

DEVIATION SURVEYS

DEPTH	DRIFT	DEPTH	DRIFT
127	3/4	219	1/2
404	1	496	1 1/2
622	1	691	3/4
1052	1	1353	1/2
1654	3/4	1960	1/2
2271	1	2503	1
2707	1	3051	1
3346	3/4	3727	3 3/4

For Additional Surveys See Attached Sperry-Sun Data

FORMATION TOPS

Elevations calculated using a KB elevation of 2276.4 feet.

Tops are from MWD Gamma Tool

Intervals above the Heebner not logged by MWD

FORMATION	MEASURED DEPTH	TVD	SUB-SEA	VERTICAL SECTION
<u>PENNSYLVANIAN</u>				
Heebner	3745	3745	-1468.6	16.5
Toronto	3770	3770	-1493.6	17.5
Lansing Group	3804	3803	-1526.6	21
Bonner Spgs Shale	3878.5	3876	-1599.6	36
Base Kansas City	4160.5	4128	-1851.6	159
Marmaton Group	4197	4158	-1881.6	180
Pawnee	4291	4234	-1957.6	232.5
Ft. Scott	4415	4321	-2044.6	323
Cherokee Shale	4449	4341	-2064.6	351
Cherokee Limestone	4463	4348	-2071.6	362
<u>MISSISSIPPIAN</u>				
Osage	4655	4393.5	-2117.1	547

ORIGINAL

MIN. CURVATURE CALCULATIONS (SPE-3362)

OPERATOR: Maxx Petroleum
 WELL: Antrim-Cossman #1 HZ
 LOCATION: Hodgeman County, Kansas

START: 35605.00
 FINISH:
 Tool Lengt 53 ft

PROP. DIRECTION 180.00

SURV NUM	MD	INC	TRUE AZM	TVD	N-S	E-W	SECT	DLS/ 100	SUB-SEA AT TVD
TIE IN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	670.82	1.10	348.90	670.78	6.32	-1.24	-6.32	0.16	1605.62
3	1169.54	0.60	71.50	1169.46	11.85	0.32	-11.85	0.24	1106.94
4	1668.26	0.00	22.50	1668.17	12.67	2.79	-12.67	0.12	608.23
5	2166.90	0.90	151.90	2166.79	9.22	4.64	-9.22	0.18	109.61
6	2651.20	0.60	151.50	2651.05	3.64	7.64	-3.64	0.06	-374.65
7	3126.97	2.00	142.50	3126.68	-5.14	13.88	5.14	0.30	-850.28
8	3690.00	0.60	164.50	3689.55	-15.78	20.65	15.78	0.26	-1413.15
9	3729.27	0.40	157.90	3728.82	-16.10	20.76	16.10	0.53	-1452.42
10	3761.02	2.50	172.30	3760.56	-16.89	20.89	16.89	6.66	-1484.16
11	3792.70	6.00	174.10	3792.15	-19.22	21.15	19.22	11.05	-1515.75
12	3824.42	10.00	174.30	3823.55	-23.61	21.60	23.61	12.61	-1547.15
13	3856.16	14.50	178.20	3854.56	-30.33	22.00	30.33	14.41	-1578.16
14	3887.88	17.70	179.00	3885.04	-39.12	22.21	39.12	10.11	-1608.64
15	3919.70	20.90	179.40	3915.06	-49.64	22.35	49.64	10.07	-1638.66
16	3951.54	22.60	186.10	3944.64	-61.40	21.76	61.40	9.44	-1668.24
17	3983.24	24.00	185.70	3973.75	-73.88	20.47	73.88	4.44	-1697.35
18	4014.95	26.30	185.10	4002.46	-87.29	19.21	87.29	7.30	-1726.06
19	4046.75	27.40	188.10	4030.83	-101.55	17.55	101.55	5.49	-1754.43
20	4078.55	29.20	181.30	4058.83	-116.56	16.34	116.56	11.60	-1782.43
21	4110.23	31.60	188.30	4086.17	-132.50	14.97	132.50	13.50	-1809.77
22	4141.96	33.70	189.50	4112.88	-149.41	12.31	149.41	6.93	-1836.48
23	4173.00	34.20	188.20	4138.63	-166.54	9.65	166.54	2.84	-1862.23
24	4205.49	35.60	184.80	4165.28	-185.01	7.55	185.01	7.38	-1888.88
25	4243.38	36.50	187.34	4195.91	-207.17	5.19	207.17	4.60	-1919.51
26	4275.08	38.10	184.60	4221.13	-226.28	3.20	226.28	7.27	-1944.73
27	4306.96	40.40	182.90	4245.82	-246.40	1.89	246.40	7.96	-1969.42
28	4338.74	43.50	181.80	4269.45	-267.62	1.03	267.62	10.02	-1993.05
29	4370.54	46.90	181.40	4291.86	-290.18	0.40	290.18	10.73	-2015.46
30	4402.44	49.70	180.90	4313.07	-313.99	-0.08	313.99	8.86	-2036.67
31	4432.96	53.60	181.00	4332.01	-337.91	-0.48	337.91	12.78	-2055.61
32	4464.66	58.60	180.40	4349.68	-364.21	-0.79	364.21	15.85	-2073.28
33	4496.51	64.90	179.10	4364.75	-392.26	-0.66	392.26	20.10	-2088.35
34	4528.31	71.30	179.00	4376.61	-421.74	-0.17	421.74	20.13	-2100.21
35	4560.17	77.80	180.00	4385.09	-452.43	0.09	452.43	20.62	-2108.69
36	4591.85	83.10	179.20	4390.34	-483.66	0.31	483.66	16.91	-2113.94
37	4623.61	87.30	179.70	4393.00	-515.30	0.62	515.30	13.32	-2116.60

