

PathFinder Energy Services

Survey Report

Page 1
Job No: JWT-0510-0188-WTWT
Date: 11/4/2005
Time: 5:21 am
Wellpath ID: 05100188
Date Created: 10/29/2005
Last Revision: 11/4/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.56 deg.

Survey Reference: WELLHEAD
Reference World Coordinates: Lat. 31.33.49 N - Lon. 102.9.24 W
Reference GRID System: LAMBERT Zone: Texas Central
Reference GRID Coordinates: 1432099.97 X 694520.03 Y
North Aligned to: GRID NORTH
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
Mackenzie 13 Fee #2H
Eddy Co. N.M.
Key #92
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
4200.00	1.16	72.84	4199.78	0.00	-19.63	20.20 S	22.48W	0.00	0.00	0.00
4271.00	1.85	42.79	4270.76	71.00	-18.61	19.15 S	21.01W	0.97	-42.32	1.45
4303.00	5.54	13.96	4302.69	32.00	-16.75	17.27 S	20.29W	11.53	-90.09	12.56
4335.00	11.34	8.68	4334.33	32.00	-12.16	12.65 S	19.44W	18.12	-16.50	18.27
4366.00	18.20	6.84	4364.28	31.00	-4.36	4.83 S	18.40W	22.13	-5.94	22.18
4398.00	24.36	5.61	4394.09	32.00	7.14	6.71 N	17.16W	19.25	-3.84	19.30
4430.00	27.96	3.59	4422.81	32.00	21.17	20.77 N	16.05W	11.25	-6.31	11.59
4461.00	30.51	1.04	4449.86	31.00	36.28	35.90 N	15.45W	8.23	-8.23	9.15
4493.00	32.89	358.84	4477.08	32.00	53.08	52.71 N	15.48W	7.44	-6.88	8.27
4524.00	35.09	357.26	4502.78	31.00	70.41	70.03 N	16.08W	7.10	-5.10	7.65
4556.00	38.08	355.85	4526.48	32.00	89.47	89.06 N	17.23W	9.34	-4.41	9.71
4588.00	40.98	356.03	4553.16	32.00	109.81	109.38 N	18.67W	9.06	0.56	9.07
4619.00	43.79	356.29	4576.05	31.00	130.69	130.22 N	20.07W	9.06	0.84	9.08
4651.00	46.96	355.68	4598.53	32.00	153.44	152.94 N	21.67W	9.91	-1.91	10.00
4683.00	49.86	354.62	4619.77	32.00	177.32	176.78 N	23.69W	9.08	-3.31	9.39
4714.00	52.87	354.27	4639.18	31.00	201.44	200.85 N	26.04W	9.06	-1.13	9.11
4746.00	56.10	353.04	4657.79	32.00	227.36	226.70 N	28.92W	10.72	-3.84	11.16
4777.00	60.15	352.96	4674.16	31.00	253.55	252.82 N	32.13W	13.06	-0.29	13.07
4809.00	64.98	352.60	4688.90	32.00	281.80	280.99 N	35.70W	15.09	-1.09	15.12
4841.00	69.03	350.76	4701.40	32.00	311.03	310.13 N	39.97W	12.68	-5.75	13.72
4872.00	71.93	348.64	4711.76	31.00	339.90	338.87 N	45.20W	9.35	-6.84	11.36
4904.00	74.57	347.24	4720.98	32.00	370.01	368.83 N	51.60W	8.25	-4.38	9.25
4936.00	78.06	346.27	4728.54	32.00	400.44	399.09 N	58.72W	10.97	-3.03	11.36
4967.00	81.95	345.22	4733.92	31.00	430.20	428.69 N	66.24W	12.48	-3.39	12.92
4999.00	86.53	345.30	4737.13	32.00	461.18	459.48 N	74.34W	14.31	0.25	14.31
5030.00	91.28	346.62	4737.72	31.00	491.42	489.52 N	81.86W	15.32	4.26	15.90
5062.00	92.24	346.60	4736.74	32.00	522.72	520.65 N	89.21W	3.00	0.56	3.05
Projection to Bit										
5112.00	92.50	347.00	4734.67	50.00	571.65	569.30 N	100.53W	0.52	0.40	0.66

