



MWD SERVICES, INC.

FIELD SURVEY CALCULATIONS

DATE PRINTED: 08/16/00 MWD.REP.: L.ROBINSON / J.COVINGTON
 COMPANY: MACK ENERGY CORPORATION WELL_NAME: WOOLEY FEDERAL #6
 LOCATION: EDDY COUNTY,NM RIG: L & M #3
 FILE NAME: 00078.SRV VERT.SEC.DIR.: N 36.32 E
 CALCULATION MODEL: MINIMUM CURVATURE METHOD DEPTH DATUM: RKB
 GRID CONVERGENCE: N/A MAGN.DEC.: 9.00 E MAGN.TO MAP CORR.: 9.00 E
 COMMENTS: SURVEY #0 = TIE IN SURVEY, PREVIOUS WELLBORE SURVEY NOT PROVIDED,
 ASSUMED VERTICAL WELLBORE

SURVEY #46 = STRAIGHT LINE PROJECTED SURVEY TO WELL TD
 SURVEYS CORRECTED TO TRUE NORTH

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===== MWD SURVEY PROGRAM Ver: 3.10 PC (4-Jun-87) =====

Date: 8/16/2000 Time: 7: 8:23 PAGE: 1
 Filename: "00078.SRV" Description: "Wooley Federal #6 "
 Target Coordinates: 136.0 N 100.0 E Target TVD: 5000.000
 Using Minimum Curvature Method.

S #	MEASURED DEPTH (feet)	DRIFT ANGLE (deg)	DRIFT DIRECTION (deg)	COURSE LENGTH (feet)	TRUE VERTICAL DEPTH (feet)	VERTICAL SECTION (feet)	--- RECTANGULAR COORDINATES (feet)	DOGLEG -SEVERITY DG/100FT
0	1226.0	0.00	360.000	0.0	1226.0	0.0	0.0 N 0.0 E	0.00
1	1316.0	0.60	328.200	90.0	1316.0	0.2	0.4 N 0.2 W	0.67
2	1410.0	1.80	41.800	94.0	1410.0	1.8	1.9 N 0.5 E	1.84
3	1504.0	3.30	49.700	94.0	1503.9	5.9	4.8 N 3.5 E	1.64
4	1598.0	5.30	46.500	94.0	1597.6	12.8	9.5 N 8.7 E	2.14
5	1692.0	6.90	44.100	94.0	1691.1	22.7	16.6 N 15.8 E	1.72
6	1785.0	9.40	42.000	93.0	1783.1	35.8	26.2 N 24.8 E	2.71
7	1879.0	10.60	37.700	94.0	1875.7	52.1	38.8 N 35.2 E	1.50
8	1970.0	11.70	36.300	91.0	1965.0	69.7	52.8 N 45.8 E	1.24
9	2061.0	12.80	28.400	91.0	2053.9	88.9	69.1 N 56.1 E	2.20
10	2154.0	13.40	31.900	93.0	2144.5	109.8	87.3 N 66.6 E	1.07
11	2246.0	15.30	34.800	92.0	2233.6	132.6	106.4 N 79.2 E	2.21
12	2339.0	17.10	30.800	93.0	2322.9	158.5	128.2 N 93.2 E	2.28
13	2430.0	15.90	29.000	91.0	2410.2	184.2	150.6 N 106.1 E	1.43
14	2493.0	14.90	29.500	63.0	2470.9	200.8	165.2 N 114.3 E	1.60
15	2586.0	14.50	32.800	93.0	2560.9	224.3	185.4 N 126.5 E	1.00
16	2678.0	14.70	31.900	92.0	2649.9	247.4	205.0 N 138.9 E	0.33
17	2770.0	15.90	33.800	92.0	2738.6	271.6	225.3 N 152.1 E	1.41
18	2863.0	16.20	34.200	93.0	2828.0	297.3	246.6 N 166.4 E	0.34
19	2956.0	15.80	31.400	93.0	2917.4	322.9	268.2 N 180.3 E	0.93
20	3049.0	15.70	30.000	93.0	3006.9	348.0	289.9 N 193.2 E	0.42
21	3142.0	14.90	31.800	93.0	3096.6	372.4	311.0 N 205.8 E	1.00
22	3237.0	14.20	30.800	95.0	3188.6	396.2	331.3 N 218.2 E	0.78
23	3330.0	14.20	29.500	93.0	3278.7	418.9	351.1 N 229.7 E	0.34
24	3421.0	14.50	32.800	91.0	3366.9	441.3	370.4 N 241.3 E	0.96
25	3514.0	14.50	32.000	93.0	3456.9	464.6	390.0 N 253.8 E	0.22
26	3606.0	14.60	31.700	92.0	3546.0	487.6	409.6 N 266.0 E	0.14
27	3699.0	14.90	32.000	93.0	3635.9	511.2	429.8 N 278.5 E	0.33
28	3792.0	15.20	31.000	93.0	3725.7	535.3	450.4 N 291.1 E	0.43
29	3886.0	14.80	30.600	94.0	3816.5	559.5	471.2 N 303.6 E	0.44
30	3947.0	14.90	29.700	61.0	3875.5	575.0	484.8 N 311.4 E	0.41
31	4040.0	14.60	28.700	93.0	3965.4	598.5	505.4 N 323.0 E	0.42
32	4133.0	14.40	30.400	93.0	4055.5	621.7	525.7 N 334.5 E	0.51
33	4194.0	14.70	29.000	61.0	4114.5	636.9	539.0 N 342.1 E	0.76
34	4255.0	14.00	30.500	61.0	4173.6	651.9	552.1 N 349.6 E	1.30
35	4348.0	13.80	33.000	93.0	4263.9	674.2	571.1 N 361.3 E	0.68