



Job Number: WTX0399D016
 Company: YATES PETROLEUM
 Lease/Well: RUNNELS #3
 Location: LEA COUNTY
 Rig Name: PATTERSON #41
 RKB:
 G.L. or M.S.L.:

State/Country: NEW MEXICO
 Declination: 9 DEGREES EAST
 Grid:
 File name: C:\WINSERVE\YATESRUN.SVY
 Date/Time: 30-Apr-99 / 03:23
 Curve Name:

Daily International Inc.
 Midland, Texas

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 345.12
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

SUR: A, 1980N & 669E
 BHL: A, 682N & 1186E
 11-165-35e
 30-025-02786

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
Gyro Tie-In									
9800.00	2.78	9.10	9797.10	173.24	20.44	162.18	174.44	6.73	.00
9855.00	1.40	4.60	9852.06	175.23	20.70	164.03	176.45	6.74	2.52
9896.00	.60	216.70	9893.06	175.55	20.62	164.37	176.76	6.70	4.72
9927.00	2.40	204.40	9924.05	174.83	20.25	163.77	176.00	6.61	5.87
9959.00	2.50	195.70	9956.02	173.55	19.79	162.65	174.67	6.50	1.20
9991.00	2.40	195.00	9987.99	172.23	19.42	161.47	173.32	6.43	.33
10022.00	2.40	195.10	10018.96	170.98	19.09	160.34	172.04	6.37	.01
10054.00	2.30	199.70	10050.93	169.73	18.70	159.23	170.75	6.29	.67
10086.00	2.80	198.70	10082.90	168.38	18.23	158.05	169.37	6.18	1.57
10118.00	2.70	197.80	10114.87	166.92	17.75	156.77	167.86	6.07	.34
10149.00	2.30	197.70	10145.84	165.64	17.34	155.63	166.54	5.97	1.29
10181.00	2.10	206.50	10177.81	164.50	16.88	154.65	165.36	5.86	1.22
10212.00	2.90	205.80	10208.78	163.29	16.28	153.63	164.10	5.69	2.58
10245.00	2.40	201.70	10241.75	161.89	15.66	152.44	162.65	5.53	1.62
10276.00	2.50	205.10	10272.72	160.68	15.14	151.40	161.39	5.38	.57
10307.00	2.50	205.80	10303.69	159.46	14.56	150.37	160.12	5.22	.10
10338.00	2.60	197.40	10334.66	158.18	14.05	149.26	158.80	5.08	1.25
10370.00	2.50	197.60	10366.63	156.82	13.62	148.06	157.41	4.97	.31
10401.00	2.70	209.00	10397.60	155.53	13.07	146.96	156.08	4.80	1.78

