

Confidential

SCIENTIFIC DRILLING INT'L
SURVEY CALCULATION REPORT
ver - 1.27

Company: Petroleum Development Corp. Probe #: 0
Location: Chavez County, N.M. Section Plane: N 0.00 W
Field: Tomahawk Well no: Siete Ped. #1.
Declination: 0.00W Vertical Section Origin:
Operator: Scientific Drilling North: 0.00 East: 0.00
Time: 12-3-90
Filename: PDC1 Depth Units -> FEET
Comments:

Data Source (D.S.) types : (Manually entered data starts with '*')

CS - CHAMP Singleshot MS - Magnetic SS TD - Total Depth
CM - CHAMP Multishot MM - Magnetic MS TI - Tiein Point
CC - CHAMP Compensated MW - M.W.D.
GS - Gyro Singleshot PR - Projection
GM - Gyro Multishot ST - Steering Tool

Calculation Method - Minimum Curvature

**** RECORD OF SURVEY ****

Measured Depth	Inc (deg)	Azimuth (deg)	TVD	T O T A L Rec Coordinates		Vertical Section	Dogleg Severity	D.S.
0.0	0.00	N 0.00W	0.0	0.0N	0.0E	0.0	0.00	*TI
100.0	0.45	S 31.83W	100.0	0.1S	0.4W	-0.1	0.45	*GM
200.0	0.77	S 65.37W	200.0	0.4S	1.4W	-0.4	0.36	*GM
300.0	0.61	S 43.37W	300.0	1.1S	2.4W	-1.1	0.31	*GM
400.0	0.86	S 78.78W	400.0	1.6S	3.5W	-1.6	0.51	*GM
500.0	0.49	N 82.97W	500.0	1.7S	4.6W	-1.7	0.42	*GM
600.0	0.00	N 0.00W	600.0	1.6S	5.1W	-1.6	0.49	*GM
700.0	0.44	S 32.06W	700.0	2.0S	5.3W	-2.0	0.44	*GM
800.0	0.47	S 86.89W	800.0	2.3S	5.9W	-2.3	0.42	*GM
900.0	0.41	S 16.89W	900.0	2.7S	6.4W	-2.7	0.51	*GM
1000.0	0.67	S 24.15W	1000.0	3.5S	6.7W	-3.5	0.27	*GM
1100.0	0.36	S 34.08W	1100.0	4.3S	7.1W	-4.3	0.32	*GM
1200.0	0.40	S 3.92E	1200.0	4.9S	7.3W	-4.9	0.25	*GM
1300.0	0.77	S 20.49W	1299.9	5.9S	7.5W	-5.9	0.44	*GM
1400.0	0.49	S 6.14E	1399.9	7.0S	7.7W	-7.0	0.40	*GM
1500.0	0.64	S 25.46W	1499.9	7.9S	7.9W	-7.9	0.34	*GM
1600.0	0.65	S 31.52W	1599.9	8.9S	8.4W	-8.9	0.07	*GM
1700.0	0.17	S 34.97W	1699.9	9.5S	8.9W	-9.5	0.48	*GM
1800.0	0.13	S 56.28E	1799.9	9.7S	8.8W	-9.7	0.22	*GM
1900.0	0.22	S 61.41W	1899.9	9.8S	8.9W	-9.8	0.30	*GM
2000.0	0.63	S 32.78E	1999.9	10.4S	8.7W	-10.4	0.68	*GM
2100.0	0.64	S 65.59E	2099.9	11.1S	7.9W	-11.1	0.36	*GM
2200.0	0.55	S 60.00E	2199.9	11.6S	7.0W	-11.6	0.11	*GM
2300.0	0.45	S 35.30E	2299.9	12.1S	6.4W	-12.1	0.24	*GM
2400.0	0.38	S 5.31E	2399.9	12.9S	6.1W	-12.8	0.23	*GM
2500.0	0.53	S 15.25E	2499.9	13.5S	6.0W	-13.5	0.17	*GM
2600.0	0.58	S 10.17W	2599.9	14.5S	5.9W	-14.5	0.25	*GM
2700.0	1.10	S 21.84W	2699.9	15.9S	6.4W	-15.9	0.54	*GM
2800.0	1.11	S 39.04W	2799.9	17.5S	7.3W	-17.5	0.33	*GM
2900.0	0.80	S 36.91W	2899.9	18.8S	8.4W	-18.8	0.31	*GM

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