



Scientific Drilling Houston

Final Survey Report



Company: EL PASO PRODUCTION	Date: 4/21/2005	Time: 15:43:01	Page: 1
Field: VERMEJO FIELD, NEW MEXICO	Co-ordinate(NE) Reference: Well: WELL D-102, Grid North		
Site: RATON (D102)	Vertical (TVD) Reference: SITE 0.0		
Well: WELL D-102	Section (VS) Reference: Well (0.00N,0.00E,42.88Azi)		
Wellpath: LATERAL	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: VERMEJO FIELD, NEW MEXICO			
Map System: US State Plane Coordinate System 1927		Map Zone: New Mexico, Eastern Zone	
Geo Datum: NAD27 (Clarke 1866)		Coordinate System: Well Centre	
Sys Datum: Mean Sea Level		Geomagnetic Model: igrf2005	

Site: RATON (D102)			
SECTION 10, T30N-R17E			
Site Position:	Northing: 2130754.6169 ft	Latitude: 36 51 11.500 N	
From: Map	Easting: 269986.4700 ft	Longitude: 105 7 10.200 W	
Position Uncertainty: 0.0 ft		North Reference: Grid	
Ground Level: 8400.0 ft		Grid Convergence: -0.47 deg	

Well: WELL D-102			
Slot Name:			
Well Position: +N/-S 0.0 ft	Northing: 2130754.6169 ft	Latitude: 36 51 11.500 N	
+E/-W 0.0 ft	Easting: 269986.4700 ft	Longitude: 105 7 10.200 W	
Position Uncertainty: 0.0 ft			

Wellpath: LATERAL			
Current Datum: SITE	Height 0.0 ft	Drilled From: Surface	
Magnetic Data: 4/8/2005		Tie-on Depth: 0.0 ft	
Field Strength: 51833 nT		Above System Datum: Mean Sea Level	
Vertical Section: Depth From (TVD)	+N/-S	Declination: 9.47 deg	
ft	ft	Mag Dip Angle: 64.22 deg	
		+E/-W	Direction
		ft	deg
0.0	0.0	0.0	42.88

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	1.22	343.22	100.0	1.0	-0.3	0.5	1.22	1.1	343.22	SDI Keeper
200.0	1.29	321.72	200.0	2.9	-1.3	1.2	0.47	3.2	335.82	SDI Keeper
300.0	1.13	356.66	299.9	4.8	-2.1	2.1	0.74	5.2	336.66	SDI Keeper
400.0	1.34	5.56	399.9	6.9	-2.0	3.7	0.28	7.2	343.84	SDI Keeper
500.0	1.36	12.09	499.9	9.3	-1.6	5.7	0.16	9.4	349.90	SDI Keeper
600.0	1.24	10.30	599.9	11.5	-1.2	7.6	0.13	11.6	354.00	SDI Keeper
700.0	1.46	11.77	699.8	13.8	-0.8	9.6	0.22	13.8	356.87	SDI Keeper
800.0	1.55	9.37	799.8	16.4	-0.3	11.8	0.11	16.4	359.04	SDI Keeper
900.0	1.51	12.07	899.8	19.0	0.2	14.1	0.08	19.0	0.67	SDI Keeper
1000.0	1.25	11.00	999.7	21.4	0.7	16.1	0.26	21.4	1.89	SDI Keeper
1100.0	1.11	10.75	1099.7	23.4	1.1	17.9	0.14	23.4	2.68	SDI Keeper
1200.0	0.90	8.01	1199.7	25.1	1.4	19.3	0.22	25.2	3.16	SDI Keeper
1300.0	0.78	2.50	1299.7	26.6	1.5	20.5	0.14	26.6	3.28	SDI Keeper
1400.0	0.87	8.10	1399.7	28.0	1.7	21.6	0.12	28.1	3.39	SDI Keeper
1500.0	0.79	7.62	1499.7	29.4	1.9	22.8	0.08	29.5	3.61	SDI Keeper
1600.0	0.77	359.28	1599.7	30.8	1.9	23.9	0.12	30.9	3.61	SDI Keeper
1700.0	1.21	7.27	1699.7	32.5	2.1	25.2	0.46	32.6	3.64	SDI Keeper
1781.0	10.05	44.57	1780.2	38.4	7.1	33.0	11.26	39.1	10.54	SDI E-FIELD
1812.0	22.88	44.57	1809.9	44.7	13.3	41.8	41.39	46.6	16.58	SDI E-FIELD
1844.0	35.56	44.57	1837.7	55.8	24.2	57.4	39.62	60.8	23.49	SDI E-FIELD
1875.0	48.79	44.12	1860.7	70.6	38.7	78.1	42.69	80.6	28.75	SDI E-FIELD
1907.0	62.63	43.23	1878.6	89.7	56.9	104.5	43.31	106.3	32.41	SDI E-FIELD
1936.0	75.07	42.52	1889.1	109.5	75.3	131.5	42.96	132.9	34.52	SDI E-FIELD
1967.0	85.45	42.15	1894.3	132.0	95.9	162.0	33.50	163.2	35.98	SDI E-FIELD
1999.0	86.23	46.20	1896.6	154.9	118.1	193.9	12.86	194.8	37.32	SDI E-FIELD
2030.0	89.93	46.11	1897.7	176.4	140.4	224.8	11.94	225.5	38.52	SDI E-FIELD
2062.0	87.98	45.97	1898.3	198.6	163.5	256.8	6.11	257.2	39.46	SDI E-FIELD



