



Scientific Drilling Houston

Final Survey Report



Company: EL PASO PRODUCTION Date: 4/14/2005 Time: 08:26:32 Page: 1
Field: VERMEJO FIELD, NEW MEXICO Co-ordinate(N/E) Reference: Well: WELL D-194, Grid North
Site: RATON (D194) Vertical (TVD) Reference: SITE 0.0
Well: WELL D-194 Section (VS) Reference: Well (0.00N,0.00E,146.00Azi)
Wellpath: LATERAL Survey Calculation Method: Minimum Curvature Db: Sybase

Field: VERMEJO FIELD, NEW MEXICO

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

Map Zone: New Mexico, Eastern Zone
Coordinate System: Well Centre
Geomagnetic Model: igr2005

Site: RATON (D194)

Site Position: Northing: 2151796.3409 ft Latitude: 36 54 40.210 N
From: Map Easting: 278143.3411 ft Longitude: 105 5 31.900 W
Position Uncertainty: 0.0 ft North Reference: Grid
Ground Level: 8200.0 ft Grid Convergence: -0.46 deg

Well: WELL D-194

Slot Name:

Well Position: +N/-S 0.0 ft Northing: 2151796.3409 ft Latitude: 36 54 40.210 N
+E/-W 0.0 ft Easting: 278143.3411 ft Longitude: 105 5 31.900 W
Position Uncertainty: 0.0 ft

Wellpath: LATERAL

Drilled From: Surface
Tie-on Depth: 0.0 ft
Above System Datum: Mean Sea Level
Declination: 9.48 deg
Mag Dip Angle: 64.27 deg
Direction deg

Current Datum: SITE Height 0.0 ft
Magnetic Data: 3/2/2005
Field Strength: 51880 nT
Vertical Section: Depth From (TVD) +N/-S ft
0.0 0.0 0.0 146.00

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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00	TIE LINE
100.0	0.91	266.10	100.0	-0.1	-0.8	-0.4	0.91	0.8	266.10	SDI Keeper
200.0	1.36	248.02	200.0	-0.6	-2.7	-1.0	0.57	2.7	258.38	SDI Keeper
300.0	0.06	70.04	300.0	-1.0	-3.7	-1.3	1.42	3.9	255.32	SDI Keeper
400.0	0.78	8.15	400.0	-0.3	-3.6	-1.8	0.75	3.6	265.43	SDI Keeper
500.0	0.63	359.85	500.0	0.9	-3.5	-2.7	0.18	3.6	285.00	SDI Keeper
600.0	0.33	12.51	600.0	1.8	-3.4	-3.4	0.32	3.9	297.23	SDI Keeper
700.0	0.67	5.45	699.9	2.6	-3.3	-4.0	0.34	4.2	308.42	SDI Keeper
745.0	0.64	355.62	744.9	3.1	-3.3	-4.5	0.26	4.6	313.51	SDI Keeper
806.0	16.57	168.16	805.1	-5.1	-1.5	3.4	28.20	5.3	196.82	SDI E-FIELD
837.0	26.47	173.26	833.9	-16.3	0.2	13.6	32.47	16.3	179.36	SDI E-FIELD
869.0	37.48	170.41	861.0	-33.0	2.7	28.9	34.72	33.1	175.41	SDI E-FIELD
900.0	48.15	167.99	883.7	-53.7	6.6	48.2	34.82	54.1	172.96	SDI E-FIELD
932.0	60.21	165.77	902.4	-78.9	12.6	72.4	38.10	79.9	170.96	SDI E-FIELD
960.0	70.50	162.85	914.1	-103.4	19.4	96.6	37.95	105.2	169.34	SDI E-FIELD
991.0	77.52	159.85	922.6	-131.6	29.0	125.3	24.48	134.7	167.58	SDI E-FIELD
1023.0	79.74	157.28	929.0	-160.8	40.5	155.9	10.49	165.8	165.88	SDI E-FIELD
1054.0	79.94	154.49	934.4	-188.6	52.9	186.0	8.88	195.9	164.33	SDI E-FIELD
1085.0	84.48	154.10	938.6	-216.3	66.2	216.3	14.70	226.2	162.97	SDI E-FIELD
1117.0	88.12	153.07	940.7	-244.9	80.4	248.0	11.82	257.8	161.82	SDI E-FIELD
1148.0	87.88	150.03	941.8	-272.1	95.2	278.8	9.83	288.3	160.72	SDI E-FIELD
1180.0	88.86	146.14	942.7	-299.3	112.1	310.8	12.53	319.6	159.46	SDI E-FIELD
1211.0	90.17	143.27	942.9	-324.6	130.0	341.8	10.18	349.6	158.17	SDI E-FIELD
1243.0	90.20	141.99	942.8	-350.0	149.4	373.7	4.00	380.6	156.88	SDI E-FIELD
1274.0	88.62	142.98	943.2	-374.6	168.3	404.7	6.01	410.7	155.80	SDI E-FIELD
1306.0	86.50	141.67	944.5	-399.9	187.8	436.6	7.79	441.8	154.84	SDI E-FIELD
1337.0	85.19	141.45	946.8	-424.1	207.1	467.4	4.28	472.0	153.98	SDI E-FIELD
1369.0	84.51	139.16	949.6	-448.6	227.4	499.1	7.44	503.0	153.12	SDI E-FIELD



