

Job Number: []	State/Country: []
Company: []	Declination: []
Lease/Well: [] Lantz-Mills Unit 3 #5H	Grid: []
Location: []	File name: D:\WINSERVE\JOBS\L-M-#5H.SVY
Rig Name: []	Date/Time: 23-Jan-11 / 05:00
RKB: []	Curve Name: D:\WINSERVE\JOBS\LANTZ-~1.TXT
G.L. or M.S.L.: []	

Scientific Drilling

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 153.82
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Distance FT	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00
108.00	.06	187.24	108.00	-.06	-.01	.05	.06	.06
208.00	.07	185.15	208.00	-.17	-.02	.14	.17	.01
308.00	.07	283.02	308.00	-.22	-.08	.16	.23	.11
408.00	.04	278.66	408.00	-.20	-.18	.10	.27	.03
508.00	.08	288.56	508.00	-.17	-.28	.03	.33	.04
608.00	.10	236.46	608.00	-.20	-.42	-.01	.46	.08
708.00	.67	221.16	708.00	-.68	-.88	.23	1.11	.57
808.00	.65	231.66	807.99	-1.48	-1.71	.57	2.26	.12
908.00	.85	231.99	907.98	-2.28	-2.73	.84	3.56	.20
1008.00	2.05	233.77	1007.95	-3.80	-4.76	1.31	6.09	1.20
1108.00	2.25	234.65	1107.88	-5.99	-7.81	1.93	9.84	.20
1208.00	2.44	230.29	1207.79	-8.49	-11.04	2.74	13.93	.26
1308.00	2.11	214.77	1307.72	-11.36	-13.73	4.14	17.82	.70
1408.00	1.47	188.92	1407.67	-14.14	-14.98	6.08	20.60	1.01
1508.00	1.69	123.87	1507.64	-16.23	-13.95	8.41	21.40	1.71
1608.00	2.13	82.99	1607.59	-16.82	-10.89	10.29	20.04	1.40
1708.00	1.24	50.32	1707.54	-15.91	-8.21	10.65	17.90	1.28
1808.00	.49	268.12	1807.54	-15.23	-7.80	10.22	17.11	1.65
1908.00	.27	238.99	1907.54	-15.36	-8.43	10.07	17.53	.29
2008.00	.37	74.57	2007.53	-15.40	-8.32	10.15	17.50	.63
2108.00	1.27	1.09	2107.52	-14.21	-7.99	9.22	16.30	1.22
2208.00	1.55	354.19	2207.49	-11.75	-8.11	6.97	14.28	.33
2243.70	1.87	340.17	2243.18	-10.72	-8.35	5.94	13.59	1.47
2334.00	1.51	338.19	2333.44	-8.23	-9.29	3.29	12.42	.40

12/09/2011

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Distance FT	Dogleg Severity Deg/100
2425.00	1.30	343.47	2424.41	-6.13	-10.03	1.07	11.76	.27
2519.00	2.08	312.16	2518.37	-3.96	-11.60	-1.56	12.26	1.26
2613.00	3.26	303.38	2612.27	-1.35	-15.10	-5.45	15.16	1.32
2707.00	4.07	287.41	2706.08	1.12	-20.51	-10.06	20.54	1.38
2801.00	3.93	272.93	2799.85	2.29	-26.91	-13.92	27.01	1.08
2895.00	4.05	272.10	2893.62	2.57	-33.45	-17.06	33.55	.14
2988.00	4.34	260.14	2986.38	2.09	-40.20	-19.61	40.25	.99
3081.00	4.67	266.63	3079.09	1.27	-47.44	-22.07	47.46	.65
3174.00	4.74	267.31	3171.78	.86	-55.06	-25.07	55.07	.10
3267.00	4.73	264.85	3264.46	.34	-62.72	-27.97	62.72	.22
3361.00	4.86	264.90	3358.13	-.36	-70.54	-30.80	70.54	.14
3456.00	4.99	266.97	3452.78	-.94	-78.68	-33.87	78.68	.23
3550.00	4.14	263.91	3546.48	-1.51	-86.13	-36.64	86.15	.94