PathFinder Energy Services

Survey Report

Page 1
Job No: JWT-0510-0188-WTWT
Date: 11/7/2005
Time: 4:48 pm
Wellpath ID: 05100188
Date Created: 10/29/2005
Last Revision: 11/7/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.56 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
MacKenzie 13 Fee #2H
Eddy Co. N.M.
Key #92
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
4904.00	74.57	347.24	4720.98	32.00	370.01	368.83 N 51.60W	8.25	-4.38	9.25
4936.00	78.08	348.27	4728.54	32.00	400.44	369.09 N 58.72W	10.97	-3.03	11.36
4967.00	81.95	345.22	4733.92	31.00	430.20	428.68 N 66.24W	12.48	-3.39	12.92
4999.00	86.53	345.30	4737.13	32.00	461.18	459.46 N 74.34W	14.31	0.25	14.31
5030.00	91.28	346.62	4737.72	31.00	491.42	489.52 N 81.86W	15.32	4.26	15.90
5062.00	92.24	346.80	4736.74	32.00	522.72	520.65 N 89.21W	3.00	0.68	3.06
5094.00	91.80	346.36	4735.61	32.00	554.01	551.75 N 96.63W	-1.37	-1.38	1.94
5126.00	92.42	347.15	4734.43	32.00	585.31	582.88 N 103.96W	1.94	2.47	3.14
5158.00	93.66	348.12	4732.74	32.00	616.68	614.09 N 110.80W	3.84	3.03	4.89
5189.00	93.56	348.12	4730.79	31.00	647.11	644.37 N 117.17W	-0.29	0.00	0.29
5221.00	93.83	347.77	4728.73	32.00	678.50	675.60 N 123.84W	0.84	-1.09	1.38
5252.00	94.79	347.85	4726.40	31.00	708.87	705.81 N 130.37W	3.10	0.26	3.11
5284.00	94.35	348.91	4723.85	32.00	740.26	737.06 N 136.79W	-1.38	3.31	3.58
5316.00	94.09	350.58	4721.49	32.00	771.80	768.46 N 142.47W	-0.81	5.22	5.27
5347.00	94.00	352.16	4719.31	31.00	802.47	799.03 N 147.11W	-0.29	5.10	5.09
5379.00	91.80	352.69	4717.69	32.00	834.25	830.71 N 151.33W	-6.87	1.66	7.07
5410.00	88.99	352.86	4717.47	31.00	865.09	861.46 N 155.22W	-9.06	0.55	9.08
5442.00	88.11	352.78	4718.28	32.00	896.92	893.20 N 159.22W	-2.75	-0.26	2.76
5474.00	88.90	353.30	4719.12	32.00	928.76	924.95 N 163.10W	2.47	1.62	2.96
5505.00	91.28	355.15	4719.07	31.00	959.68	955.79 N 166.22W	7.68	5.97	9.72
5537.00	91.36	354.97	4718.33	32.00	991.60	987.66 N 168.97W	0.25	-0.56	0.62
5569.00	91.10	354.71	4717.64	32.00	1023.52	1019.52 N 171.86W	-0.81	-0.81	1.15
5600.00	89.87	354.09	4717.38	31.00	1054.44	1050.37 N 174.87W	-3.97	-2.00	4.44
5632.00	90.13	354.27	4717.38	32.00	1086.34	1082.21 N 178.12W	0.81	0.56	0.99
5664.00	90.22	354.27	4717.28	32.00	1118.25	1114.05 N 181.31W	0.28	0.00	0.28
5695.00	89.89	354.62	4717.31	31.00	1149.17	1144.80 N 184.32W	-1.71	1.13	2.05
5727.00	90.13	354.80	4717.36	32.00	1181.10	1178.77 N 187.27W	1.37	0.56	1.49
5759.00	90.68	355.76	4717.14	32.00	1213.05	1208.66 N 189.90W	1.66	3.00	3.43
5790.00	90.40	356.64	4716.85	31.00	1244.02	1239.59 N 191.96W	-0.84	2.84	2.96
5822.00	90.04	357.35	4716.73	32.00	1276.01	1271.54 N 193.63W	-1.13	2.22	2.49
5854.00	90.40	358.40	4716.61	32.00	1308.00	1303.52 N 194.82W	1.13	3.28	3.47

PathFinder Energy Services

Survey Report

Page 1
Job No: JWT-0510-0188-WTWT
Date: 11/9/2005
Time: 5:57 am
Wellpath ID: 05100188
Date Created: 10/29/2005
Last Revision: 11/8/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.56 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
MacKenzie 13 Fee #2H
Eddy Co. N.M.
Key #62
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
5505.00	91.28	355.15	4719.07	31.00	959.66	955.78 N	166.22W	7.68	5.97	9.72
5537.00	91.36	354.97	4718.33	32.00	991.60	987.66 N	168.97W	0.26	-0.56	0.62
5569.00	91.10	354.71	4717.64	32.00	1023.52	1019.52 N	171.86W	-0.81	-0.81	1.15
5600.00	89.87	354.09	4717.38	31.00	1054.44	1050.37 N	174.87W	-3.97	-2.00	4.44
5632.00	90.13	354.27	4717.38	32.00	1086.34	1082.21 N	178.12W	0.81	0.56	0.99
5664.00	90.22	354.27	4717.28	32.00	1118.25	1114.05 N	181.31W	0.28	0.00	0.28
5695.00	89.69	354.62	4717.31	31.00	1149.17	1144.90 N	184.32W	-1.71	1.13	2.05
5727.00	90.13	354.80	4717.36	32.00	1181.10	1176.77 N	187.27W	1.37	0.56	1.49
5759.00	90.66	355.76	4717.14	32.00	1213.05	1208.66 N	189.90W	1.66	3.00	3.43
5790.00	90.40	356.64	4716.85	31.00	1244.02	1239.59 N	191.99W	-0.64	2.84	2.96
5822.00	90.04	357.35	4716.73	32.00	1276.01	1271.54 N	193.63W	-1.13	2.22	2.49
5854.00	90.40	358.40	4716.61	32.00	1308.00	1303.52 N	194.82W	1.13	3.28	3.47
5886.00	88.81	357.43	4716.63	32.00	1340.00	1335.50 N	195.98W	-4.97	-3.03	6.62
5917.00	88.64	357.67	4717.52	31.00	1370.99	1366.46 N	197.26W	-0.55	1.42	1.52
5949.00	89.65	359.02	4717.99	32.00	1402.98	1398.45 N	198.12W	3.16	3.59	4.78
5980.00	91.98	0.77	4717.55	31.00	1433.97	1429.44 N	198.18W	7.52	5.85	9.40
6012.00	94.88	2.80	4715.64	32.00	1465.86	1461.36 N	197.18W	9.06	6.34	11.06

PathFinder Energy Services

Survey Report

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.58 deg.