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Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

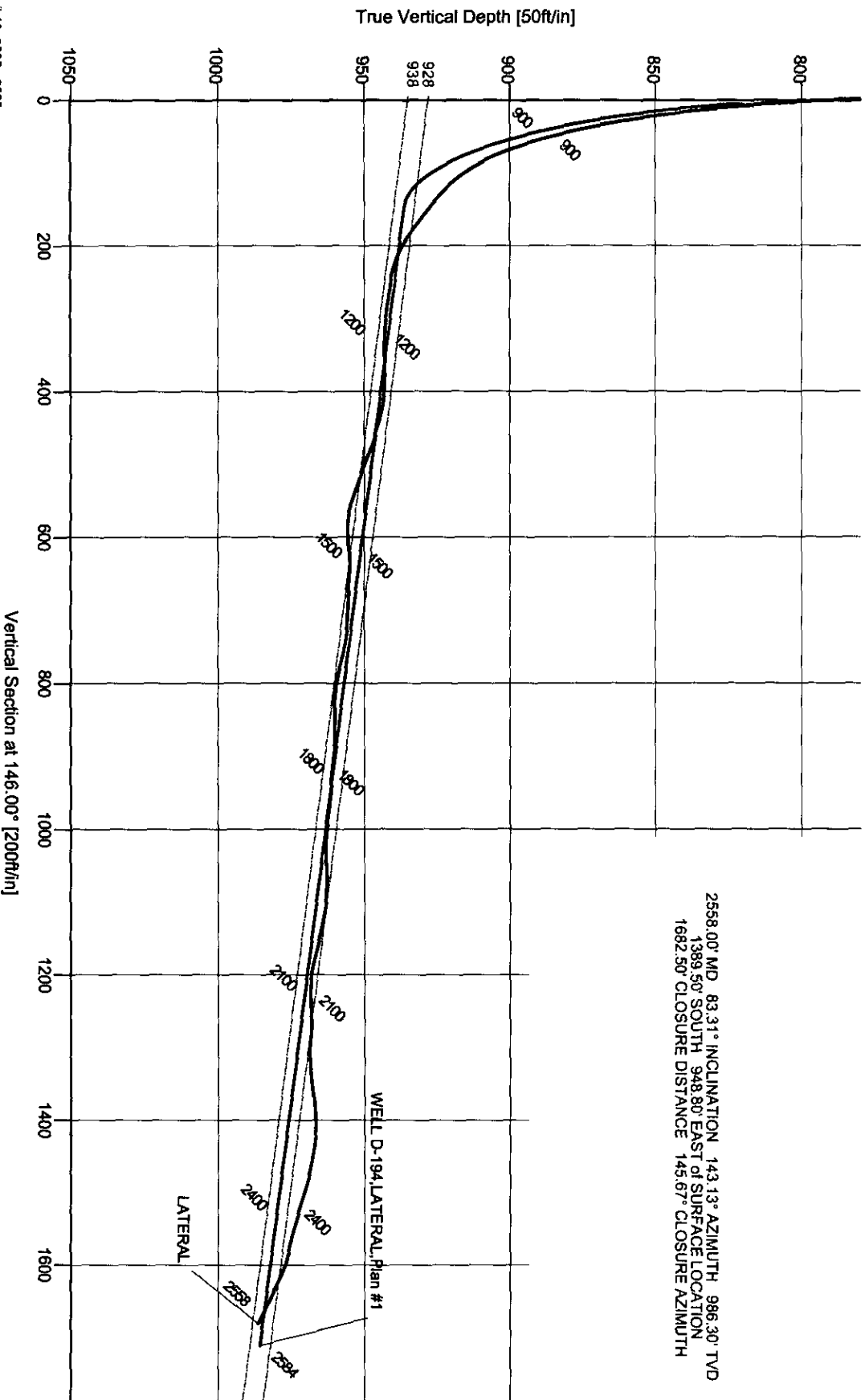
MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	ClsD ft	ClsA deg	Tool
1400.0	85.05	138.84	952.5	-471.9	247.7	529.7	2.02	533.0	152.31	SDI E-FIELD
1431.0	86.37	139.38	954.8	-495.3	267.9	560.4	4.60	563.1	151.59	SDI E-FIELD
1462.0	90.60	137.59	955.6	-518.5	288.4	591.1	14.82	593.3	150.91	SDI E-FIELD
1494.0	91.11	138.06	955.1	-542.2	309.9	622.8	2.17	624.5	150.25	SDI E-FIELD
1524.0	89.29	136.73	955.0	-564.3	330.2	652.5	7.51	653.8	149.66	SDI E-FIELD
1556.0	89.46	136.72	955.4	-587.6	352.2	684.1	0.53	685.0	149.06	SDI E-FIELD
1588.0	89.40	136.23	955.7	-610.8	374.2	715.6	1.54	716.3	148.51	SDI E-FIELD
1619.0	87.58	136.53	956.5	-633.2	395.6	746.2	5.95	746.6	148.01	SDI E-FIELD
1651.0	85.99	137.86	958.3	-656.6	417.3	777.7	6.47	778.0	147.56	SDI E-FIELD
1682.0	88.65	142.05	959.7	-680.3	437.2	808.5	16.00	808.7	147.27	SDI E-FIELD
1714.0	90.17	142.78	960.1	-705.7	456.7	840.5	5.27	840.6	147.09	SDI E-FIELD
1745.0	89.93	143.99	960.0	-730.6	475.2	871.4	3.98	871.5	146.96	SDI E-FIELD
1776.0	88.15	146.29	960.6	-756.0	492.9	902.4	9.38	902.5	146.90	SDI E-FIELD
1807.0	89.43	147.66	961.2	-782.0	509.8	933.4	6.05	933.5	146.90	SDI E-FIELD
1839.0	88.55	148.70	961.8	-809.2	526.7	965.4	4.26	965.5	146.94	SDI E-FIELD
1870.0	88.30	148.54	962.6	-835.6	542.8	996.3	0.96	996.5	146.99	SDI E-FIELD
1902.0	90.03	147.52	963.1	-862.8	559.8	1028.3	6.28	1028.5	147.02	SDI E-FIELD
1933.0	90.74	144.59	962.9	-888.5	577.1	1059.3	9.72	1059.5	147.00	SDI E-FIELD
1964.0	89.19	140.13	962.9	-913.0	596.0	1090.2	15.23	1090.3	146.86	SDI E-FIELD