3643.00	3.39	275.97	3639.28	-1.58	-92.21	-39.26	92.22	1.17
3734.00	2.12	283.35	3730.17	-.92	-96.52	-41.76	96.53	1.45
3833.00	1.58	279.32	3829.12	-.27	-99.65	-43.72	99.65	.56
3933.00	1.00	275.84	3929.10	.04	-101.88	-44.98	101.88	.59
4041.00	.80	263.97	4037.08	.06	-103.57	-45.74	103.57	.25
4141.00	.62	254.72	4137.07	-.16	-104.78	-46.09	104.78	.21
4241.00	.64	227.72	4237.07	-.68	-105.72	-46.03	105.72	.29
4369.00	.82	218.85	4365.06	-1.87	-106.82	-45.45	106.84	.17
4646.00	.66	212.56	4642.04	-4.76	-108.92	-43.79	109.03	.06
4838.00	.78	188.13	4834.02	-6.98	-109.70	-42.13	109.93	.17
4938.00	.60	197.25	4934.01	-8.16	-109.95	-41.19	110.26	.21
5248.00	.54	196.25	5244.00	-11.11	-110.84	-38.93	111.40	.02
5551.00	.47	186.54	5546.99	-13.72	-111.39	-36.83	112.23	.04
5614.00	.44	176.90	5609.98	-14.21	-111.40	-36.39	112.31	.13
5678.00	.35	185.30	5673.98	-14.65	-111.41	-36.00	112.37	.17
5741.00	.35	177.85	5736.98	-15.04	-111.42	-35.66	112.43	.07
5805.00	.25	201.27	5800.98	-15.36	-111.46	-35.39	112.51	.24
5836.00	.27	202.38	5831.98	-15.49	-111.51	-35.29	112.58	.07
5868.00	1.53	192.65	5863.98	-15.98	-111.64	-34.91	112.77	3.95
5900.00	3.69	193.57	5895.94	-17.40	-111.97	-33.79	113.31	6.75
5932.00	5.76	194.52	5927.83	-19.95	-112.61	-31.78	114.37	6.47
5964.00	7.90	197.33	5959.60	-23.61	-113.67	-28.96	116.10	6.77
5996.00	9.92	196.88	5991.21	-28.35	-115.13	-25.36	118.57	6.32
6028.00	11.77	194.70	6022.64	-34.14	-116.76	-20.87	121.65	5.92
6059.00	13.49	192.24	6052.89	-40.73	-118.33	-15.65	125.14	5.81
6091.00	15.90	190.89	6083.84	-48.69	-119.95	-9.23	129.45	7.61
6123.00	18.46	190.72	6114.41	-57.97	-121.72	-1.68	134.82	8.00
6155.00	20.60	191.41	6144.57	-68.47	-123.77	6.84	141.45	6.73
6186.00	22.33	192.49	6173.42	-79.56	-126.13	15.76	149.12	5.72
6218.00	24.63	193.53	6202.77	-91.98	-129.00	25.63	158.44	7.30
6250.00	27.01	194.30	6231.57	-105.51	-132.36	36.29	169.26	7.51
6281.00	29.32	194.75	6258.90	-119.67	-136.03	47.38	181.18	7.48

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Distance FT	Dogleg Severity Deg/100
6313.00	31.21	194.80	6286.53	-135.27	-140.14	59.56	194.77	5.91
6345.00	33.00	194.48	6313.64	-151.72	-144.44	72.43	209.48	5.62
6377.00	35.38	194.06	6340.11	-169.15	-148.87	86.12	225.33	7.47
6409.00	38.08	193.29	6365.75	-187.74	-153.39	100.81	242.44	8.56
6440.00	40.23	193.21	6389.79	-206.79	-157.87	115.93	260.17	6.94
6472.00	41.93	191.83	6413.91	-227.32	-162.43	132.34	279.39	6.02
6504.00	43.84	192.07	6437.36	-248.62	-166.94	149.47	299.47	5.99
6536.00	45.75	190.98	6460.06	-270.72	-171.44	167.31	320.43	6.43
6568.00	47.93	191.74	6481.95	-293.60	-176.04	185.81	342.33	7.03
