

PHOENIX DRILLING SERVICES
HORIZONTAL SURVEY PROGRAM
MINIMUM CURVATURE CALCULATIONS(SPE-3362)

OPERATOR: TEXACO E & P, INC. WELL: NORTH VACUUM ABO UNIT # 31 LOCATION: LEA COUNTY, NEW MEXICO JOB NO: 173166						START: 8/20/97 FILE: CURVE1.V FINISH: 8/20/97 INFORMATION PROVIDED BY: TEXACO E HORIZONTAL COORDINATOR: RUBESH, I				
DIP1 = 7.35 deg = 97.35 deg TARGET1 = 8,768 ft TVD VS1 = 1,317 ft						DATE: 8/30/97 MAG DECLINATION 9.11 EAST				
DIP2 = -9.85 deg = 80.15 deg TARGET2 = 8,771 ft TVD VS2 = 1,431 ft						TIME: 5:14 AM DIRECTION 224.80				
GVY MEASURED		TRUE		CENTER						
#	DEPTH	INCL (DRIFT)	AZIMUTH (DIR)	VERTICAL DEPTH	VERTICAL SECTION	DLS/ 100	ABOVE(+) BELOW(-)	RIGHT(+) LEFT(-)	NORTH(+) SOUTH(-)	EAST(+) WEST(-)
45	9907	97.1	225.1	8790.4	1148.0	2.7	-0.4	7.1	-809.0	-013.9
46	9939	97.2	226.3	8786.4	1179.7	3.7	-0.5	7.6	-831.8	-836.6
47	9970	96.9	225.9	8782.6	1210.5	1.6	-0.7	8.2	-853.1	-858.8
48	10002	96.8	227.2	8778.8	1242.2	4.0	-0.9	9.2	-874.8	-881.0
49	10033	97.5	224.9	8774.9	1273.0	7.6	-1.0	9.9	-896.3	-904.0
50	10065	97.5	226.3	8770.7	1304.7	4.3	-0.9	10.3	-918.5	-926.7
BIT	10105	92.7	225.0	8767.2	1344.5	12.4	-2.5	10.9	-946.3	-955.1

TO: Scott
TO: Mark
From: Kirby