MEASUREMENT WHILE DRILLING SERVICES

MWD SERVICES, INC.

FIELD SURVEY CALCULATIONS

ATE PRINT: 07/27/01
OMPANY: NEARBURG PRODUCING CO.
OCATION: EDDY COUNTY, NM
ILE NAME: 01110.SRV
ALCULATION METHOD: MINIMUM CURVATURE METHOD
RID CONVERGENCE: N/A MAGN. DEC.: 9.24 E
OMMENTS: SURVEY #0 = TIE IN SURVEY FROM SCIENTIFIC DRLG. INT'L.
SURVEY #39 = PROJECTED SURVEY TO BIT DEPTH
SURVEYS CORRECTED TO TRUE NORTH

MWD. REP.: G. HENDRIX
WELL NAME: PATHFINDER 19 STATE COM. #1
RIG: PATTERSON DRILLING 48
VERT. SEC. DIR.: S 85.13 E
DEPTH DATUM: RKB
MAGN. TO MAP CORR.: 9.24 E

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

ate: 7/27/2001 Time: 16:20:17
ilename: "01110.SRV" Description: "Pathfinder 19 State Com. #1"
arget Coordinates: 50.0 S 585.0 E Target TVD: 10650.000
sing Minimum Curvature Method.

S #	MEASURED DEPTH (feet)	DRIFT ANGLE (deg)	DRIFT DIRECTION (deg)	COURSE LENGTH (feet)	TRUE VERTCAL DEPTH (feet)	VERTCAL SECTION (feet)	RECTANGULAR COORDINATES (feet)	DOGLEG SEVERITY DG/100FT
0	8636.0	0.83	290.980	0.0	8631.9	31.1	31.1 N 142.5 W	0.00
1	8717.0	1.10	285.200	81.0	8712.9	-145.9	31.5 N 143.8 W	0.35
2	8748.0	0.90	313.600	31.0	8743.9	-146.4	31.7 N 144.2 W	1.70
3	8780.0	0.80	71.300	32.0	8775.9	-146.4	32.0 N 144.2 W	4.55
4	8812.0	2.00	89.200	32.0	8807.9	-145.6	32.1 N 143.4 W	3.95
5	8843.0	4.10	92.700	31.0	8838.9	-144.0	32.0 N 141.8 W	6.80
6	8906.0	9.90	97.300	63.0	8901.4	-136.3	31.2 N 134.2 W	9.24
7	8938.0	11.70	95.900	32.0	8932.8	-130.3	30.5 N 128.2 W	5.68
8	9001.0	13.40	95.400	63.0	8994.3	-116.6	29.2 N 114.6 W	2.70
9	9065.0	16.70	98.000	64.0	9056.1	-100.0	27.2 N 98.1 W	5.26
10	9129.0	18.40	97.500	64.0	9117.1	-80.8	24.6 N 79.0 W	2.67
11	9193.0	18.30	96.900	64.0	9177.9	-60.6	22.1 N 59.0 W	0.33
12	9257.0	20.70	94.100	64.0	9238.2	-39.3	20.1 N 37.7 W	4.02
13	9319.0	22.10	94.300	62.0	9295.9	-16.7	18.4 N 15.1 W	2.26
14	9382.0	23.70	95.800	63.0	9353.9	7.8	16.2 N 9.3 E	2.70
15	9479.0	25.00	99.100	97.0	9442.3	47.8	11.0 N 48.9 E	1.94
16	9542.0	24.60	99.300	63.0	9499.5	74.1	6.8 N 75.0 E	0.65
17	9607.0	23.80	95.000	65.0	9558.8	100.7	3.5 N 101.4 E	2.98
18	9700.0	22.80	91.600	93.0	9644.2	137.5	1.3 N 138.1 E	1.80
19	9796.0	22.50	93.500	96.0	9732.8	174.4	0.3 S 175.0 E	0.82
20	9828.0	22.90	98.300	32.0	9762.3	186.8	1.6 S 187.3 E	5.92
21	9891.0	22.50	98.400	63.0	9820.5	211.0	5.1 S 211.4 E	0.64
22	9955.0	21.90	96.700	64.0	9879.7	235.2	8.3 S 235.3 E	1.37
23	10019.0	21.90	97.100	64.0	9939.1	259.0	11.2 S 259.0 E	0.23
24	10051.0	23.40	96.200	32.0	9968.6	271.4	12.6 S 271.3 E	4.81
25	10082.0	25.00	96.700	31.0	9996.9	284.1	14.0 S 283.9 E	5.20
26	10146.0	27.10	95.600	64.0	10054.4	312.2	17.0 S 311.8 E	3.37
27	10210.0	22.90	98.500	64.0	10112.4	339.2	20.3 S 338.7 E	6.83
28	10241.0	23.30	99.200	31.0	10140.9	351.3	22.1 S 350.7 E	1.57
29	10272.0	22.10	99.700	31.0	10169.5	363.2	24.1 S 362.5 E	3.92
30	10336.0	23.10	97.300	64.0	10228.6	387.8	27.7 S 386.8 E	2.13
31	10367.0	22.90	97.800	31.0	10257.1	399.9	29.3 S 398.8 E	0.90
32	10401.0	23.30	97.600	34.0	10288.4	413.2	31.1 S 412.1 E	1.20
33	10441.0	24.00	96.900	40.0	10325.0	429.2	33.1 S 428.0 E	1.89
34	10504.0	24.80	97.100	63.0	10382.4	455.2	36.3 S 453.8 E	1.28
35	10572.0	26.50	97.300	68.0	10443.7	484.7	40.0 S 483.0 E	2.50