6600.00	50.42	191.04	6502.87	-317.33	-180.82	205.00	365.23	7.96
6632.00	52.44	190.80	6522.82	-341.90	-185.56	224.96	389.01	6.34
6664.00	54.45	190.57	6541.88	-367.16	-190.32	245.52	413.55	6.31
6696.00	56.59	190.14	6559.99	-393.10	-195.06	266.72	438.84	6.78
6727.00	59.40	190.78	6576.42	-418.95	-199.83	287.81	464.17	9.23
6759.00	60.57	190.66	6592.43	-446.18	-204.99	309.97	491.01	3.67
6791.00	62.26	192.14	6607.74	-473.72	-210.54	332.23	518.40	6.66
6823.00	64.16	191.96	6622.16	-501.65	-216.51	354.67	546.38	5.96
6855.00	65.59	192.51	6635.75	-529.97	-222.65	377.37	574.84	4.73
6886.00	67.63	193.37	6648.05	-557.70	-229.02	399.44	602.89	7.06
6918.00	69.68	192.46	6659.70	-586.74	-235.68	422.57	632.31	6.93
6950.00	70.84	191.69	6670.51	-616.20	-241.98	446.22	662.01	4.27
6982.00	71.57	189.02	6680.82	-645.99	-247.42	470.56	691.76	8.22
7013.00	72.62	186.57	6690.35	-675.22	-251.42	495.02	720.51	8.25
7045.00	73.58	183.40	6699.66	-705.72	-254.08	521.22	750.06	9.94
7077.00	74.91	181.71	6708.35	-736.48	-255.45	548.22	779.52	6.57
7108.00	76.77	180.07	6715.93	-766.53	-255.92	574.99	808.12	7.89
7140.00	77.55	177.49	6723.04	-797.72	-255.25	603.27	837.56	8.23
7172.00	77.98	174.09	6729.83	-828.91	-252.95	632.27	866.64	10.47
7204.00	78.64	171.95	6736.31	-860.01	-249.15	661.86	895.37	6.87
7236.00	79.22	169.62	6742.46	-891.00	-244.12	691.90	923.84	7.37
7268.00	79.20	166.61	6748.45	-921.76	-237.64	722.35	951.90	9.24
7299.00	79.18	164.23	6754.26	-951.23	-229.98	752.18	978.63	7.54
7331.00	79.22	161.24	6760.26	-981.24	-220.65	783.23	1005.74	9.18
7363.00	80.54	159.86	6765.88	-1010.94	-210.16	814.51	1032.56	5.92
7395.00	81.93	157.67	6770.76	-1040.42	-198.71	846.02	1059.22	8.04
7426.00	83.54	155.25	6774.68	-1068.61	-186.42	876.73	1084.75	9.32
7458.00	83.56	152.03	6778.28	-1097.10	-172.31	908.53	1110.54	10.00
7490.00	83.97	150.13	6781.75	-1124.94	-156.93	940.30	1135.83	6.04
7522.00	86.06	148.70	6784.53	-1152.38	-140.71	972.08	1160.94	7.90
7554.00	88.15	147.05	6786.15	-1179.44	-123.71	1003.87	1185.91	8.32
7586.00	87.21	143.92	6787.44	-1205.78	-105.60	1035.50	1210.40	10.21
7617.00	87.75	141.34	6788.81	-1230.40	-86.80	1065.88	1233.45	8.50
7649.00	88.96	139.99	6789.73	-1255.13	-66.53	1097.02	1256.90	5.66
7681.00	89.87	139.72	6790.05	-1279.59	-45.90	1128.07	1280.42	2.97
7713.00	90.64	139.82	6789.91	-1304.02	-25.23	1159.12	1304.27	2.43

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Distance FT	Dogleg Severity Deg/100
7777.00	86.97	136.06	6791.24	-1351.51	17.62	1220.64	1351.63	8.21
7840.00	87.07	134.04	6794.52	-1396.04	62.06	1280.20	1397.42	3.21
7904.00	87.61	134.19	6797.49	-1440.54	107.96	1340.39	1444.58	.88