Page 1
Job No: JWT-0510-0188-VTWT
Date: 11/12/2005
Time: 5:21 am
Wellpath ID: 05100188
Date Created: 10/29/2005
Last Revision: 11/12/2005

Survey Reference: WELLHEAD
Reference World Coordinates: Lat. 31.33.49 N - Lon. 102.9.24 W
Reference GRID System: LAMBERT Zone: Texas Central
Reference GRID Coordinates: 1432099.97 X 694520.03 Y
North Aligned to: GRID NORTH
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
MacKenzie 13 Fee #2H
Eddy Co. N.M.
Key #92
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
6012.00	94.88	2.80	4715.82	32.00	1485.86	1461.38 N	197.18W	9.08	6.34	11.06
6043.00	97.34	3.94	4712.32	31.00	1496.57	1492.13 N	195.37W	7.94	3.68	8.74
6075.00	97.78	3.85	4708.11	32.00	1528.15	1523.78 N	193.22W	1.38	-0.28	1.40
6107.00	97.96	4.38	4703.73	32.00	1559.70	1555.40 N	190.94W	0.56	1.66	1.73
6138.00	98.48	4.47	4699.29	31.00	1590.22	1585.99 N	188.58W	1.68	0.29	1.70
6170.00	98.66	4.47	4694.52	32.00	1621.70	1617.63 N	186.11W	0.66	0.00	0.56
6202.00	98.57	4.73	4689.73	32.00	1653.16	1649.07 N	183.57W	-0.28	0.81	0.85
6243.00	98.46	5.34	4684.37	41.00	1693.55	1689.56 N	180.00W	-5.15	1.49	5.35
6266.00	94.88	4.99	4682.10	23.00	1716.28	1712.35 N	177.94W	-6.87	-1.52	7.03
6297.00	93.12	4.73	4679.83	31.00	1747.02	1743.16 N	175.32W	-5.68	-0.84	5.74
6329.00	93.12	4.20	4678.19	32.00	1778.80	1775.02 N	172.84W	0.00	-1.66	1.65
6361.00	93.47	4.47	4676.35	32.00	1810.59	1806.87 N	170.42W	1.09	0.84	1.38
6392.00	92.68	3.94	4674.69	31.00	1841.39	1837.75 N	168.15W	-2.55	-1.71	3.07
6424.00	91.63	3.59	4673.49	32.00	1873.24	1869.65 N	166.05W	-3.28	-1.09	3.46
6456.00	91.71	3.08	4672.55	32.00	1905.11	1901.59 N	164.20W	0.25	-1.66	1.87
6487.00	90.57	3.15	4671.94	31.00	1936.01	1932.53 N	162.52W	-3.68	0.29	3.69
6519.00	90.13	2.80	4671.74	32.00	1967.91	1964.49 N	160.86W	-1.38	-1.09	1.78
6551.00	90.13	2.97	4671.67	32.00	1999.82	1996.45 N	159.25W	0.00	0.53	0.53
6583.00	90.31	2.88	4671.55	32.00	2031.73	2028.41 N	157.61W	0.58	-0.28	0.83
6615.00	90.31	2.62	4671.37	32.00	2063.64	2060.37 N	156.08W	0.00	-0.81	0.81
6647.00	90.40	2.38	4671.17	32.00	2095.57	2092.34 N	154.69W	0.28	-0.81	0.86
PROJECTION TO BIT										
6708.00	90.60	1.95	4670.84	61.00	2156.44	2153.29 N	152.40W	0.33	-0.87	0.75

PathFinder Energy Services

Survey Report

Page 1
Job No: JWT-0510-0188-WTWT
Date: 11/15/2005
Time: 4:53 am
Wellpath ID: 05100188
Data Created: 10/29/2005
Last Revision: 11/15/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.56 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
Mackenzie 13 Fee #2H
Eddy Co. N.M.
Key #92
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
6805.00	91.10	2.44	4668.87	31.00	2253.18	2250.17 N	146.03W	-1.97	-1.42	2.43
6837.00	90.57	1.57	4668.40	32.00	2285.12	2282.15 N	146.91W	-1.66	-2.72	3.18
6869.00	89.52	1.57	4668.38	32.00	2317.08	2314.14 N	146.03W	-3.28	0.00	3.28
6901.00	89.60	1.13	4668.62	32.00	2349.04	2346.13 N	145.28W	0.26	-1.38	1.40
6933.00	90.04	1.74	4668.72	32.00	2381.00	2378.12 N	144.48W	1.38	1.91	2.35
6965.00	90.40	1.13	4668.60	32.00	2412.96	2410.11 N	143.68W	1.13	-1.91	2.21
6997.00	90.40	1.13	4668.38	32.00	2444.92	2442.10 N	143.04W	0.00	0.00	0.00
7029.00	90.75	0.60	4668.08	32.00	2476.90	2474.10 N	142.56W	1.09	-1.66	1.98
7061.00	90.57	0.07	4667.89	32.00	2508.88	2506.09 N	142.37W	-0.56	-1.66	1.75
7093.00	89.78	0.51	4667.59	32.00	2540.86	2538.09 N	142.21W	-2.47	1.37	2.83
7125.00	89.69	0.07	4667.74	32.00	2572.85	2570.09 N	142.05W	-0.28	-1.37	1.40
7157.00	89.87	359.98	4667.88	32.00	2604.84	2602.09 N	142.04W	0.56	-0.28	0.83
7189.00	90.13	359.98	4667.88	32.00	2636.83	2634.09 N	142.05W	0.81	0.00	0.81
7221.00	90.48	0.16	4667.69	32.00	2668.82	2666.09 N	142.01W	1.09	0.56	1.23
7253.00	91.01	0.51	4667.27	32.00	2700.80	2698.09 N	141.82W	1.66	1.09	1.98
7285.00	91.36	0.60	4666.81	32.00	2732.77	2730.08 N	141.51W	1.09	0.28	1.13
7317.00	90.57	0.34	4666.07	32.00	2764.75	2762.07 N	141.25W	-2.47	-0.81	2.60
7349.00	89.52	0.42	4666.05	32.00	2796.73	2794.07 N	141.04W	-3.28	0.26	3.29
7381.00	89.60	0.51	4666.29	32.00	2828.71	2826.07 N	140.78W	0.25	0.28	0.38
7413.00	90.13	0.60	4666.37	32.00	2860.70	2858.07 N	140.47W	1.66	0.28	1.68
7445.00	90.92	1.30	4666.08	32.00	2892.67	2890.08 N	139.94W	2.47	2.19	3.30
7477.00	91.28	1.13	4665.46	32.00	2924.63	2922.05 N	139.26W	1.13	-0.53	1.24
7509.00	90.31	359.89	4665.02	32.00	2956.60	2954.04 N	138.97W	-3.03	-3.87	4.92
7541.00	90.04	359.89	4664.92	32.00	2988.59	2986.04 N	139.04W	-0.84	0.00	0.84
PROJECTION TO BIT										
7619.00	90.80	1.00	4664.35	78.00	3066.55	3064.04 N	138.43W	0.97	1.42	1.72

