

DIRECTIONAL DRILLING CONTRACTORS, LLC.

Job Number: MDR-4061
Company: Perenco, LLC.
Lease/Well: State Tract '1624' #291
Location: Eddy County
Rig Name: Patterson #495
RKB: 3713'
G.L. or M.S.L.: 3699'

State/Country: New Mexico / USA
Declination: 9.13058
Grid: 0.14
File name: C:\PROPOS~1\2004\04070\S\04-077\04-077.SVY
Date/Time: 27-Apr-04 / 09:21
Curve Name: GyroData Directional Survey

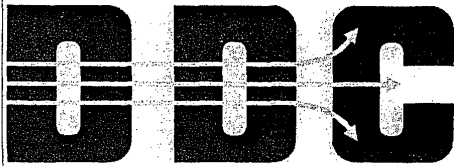
WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 180.00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Dogleg Severity Deg/100	N-S FT	E-W FT	CLOSURE		Grid X FT	Grid Y FT
								Distance FT	Direction Deg		
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	414199.82	690822.18
100.00	.25	276.91	100.00	-.03	.25	.03	-.22	.22	276.91	414199.60	690822.21
200.00	.28	274.50	200.00	-.07	.03	.07	-.68	.68	276.05	414199.14	690822.25
300.00	.49	249.28	300.00	.06	.27	-.06	-1.32	1.32	267.38	414198.50	690822.12
400.00	.52	241.69	399.99	.43	.07	-.43	-2.12	2.16	258.61	414197.70	690821.75
500.00	.11	48.49	499.99	.58	.63	-.58	-2.45	2.51	256.70	414197.37	690821.60
600.00	.15	158.79	599.99	.64	.21	-.64	-2.33	2.41	254.70	414197.49	690821.54
700.00	.31	201.19	699.99	1.01	.22	-1.01	-2.38	2.58	246.97	414197.44	690821.17
800.00	.19	166.34	799.99	1.42	.19	-1.42	-2.44	2.82	239.69	414197.38	690820.76
900.00	.16	139.52	899.99	1.69	.09	-1.69	-2.31	2.86	233.75	414197.51	690820.49
1000.00	.19	133.58	999.99	1.91	.04	-1.91	-2.10	2.84	227.63	414197.72	690820.27
1100.00	.25	153.17	1099.99	2.22	.10	-2.22	-1.88	2.91	220.21	414197.94	690819.96