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
10433.00	2.70	198.50	10429.56	154.16	12.46	145.79	154.66	4.62	1.54
10465.00	2.50	207.70	10461.53	152.83	11.90	144.65	153.29	4.45	1.44
10497.00	2.80	210.80	10493.49	151.54	11.17	143.59	151.95	4.22	1.04
10533.00	2.40	210.20	10529.46	150.13	10.34	142.44	150.49	3.94	1.11
10564.00	2.30	205.70	10560.43	149.01	9.75	141.51	149.33	3.74	.68
10596.00	2.40	196.30	10592.40	147.79	9.28	140.45	148.08	3.59	1.24
10628.00	2.60	211.80	10624.37	146.53	8.71	139.38	146.79	3.40	2.20
10660.00	2.20	197.90	10656.35	145.33	8.14	138.36	145.56	3.21	2.20
10691.00	2.10	196.80	10687.32	144.22	7.79	137.38	144.43	3.09	.35
10723.00	2.10	209.80	10719.30	143.15	7.33	136.46	143.34	2.93	1.49
10755.00	2.20	197.80	10751.28	142.05	6.85	135.53	142.22	2.76	1.44
10787.00	2.20	193.00	10783.26	140.87	6.53	134.47	141.02	2.65	.58
10819.00	2.30	220.00	10815.23	139.78	5.98	133.56	139.91	2.45	3.30
10851.00	2.20	233.80	10847.21	138.93	5.07	132.97	139.02	2.09	1.72
10883.00	2.50	250.00	10879.18	138.32	3.92	132.68	138.38	1.62	2.27
10935.00	3.20	273.30	10931.12	138.02	1.40	133.03	138.03	.58	2.58
10950.00	3.60	298.20	10946.09	138.27	.57	133.48	138.27	.24	10.11
10960.00	4.80	313.60	10956.07	138.70	-.01	134.06	138.70	360.00	16.37
10970.00	6.50	328.70	10966.02	139.48	-.61	134.95	139.48	359.75	22.45
10980.00	8.10	334.80	10975.94	140.60	-1.20	136.19	140.60	359.51	17.76
10990.00	10.00	337.70	10985.81	142.04	-1.83	137.75	142.05	359.26	19.53
11000.00	12.30	340.50	10995.62	143.85	-2.52	139.67	143.87	359.00	23.62
11010.00	14.60	339.20	11005.35	146.03	-3.32	141.98	146.07	358.70	23.20
11020.00	15.90	338.30	11015.00	148.48	-4.28	144.60	148.54	358.35	13.21
11030.00	17.00	337.60	11024.59	151.10	-5.34	147.41	151.20	357.98	11.18
11040.00	18.20	334.80	11034.12	153.87	-6.56	150.39	154.01	357.56	14.68
11050.00	18.80	334.70	11043.60	156.74	-7.91	153.51	156.94	357.11	6.01
11060.00	18.80	334.60	11053.07	159.65	-9.29	156.68	159.92	356.67	.32
11070.00	19.10	335.10	11062.53	162.59	-10.67	159.88	162.94	356.24	3.41
11080.00	18.70	333.90	11071.99	165.51	-12.07	163.06	165.95	355.83	5.58
11090.00	19.10	334.50	11081.45	168.43	-13.48	166.24	168.97	355.42	4.45
11100.00	18.60	334.60	11090.91	171.35	-14.87	169.42	171.99	355.04	5.01
11110.00	18.30	334.30	11100.40	174.20	-16.23	172.53	174.96	354.68	3.15
11120.00	18.70	334.70	11109.88	177.07	-17.60	175.65	177.94	354.32	4.20
11130.00	19.20	334.70	11119.34	180.00	-18.98	178.84	181.00	353.98	5.00
11140.00	20.30	334.80	11128.75	183.06	-20.43	182.17	184.19	353.63	11.01
11150.00	20.80	334.20	11138.11	186.23	-21.94	185.62	187.51	353.28	5.43
11160.00	21.60	333.70	11147.44	189.48	-23.53	189.16	190.93	352.92	8.20
11170.00	22.30	333.40	11156.71	192.82	-25.19	192.82	194.46	352.56	7.09
11180.00	23.10	333.20	11165.94	196.27	-26.93	196.60	198.11	352.19	8.04