PathFinder Energy Services

Survey Report

Page 1
Job No: JWT-0510-0188-WTWT
Date: 11/17/2005
Time: 5:31 am
Wellpath ID: 05100188
Date Created: 10/29/2005
Last Revision: 11/17/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.58 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
MacKenzie 13 Fee #2H
Eddy Co. N.M.
Key #92
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
7029.00	90.75	0.80	4868.08	32.00	2476.90	2474.10 N	142.56W	1.09	-1.86	1.98
7061.00	90.57	0.07	4867.69	32.00	2508.88	2506.09 N	142.37W	-0.56	-1.66	1.75
7093.00	89.78	0.51	4867.59	32.00	2540.86	2538.09 N	142.21W	-2.47	1.37	2.83
7125.00	89.69	0.07	4867.74	32.00	2572.85	2570.09 N	142.05W	-0.28	-1.37	1.40
7157.00	89.87	359.98	4867.86	32.00	2604.84	2602.09 N	142.04W	0.66	-0.28	0.63
7189.00	90.13	359.98	4867.86	32.00	2636.83	2634.09 N	142.05W	0.81	0.00	0.81
7221.00	90.48	0.16	4867.89	32.00	2668.82	2666.09 N	142.01W	1.09	0.56	1.23
7253.00	91.01	0.51	4867.27	32.00	2700.80	2698.09 N	141.82W	1.66	1.09	1.98
7285.00	91.36	0.80	4868.81	32.00	2732.77	2730.06 N	141.61W	1.09	0.28	1.13
7317.00	90.57	0.34	4868.07	32.00	2764.75	2762.07 N	141.25W	-2.47	-0.81	2.60
7349.00	89.52	0.42	4868.05	32.00	2796.73	2794.07 N	141.04W	-3.28	0.26	3.29
7381.00	89.60	0.51	4868.29	32.00	2828.71	2826.07 N	140.78W	0.25	0.28	0.38
7413.00	90.13	0.80	4868.37	32.00	2860.70	2858.07 N	140.47W	1.66	0.28	1.68
7445.00	90.92	1.30	4868.08	32.00	2892.67	2890.06 N	139.94W	2.47	2.19	3.30
7477.00	91.28	1.13	4865.46	32.00	2924.63	2922.05 N	139.26W	1.13	-0.53	1.24
7509.00	90.31	359.89	4865.02	32.00	2956.60	2954.04 N	138.97W	-3.03	-3.87	4.92
7541.00	90.04	359.89	4864.92	32.00	2988.59	2986.04 N	139.04W	-0.84	0.00	0.84
7573.00	89.96	359.72	4864.92	32.00	3020.59	3018.04 N	139.14W	-0.25	-0.53	0.59
7605.00	90.22	0.07	4864.87	32.00	3052.58	3050.04 N	139.20W	0.81	1.09	1.36
7636.00	90.66	0.42	4864.63	31.00	3083.56	3081.04 N	139.07W	1.42	1.13	1.81
7667.00	90.92	359.98	4864.21	31.00	3114.55	3112.04 N	138.96W	0.84	-1.42	1.65
7699.00	90.75	359.89	4863.74	32.00	3146.53	3144.03 N	139.00W	-0.53	-0.28	0.80
7731.00	89.96	359.89	4863.54	32.00	3178.53	3176.03 N	139.06W	-2.47	0.00	2.47
7763.00	89.43	359.88	4863.71	32.00	3210.52	3208.03 N	139.10W	-1.86	0.28	1.86
PROJECTION TO BIT										
7811.00	89.20	359.90	4864.29	48.00	3258.50	3256.03 N	139.16W	-0.48	-0.17	0.51

PathFinder Energy Services

Survey Report

Page 1
Job No: JWT-0510-0188-WTWT
Date: 11/19/2005
Time: 4:44 am
Wellpath ID: 05100188
Date Created: 10/29/2005
Last Revision: 11/19/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 358.56 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
MacKenzie 13 Fee #2H
Eddy Co. N.M.
Key #92
05100188