1995.0	87.41	140.24	963.8	-936.8	615.8	1121.0	5.75	1121.1	146.68	SDI E-FIELD
2026.0	86.66	141.35	965.4	-960.8	635.4	1151.9	4.32	1151.9	146.52	SDI E-FIELD
2057.0	86.70	145.06	967.2	-985.6	653.9	1182.8	11.95	1182.8	146.44	SDI E-FIELD
2088.0	89.29	145.25	968.3	-1011.0	671.6	1213.8	8.38	1213.8	146.40	SDI E-FIELD
2119.0	91.18	144.57	968.2	-1036.4	689.5	1244.8	6.48	1244.8	146.37	SDI E-FIELD
2151.0	88.85	143.90	968.2	-1062.4	708.2	1276.7	7.58	1276.8	146.31	SDI E-FIELD
2182.0	89.60	144.15	968.6	-1087.4	726.4	1307.7	2.55	1307.7	146.26	SDI E-FIELD
2214.0	91.69	144.08	968.2	-1113.4	745.1	1339.7	6.53	1339.7	146.21	SDI E-FIELD
2245.0	91.78	143.82	967.3	-1138.4	763.4	1370.7	0.89	1370.7	146.16	SDI E-FIELD
2277.0	90.50	143.85	966.7	-1164.2	782.2	1402.6	4.00	1402.6	146.10	SDI E-FIELD
2308.0	88.15	143.52	967.0	-1189.2	800.6	1433.6	7.66	1433.6	146.05	SDI E-FIELD
2340.0	87.10	143.73	968.4	-1215.0	819.6	1465.5	3.35	1465.5	146.00	SDI E-FIELD
2371.0	85.92	144.11	970.2	-1240.0	837.8	1496.5	4.00	1496.5	145.96	SDI E-FIELD
2403.0	85.85	144.05	972.5	-1265.8	856.5	1528.4	0.29	1528.4	145.92	SDI E-FIELD
2432.0	86.40	143.58	974.5	-1289.2	873.6	1557.3	2.49	1557.3	145.88	SDI E-FIELD
2464.0	87.00	142.97	976.3	-1314.8	892.7	1589.2	2.67	1589.2	145.82	SDI E-FIELD
2495.0	83.31	143.14	979.0	-1339.5	911.3	1620.0	11.92	1620.0	145.77	SDI E-FIELD
2526.0	83.31	143.13	982.6	-1364.1	929.7	1650.8	0.03	1650.8	145.72	SDI E-FIELD
2558.0	83.31	143.13	986.3	-1389.5	948.8	1682.5	0.00	1682.5	145.67	PROJECTED DEPTH



EL PASO PRODUCTION
RATON WELL D-194
LATERAL
VERMEJO FIELD, NEW MEXICO



ALL DEPTHS SHOWN ARE
MEASURED DEPTHS





EL PASO PRODUCTION

RATON WELL D-194
LATERAL
VERMEJO FIELD, NEW MEXICO



ALL DEPTHS SHOWN ARE
TRUE VERTICAL DEPTHS

