



Scientific Drilling Houston

Final Survey Report



Company: EL PASO PRODUCTION	Date: 12/1/2004	Time: 09:30:58	Page: 1
Field: VERMEJO FIELD, COLORADO	Co-ordinate(NE) Reference: Well: WELL C-65, Grid North		
Site: RATON (C65)	Vertical (TVD) Reference: SITE 0.0		
Well: WELL C-65	Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: VERMEJO FIELD, COLORADO

Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: Colorado, Southern Zone
Coordinate System: Well Centre
Geomagnetic Model: Wmm_2000

Site: RATON (C65)

SECTION 26, T34S-R66W

Site Position:	Northing: 141240.7249 ft	Latitude: 37 3 7.744 N
From: Geographic	Easting: 2219054.8802 ft	Longitude: 104 44 57.916 W
Position Uncertainty: 0.0 ft		North Reference: Grid
Ground Level: 0.0 ft		Grid Convergence: 1.86 deg

Well: WELL C-65

Slot Name:

Well Position: +N/-S 0.0 ft	Northing: 141240.7249 ft	Latitude: 37 3 7.744 N
+E/-W 0.0 ft	Easting: 2219054.8802 ft	Longitude: 104 44 57.916 W
Position Uncertainty: 0.0 ft		

Wellpath: OH

Drilled From: Surface
Tie-on Depth: 0.0 ft
Above System Datum: Mean Sea Level
Declination: 9.51 deg
Mag Dip Angle: 64.53 deg

Current Datum: SITE	Height 0.0 ft
Magnetic Data: 8/20/2004	
Field Strength: 52187 nT	
Vertical Section: Depth From (TVD)	+N/-S
ft	ft
0.0	0.0

Survey

MD	Incl	Azim	TVD	N/S	E/W	VS	DLS	ClsD	ClsA	Tool
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00	TIE LINE
100.0	0.74	152.32	100.0	-0.6	0.3	-0.6	0.74	0.6	152.32	SDI GYRO
200.0	1.82	173.29	200.0	-2.7	0.8	-2.7	1.16	2.8	163.90	SDI GYRO
300.0	2.54	198.05	299.9	-6.4	0.3	-6.4	1.17	6.4	177.46	SDI GYRO
400.0	2.94	221.14	399.8	-10.4	-2.1	-10.4	1.16	10.7	191.31	SDI GYRO
500.0	3.26	232.66	499.6	-14.1	-6.0	-14.1	0.70	15.3	203.18	SDI GYRO
600.0	2.89	237.17	599.5	-17.2	-10.4	-17.2	0.44	20.1	211.21	SDI GYRO
700.0	2.24	251.30	699.4	-19.2	-14.4	-19.2	0.90	24.0	216.87	SDI GYRO
800.0	1.55	283.41	799.3	-19.5	-17.6	-19.5	1.24	26.2	222.00	SDI GYRO
900.0	1.34	272.61	899.3	-19.1	-20.0	-19.1	0.34	27.7	226.33	SDI GYRO
1000.0	1.27	267.73	999.3	-19.1	-22.3	-19.1	0.13	29.4	229.40	SDI GYRO
1100.0	1.10	251.21	1099.3	-19.5	-24.3	-19.5	0.38	31.2	231.32	SDI GYRO
1200.0	0.36	241.26	1199.3	-19.9	-25.5	-19.9	0.75	32.4	232.00	SDI GYRO
1300.0	0.24	300.97	1299.3	-20.0	-26.0	-20.0	0.32	32.8	232.43	SDI GYRO
1400.0	0.35	185.98	1399.3	-20.2	-26.2	-20.2	0.50	33.0	232.38	SDI GYRO
1500.0	0.28	87.17	1499.3	-20.5	-26.0	-20.5	0.48	33.1	231.76	SDI GYRO
1600.0	0.62	144.45	1599.3	-20.9	-25.4	-20.9	0.52	32.9	230.57	SDI GYRO
1677.0	0.30	149.93	1676.3	-21.4	-25.1	-21.4	0.42	33.0	229.50	SDI GYRO
1746.0	19.75	307.80	1743.9	-14.3	-34.3	-14.3	29.03	37.2	247.29	SDI E-FIELD MWD
1777.0	32.81	307.09	1771.6	-6.0	-45.2	-6.0	42.14	45.6	262.39	SDI E-FIELD MWD
1808.0	45.90	305.30	1795.6	5.5	-61.0	5.5	42.38	61.3	275.16	SDI E-FIELD MWD
1838.0	58.44	305.53	1813.9	19.2	-80.3	19.2	41.80	82.6	283.46	SDI E-FIELD MWD
1868.0	67.85	304.02	1827.5	34.5	-102.3	34.5	31.69	107.9	288.62	SDI E-FIELD MWD
1899.0	76.84	311.00	1836.9	52.4	-125.6	52.4	36.06	136.1	292.66	SDI E-FIELD MWD
1930.0	80.99	309.34	1842.8	72.1	-148.9	72.1	14.38	165.4	295.83	SDI E-FIELD MWD
1961.0	81.40	308.60	1847.6	91.3	-172.7	91.3	2.70	195.3	297.87	SDI E-FIELD MWD
1993.0	83.23	307.59	1851.9	110.9	-197.6	110.9	6.52	226.6	299.30	SDI E-FIELD MWD
2024.0	86.37	306.57	1854.7	129.5	-222.3	129.5	10.65	257.2	300.23	SDI E-FIELD MWD