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
7609.00	90.31	359.89	4665.02	32.00	2956.60	2954.04 N	138.97W	-3.03	-3.87	4.92
7541.00	90.04	359.89	4664.92	32.00	2988.59	2986.04 N	139.04W	-0.84	0.00	0.84
7573.00	89.96	359.72	4664.92	32.00	3020.59	3018.04 N	139.14W	-0.25	-0.53	0.59
7605.00	90.22	0.07	4664.87	32.00	3052.58	3050.04 N	139.20W	0.81	1.09	1.36
7636.00	90.66	0.42	4664.83	31.00	3083.56	3081.04 N	139.07W	1.42	1.13	1.81
7667.00	90.92	359.98	4664.21	31.00	3114.56	3112.04 N	138.96W	0.84	-1.42	1.65
7699.00	90.75	359.89	4663.74	32.00	3146.53	3144.03 N	139.00W	-0.53	-0.28	0.60
7731.00	89.96	359.89	4663.64	32.00	3178.53	3176.03 N	139.08W	-2.47	0.00	2.47
7763.00	89.43	359.98	4663.71	32.00	3210.52	3208.03 N	139.10W	-1.66	0.28	1.66
7795.00	89.06	0.16	4664.13	32.00	3242.50	3240.03 N	139.06W	-1.16	0.56	1.29
7827.00	88.72	0.51	4664.75	32.00	3274.48	3272.02 N	138.87W	-1.06	1.09	1.52
7859.00	88.55	0.60	4665.62	32.00	3306.46	3304.01 N	138.56W	-0.53	0.28	0.60
7891.00	88.72	0.25	4666.28	32.00	3338.43	3336.00 N	138.32W	0.53	-1.09	1.22
7923.00	89.43	0.16	4666.79	32.00	3370.41	3368.00 N	138.21W	2.22	-0.28	2.24
7955.00	90.75	0.51	4666.74	32.00	3402.39	3400.00 N	138.02W	4.12	1.09	4.27
7988.00	91.80	0.69	4666.01	33.00	3435.36	3432.99 N	137.66W	3.18	0.56	3.23
8020.00	91.36	0.34	4665.13	32.00	3467.33	3464.97 N	137.39W	-1.38	-1.09	1.76
8052.00	91.10	0.34	4664.44	32.00	3499.31	3496.98 N	137.20W	-0.81	0.00	0.81
8084.00	90.75	359.10	4663.92	32.00	3531.30	3528.96 N	137.36W	-1.09	-3.87	4.03
8116.00	90.84	358.23	4663.48	32.00	3563.29	3560.96 N	138.10W	0.28	-2.72	2.73
8147.00	91.63	358.31	4662.81	31.00	3594.29	3591.93 N	139.04W	2.55	0.26	2.56
8179.00	91.80	358.58	4661.86	32.00	3626.27	3623.90 N	139.90W	0.53	0.84	1.00
8212.00	91.71	358.76	4660.84	33.00	3658.26	3656.88 N	140.67W	-0.27	0.52	0.58
8243.00	92.15	359.02	4659.80	31.00	3690.24	3687.85 N	141.28W	1.42	0.87	1.67
8278.00	92.15	359.19	4658.56	33.00	3723.21	3720.82 N	141.79W	0.00	0.52	0.51
PROJECTION TO BIT										
8358.00	91.80	359.50	4655.81	60.00	3803.16	3800.77 N	142.70W	-0.44	0.39	0.58

Well Name	MACKENZIE 13 FEE #2H	Division	MIDLAND	County, St	EDDY, NM
Well ID	042833	Well Type	DEVG	Well Class	1SA



Type	MD	Inclination	Azimuth	TVD	VS	NS	EW	DL
GMS-0	100	.58	105.37	100	-.13	-.13	.49	.58
GMS-0	200	.44	176.98	200	-.65	-.65	1.00	.61
GMS-0	300	.02	287.86	300	-1.03	-1.03	1.00	.45
GMS-0	400	.17	265.48	400	-1.04	-1.04	.84	.15
GMS-0	500	.54	283.43	500	-.94	-.94	.23	.38
GMS-0	600	.51	246.63	600	-1.01	-1.01	-.64	.33
GMS-0	700	.43	217.92	700	-1.48	-1.48	-1.28	.25
GMS-0	800	.51	200.75	800	-2.19	-2.19	-1.66	.16
GMS-0	900	.57	201.46	900	-3.07	-3.07	-2.00	.06
GMS-0	1,000	.64	232.81	1,000	-3.87	-3.87	-2.63	.33
GMS-0	1,100	.60	229.55	1,100	-4.55	-4.55	-3.48	.05
GMS-0	1,200	.63	240.41	1,200	-5.16	-5.16	-4.35	.12
GMS-0	1,300	.70	244.19	1,300	-5.70	-5.70	-5.38	.08
GMS-0	1,400	.81	240.99	1,400	-6.30	-6.30	-6.55	.12
GMS-0	1,500	.85	236.65	1,500	-7.06	-7.06	-7.78	.07
GMS-0	1,600	.90	242.39	1,600	-7.83	-7.83	-9.10	.10
GMS-0	1,700	.80	238.08	1,700	-8.56	-8.56	-10.39	.12
GMS-0	1,800	.83	241.16	1,800	-9.28	-9.28	-11.62	.05
GMS-0	1,900	.81	240.49	1,900	-9.98	-9.98	-12.87	.02
GMS-0	2,000	.86	249.93	2,000	-10.58	-10.58	-14.19	.15
GMS-0	2,100	.70	269.26	2,100	-10.85	-10.85	-15.50	.31
GMS-0	2,200	.65	268.25	2,200	-10.87	-10.87	-16.68	.05
GMS-0	2,300	.51	263.06	2,300	-10.94	-10.94	-17.69	.15
GMS-0	2,400	.50	277.71	2,400	-10.94	-10.94	-18.56	.13
GMS-0	2,500	.43	262.06	2,500	-10.93	-10.93	-19.37	.14
GMS-0	2,600	.50	247.90	2,600	-11.15	-11.15	-20.14	.13
GMS-0	2,700	.54	249.50	2,700	-11.48	-11.48	-20.99	.04
GMS-0	2,800	.59	218.94	2,800	-12.04	-12.04	-21.75	.30
GMS-0	2,900	.61	220.52	2,900	-12.85	-12.85	-22.42	.03
GMS-0	3,000	.75	164.31	3,000	-13.88	-13.88	-22.59	.65
GMS-0	3,100	.80	187.50	3,100	-15.20	-15.20	-22.50	.32
GMS-0	3,200	.78	202.83	3,200	-16.52	-16.52	-22.86	.21
GMS-0	3,300	.60	211.78	3,300	-17.60	-17.60	-23.40	.21
GMS-0	3,400	.40	205.78	3,400	-18.36	-18.36	-23.83	.21
GMS-0	3,500	.29	197.69	3,500	-18.91	-18.91	-24.06	.12
GMS-0	3,600	.26	181.77	3,600	-19.38	-19.38	-24.14	.08
GMS-0	3,700	.22	152.00	3,700	-19.78	-19.78	-24.06	.13
GMS-0	3,800	.19	66.73	3,800	-19.88	-19.88	-23.82	.28
GMS-0	3,900	.16	199.01	3,900	-19.95	-19.95	-23.71	.32
GMS-0	4,000	.37	226.17	4,000	-20.30	-20.30	-23.99	.24
GMS-0	4,100	.44	88.98	4,100	-20.52	-20.52	-23.84	.76
GMS-0	4,200	1.16	72.84	4,200	-20.21	-20.21	-22.48	.75
GMS-0	4,300	1.35	70.16	4,300	-19.52	-19.52	-20.41	.20
GMS-0	4,400	1.49	75.23	4,400	-18.78	-18.78	-18.04	.19
GMS-0	4,500	1.40	71.09	4,500	-18.06	-18.06	-15.63	.14
GMS-0	4,600	1.14	74.63	4,600	-17.40	-17.40	-13.52	.27
GMS-0	4,700	1.26	78.35	4,700	-16.91	-16.91	-11.48	.14
GMS-0	4,800	.96	83.11	4,800	-16.59	-16.59	-9.57	.31
GMS-0	4,892	.73	71.40	4,892	-15.91	-15.91	-8.81	1.23
MWD-0	4,271	1.85	42.79	4,271	-19.15	-19.15	-21.02	1.44