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Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,42.88Azi)
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
2093.0	88.52	46.60	1899.2	220.0	185.9	287.7	2.68	288.0	40.19	SDI E-FIELD
2125.0	88.32	47.00	1900.1	241.9	209.2	319.6	1.40	319.8	40.85	SDI E-FIELD
2156.0	87.47	47.74	1901.2	262.9	232.0	350.5	3.63	350.6	41.42	SDI E-FIELD
2187.0	89.66	47.65	1902.0	283.7	254.9	381.4	7.07	381.4	41.93	SDI E-FIELD
2218.0	89.09	43.30	1902.3	305.5	277.0	412.3	14.15	412.4	42.20	SDI E-FIELD
2250.0	87.91	40.87	1903.2	329.2	298.4	444.3	8.44	444.3	42.19	SDI E-FIELD
2281.0	88.42	45.16	1904.2	351.9	319.6	475.3	13.93	475.3	42.24	SDI E-FIELD
2312.0	89.26	46.73	1904.8	373.4	341.8	506.2	5.74	506.2	42.47	SDI E-FIELD
2344.0	89.26	43.14	1905.2	396.1	364.4	538.2	11.22	538.2	42.62	SDI E-FIELD
2375.0	91.92	42.42	1904.9	418.8	385.5	569.2	8.89	569.2	42.63	SDI E-FIELD
2407.0	90.67	43.81	1904.2	442.2	407.3	601.2	5.84	601.2	42.65	SDI E-FIELD
2438.0	91.62	43.49	1903.6	464.6	428.7	632.2	3.23	632.2	42.70	SDI E-FIELD
2470.0	92.43	42.85	1902.4	487.9	450.6	664.2	3.23	664.2	42.72	SDI E-FIELD
2501.0	91.88	42.40	1901.3	510.7	471.6	695.1	2.29	695.1	42.72	SDI E-FIELD
2532.0	91.38	42.88	1900.4	533.5	492.6	726.1	2.24	726.1	42.72	SDI E-FIELD
2563.0	92.43	42.54	1899.3	556.3	513.6	757.1	3.56	757.1	42.72	SDI E-FIELD
2594.0	91.18	42.14	1898.4	579.2	534.5	788.1	4.23	788.1	42.70	SDI E-FIELD
2626.0	90.67	42.15	1897.9	602.9	555.9	820.1	1.59	820.1	42.68	SDI E-FIELD
2657.0	91.79	42.00	1897.2	625.9	576.7	851.1	3.65	851.1	42.66	SDI E-FIELD
2688.0	92.56	41.67	1896.0	649.0	597.4	882.0	2.70	882.1	42.63	SDI E-FIELD