7968.00	87.24	135.72	6800.37	-1485.71	153.21	1400.89	1493.59	2.46
8031.00	87.24	135.26	6803.40	-1530.59	197.32	1460.62	1543.25	.73
8094.00	88.08	135.43	6805.97	-1575.37	241.56	1520.33	1593.78	1.36
8158.00	88.75	135.59	6807.74	-1621.00	286.39	1581.06	1646.11	1.08
8222.00	89.33	134.70	6808.81	-1666.37	331.53	1641.68	1699.02	1.66
8286.00	88.99	135.87	6809.75	-1711.84	376.55	1702.36	1752.76	1.90
8349.00	89.16	137.24	6810.77	-1757.57	419.87	1762.51	1807.03	2.19
8412.00	89.73	138.53	6811.38	-1804.30	462.11	1823.08	1862.54	2.24
8476.00	89.66	138.38	6811.72	-1852.20	504.56	1884.80	1919.70	.26
8539.00	88.79	138.75	6812.57	-1899.43	546.24	1945.57	1976.41	1.50
8603.00	88.99	138.91	6813.81	-1947.60	588.37	2007.38	2034.53	.40
8667.00	89.76	138.87	6814.51	-1995.81	630.45	2069.22	2093.02	1.20
8731.00	89.06	139.65	6815.17	-2044.30	672.21	2131.16	2151.98	1.64
8794.00	89.26	139.83	6816.09	-2092.37	712.92	2192.26	2210.49	.43
8858.00	88.42	140.03	6817.39	-2141.34	754.11	2254.37	2270.25	1.35
8922.00	88.25	139.65	6819.25	-2190.23	795.37	2316.45	2330.18	.65
8986.00	88.69	139.84	6820.96	-2239.06	836.71	2378.51	2390.28	.75
9049.00	88.89	140.26	6822.29	-2287.34	877.15	2439.68	2449.76	.74
9112.00	88.72	140.02	6823.60	-2335.69	917.52	2500.88	2509.44	.47
9176.00	88.45	140.63	6825.18	-2384.93	958.37	2563.09	2570.29	1.04
9239.00	89.39	141.50	6826.37	-2433.93	997.95	2624.53	2630.57	2.03
9303.00	88.55	141.12	6827.52	-2483.88	1037.95	2687.00	2692.02	1.44
9367.00	88.22	141.71	6829.32	-2533.88	1077.85	2749.48	2753.60	1.06
9430.00	88.45	140.92	6831.15	-2583.04	1117.21	2810.96	2814.29	1.31
9494.00	88.69	139.83	6832.75	-2632.32	1158.02	2873.18	2875.78	1.74
9558.00	89.29	140.07	6833.88	-2681.30	1199.19	2935.31	2937.25	1.01
9622.00	89.46	139.68	6834.58	-2730.24	1240.43	2997.42	2998.81	.66
9685.00	89.43	138.50	6835.19	-2777.84	1281.69	3058.34	3059.27	1.87
9749.00	89.90	137.73	6835.56	-2825.49	1324.41	3119.95	3120.49	1.41
9813.00	90.40	137.51	6835.39	-2872.77	1367.55	3181.41	3181.66	.85
9877.00	89.83	137.46	6835.27	-2919.94	1410.80	3242.83	3242.90	.89
9940.00	89.56	137.30	6835.60	-2966.30	1453.46	3303.25	3303.25	.50
10003.00	89.87	137.06	6835.92	-3012.51	1496.28	3363.61	3363.64	.62
10067.00	90.64	136.90	6835.63	-3059.30	1539.95	3424.86	3425.02	1.23
10131.00	89.70	137.08	6835.44	-3106.10	1583.60	3486.12	3486.49	1.50
10194.00	89.87	136.93	6835.68	-3152.17	1626.56	3546.43	3547.10	.36
10258.00	89.03	136.68	6836.29	-3198.83	1670.37	3607.62	3608.69	1.37
10321.00	88.46	136.49	6837.67	-3244.58	1713.65	3667.78	3669.32	.95
10385.00	89.16	136.55	6839.00	-3291.01	1757.68	3728.87	3730.98	1.10