MWD-0	4,303	5.54	13.96	4,303	-17.27	-17.27	-20.29	12.56
MWD-0	4,335	11.35	8.68	4,334	-12.65	-12.65	-19.44	18.30
MWD-0	4,366	18.20	6.84	4,364	-4.82	-4.82	-18.40	22.15
MWD-0	4,398	24.36	5.61	4,394	6.72	6.72	-17.16	19.30
MWD-0	4,430	27.96	3.59	4,423	20.78	20.78	-16.05	11.59
MWD-0	4,461	30.51	1.04	4,450	35.90	35.90	-15.45	9.15
MWD-0	4,493	32.89	358.84	4,477	52.72	52.72	-15.48	8.27
MWD-0	4,524	35.09	357.26	4,503	70.03	70.03	-16.07	7.65
MWD-0	4,556	38.08	355.85	4,528	89.07	89.07	-17.23	9.70
MWD-0	4,588	40.98	356.03	4,553	109.38	109.38	-18.67	9.07
MWD-0	4,619	43.79	356.29	4,576	130.23	130.23	-20.07	9.08
MWD-0	4,651	46.96	355.68	4,599	152.95	152.95	-21.66	10.00
MWD-0	4,683	49.86	354.62	4,620	176.79	176.79	-23.69	9.40
MWD-0	4,714	52.67	354.27	4,639	200.86	200.86	-26.04	9.11
MWD-0	4,746	56.10	353.04	4,658	226.70	226.70	-28.92	11.16
MWD-0	4,777	60.15	352.95	4,674	252.83	252.83	-32.13	13.07
MWD-0	4,809	64.98	352.60	4,689	281.00	281.00	-35.70	15.12
MWD-0	4,841	69.03	350.76	4,701	310.13	310.13	-39.97	13.72
MWD-0	4,872	71.93	348.64	4,712	338.88	338.88	-45.20	11.36
MWD-0	4,904	74.57	347.24	4,721	368.84	368.84	-51.60	9.25
MWD-0	4,936	78.08	346.27	4,729	399.10	399.10	-58.72	11.36
MWD-0	4,967	81.95	345.22	4,734	428.68	428.68	-66.24	12.92
MWD-0	4,999	86.53	345.30	4,737	459.46	459.46	-74.34	14.32
MWD-0	5,030	91.28	346.62	4,738	489.52	489.52	-81.86	15.90
MWD-0	5,062	92.24	346.80	4,737	520.65	520.65	-89.21	3.05
MWD-0	5,094	91.80	346.36	4,736	551.76	551.76	-96.63	1.94
MWD-0	5,126	92.42	347.15	4,734	582.88	582.88	-103.96	3.14
MWD-0	5,158	93.65	348.12	4,733	614.10	614.10	-110.80	4.89
MWD-0	5,189	93.56	348.12	4,731	644.37	644.37	-117.17	.29
MWD-0	5,221	93.83	347.77	4,729	675.60	675.60	-123.84	1.38
MWD-0	5,252	94.79	347.85	4,726	705.82	705.82	-130.37	3.11
MWD-0	5,284	94.35	348.91	4,724	737.06	737.06	-136.79	3.58
MWD-0	5,316	94.09	350.58	4,721	768.46	768.46	-142.47	5.27
MWD-0	5,347	94.00	352.16	4,719	799.04	799.04	-147.11	5.09
MWD-0	5,379	91.80	352.69	4,718	830.71	830.71	-151.32	7.07
MWD-0	5,410	88.99	352.86	4,717	861.46	861.46	-155.22	9.08
MWD-0	5,442	88.11	352.78	4,718	893.20	893.20	-159.22	2.76
MWD-0	5,474	88.90	353.30	4,719	924.96	924.96	-163.10	2.96
MWD-0	5,505	91.28	355.15	4,719	955.79	955.79	-166.22	9.72
MWD-0	5,537	91.36	354.97	4,718	987.67	987.67	-168.97	.62
MWD-0	5,569	91.10	354.71	4,718	1,019.53	1,019.53	-171.85	1.15
MWD-0	5,600	89.87	354.09	4,717	1,050.38	1,050.38	-174.87	4.44
MWD-0	5,632	90.13	354.27	4,717	1,082.22	1,082.22	-178.12	.99
MWD-0	5,664	90.22	354.27	4,717	1,114.06	1,114.06	-181.31	.28
MWD-0	5,695	89.69	354.62	4,717	1,144.91	1,144.91	-184.31	2.05
MWD-0	5,727	90.13	354.80	4,717	1,176.77	1,176.77	-187.26	1.49
MWD-0	5,759	90.66	355.76	4,717	1,208.66	1,208.66	-189.90	3.43
MWD-0	5,790	90.40	356.64	4,717	1,239.59	1,239.59	-191.95	2.96
MWD-0	5,822	90.04	357.35	4,717	1,271.55	1,271.55	-193.63	2.49
MWD-0	5,854	90.40	358.40	4,717	1,303.53	1,303.53	-194.82	3.47
MWD-0	5,886	88.81	357.43	4,717	1,335.50	1,335.50	-195.98	5.82
MWD-0	5,917	88.64	357.87	4,718	1,366.47	1,366.47	-197.25	1.52
MWD-0	5,949	89.65	359.02	4,718	1,398.45	1,398.45	-198.12	4.78
MWD-0	5,980	91.98	.77	4,718	1,429.45	1,429.45	-198.18	9.40
MWD-0	6,012	94.88	2.80	4,716	1,461.37	1,461.37	-197.18	11.06
MWD-0	6,043	97.34	3.94	4,712	1,492.14	1,492.14	-195.37	8.74
MWD-0	6,075	97.78	3.85	4,708	1,523.78	1,523.78	-193.22	1.40