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
11190.00	24.00	332.80	11175.10	199.83	-28.74	200.51	201.89	351.82	9.14
11200.00	25.10	333.50	11184.20	203.54	-30.62	204.57	205.83	351.45	11.38
11210.00	25.70	335.60	11193.23	207.41	-32.46	208.79	209.93	351.11	10.82
11220.00	26.50	333.70	11202.21	211.38	-34.34	213.11	214.16	350.77	11.57
11230.00	27.10	334.20	11211.14	215.44	-36.32	217.54	218.48	350.43	6.41
11240.00	28.10	334.20	11220.00	219.61	-38.34	222.09	222.93	350.10	10.00
11250.00	29.30	334.30	11228.77	223.93	-40.42	226.80	227.55	349.77	12.01
11260.00	30.80	335.10	11237.43	228.46	-42.56	231.73	232.39	349.45	15.53
11270.00	32.30	335.40	11245.95	233.21	-44.75	236.88	237.47	349.14	15.08
11280.00	34.10	336.30	11254.32	238.21	-46.99	242.29	242.80	348.84	18.66
11290.00	36.00	338.20	11262.50	243.50	-49.21	247.97	248.43	348.57	21.91
11300.00	37.50	339.10	11270.52	249.08	-51.39	253.92	254.32	348.34	15.94
11310.00	38.70	340.20	11278.39	254.86	-53.53	260.06	260.42	348.14	13.79
11320.00	39.50	340.70	11286.15	260.80	-55.64	266.35	266.67	347.96	8.60
11330.00	40.60	341.10	11293.80	266.88	-57.75	272.76	273.06	347.79	11.30
11340.00	41.50	340.80	11301.34	273.09	-59.89	279.31	279.58	347.63	9.21
11350.00	42.20	339.70	11308.79	279.37	-62.15	285.96	286.20	347.46	10.14
11360.00	42.80	339.00	11316.16	285.69	-64.53	292.68	292.89	347.27	7.64
11370.00	43.70	338.30	11323.45	292.07	-67.02	299.49	299.67	347.08	10.20
11380.00	44.80	337.10	11330.61	298.53	-69.67	306.41	306.55	346.86	13.82
11390.00	45.80	336.50	11337.64	305.06	-72.47	313.44	313.55	346.64	10.87
11400.00	46.70	335.70	11344.56	311.67	-75.40	320.58	320.66	346.40	10.70
11410.00	47.10	335.10	11351.39	318.30	-78.44	327.77	327.83	346.16	5.93
11420.00	48.20	334.60	11358.13	324.99	-81.58	335.05	335.08	345.91	11.60
11430.00	49.10	334.40	11364.73	331.77	-84.81	342.42	342.44	345.66	9.12
11440.00	50.40	334.70	11371.20	338.66	-88.09	349.93	349.93	345.42	13.20
11450.00	51.00	334.51	11377.53	345.65	-91.41	357.53	357.54	345.19	6.18
11460.00	52.30	333.30	11383.73	352.69	-94.86	365.23	365.23	344.95	16.09
11470.00	53.50	333.20	11389.77	359.82	-98.45	373.03	373.04	344.70	12.03
11480.00	54.20	332.70	11395.67	367.01	-102.12	380.93	380.95	344.45	8.08
11490.00	55.10	332.00	11401.45	374.23	-105.91	388.88	388.93	344.20	10.66
11500.00	56.20	332.00	11407.09	381.52	-109.78	396.92	397.00	343.95	11.00
11530.00	59.00	332.00	11423.17	403.88	-121.67	421.59	421.81	343.23	9.33
11540.00	59.60	332.00	11428.27	411.48	-125.71	429.96	430.25	343.01	6.00
11550.00	60.80	332.00	11433.24	419.14	-129.79	438.41	438.77	342.79	12.00
11560.00	61.40	332.00	11438.07	426.87	-133.90	446.94	447.38	342.58	6.00
11570.00	62.80	332.00	11442.75	434.67	-138.04	455.54	456.07	342.38	14.00
11580.00	64.80	333.70	11447.17	442.65	-142.14	464.31	464.92	342.20	25.15
11590.00	66.90	333.10	11451.26	450.81	-146.22	473.25	473.93	342.03	21.70
11600.00	68.40	333.90	11455.06	459.09	-150.35	482.30	483.08	341.87	16.73