38	4655.33	90.80	179.50	4393.53	-547.01	0.84	547.01	11.05	-2117.13
39	4686.95	92.70	179.40	4392.56	-578.61	1.14	578.61	6.02	-2116.16
40	4718.66	93.40	178.00	4390.87	-610.27	1.86	610.27	4.93	-2114.47
41	4750.39	94.40	179.40	4388.71	-641.92	2.58	641.92	5.41	-2112.31
42	4769.68	95.10	179.40	4387.12	-661.14	2.78	661.14	3.63	-2110.72
43	4801.41	95.40	179.40	4384.21	-692.73	3.11	692.73	0.95	-2107.81
44	4833.11	93.80	179.80	4381.67	-724.33	3.33	724.33	5.20	-2105.27
45	4864.75	91.80	179.60	4380.13	-755.93	3.50	755.93	6.35	-2103.73
46	4896.42	90.00	180.20	4379.63	-787.59	3.55	787.59	5.99	-2103.23
47	4928.24	88.10	179.30	4380.16	-819.41	3.69	819.41	6.61	-2103.76
48	4959.97	88.30	178.50	4381.15	-851.12	4.30	851.12	2.60	-2104.75
49	4991.74	89.90	179.20	4381.65	-882.88	4.94	882.88	5.50	-2105.25
50	5023.40	90.40	178.60	4381.57	-914.53	5.54	914.53	2.47	-2105.17
51	5055.04	90.80	178.40	4381.24	-946.16	6.37	946.16	1.41	-2104.84
52	5086.81	90.50	179.00	4380.88	-977.92	7.09	977.92	2.11	-2104.48
53	5118.52	90.00	178.60	4380.74	-1009.62	7.76	1009.62	2.02	-2104.34
54	5150.81	90.10	178.90	4380.71	-1041.90	8.46	1041.90	0.98	-2104.31
55	5181.81	89.50	179.20	4380.82	-1072.90	8.97	1072.90	2.16	-2104.42
56	5213.51	89.70	179.20	4381.04	-1104.59	9.42	1104.59	0.63	-2104.64
57	5245.29	90.50	179.10	4380.98	-1136.37	9.89	1136.37	2.54	-2104.58
58	5277.16	89.50	179.60	4380.98	-1168.24	10.25	1168.24	3.51	-2104.58
59	5308.82	87.80	178.20	4381.73	-1199.88	10.86	1199.88	6.96	-2105.33
60	5340.54	87.20	178.00	4383.11	-1231.55	11.91	1231.55	1.99	-2106.71
61	5372.26	87.10	179.20	4384.69	-1263.22	12.68	1263.22	3.79	-2108.29
62	5404.01	88.00	179.10	4386.05	-1294.94	13.15	1294.94	2.85	-2109.65
63	5435.74	88.80	179.60	4386.93	-1326.65	13.51	1326.65	2.97	-2110.53
64	5467.45	89.00	180.30	4387.54	-1358.36	13.54	1358.36	2.30	-2111.14
65	5499.10	88.40	180.90	4388.26	-1390.00	13.21	1390.00	2.68	-2111.86
66	5530.76	88.40	180.90	4389.15	-1421.64	12.71	1421.64	0.00	-2112.75
67	5562.73	89.80	180.20	4389.65	-1453.61	12.41	1453.61	4.90	-2113.25
68	5594.48	90.60	181.20	4389.54	-1485.35	12.02	1485.35	4.03	-2113.14
69	5626.26	90.80	181.10	4389.15	-1517.12	11.38	1517.12	0.70	-2112.75
70	5658.00	90.20	179.20	4388.87	-1548.86	11.30	1548.86	6.28	-2112.47
71	5689.75	89.70	180.00	4388.90	-1580.61	11.52	1580.61	2.97	-2112.50
72	5721.56	90.00	179.80	4388.98	-1612.42	11.57	1612.42	1.13	-2112.58
73	5753.21	90.10	180.40	4388.95	-1644.07	11.52	1644.07	1.92	-2112.55
74	5784.81	90.40	181.40	4388.82	-1675.66	11.02	1675.66	3.30	-2112.42

