



McVAY DRILLING COMPANY
Post Office Box 924
Hobbs, New Mexico 88241
(505) 397-3311
FAX: 39-DRILL

Well Name and Number: Smith Federal # 4

Location: Sec11, T22S, R23E

Operator: Marathon

Drilling Contractor: McVay Drilling Company

RECEIVED

APR 21 2004

000-ARTESIA

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

Degrees @ Depth		Degrees @ Depth		Degrees @ Depth	
¼	864	14 ¾	3566	16 ¾	6609
½	1006	15 ¾	3636	15 ¾	6801
¾	1158	13 ½	3888	15	6991
¾	1210	13 ¾	4077	15	7280
5 ¾	1797	15.7	4395	14 ¼	7370
13 ½	2111	14.9	4586	14	7624
17 ½	2301	15.1	4776	13 ½	7813
15	2555	15.5	5093	13 ½	7876
14 ¾	2807	14.4	5850	13 ¼	7940
15 ¼	2996	15.8	5976	4 ½	8546
15 ½	3248	16 ¾	6227		
15	3439	17	6482		

Drilling Contractor: McVay Drilling Company

By: Joe L. McVay

Subscribed and sworn to before me this 10th day of December, 2003

Tina Hemen
Notary Public

My Commission Expires: 8-16-05

Lea County, New Mexico

* * * N A U T I C A L (V e r s i o n 4 . 0) * * *

Well: Smith Federal 4

Target Azimuth: 175.13
Target TVD: 8400

Closure Direction: 175

Calculation Method - Minimum Curvature

Measured Depth (ft)	Inclination (deg.)	Azimuth (deg.)	True Vertical Depth (ft)	Vertical Section (ft)	North/ South (ft)	East/ West (ft)	Closure (ft)	Build Rate (deg/ft)	Walk Rate (deg/ft)	Dogleg Severity (d/100')	Tool Face (deg)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	<==== Tie-in Data				
113.00	0.25	96.00	113.00	0.05	-0.03	0.25	0.25	0.002	0.850	0.22	SS
329.00	0.75	200.00	328.99	1.42	-1.40	0.23	1.42	0.002	0.481	0.39	SS
574.00	0.25	197.00	573.98	3.37	-3.42	-0.47	3.45	-0.002	-0.012	0.20	SS
884.00	0.25	199.00	883.98	4.61	-4.71	-0.89	4.79	0.000	0.006	0.00	SS
1006.00	0.50	194.00	1,005.98	5.36	-5.48	-1.11	5.59	0.002	-0.041	0.21	SS
1095.00	0.20	194.00	1,094.98	5.88	-6.00	-1.24	6.13	-0.003	0.000	0.34	SS
1278.00	0.30	194.00	1,277.97	6.63	-6.78	-1.43	6.93	0.001	0.000	0.05	SS
1541.00	0.20	310.70	1,540.97	6.96	-7.15	-1.95	7.41	0.000	0.444	0.16	MWD
1573.00	0.30	306.90	1,572.97	6.86	-7.06	-2.06	7.35	0.003	-0.119	0.32	MWD
1605.00	0.90	136.30	1,604.97	7.00	-7.19	-1.95	7.45	0.019	-5.331	3.74	MWD
1637.00	1.20	114.90	1,636.97	7.36	-7.51	-1.47	7.66	0.009	-0.669	1.53	MWD
1669.00	2.20	117.70	1,668.95	7.86	-7.94	-0.62	7.97	0.031	0.087	3.13	MWD
1733.00	3.80	127.90	1,732.86	9.96	-9.81	2.14	10.04	0.025	0.159	2.63	MWD
1797.00	5.70	139.50	1,796.64	13.98	-13.53	5.87	14.75	0.030	0.181	3.31	MWD
1859.00	6.90	152.20	1,858.27	19.92	-19.17	9.61	21.45	0.019	0.205	2.96	MWD
1922.00	7.60	159.60	1,920.77	27.42	-26.42	12.83	29.37	0.011	0.117	1.85	MWD
1986.00	9.80	166.90	1,984.03	36.89	-35.70	15.54	38.93	0.034	0.114	3.84	MWD
2048.00	11.50	173.60	2,044.96	48.29	-46.98	17.42	50.11	0.027	0.108	3.39	MWD
2111.00	13.40	174.30	2,106.48	61.87	-60.49	18.85	63.35	0.030	0.011	3.03	MWD
