2307.51	8.32 N	888.36 E	888.38	3.50
2598.00	26.400	95.451	2335.21	7.22 N	902.24 E	902.26	3.25
2628.00	24.900	95.451	2362.25	5.99 N	915.17 E	915.18	5.00
2659.00	23.600	94.651	2390.51	4.86 N	927.85 E	927.86	4.33
2690.00	22.700	93.851	2419.02	3.96 N	940.00 E	940.01	3.08
2721.00	21.900	92.551	2447.70	3.30 N	951.75 E	951.75	3.03
2753.00	21.100	90.251	2477.47	3.01 N	963.47 E	963.47	3.63
2784.00	20.100	88.351	2506.49	3.14 N	974.37 E	974.38	3.88
2815.00	19.100	87.851	2535.69	3.48 N	984.77 E	984.77	3.27
2847.00	18.100	90.151	2566.02	3.67 N	994.97 E	994.98	3.88
2878.00	17.600	89.651	2595.53	3.68 N	1004.47 E	1004.48	1.69
2909.00	16.700	87.851	2625.15	3.88 N	1013.61 E	1013.62	3.37
2939.00	15.500	88.751	2653.97	4.13 N	1021.92 E	1021.93	4.09
2971.00	14.500	86.951	2684.88	4.43 N	1030.20 E	1030.21	3.45
3003.00	13.100	87.651	2715.96	4.79 N	1037.82 E	1037.83	4.41
3034.00	11.900	87.451	2746.22	5.08 N	1044.53 E	1044.54	3.87
3065.00	11.400	86.751	2776.58	5.40 N	1050.78 E	1050.79	1.68
3097.00	10.200	88.751	2808.02	5.64 N	1056.77 E	1056.78	3.93
3128.00	9.500	90.151	2838.56	5.69 N	1062.07 E	1062.08	2.39
3158.00	8.500	96.751	2868.19	5.42 N	1066.75 E	1066.76	4.79
3189.00	7.800	99.951	2898.88	4.79 N	1071.10 E	1071.11	2.69
3221.00	6.900	98.251	2930.61	4.14 N	1075.14 E	1075.15	2.89
3253.00	5.600	101.251	2962.42	3.56 N	1078.57 E	1078.58	4.19
3283.00	4.700	106.451	2992.30	2.93 N	1081.19 E	1081.19	3.38
3315.00	3.700	117.751	3024.22	2.07 N	1083.36 E	1083.36	4.04
3346.00	3.400	123.351	3055.16	1.10 N	1085.01 E	1085.01	1.48

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 89.851° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 3346.00ft., The Bottom Hole Displacement is 1085.01ft., in the Direction of 89.942° (True).