74	5784.81	90.40	181.40	4388.82	-1675.66	11.02	1675.66	3.30	-2112.42
75	5816.60	90.70	180.70	4388.51	-1707.45	10.44	1707.45	2.40	-2112.11
76	5848.30	91.40	180.90	4387.93	-1739.14	10.00	1739.14	2.30	-2111.53
77	5879.90	91.20	181.10	4387.21	-1770.73	9.45	1770.73	0.89	-2110.81
78	5911.69	91.70	181.30	4386.41	-1802.50	8.78	1802.50	1.69	-2110.01
79	5943.43	92.60	181.40	4385.22	-1834.21	8.03	1834.21	2.85	-2108.82
80	5975.04	92.50	182.10	4383.81	-1865.77	7.07	1865.77	2.23	-2107.41
81	6006.79	91.00	181.70	4382.84	-1897.49	6.02	1897.49	4.89	-2106.44
82	6038.53	89.80	182.00	4382.62	-1929.21	4.99	1929.21	3.90	-2106.22
83	6070.23	88.70	181.80	4383.04	-1960.89	3.94	1960.89	3.53	-2106.64
84	6101.81	89.40	182.50	4383.56	-1992.44	2.76	1992.44	3.13	-2107.16
85	6133.54	89.60	182.70	4383.84	-2024.14	1.32	2024.14	0.89	-2107.44
86	6165.20	88.80	181.00	4384.28	-2055.78	0.29	2055.78	5.93	-2107.88
87	6196.98	89.70	180.30	4384.69	-2087.55	-0.07	2087.55	3.59	-2108.29
88	6228.80	89.60	180.30	4384.89	-2119.37	-0.23	2119.37	0.31	-2108.49
89	6260.50	90.10	180.00	4384.97	-2151.07	-0.32	2151.07	1.84	-2108.57
90	6292.20	90.00	180.10	4384.94	-2182.77	-0.34	2182.77	0.45	-2108.54
91	6323.93	90.00	179.50	4384.94	-2214.50	-0.23	2214.50	1.89	-2108.54
92	6355.62	90.70	178.60	4384.75	-2246.18	0.29	2246.18	3.60	-2108.35
93	6387.32	91.20	178.90	4384.22	-2277.87	0.98	2277.87	1.84	-2107.82
94	6394.00	91.40	179.10	4384.07	-2284.55	1.10	2284.55	4.23	-2107.67
TD	6447.00	91.40	179.10	4382.78	-2337.53	1.93	2337.53	0.00	-2106.38