2174.00	15.20	171.20	2,167.52	77.41	-75.91	20.84	78.72	0.029	-0.049	3.10	MWD
2238.00	16.60	172.20	2,229.07	94.91	-93.26	23.36	96.14	0.022	0.016	2.23	MWD
2301.00	17.50	174.00	2,289.30	113.37	-111.60	25.57	114.49	0.014	0.029	1.66	MWD
2364.00	18.50	174.30	2,349.22	132.83	-130.97	27.56	133.83	0.016	0.005	1.59	MWD
2428.00	17.50	175.40	2,410.09	152.61	-150.66	29.34	153.49	-0.016	0.017	1.65	MWD
2491.00	16.30	177.80	2,470.36	170.91	-168.94	30.44	171.66	-0.019	0.038	2.20	MWD
2555.00	15.10	178.50	2,531.98	188.21	-186.25	31.00	188.81	-0.019	0.011	1.90	MWD
2617.00	14.90	175.70	2,591.86	204.24	-202.27	31.81	204.75	-0.003	-0.045	1.21	MWD
2681.00	14.30	169.40	2,653.80	220.33	-218.24	33.88	220.86	-0.009	-0.098	2.65	MWD
2744.00	14.50	167.90	2,714.82	235.90	-233.60	36.96	236.51	0.003	-0.024	0.67	MWD
2807.00	14.70	169.40	2,775.79	251.68	-249.17	40.09	252.38	0.003	0.024	0.68	MWD
2870.00	15.00	170.80	2,836.68	267.76	-265.08	42.86	268.52	0.005	0.022	0.74	MWD
2933.00	15.00	172.60	2,897.54	284.03	-281.21	45.21	284.82	0.000	0.029	0.74	MWD
2996.00	15.20	172.20	2,958.36	300.43	-297.48	47.39	301.23	0.003	-0.006	0.36	MWD
3060.00	15.50	173.30	3,020.08	317.35	-314.28	49.52	318.16	0.005	0.017	0.65	MWD
3122.00	15.50	174.30	3,079.82	333.92	-330.75	51.31	334.71	0.000	0.016	0.43	MWD
3185.00	15.50	173.00	3,140.53	350.75	-347.49	53.17	351.53	0.000	-0.021	0.55	MWD
3248.00	15.50	170.80	3,201.24	367.55	-364.15	55.55	368.36	0.000	-0.035	0.93	MWD
3312.00	15.40	174.00	3,262.93	384.58	-381.04	57.80	385.40	-0.002	0.050	1.34	MWD
3375.00	15.00	177.10	3,323.73	401.09	-397.51	59.09	401.87	-0.006	0.049	1.44	MWD
3439.00	15.00	176.10	3,385.55	417.65	-414.04	60.07	418.38	0.000	-0.016	0.40	MWD
3502.00	14.80	175.40	3,446.43	433.84	-430.20	61.27	434.54	-0.003	-0.011	0.43	MWD
3566.00	14.80	174.00	3,508.31	450.19	-446.47	62.78	450.87	0.000	-0.022	0.56	MWD
3636.00	15.30	176.10	3,575.90	468.36	-464.58	64.34	469.01	0.007	0.030	1.06	MWD
3699.00	15.60	176.40	3,636.63	485.14	-481.33	65.44	485.75	0.005	0.005	0.49	MWD
3762.00	15.40	175.10	3,697.34	501.98	-498.11	66.69	502.56	-0.003	-0.021	0.64	MWD
3825.00	14.00	176.80	3,758.27	517.96	-514.06	67.83	518.51	-0.022	0.027	2.33	MWD
3888.00	13.50	175.40	3,819.47	532.93	-529.00	68.84	533.46	-0.008	-0.022	0.95	MWD
3952.00	13.40	176.40	3,881.71	547.82	-543.84	69.91	548.32	-0.002	0.016	0.40	MWD
4014.00	13.70	179.20	3,941.99	562.32	-558.36	70.46	562.78	0.005	0.045	1.16	MWD
4077.00	13.70	180.70	4,003.20	577.19	-573.28	70.47	577.59	0.000	0.024	0.56	MWD
4141.00	13.50	179.60	4,065.40	592.18	-588.32	70.43	592.53	-0.003	-0.017	0.51	MWD
4205.00	13.70	180.30	4,127.61	607.18	-603.37	70.44	607.47	0.003	0.011	0.40	MWD
4268.00	13.90	178.90	4,188.79	622.16	-618.40	70.55	622.41	0.003	-0.022	0.62	MWD