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Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	ClsD ft	ClsA deg	Tool
2055.0	86.27	306.61	1856.7	147.9	-247.1	147.9	0.35	288.0	300.91	SDI E-FIELD MWD
2073.0	86.60	306.48	1857.8	158.6	-261.5	158.6	1.97	305.9	301.24	SDI E-FIELD MWD
2087.0	86.87	306.42	1858.6	166.9	-272.8	166.9	1.98	319.8	301.47	SDI E-FIELD MWD
2118.0	87.41	306.13	1860.1	185.3	-297.7	185.3	1.98	350.7	301.89	SDI E-FIELD MWD
2149.0	87.89	305.60	1861.4	203.4	-322.8	203.4	2.31	381.6	302.21	SDI E-FIELD MWD
2181.0	89.06	303.93	1862.2	221.7	-349.1	221.7	6.37	413.5	302.41	SDI E-FIELD MWD
2211.0	89.65	303.58	1862.6	238.3	-374.1	238.3	2.29	443.5	302.50	SDI E-FIELD MWD
2242.0	89.06	302.51	1862.9	255.2	-400.0	255.2	3.94	474.5	302.54	SDI E-FIELD MWD
2274.0	89.46	302.50	1863.3	272.4	-427.0	272.4	1.25	506.5	302.54	SDI E-FIELD MWD
2306.0	90.64	301.29	1863.3	289.3	-454.2	289.3	5.28	538.5	302.50	SDI E-FIELD MWD
2337.0	91.70	300.41	1862.7	305.2	-480.8	305.2	4.44	569.5	302.41	SDI E-FIELD MWD
2367.0	92.52	300.24	1861.6	320.4	-506.7	320.4	2.79	599.5	302.30	SDI E-FIELD MWD
2399.0	92.72	299.92	1860.1	336.4	-534.3	336.4	1.18	631.4	302.19	SDI E-FIELD MWD
2430.0	93.11	299.00	1858.5	351.6	-561.3	351.6	3.22	662.3	302.06	SDI E-FIELD MWD
2462.0	92.59	298.77	1856.9	367.0	-589.3	367.0	1.78	694.2	301.92	SDI E-FIELD MWD
2491.0	92.32	297.11	1855.7	380.6	-614.9	380.6	5.79	723.1	301.76	SDI E-FIELD MWD
2522.0	89.47	297.07	1855.2	394.7	-642.5	394.7	9.19	754.0	301.57	SDI E-FIELD MWD
2553.0	87.51	296.47	1856.0	408.7	-670.1	408.7	6.61	784.9	301.38	SDI E-FIELD MWD
2584.0	85.31	296.28	1858.0	422.4	-697.9	422.4	7.12	815.7	301.19	SDI E-FIELD MWD
2616.0	85.16	295.68	1860.6	436.4	-726.5	436.4	1.93	847.5	300.99	SDI E-FIELD MWD
2648.0	85.49	295.55	1863.2	450.2	-755.3	450.2	1.11	879.3	300.80	SDI E-FIELD MWD
2679.0	85.90	295.58	1865.6	463.5	-783.2	463.5	1.33	910.1	300.62	SDI E-FIELD MWD
2709.0	86.60	295.83	1867.5	476.5	-810.1	476.5	2.48	939.9	300.46	SDI E-FIELD MWD
2741.0	87.31	295.73	1869.2	490.4	-838.9	490.4	2.24	971.7	300.31	SDI E-FIELD MWD
2750.0	87.75	296.22	1869.6	494.3	-847.0	494.3	7.31	980.7	300.27	SDI E-FIELD MWD
2779.0	86.67	296.00	1871.0	507.1	-873.0	507.1	3.80	1009.6	300.15	SDI E-FIELD MWD
2809.0	84.61	295.06	1873.3	520.0	-900.0	520.0	7.54	1039.4	300.02	SDI E-FIELD MWD