2719.0	90.34	42.09	1895.2	672.1	618.0	913.0	7.29	913.0	42.60	SDI E-FIELD
2750.0	90.37	42.43	1895.0	695.0	638.9	944.0	1.10	944.0	42.59	SDI E-FIELD
2782.0	90.81	42.47	1894.7	718.6	660.5	976.0	1.38	976.0	42.59	SDI E-FIELD
2812.0	90.54	42.53	1894.4	740.7	680.8	1006.0	0.92	1006.0	42.58	SDI E-FIELD
2844.0	89.36	42.83	1894.4	764.2	702.5	1038.0	3.80	1038.0	42.59	SDI E-FIELD
2874.0	89.46	43.35	1894.7	786.2	722.9	1068.0	1.77	1068.0	42.60	SDI E-FIELD
2905.0	92.83	44.00	1894.1	808.6	744.3	1099.0	11.07	1099.0	42.63	SDI E-FIELD
2937.0	93.34	43.66	1892.3	831.6	766.5	1131.0	1.91	1131.0	42.67	SDI E-FIELD
2968.0	92.02	43.71	1890.9	854.0	787.9	1161.9	4.26	1161.9	42.69	SDI E-FIELD
2999.0	91.55	44.50	1889.9	876.3	809.4	1192.9	2.96	1192.9	42.73	SDI E-FIELD
3030.0	91.58	44.93	1889.1	898.3	831.2	1223.9	1.39	1223.9	42.78	SDI E-FIELD
3062.0	91.11	45.99	1888.3	920.7	854.0	1255.8	3.62	1255.8	42.85	SDI E-FIELD
3093.0	90.13	45.99	1888.0	942.3	876.3	1286.8	3.16	1286.8	42.92	SDI E-FIELD
3124.0	91.18	45.77	1887.6	963.8	898.6	1317.7	3.46	1317.7	42.99	SDI E-FIELD
3156.0	92.16	45.52	1886.7	986.2	921.4	1349.7	3.16	1349.7	43.06	SDI E-FIELD
3187.0	92.02	45.46	1885.6	1007.9	943.5	1380.6	0.49	1380.6	43.11	SDI E-FIELD
3219.0	92.83	45.15	1884.2	1030.4	966.3	1412.6	2.71	1412.6	43.16	SDI E-FIELD
3250.0	93.02	45.00	1882.6	1052.3	988.2	1443.5	0.78	1443.5	43.20	SDI E-FIELD
3282.0	93.54	44.76	1880.8	1074.9	1010.7	1475.4	1.79	1475.5	43.24	SDI E-FIELD
3313.0	94.01	44.71	1878.8	1096.9	1032.5	1506.4	1.52	1506.4	43.27	SDI E-FIELD
3346.0	94.01	44.71	1876.5	1120.3	1055.7	1539.3	0.00	1539.3	43.30	PROJECTED DEPTH