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Dogleg Severity Deg/100	N-S FT	E-W FT	C L O S U R E		Grid X FT	Grid Y FT
								Distance FT	Direction Deg		
1200.00	.32	148.57	1199.99	2.65	.07	-2.65	-1.63	3.12	211.62	414198.19	690819.53
1300.00	.42	142.19	1299.98	3.18	.11	-3.18	-1.26	3.42	201.66	414198.56	690819.00
1400.00	.39	117.26	1399.98	3.63	.18	-3.63	-.74	3.70	191.48	414199.08	690818.55
1500.00	.45	87.63	1499.98	3.77	.22	-3.77	-.04	3.77	180.63	414199.78	690818.41
1600.00	.44	85.17	1599.98	3.72	.02	-3.72	.73	3.79	168.84	414200.55	690818.46
1700.00	.46	89.24	1699.97	3.68	.04	-3.68	1.52	3.98	157.60	414201.34	690818.50
1800.00	.49	88.26	1799.97	3.66	.03	-3.66	2.35	4.35	147.36	414202.17	690818.52
1900.00	.45	87.39	1899.97	3.63	.04	-3.63	3.17	4.82	138.92	414202.99	690818.55
2000.00	.44	74.96	1999.96	3.51	.10	-3.51	3.93	5.27	131.81	414203.75	690818.67
2100.00	.52	67.78	2099.96	3.24	.10	-3.24	4.72	5.73	124.49	414204.54	690818.94
2200.00	.46	71.33	2199.96	2.94	.07	-2.94	5.52	6.26	118.06	414205.34	690819.24
2300.00	.41	70.87	2299.95	2.70	.05	-2.70	6.24	6.80	113.38	414206.06	690819.48
2400.00	.48	66.01	2399.95	2.41	.08	-2.41	6.96	7.36	109.10	414206.78	690819.77
2500.00	.42	65.66	2499.95	2.09	.06	-2.09	7.68	7.95	105.22	414207.50	690820.09
2600.00	.38	64.73	2599.95	1.80	.04	-1.80	8.31	8.50	102.19	414208.13	690820.38
2700.00	.39	70.34	2699.94	1.54	.04	-1.54	8.93	9.06	99.78	414208.75	690820.64
2800.00	.39	69.68	2799.94	1.31	.00	-1.31	9.57	9.66	97.78	414209.39	690820.87
2900.00	.22	85.86	2899.94	1.17	.19	-1.17	10.08	10.15	96.65	414209.90	690821.01
3000.00	.18	69.81	2999.94	1.11	.07	-1.11	10.42	10.48	96.06	414210.24	690821.07
3100.00	.28	72.87	3099.94	.98	.10	-.98	10.80	10.84	95.19	414210.62	690821.20
3200.00	.23	81.17	3199.94	.88	.06	-.88	11.23	11.27	94.47	414211.05	690821.30
3300.00	.31	83.79	3299.94	.82	.08	-.82	11.70	11.73	94.00	414211.52	690821.36
3400.00	.35	74.52	3399.93	.71	.07	-.71	12.26	12.28	93.30	414212.08	690821.47
3500.00	.40	83.77	3499.93	.59	.08	-.59	12.90	12.92	92.61	414212.72	690821.59
3600.00	.42	77.05	3599.93	.47	.05	-.47	13.61	13.62	91.97	414213.43	690821.71
3700.00	.24	69.21	3699.93	.31	.19	-.31	14.16	14.16	91.26	414213.98	690821.87
3800.00	.44	89.14	3799.93	.23	.23	-.23	14.74	14.74	90.90	414214.56	690821.95
3900.00	.70	64.91	3899.92	-.03	.35	.03	15.68	15.68	89.88	414215.50	690822.21
3996.00	.89	74.90	3995.91	-.48	.24	.48	16.93	16.94	88.39	414216.75	690822.66

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GyroData Directional Survey File: C:\PROPOS~1\2004\04070\S\04-077\04-077.SVY



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Date/Time: 27-Apr-04 / 09:22
Curve Name: DDC As-Drilled Lateral

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 180.00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Dogleg Severity Deg/100	N-S FT	E-W FT	CLOSURE		Grid X FT	Grid Y FT
Distance FT	Direction Deg										
Tie-In to Gyrodata Gyro Surveys											
3996.00	.90	74.90	3995.90	-.50	.00	.50	16.90	16.91	88.31	414216.72	690822.68
4074.00	9.90	168.20	4073.51	5.92	12.81	-5.92	18.87	19.77	107.42	414218.69	690816.26
4106.00	15.90	171.40	4104.69	12.95	18.88	-12.95	20.09	23.90	122.82	414219.91	690809.23
4138.00	23.00	172.80	4134.84	23.50	22.23	-23.50	21.53	31.87	137.51	414221.35	690798.68
4170.00	30.60	175.50	4163.39	37.85	24.05	-37.85	22.95	44.26	148.77	414222.77	690784.33
4203.00	37.50	178.10	4190.71	56.28	21.37	-56.28	23.95	61.16	156.95	414223.77	690765.90
4235.00	39.20	177.50	4215.81	76.12	5.44	-76.12	24.71	80.03	162.02	414224.53	690746.06
4267.00	44.40	176.80	4239.66	97.42	16.32	-97.42	25.78	100.77	165.18	414225.60	690724.76
4299.00	51.10	176.30	4261.16	121.05	20.97	-121.05	27.21	124.07	167.33	414227.03	690701.13
4331.00	58.70	177.20	4279.55	147.17	23.86	-147.17	28.68	149.93	168.97	414228.50	690675.01