* * * N A U T I C A L (V e r s i o n 4 . 0) * * *

Well: Smith Federal 4

Target Azimuth: 175.13

Closure Direction: 175

Target TVD: 8400

Calculation Method - Minimum Curvature

Measured Depth (ft)	Inclination (deg.)	Azimuth (deg.)	True Vertical Depth (ft)	Vertical Section (ft)	North/ South (ft)	East/ West (ft)	Closure (ft)	Build Rate (deg/ft)	Walk Rate (deg/ft)	Dogleg Severity (d/100')	Tool Face (deg)
4332.00	13.50	180.10	4,250.97	637.27	-633.56	70.69	637.49	-0.006	0.019	0.77	MWD
4395.00	13.70	182.00	4,312.20	652.00	-648.37	70.41	652.18	0.003	0.030	0.78	MWD
4459.00	14.50	180.60	4,374.27	667.50	-663.95	70.06	667.64	0.013	-0.022	1.36	MWD
4523.00	14.90	179.20	4,436.18	683.69	-680.19	70.10	683.79	0.006	-0.022	0.84	MWD
4586.00	14.90	176.80	4,497.06	699.86	-696.38	70.66	699.95	0.000	-0.038	0.98	MWD
4650.00	14.20	178.20	4,559.01	715.92	-712.44	71.37	716.00	-0.011	0.022	1.22	MWD
4713.00	14.00	176.80	4,620.11	731.26	-727.77	72.03	731.33	-0.003	-0.022	0.63	MWD
4776.00	15.10	175.00	4,681.09	747.08	-743.55	73.17	747.15	0.017	-0.029	1.89	MWD
4840.00	15.20	175.10	4,742.86	763.81	-760.22	74.62	763.87	0.002	0.002	0.16	MWD
4903.00	15.00	175.70	4,803.69	780.22	-776.58	75.93	780.28	-0.003	0.010	0.40	MWD
4967.00	15.10	177.10	4,865.49	796.83	-793.16	76.98	796.89	0.002	0.022	0.59	MWD
5030.00	15.30	177.50	4,926.29	813.34	-809.66	77.76	813.39	0.003	0.006	0.36	MWD
5093.00	15.50	176.00	4,987.03	830.06	-826.36	78.71	830.10	0.003	-0.024	0.71	MWD
5156.00	16.50	176.40	5,047.59	847.42	-843.69	79.85	847.46	0.016	0.006	1.60	MWD
5219.00	16.30	176.10	5,108.02	865.21	-861.44	81.02	865.24	-0.003	-0.005	0.34	MWD
5282.00	15.10	176.80	5,168.67	882.25	-878.45	82.08	882.28	-0.019	0.011	1.93	MWD
5345.00	14.20	176.10	5,229.62	898.18	-894.36	83.06	898.20	-0.014	-0.011	1.46	MWD
5407.00	14.00	176.80	5,289.76	913.28	-909.43	84.00	913.30	-0.003	0.011	0.42	MWD
5470.00	13.50	177.50	5,350.95	928.24	-924.39	84.74	928.26	-0.008	0.011	0.84	MWD
5534.00	14.50	175.70	5,413.05	943.72	-939.84	85.67	943.74	0.016	-0.028	1.70	MWD
5597.00	15.60	173.60	5,473.89	960.07	-956.12	87.20	960.09	0.017	-0.033	1.95	MWD
5660.00	15.70	172.50	5,534.55	977.06	-972.99	89.26	977.08	0.002	-0.017	0.50	MWD
5724.00	15.80	173.60	5,596.15	994.42	-990.24	91.36	994.44	0.002	0.017	0.49	MWD
5787.00	15.20	174.30	5,656.86	1,011.25	-1,006.98	93.14	1,011.28	-0.010	0.011	1.00	MWD
5850.00	14.40	174.30	5,717.77	1,027.34	-1,022.99	94.74	1,027.37	-0.013	0.000	1.27	MWD
5913.00	15.10	175.40	5,778.69	1,043.38	-1,038.97	96.17	1,043.41	0.011	0.017	1.20	MWD
5976.00	15.80	176.80	5,839.41	1,060.16	-1,055.71	97.31	1,060.18	0.011	0.022	1.26	MWD
6039.00	15.60	177.80	5,900.06	1,077.19	-1,072.74	98.11	1,077.21	-0.003	0.016	0.53	MWD
6102.00	16.10	178.50	5,960.67	1,094.38	-1,089.93	98.67	1,094.39	0.008	0.011	0.85	MWD
6164.00	16.40	179.20	6,020.19	1,111.69	-1,107.28	99.02	1,111.70	0.005	0.011	0.58	MWD
6227.00	16.80	177.80	6,080.57	1,129.65	-1,125.27	99.49	1,129.66	0.006	-0.022	0.90	MWD
6291.00	16.90	176.80	6,141.82	1,148.19	-1,143.80	100.36	1,148.20	0.002	-0.016	0.48	MWD
6355.00	16.90	176.40	6,203.05	1,166.79	-1,162.37	101.47	1,166.79	0.000	-0.006	0.18	MWD
6418.00	16.90	176.80	6,263.33	1,185.10	-1,180.65	102.55	1,185.10	0.000	0.006	0.18	MWD
6482.00	17.10	176.80	6,324.54	1,203.80	-1,199.34	103.60	1,203.80	0.003	0.000	0.31	MWD
6545.00	16.50	176.40	6,384.85	1,222.01	-1,217.51	104.68	1,222.01	-0.010	-0.006	0.97	MWD
6609.00	16.90	177.50	6,446.15	1,240.39	-1,235.88	105.65	1,240.39	0.006	0.017	0.80	MWD
6673.00	15.40	175.00	6,507.62	1,258.18	-1,253.64	106.80	1,258.18	-0.023	-0.039	2.58	MWD
6737.00	15.70	175.40	6,569.28	1,275.34	-1,270.74	108.23	1,275.34	0.005	0.006	0.50	MWD
6801.00	15.70	175.40	6,630.89	1,292.65	-1,288.00	109.62	1,292.65	0.000	0.000	0.00	MWD
6864.00	15.30	173.90	6,691.60	1,309.49	-1,304.76	111.19	1,309.49	-0.006	-0.024	0.90	MWD
6927.00	15.40	172.20	6,752.35	1,326.15	-1,321.31	113.21	1,326.15	0.002	-0.027	0.73	MWD
6991.00	15.00	173.60	6,814.11	1,342.92	-1,337.96	115.29	1,342.92	-0.006	0.022	0.85	MWD
7054.00	14.90	174.00	6,874.98	1,359.17	-1,354.12	117.04	1,359.17	-0.002	0.006	0.23	MWD
7117.00	14.80	172.90	6,935.88	1,375.31	-1,370.16	118.88	1,375.31	-0.002	-0.017	0.47	MWD
7180.00	15.00	173.60	6,996.76	1,391.50	-1,386.25	120.79	1,391.50	0.003	0.011	0.43	MWD
7,243.00	14.80	174.00	7,057.64	1,407.69	-1,402.35	122.54	1,407.69	-0.003	0.006	0.36	MWD
7,307.00	14.60	175.70	7,119.55	1,423.93	-1,418.52	123.99	1,423.93	-0.003	0.027	0.74	MWD
7,370.00	14.10	177.10	7,180.58	1,439.54	-1,434.11	124.98	1,439.54	-0.008	0.022	0.97	MWD
7,433.00	14.30	178.20	7,241.66	1,454.98	-1,449.55	125.61	1,454.98	0.003	0.017	0.53	MWD
7,496.00	13.90	177.10	7,302.76	1,470.31	-1,464.88	126.24	1,470.31	-0.006	-0.017	0.76	MWD
7,560.00	13.40	176.40	7,364.95	1,485.41	-1,479.96	127.09	1,485.41	-0.008	-0.011	0.82	MWD
7,624.00	14.00	176.10	7,427.13	1,500.56	-1,495.08	128.08	1,500.56	0.009	-0.005	0.94	MWD
7686.00	14.90	177.50	7,487.17	1,516.02	-1,510.53	128.94	1,516.02	0.015	0.023	1.56	MWD