2845.0	85.12	294.59	1876.5	535.0	-932.5	535.0	1.92	1075.1	299.84	SDI E-FIELD MWD
2870.0	86.54	294.17	1878.3	545.3	-955.2	545.3	5.92	1099.9	299.72	SDI E-FIELD MWD
2899.0	88.07	294.17	1879.7	557.2	-981.7	557.2	5.28	1128.8	299.58	SDI E-FIELD MWD
2930.0	88.15	294.80	1880.7	570.0	-1009.9	570.0	2.05	1159.6	299.44	SDI E-FIELD MWD
2959.0	86.75	294.46	1882.0	582.1	-1036.2	582.1	4.97	1188.5	299.33	SDI E-FIELD MWD
2989.0	87.42	294.26	1883.6	594.5	-1063.5	594.5	2.33	1218.4	299.20	SDI E-FIELD MWD
3019.0	88.18	293.99	1884.7	606.7	-1090.9	606.7	2.69	1248.2	299.08	SDI E-FIELD MWD
3052.0	88.15	294.50	1885.8	620.3	-1120.9	620.3	1.55	1281.1	298.96	SDI E-FIELD MWD
3080.0	86.17	293.62	1887.1	631.7	-1146.5	631.7	7.74	1309.0	298.85	SDI E-FIELD MWD
3110.0	86.47	293.53	1889.1	643.6	-1173.9	643.6	1.04	1338.8	298.74	SDI E-FIELD MWD
3132.0	86.43	293.00	1890.4	652.3	-1194.1	652.3	2.41	1360.6	298.65	SDI E-FIELD MWD
3140.0	86.40	293.49	1890.9	655.5	-1201.4	655.5	6.12	1368.6	298.62	SDI E-FIELD MWD
3169.0	87.19	292.94	1892.6	666.9	-1228.0	666.9	3.32	1397.4	298.50	SDI E-FIELD MWD
3199.0	88.99	293.16	1893.6	678.6	-1255.6	678.6	6.04	1427.3	298.39	SDI E-FIELD MWD
3230.0	89.53	293.55	1894.0	690.9	-1284.1	690.9	2.15	1458.1	298.28	SDI E-FIELD MWD
3263.0	87.92	292.52	1894.7	703.8	-1314.4	703.8	5.79	1491.0	298.17	SDI E-FIELD MWD
3295.0	87.71	292.24	1895.9	716.0	-1344.0	716.0	1.09	1522.8	298.05	SDI E-FIELD MWD
3326.0	88.59	292.50	1896.9	727.8	-1372.6	727.8	2.96	1553.6	297.93	SDI E-FIELD MWD
3357.0	88.89	292.70	1897.6	739.7	-1401.3	739.7	1.16	1584.5	297.83	SDI E-FIELD MWD
3389.0	89.36	292.15	1898.1	751.9	-1430.8	751.9	2.26	1616.4	297.72	SDI E-FIELD MWD
3406.0	89.23	292.94	1898.3	758.4	-1446.5	758.4	4.71	1633.3	297.67	SDI E-FIELD MWD
3437.0	89.83	293.35	1898.5	770.6	-1475.0	770.6	2.34	1664.2	297.58	SDI E-FIELD MWD
3467.0	89.90	292.96	1898.6	782.4	-1502.6	782.4	1.32	1694.1	297.51	SDI E-FIELD MWD
3497.0	89.70	293.10	1898.7	794.1	-1530.2	794.1	0.81	1724.0	297.43	SDI E-FIELD MWD
3527.0	88.09	291.92	1899.3	805.6	-1557.9	805.6	6.65	1753.9	297.34	SDI E-FIELD MWD



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Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	ClsD ft	ClsA deg	Tool
3560.0	88.09	291.92	1900.4	817.9	-1588.5	817.9	0.00	1786.7	297.24	PROJECTED DEPTH