MWD-0	6,107	97.96	4.38	4,704	1,555.40	1,555.40	-190.94	1.73
MWD-0	6,138	98.48	4.47	4,699	1,585.99	1,585.99	-188.58	1.70
MWD-0	6,170	98.66	4.47	4,695	1,617.54	1,617.54	-186.11	.56
MWD-0	6,202	98.57	4.73	4,690	1,649.08	1,649.08	-183.57	.85
MWD-0	6,243	96.46	5.34	4,684	1,689.56	1,689.56	-180.00	5.35
MWD-0	6,266	94.88	4.99	4,682	1,712.36	1,712.36	-177.94	7.03
MWD-0	6,297	93.12	4.73	4,680	1,743.17	1,743.17	-175.32	5.74
MWD-0	6,329	93.12	4.20	4,678	1,775.02	1,775.02	-172.84	1.65
MWD-0	6,361	93.47	4.40	4,676	1,806.88	1,806.88	-170.44	1.26
MWD-0	6,392	92.68	3.94	4,675	1,837.76	1,837.76	-168.19	2.95
MWD-0	6,424	91.63	3.59	4,674	1,869.66	1,869.66	-166.09	3.46
MWD-0	6,456	91.71	3.06	4,673	1,901.60	1,901.60	-164.24	1.67
MWD-0	6,487	90.57	3.15	4,672	1,932.54	1,932.54	-162.56	3.69
MWD-0	6,519	90.13	2.80	4,672	1,964.50	1,964.50	-160.90	1.76
MWD-0	6,551	90.13	2.97	4,672	1,996.46	1,996.46	-159.28	.53
MWD-0	6,583	90.31	2.88	4,672	2,028.42	2,028.42	-157.65	.63
MWD-0	6,615	90.31	2.62	4,671	2,060.38	2,060.38	-156.12	.81
MWD-0	6,647	90.40	2.36	4,671	2,092.35	2,092.35	-154.73	.86
MWD-0	6,679	90.22	2.09	4,671	2,124.32	2,124.32	-153.48	1.01
MWD-0	6,710	90.40	2.18	4,671	2,155.30	2,155.30	-152.33	.65
MWD-0	6,742	91.10	2.53	4,670	2,187.27	2,187.27	-151.01	2.45
MWD-0	6,774	91.71	2.88	4,670	2,219.23	2,219.23	-149.50	2.20
MWD-0	6,805	91.10	2.44	4,669	2,250.18	2,250.18	-148.07	2.43
MWD-0	6,837	90.57	1.57	4,668	2,282.16	2,282.16	-146.95	3.18
MWD-0	6,869	89.52	1.57	4,668	2,314.15	2,314.15	-146.07	3.28
MWD-0	6,901	89.60	1.13	4,669	2,346.14	2,346.14	-145.32	1.40
MWD-0	6,933	90.04	1.74	4,669	2,378.13	2,378.13	-144.52	2.35
MWD-0	6,965	90.04	1.13	4,669	2,410.12	2,410.12	-143.71	1.91
MWD-0	6,997	90.40	1.13	4,669	2,442.11	2,442.11	-143.08	1.12
MWD-0	7,029	90.75	.60	4,668	2,474.10	2,474.10	-142.60	1.98
MWD-0	7,061	90.57	.07	4,668	2,506.10	2,506.10	-142.41	1.75
MWD-0	7,093	89.78	.51	4,668	2,538.10	2,538.10	-142.25	2.83
MWD-0	7,125	89.68	.07	4,668	2,570.10	2,570.10	-142.09	1.41
MWD-0	7,157	89.87	359.98	4,668	2,602.10	2,602.10	-142.07	.66
MWD-0	7,189	90.13	359.98	4,668	2,634.10	2,634.10	-142.09	.81
MWD-0	7,221	90.48	.16	4,668	2,666.10	2,666.10	-142.05	1.23
MWD-0	7,253	91.01	.51	4,668	2,698.10	2,698.10	-141.86	1.98
MWD-0	7,285	91.36	.60	4,667	2,730.09	2,730.09	-141.55	1.13
MWD-0	7,317	90.57	.34	4,666	2,762.08	2,762.08	-141.29	2.60
MWD-0	7,349	89.52	.42	4,666	2,794.08	2,794.08	-141.08	3.29
MWD-0	7,381	89.60	.51	4,667	2,826.08	2,826.08	-140.82	.38
MWD-0	7,413	90.13	.60	4,667	2,858.08	2,858.08	-140.50	1.68
MWD-0	7,445	90.92	1.30	4,666	2,890.07	2,890.07	-139.98	3.30
MWD-0	7,477	91.28	1.13	4,666	2,922.06	2,922.06	-139.30	1.24
MWD-0	7,509	90.31	359.89	4,665	2,954.05	2,954.05	-139.01	4.92
MWD-0	7,541	90.04	359.89	4,665	2,986.05	2,986.05	-139.07	.84
MWD-0	7,573	89.96	359.72	4,665	3,018.05	3,018.05	-139.18	.59
MWD-0	7,605	90.22	.07	4,665	3,050.05	3,050.05	-139.24	1.36
MWD-0	7,636	90.66	.42	4,665	3,081.05	3,081.05	-139.11	1.81
MWD-0	7,667	90.92	359.98	4,664	3,112.05	3,112.05	-139.00	1.65
MWD-0	7,699	90.75	359.89	4,664	3,144.04	3,144.04	-139.04	.60
MWD-0	7,731	89.96	359.89	4,664	3,176.04	3,176.04	-139.10	2.47
MWD-0	7,763	89.43	359.98	4,664	3,208.04	3,208.04	-139.13	1.68
MWD-0	7,795	89.06	.16	4,664	3,240.04	3,240.04	-139.10	1.29
MWD-0	7,827	88.72	.51	4,665	3,272.03	3,272.03	-138.91	1.52
MWD-0	7,859	88.55	.60	4,666	3,304.02	3,304.02	-138.60	.60
MWD-0	7,891	88.72	.25	4,667	3,336.01	3,336.01	-138.36	1.22