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Dogleg Severity Deg/100	N-S FT	E-W FT	CLOSURE		Grid X FT	Grid Y FT
								Distance FT	Direction Deg		
4363.00	66.10	180.10	4294.36	175.49	24.48	-175.49	29.32	177.93	170.51	414229.14	690646.69
4394.00	72.70	183.90	4305.27	204.47	24.18	-204.47	28.29	206.42	172.12	414228.11	690617.71
4426.00	78.90	184.80	4313.12	235.39	19.57	-235.39	25.94	236.81	173.71	414225.76	690586.79
4458.00	86.40	186.50	4317.21	266.95	24.02	-266.95	22.81	267.92	175.12	414222.63	690555.23
4490.00	87.20	186.00	4318.99	298.71	2.95	-298.71	19.33	299.33	176.30	414219.15	690523.47
4521.00	86.60	185.70	4320.67	329.50	2.16	-329.50	16.18	329.90	177.19	414216.00	690492.68
4553.00	89.90	186.10	4321.65	361.31	10.39	-361.31	12.89	361.54	177.96	414212.71	690460.87
4585.00	91.10	187.30	4321.37	393.09	5.30	-393.09	9.16	393.20	178.67	414208.98	690429.09
4649.00	89.60	185.70	4320.98	456.67	3.43	-456.67	1.91	456.68	179.76	414201.73	690365.51
4681.00	91.70	187.70	4320.61	488.45	9.06	-488.45	-1.82	488.45	180.21	414198.00	690333.73
4743.00	87.70	184.60	4320.94	550.07	8.16	-550.07	-8.46	550.14	180.88	414191.36	690272.11
4806.00	87.70	183.70	4323.47	612.86	1.43	-612.86	-13.02	612.99	181.22	414186.80	690209.32
4870.00	89.60	182.30	4324.97	676.75	3.69	-676.75	-16.37	676.94	181.39	414183.45	690145.43
4933.00	90.40	183.20	4324.97	739.67	1.91	-739.67	-19.39	739.93	181.50	414180.43	690082.51
4998.00	89.40	181.00	4325.09	804.62	3.72	-804.62	-21.77	804.92	181.55	414178.05	690017.56
5062.00	89.60	181.00	4325.65	868.61	.31	-868.61	-22.89	868.91	181.51	414176.93	689953.57
5126.00	89.00	181.40	4326.43	932.59	1.13	-932.59	-24.23	932.91	181.49	414175.59	689889.59
5190.00	87.30	180.50	4328.49	996.55	3.01	-996.55	-25.29	996.87	181.45	414174.53	689825.63
5254.00	88.70	181.50	4330.73	1060.50	2.69	-1060.50	-26.40	1060.82	181.43	414173.42	689761.68
5318.00	90.50	180.80	4331.17	1124.48	3.02	-1124.48	-27.69	1124.82	181.41	414172.13	689697.70
5382.00	89.90	179.60	4330.95	1188.48	2.10	-1188.48	-27.91	1188.80	181.35	414171.91	689633.70
5446.00	90.20	179.60	4330.89	1252.47	.47	-1252.47	-27.46	1252.77	181.26	414172.36	689569.71
5510.00	89.80	178.40	4330.89	1316.46	1.98	-1316.46	-26.35	1316.73	181.15	414173.47	689505.72
5574.00	89.70	177.30	4331.17	1380.42	1.73	-1380.42	-23.95	1380.62	180.99	414175.87	689441.76
5638.00	89.70	176.30	4331.51	1444.31	1.56	-1444.31	-20.37	1444.46	180.81	414179.45	689377.87
5701.00	88.80	176.80	4332.33	1507.19	1.63	-1507.19	-16.58	1507.29	180.63	414183.24	689314.99
5765.00	90.20	179.10	4332.89	1571.14	4.21	-1571.14	-14.29	1571.21	180.52	414185.53	689251.04
5830.00	89.10	177.00	4333.29	1636.10	3.65	-1636.10	-12.08	1636.15	180.42	414187.74	689186.08
5894.00	89.40	177.00	4334.13	1700.01	.47	-1700.01	-8.73	1700.03	180.29	414191.09	689122.17
5958.00	88.70	176.40	4335.19	1763.89	1.44	-1763.89	-5.05	1763.90	180.16	414194.77	689058.29
6022.00	90.00	178.30	4335.91	1827.82	3.60	-1827.82	-2.09	1827.82	180.07	414197.73	688994.36
6086.00	90.80	177.80	4335.47	1891.78	1.47	-1891.78	.09	1891.78	180.00	414199.91	688930.40