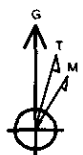
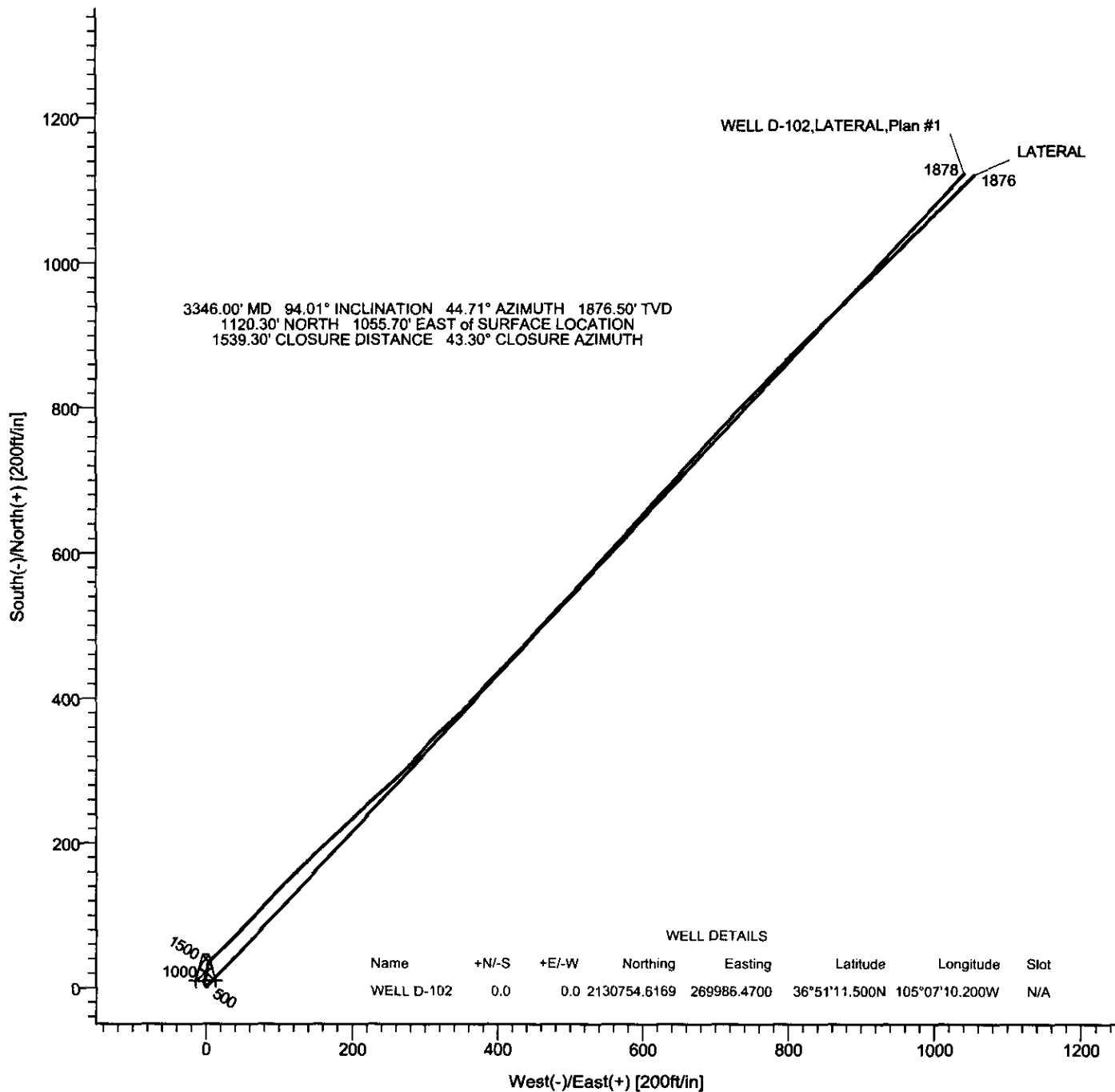
Scientific Drilling

EL PASO PRODUCTION

RATON WELL D-102
LATERAL
VERMEJO FIELD, NEW MEXICO

el paso | Production

ALL DEPTHS SHOWN ARE
TRUE VERTICAL DEPTHS



Azimuths to Grid North
True North: 0.47°
Magnetic North: 9.95°
Magnetic Field
Strength: 51833nT
Dip Angle: 64.22°
Date: 4/8/2005
Model: rgn2005

April 22, 2005
Scientific Drilling
281.443.4600

EL PASO PRODUCTION

RATON WELL D-102
LATERAL
VERMIEJO FIELD, NEW MEXICO



ALL DEPTHS SHOWN ARE
MEASURED DEPTHS