MWD-0	7,923	89.43	.16	4,667	3,368.01	3,368.01	-138.25	2.24
MWD-0	7,955	90.75	.51	4,667	3,400.01	3,400.01	-138.06	4.27
MWD-0	7,988	91.80	.69	4,666	3,433.00	3,433.00	-137.71	3.23
MWD-0	8,020	91.36	.34	4,665	3,464.98	3,464.98	-137.43	1.76
MWD-0	8,052	91.10	.34	4,665	3,496.97	3,496.97	-137.24	.81
MWD-0	8,084	90.75	359.10	4,664	3,528.97	3,528.97	-137.39	4.03
MWD-0	8,116	90.84	358.23	4,664	3,560.96	3,560.96	-138.14	2.73
MWD-0	8,147	91.63	358.31	4,663	3,591.94	3,591.94	-139.07	2.56
MWD-0	8,179	91.80	358.58	4,662	3,623.91	3,623.91	-139.94	1.00
MWD-0	8,212	91.71	358.75	4,661	3,656.88	3,656.88	-140.71	.58
MWD-0	8,243	92.15	359.02	4,660	3,687.86	3,687.86	-141.31	1.66
MWD-0	8,276	92.15	359.19	4,659	3,720.83	3,720.83	-141.83	.52
MWD-0	8,308	92.15	359.19	4,658	3,752.81	3,752.81	-142.28	.00
MWD-0	8,340	92.15	359.10	4,656	3,784.78	3,784.78	-142.76	.28
MWD-0	8,372	91.98	359.54	4,655	3,816.76	3,816.76	-143.14	1.47
MWD-0	8,404	91.89	359.46	4,654	3,848.74	3,848.74	-143.42	.38
TSS-0	100	.58	105.37	100	-.13	-.13	.49	.58
TSS-0	315	.40	45.00	315	.78	.78	.78	.13
TSS-0	633	.10	45.00	633	1.76	1.76	1.76	.09
TSS-0	655	.10	45.00	655	1.83	1.83	1.83	.09
TSS-0	925	.40	45.00	925	2.66	2.66	2.66	.11
TSS-0	1,110	.75	45.00	1,110	3.97	3.97	3.97	.19
TSS-0	1,268	.25	45.00	1,268	4.95	4.95	4.95	.32
TSS-0	1,320	.75	45.00	1,320	5.27	5.27	5.27	.96
TSS-0	2,150	.80	45.00	2,150	13.21	13.21	13.21	.01
TSS-0	2,706	.60	45.00	2,706	18.01	18.01	18.01	.04
TSS-0	3,100	.60	45.00	3,100	20.93	20.93	20.93	.00
TSS-0	3,600	.40	45.00	3,600	24.01	24.01	24.01	.04
TSS-0	4,150	.80	45.00	4,150	28.08	28.08	28.08	.07
TSS-0	4,575	1.20	45.00	4,575	33.33	33.33	33.33	.09
TSS-0	4,892	.75	45.00	4,892	37.14	37.14	37.14	.14