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DDC As-Drilled Lateral File: C:\PROPOS~1\2004\04070\S\04-077\04-077.SVY

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Dogleg Severity Deg/100	N-S FT	E-W FT	C L O S U R E		Grid X FT	Grid Y FT
								Distance FT	Direction Deg		
6150.00	88.70	175.70	4335.75	1955.67	4.64	-1955.67	3.71	1955.67	179.89	414203.53	688866.51
6213.00	90.20	178.60	4336.35	2018.58	5.18	-2018.58	6.85	2018.59	179.81	414206.67	688803.60
6277.00	89.90	177.70	4336.30	2082.54	1.48	-2082.54	8.91	2082.56	179.75	414208.73	688739.64
6341.00	88.30	179.60	4337.30	2146.51	3.88	-2146.51	10.42	2146.54	179.72	414210.24	688675.67
6405.00	89.00	178.60	4338.81	2210.48	1.91	-2210.48	11.42	2210.51	179.70	414211.24	688611.70
6469.00	89.00	178.60	4339.93	2274.46	.00	-2274.46	12.99	2274.49	179.67	414212.81	688547.72
6532.00	88.60	176.60	4341.25	2337.38	3.24	-2337.38	15.62	2337.44	179.62	414215.44	688484.80
6596.00	90.20	179.70	4341.92	2401.34	5.45	-2401.34	17.69	2401.40	179.58	414217.51	688420.84
6664.00	91.00	181.10	4341.20	2469.33	2.37	-2469.33	17.22	2469.39	179.60	414217.04	688352.85
6728.00	89.40	180.00	4340.98	2533.32	3.03	-2533.32	16.60	2533.38	179.62	414216.42	688288.86
6792.00	89.90	179.70	4341.37	2597.32	.91	-2597.32	16.77	2597.38	179.63	414216.59	688224.86
6856.00	90.00	178.20	4341.43	2661.31	2.35	-2661.31	17.94	2661.37	179.61	414217.76	688160.87
6917.00	89.80	178.10	4341.53	2722.28	.37	-2722.28	19.91	2722.35	179.58	414219.73	688099.90
6981.00	88.30	179.30	4342.59	2786.25	3.00	-2786.25	21.36	2786.33	179.56	414221.18	688035.93
7044.00	88.50	179.90	4344.35	2849.22	1.00	-2849.22	21.80	2849.31	179.56	414221.62	687972.96
7108.00	88.50	178.60	4346.03	2913.19	2.03	-2913.19	22.64	2913.28	179.55	414222.46	687908.99
7172.00	90.30	181.10	4346.70	2977.18	4.81	-2977.18	22.81	2977.27	179.56	414222.63	687845.00
7235.00	89.10	182.40	4347.03	3040.15	2.81	-3040.15	20.88	3040.22	179.61	414220.70	687782.03
Projection to Bit											
7305.00	89.10	182.40	4348.13	3110.08	.00	-3110.08	17.95	3110.13	179.67	414217.77	687712.10