



MEASUREMENT WHILE DRILLING SERVICES

MWD SERVICES, INC.

FIELD SURVEY CALCULATIONS

DATE PRINTED: 08/28/00 MWD.REP.: F.VINCENT
 COMPANY: MACK ENERGY CORPORATION WELL_NAME: WOOLLEY FEDERAL #7
 LOCATION: EDDY COUNTY, NM RIG: L & M #3
 FILE NAME: 00087.SRV VERT.SEC.DIR.: N 10.34 W
 CALCULATION MODEL: MINIMUM CURVATURE METHOD DEPTH DATUM: RKB
 GRID CONVERGENCE: N/A MAGN.DEC.: 9.08 E MAGN.TO MAP CORR.: 9.08 E
 COMMENTS: SURVEY #0 = TIE IN SURVEY, PREVIOUS WELLBORE SURVEY NOT PROVIDED
 ASSUMED VERTICAL WELLBORE

SURVEY #48 = STRAIGHT LINE PROJECTED SURVEY TO BIT DEPTH
 SURVEYS CORRECTED TO TRUE NORTH

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

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Date: 8/28/2000 Time: 13:33:38 PAGE: 1
 Filename: "00087.SRV" Description: "Woolley Federal #7"
 Target Coordinates: 746.1 N 136.1 W Target TVD: 5100.000
 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	1237.0	0.00	360.000	0.0	1237.0	0.0	0.0 N	0.0 E 0.00
1	1286.0	0.70	225.100	49.0	1286.0	-0.2	0.2 S	0.2 W 1.43
2	1317.0	0.30	302.800	31.0	1317.0	-0.2	0.3 S	0.4 W 2.26
3	1415.0	3.00	3.500	98.0	1415.0	2.4	2.4 N	0.5 W 2.92
4	1470.0	4.00	355.800	55.0	1469.8	5.7	5.7 N	0.5 W 2.01
5	1532.0	5.40	356.500	62.0	1531.6	10.8	10.8 N	0.9 W 2.26
6	1624.0	7.30	353.300	92.0	1623.1	20.9	20.9 N	1.8 W 2.10
7	1686.0	8.50	354.300	62.0	1684.5	29.4	29.4 N	2.7 W 1.95
8	1779.0	9.30	345.800	93.0	1776.4	43.8	43.5 N	5.2 W 1.65
9	1841.0	10.00	351.100	62.0	1837.5	54.2	53.7 N	7.3 W 1.82
10	1936.0	10.80	350.500	95.0	1930.9	71.3	70.6 N	10.1 W 0.85
11	1998.0	12.10	350.100	62.0	1991.7	83.6	82.8 N	12.1 W 2.10
12	2091.0	12.20	349.600	93.0	2082.6	103.2	102.0 N	15.6 W 0.16
13	2153.0	11.60	352.500	62.0	2143.3	116.0	114.7 N	17.6 W 1.37
14	2215.0	12.20	352.200	62.0	2203.9	128.7	127.3 N	19.3 W 0.97
15	2279.0	13.50	349.200	64.0	2266.3	143.0	141.4 N	21.6 W 2.28
16	2370.0	12.60	348.300	91.0	2355.0	163.5	161.5 N	25.6 W 1.01
17	2461.0	11.50	346.500	91.0	2444.0	182.5	180.1 N	29.7 W 1.28
18	2554.0	11.50	351.900	93.0	2535.1	201.0	198.3 N	33.2 W 1.16
19	2648.0	13.20	352.600	94.0	2626.9	221.1	218.2 N	35.9 W 1.82
20	2742.0	12.80	353.700	94.0	2718.5	242.2	239.2 N	38.4 W 0.50
21	2805.0	13.40	350.000	63.0	2779.9	256.5	253.3 N	40.5 W 1.64
22	2897.0	13.00	350.100	92.0	2869.5	277.5	274.0 N	44.1 W 0.44
23	2990.0	12.50	349.500	93.0	2960.2	298.0	294.2 N	47.7 W 0.56
24	3052.0	12.40	347.500	62.0	3020.7	311.3	307.3 N	50.4 W 0.71
25	3113.0	11.90	349.100	61.0	3080.3	324.2	319.9 N	53.0 W 0.99
26	3206.0	11.30	349.700	93.0	3171.4	342.9	338.2 N	56.4 W 0.66
27	3299.0	10.60	350.200	93.0	3262.7	360.5	355.6 N	59.5 W 0.76
28	3392.0	10.60	352.600	93.0	3354.2	377.6	372.5 N	62.1 W 0.47
29	3485.0	10.10	352.200	93.0	3445.6	394.3	389.1 N	64.3 W 0.54
30	3578.0	11.30	347.600	93.0	3537.0	411.6	406.1 N	67.4 W 1.58
31	3669.0	11.40	346.900	91.0	3626.3	429.5	423.6 N	71.3 W 0.19
32	3730.0	11.40	350.700	61.0	3686.0	441.5	435.4 N	73.6 W 1.23
33	3825.0	11.30	353.900	95.0	3779.2	460.2	453.9 N	76.2 W 0.67
34	3918.0	10.80	353.800	93.0	3870.5	478.0	471.6 N	78.1 W 0.54
35	4012.0	11.50	353.300	94.0	3962.7	496.1	489.7 N	80.1 W 0.75