* * * N A U T I C A L (V e r s i o n 4 . 0) * * *

Well: Smith Federal 4

Target Azimuth: 175.13
Target TVD: 8400

Closure Direction: 175

Calculation Method - Minimum Curvature

Measured Depth (ft)	Inclination (deg.)	Azimuth (deg.)	True Vertical Depth (ft)	Vertical Section (ft)	North/ South (ft)	East/ West (ft)	Closure (ft)	Build Rate (deg/ft)	Walk Rate (deg/ft)	Dogleg Severity (d/100')	Tool Face (deg)
7750.00	14.60	175.70	7,549.06	1,532.31	-1,526.79	129.91	1,532.31	-0.005	-0.028	0.86	MWD
7813.00	13.50	175.40	7,610.17	1,547.61	-1,542.04	131.09	1,547.61	-0.017	-0.005	1.75	MWD
7876.00	13.30	176.40	7,671.46	1,562.20	-1,556.61	132.14	1,562.20	-0.003	0.016	0.49	MWD
7940.00	13.30	177.80	7,733.74	1,576.92	-1,571.31	132.88	1,576.92	0.000	0.022	0.50	MWD
8570.00	13.30	177.80	8,346.84	1,721.69	-1,716.13	138.44	1,721.71	0.000	0.000	0.00	proj