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
11610.00	70.50	334.60	11458.57	467.52	-154.42	491.50	492.36	341.72	22.00
11620.00	72.30	335.70	11461.76	476.12	-158.40	500.83	501.78	341.60	20.80
11630.00	74.20	336.20	11464.64	484.87	-162.30	510.29	511.31	341.49	19.59
11640.00	76.30	337.10	11467.19	493.75	-166.13	519.85	520.95	341.40	22.73
11650.00	78.30	338.20	11469.39	502.77	-169.84	529.52	530.68	341.33	22.70
11660.00	80.30	338.90	11471.24	511.91	-173.44	539.28	540.49	341.28	21.15
11670.00	82.50	338.90	11472.74	521.14	-176.99	549.11	550.37	341.24	22.00
11680.00	83.90	338.00	11473.92	530.37	-180.64	558.97	560.29	341.19	16.61
11690.00	84.80	337.50	11474.91	539.58	-184.41	568.84	570.22	341.13	10.28
11700.00	85.00	337.30	11475.80	548.78	-188.24	578.71	580.16	341.07	2.82
11734.00	85.30	337.30	11478.67	580.03	-201.31	612.28	613.97	340.86	.88
11766.00	85.80	337.00	11481.16	609.43	-213.70	643.87	645.81	340.68	1.82
11798.00	86.40	336.40	11483.33	638.75	-226.33	675.45	677.67	340.49	2.65
11829.00	86.40	336.50	11485.28	667.12	-238.69	706.04	708.53	340.31	.32
11861.00	84.80	336.80	11487.73	696.41	-251.34	737.60	740.37	340.16	5.09
11876.00	85.10	336.80	11489.05	710.14	-257.22	752.38	755.29	340.09	2.00
11893.00	85.10	336.80	11490.51	725.71	-263.89	769.14	772.20	340.02	.00
11925.00	85.80	337.00	11493.04	755.05	-276.41	800.71	804.05	339.89	2.27
11941.00	86.00	336.50	11494.19	769.71	-282.71	816.50	819.99	339.83	3.36
11956.00	86.50	336.60	11495.17	783.44	-288.67	831.30	834.93	339.77	3.40
11972.00	87.00	336.80	11496.08	798.12	-294.98	847.10	850.88	339.72	3.36
11987.00	87.80	336.80	11496.76	811.89	-300.89	861.93	865.85	339.67	5.33
12004.00	88.30	336.80	11497.34	827.51	-307.58	878.74	882.82	339.61	2.94
12019.00	88.50	336.20	11497.75	841.26	-313.56	893.57	897.79	339.56	4.21
12036.00	89.00	336.10	11498.12	856.80	-320.43	910.35	914.76	339.49	3.00
12051.00	89.40	336.40	11498.33	870.53	-326.47	925.17	929.73	339.44	3.33
12069.00	89.60	335.90	11498.49	886.99	-333.75	942.95	947.70	339.38	2.99
12083.00	90.20	336.20	11498.52	899.79	-339.43	956.78	961.68	339.33	4.79
12099.00	90.50	335.90	11498.42	914.41	-345.93	972.58	977.65	339.28	2.65
12114.00	90.70	335.70	11498.26	928.09	-352.08	987.38	992.63	339.23	1.89
12129.00	90.50	335.40	11498.10	941.74	-358.28	1002.17	1007.59	339.17	2.40
12145.00	91.30	335.30	11497.85	956.28	-364.96	1017.93	1023.56	339.11	5.04
12162.00	91.40	335.00	11497.45	971.70	-372.10	1034.67	1040.51	339.05	1.86
12177.00	91.80	335.00	11497.03	985.29	-378.44	1049.43	1055.47	338.99	2.67
12210.00	92.20	334.70	11495.88	1015.15	-392.45	1081.88	1088.37	338.86	1.51
12220.00	91.10	334.60	11495.59	1024.18	-396.73	1091.71	1098.33	338.83	11.05
12230.00	90.30	334.70	11495.47	1033.22	-401.01	1101.55	1108.31	338.79	8.06
12241.00	90.10	334.70	11495.43	1043.16	-405.71	1112.36	1119.28	338.75	1.82
12257.00	90.10	334.30	11495.40	1057.60	-412.60	1128.09	1135.24	338.69	2.50
12272.00	90.80	334.90	11495.29	1071.15	-419.03	1142.84	1150.20	338.63	6.15

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
12292.00	91.50	334.80	11494.89	1089.25	-427.53	1162.51	1170.15	338.57	3.54
12304.00	91.60	334.70	11494.56	1100.10	-432.65	1174.31	1182.12	338.53	1.18
12336.00	92.00	335.40	11493.56	1129.10	-446.14	1205.80	1214.05	338.44	2.52
12367.00	92.70	335.40	11492.28	1157.26	-459.04	1236.33	1244.98	338.36	2.26
12399.00	93.20	335.20	11490.64	1186.30	-472.39	1267.82	1276.89	338.29	1.68
12429.00	93.40	334.90	11488.91	1213.45	-485.02	1297.31	1306.79	338.21	1.20
12461.00	93.40	334.60	11487.01	1242.34	-498.65	1328.73	1338.68	338.13	.94
12485.00	93.20	334.30	11485.63	1263.96	-508.98	1352.28	1362.59	338.07	1.50
—Projection to Bit—									
12523.00	92.88	333.83	11483.62	1298.08	-525.58	1389.52	1400.45	337.96	1.50