10448.00	88.42	136.90	6840.33	-3336.87	1800.86	3789.07	3791.81	1.30
10511.00	88.05	136.35	6842.27	-3382.64	1844.11	3849.23	3852.66	1.05
10574.00	88.86	137.42	6843.97	-3428.61	1887.15	3909.47	3913.66	2.13

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Distance FT	Dogleg Severity Deg/100
10638.00	89.83	138.50	6844.70	-3476.14	1930.00	3971.03	3975.98	2.27
10702.00	90.60	139.19	6844.46	-3524.32	1972.12	4032.86	4038.58	1.62
10765.00	90.07	139.03	6844.09	-3571.95	2013.36	4093.79	4100.30	.88
10829.00	90.03	139.20	6844.04	-3620.34	2055.25	4155.69	4163.04	.27
10893.00	90.34	139.10	6843.83	-3668.75	2097.11	4217.61	4225.82	.51
10956.00	89.50	139.45	6843.92	-3716.49	2138.21	4278.59	4287.69	1.44
11019.00	89.23	138.08	6844.62	-3763.86	2179.73	4339.42	4349.47	2.22
11083.00	89.90	138.25	6845.10	-3811.55	2222.42	4401.04	4412.15	1.08
11147.00	89.36	137.54	6845.52	-3859.03	2265.33	4462.59	4474.80	1.39
11210.00	88.32	137.96	6846.79	-3905.65	2307.68	4523.11	4536.46	1.78
11274.00	88.36	137.32	6848.64	-3952.92	2350.78	4584.55	4599.11	1.00
11338.00	89.23	137.29	6849.99	-3999.95	2394.17	4645.90	4661.72	1.36
11401.00	89.40	137.63	6850.74	-4046.36	2436.76	4706.34	4723.44	.60
11465.00	88.96	138.18	6851.66	-4093.85	2479.66	4767.88	4786.26	1.10
11529.00	88.76	138.42	6852.93	-4141.62	2522.23	4829.53	4849.19	.49
11592.00	88.83	138.85	6854.26	-4188.90	2563.85	4890.32	4911.23	.69
11656.00	88.93	139.15	6855.51	-4237.19	2605.83	4952.18	4974.35	.49
11719.00	89.56	138.80	6856.34	-4284.71	2647.18	5013.07	5036.50	1.14
11783.00	89.90	138.71	6856.64	-4332.83	2689.38	5074.87	5099.63	.55
11846.00	90.30	138.23	6856.53	-4380.00	2731.14	5135.62	5161.74	.99
11910.00	89.26	138.50	6856.78	-4427.83	2773.66	5197.31	5224.83	1.68
11974.00	88.56	138.48	6857.99	-4475.74	2816.07	5259.02	5287.96	1.09
12038.00	88.16	138.45	6859.83	-4523.63	2858.49	5320.71	5351.10	.63
12107.00	88.66	138.85	6861.74	-4575.41	2904.06	5387.28	5419.22	.93
12165.00	89.26	139.23	6862.79	-4619.20	2942.07	5443.35	5476.57	1.22
12228.00	89.19	139.66	6863.65	-4667.06	2983.03	5504.37	5538.95	.69
12291.00	88.33	139.33	6865.01	-4714.95	3023.94	5565.40	5601.34	1.46
12355.00	87.38	139.59	6867.40	-4763.56	3065.51	5627.35	5664.70	1.54
12418.00	87.32	139.58	6870.32	-4811.47	3106.31	5688.35	5727.08	.10
12481.00	87.72	139.23	6873.04	-4859.26	3147.27	5749.31	5789.45	.84
12544.00	88.53	139.48	6875.10	-4907.04	3188.28	5810.28	5851.85	1.35
12608.00	89.33	139.66	6876.30	-4955.75	3229.78	5872.30	5915.31	1.28
12672.00	89.16	139.32	6877.14	-5004.40	3271.35	5934.31	5978.77	.59
12733.00	88.96	139.70	6878.14	-5050.79	3310.95	5993.41	6039.27	.70