



Weatherford®

SURVEY REPORT

Report Date: **8/18/2013**
 Customer: **Nemaha Oil and Gas**
 Job Name: **4029939**
 Well Name: **Lampson 3B-23-32-9H**

Field: **Fort Scott Lime**
 Rig: **HWD #6**
 Rig Loc: **Chautauqua County**

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	178.34 deg	51916 nT	65.50 deg	3.38 deg	1.30 deg	2.08 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	0.00 ft	0.00 deg	0.00 deg	0.00 ft	0.00 ft	0.00 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head			
				NS (ft)	EW (ft)	Vsect (ft)	Dogleg (deg/100ft)
216.00	0.56	143.39	216.00	-0.85	0.63	0.87	0.26
398.00	0.60	155.36	397.99	-2.43	1.56	2.47	0.07
442.00	0.69	148.66	441.98	-2.86	1.79	2.91	0.27
473.00	0.58	157.21	472.98	-3.17	1.95	3.22	0.47
503.00	1.43	174.38	502.98	-3.68	2.04	3.74	2.97
532.00	3.53	181.49	531.95	-4.93	2.06	4.99	7.30
563.00	7.40	185.75	562.80	-7.87	1.83	7.92	12.54
592.00	9.55	186.21	591.48	-12.12	1.38	12.16	7.42
622.00	11.35	185.88	620.99	-17.54	0.81	17.55	6.00
652.00	12.45	184.05	650.34	-23.70	0.28	23.70	3.88
682.00	13.35	183.95	679.58	-30.38	-0.19	30.36	3.00
711.00	14.19	182.76	707.75	-37.27	-0.59	37.24	3.06
741.00	14.95	182.17	736.78	-44.81	-0.91	44.76	2.58
771.00	15.43	181.10	765.74	-52.67	-1.13	52.61	1.85
801.00	15.79	181.25	794.63	-60.74	-1.30	60.67	1.21
831.00	16.22	180.41	823.47	-69.01	-1.42	68.94	1.63
861.00	16.94	179.16	852.22	-77.57	-1.38	77.49	2.68
891.00	18.15	178.40	880.82	-86.61	-1.19	86.54	4.10
921.00	19.58	178.32	909.21	-96.30	-0.91	96.24	4.77
951.00	20.80	178.42	937.37	-106.65	-0.62	106.59	4.07
980.00	21.75	178.36	964.39	-117.17	-0.32	117.11	3.28
1010.00	22.91	177.63	992.14	-128.56	0.08	128.51	3.98
1040.00	23.81	177.48	1019.68	-140.45	0.59	140.41	3.01
1070.00	24.38	177.78	1047.07	-152.68	1.09	152.65	1.94
1115.00	25.66	177.23	1087.84	-171.70	1.92	171.68	2.89
1160.00	27.39	177.12	1128.10	-191.77	2.91	191.77	3.85
1205.00	29.50	177.72	1167.67	-213.18	3.88	213.20	4.73
1250.00	32.23	178.74	1206.29	-236.25	4.58	236.29	6.18
1295.00	34.45	179.03	1243.89	-260.98	5.06	261.02	4.95
1340.00	36.78	178.52	1280.47	-287.18	5.62	287.22	5.22
1385.00	39.21	178.69	1315.93	-314.87	6.30	314.92	5.41
1430.00	41.02	177.93	1350.34	-343.85	7.15	343.91	4.17
1475.00	42.86	177.71	1383.81	-373.90	8.30	373.98	4.10
1520.00	45.21	178.13	1416.16	-405.16	9.43	405.26	5.26
1565.00	46.41	178.59	1447.53	-437.41	10.35	437.53	2.77

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head			Dogleg (deg/100ft)
				NS (ft)	EW (ft)	VSect (ft)	
1609.00	46.56	178.70	1477.82	-469.31	11.11	469.43	0.39
1653.00	46.90	179.55	1507.98	-501.34	11.60	501.47	1.60
1698.00	48.15	179.09	1538.37	-534.53	11.99	534.65	2.88
1743.00	49.92	178.41	1567.87	-568.50	12.74	568.63	4.10
1788.00	51.19	177.72	1596.46	-603.23	13.91	603.38	3.06
1833.00	53.26	177.38	1624.02	-638.76	15.43	638.94	4.64
1878.00	55.53	176.80	1650.22	-675.30	17.29	675.52	5.15
1923.00	57.54	176.83	1675.03	-712.78	19.38	713.04	4.47
1968.00	59.49	176.82	1698.53	-751.10	21.50	751.40	4.33
2013.00	61.84	176.88	1720.58	-790.26	23.66	790.62	5.22
2055.00	64.10	177.03	1739.66	-827.62	25.65	828.02	5.39
2100.00	65.78	178.01	1758.72	-868.34	27.41	868.77	4.22
2145.00	67.61	178.76	1776.53	-909.65	28.57	910.10	4.35
2190.00	69.12	179.08	1793.12	-951.47	29.36	951.93	3.42
2235.00	70.83	178.48	1808.53	-993.74	30.26	994.20	4.00
2280.00	73.19	178.23	1822.42	-1036.52	31.49	1037.00	5.27
2324.00	75.73	178.34	1834.21	-1078.89	32.76	1079.39	5.78
2369.00	78.38	179.07	1844.29	-1122.73	33.75	1123.24	6.10
2414.00	81.64	178.98	1852.10	-1167.04	34.50	1167.55	7.25
2440.00	82.85	179.22	1855.60	-1192.80	34.91	1193.31	4.74
2551.00	85.24	179.78	1867.12	-1303.18	35.87	1303.68	2.21
2596.00	87.78	180.84	1869.86	-1348.10	35.62	1348.56	6.11
2641.00	90.06	181.48	1870.71	-1393.08	34.71	1393.50	5.26
2686.00	89.88	180.99	1870.73	-1438.06	33.74	1438.44	1.16
2731.00	90.00	180.49	1870.78	-1483.06	33.16	1483.40	1.14
2776.00	90.31	179.53	1870.66	-1528.06	33.15	1528.38	2.24
2821.00	90.43	179.36	1870.37	-1573.06	33.59	1573.37	0.46
2866.00	90.31	178.73	1870.07	-1618.05	34.34	1618.37	1.43
2911.00	89.63	177.91	1870.10	-1663.03	35.66	1663.36	2.37
2955.00	90.00	178.49	1870.24	-1707.01	37.04	1707.36	1.56
3000.00	91.17	179.61	1869.78	-1752.00	37.79	1752.36	3.60
3045.00	91.36	180.03	1868.79	-1796.99	37.93	1797.33	1.02
3090.00	90.86	179.19	1867.92	-1841.98	38.24	1842.31	2.17
3135.00	90.12	178.01	1867.53	-1886.96	39.34	1887.31	3.10
3180.00	89.94	177.50	1867.51	-1931.92	41.10	1932.30	1.20
3225.00	89.20	176.07	1867.85	-1976.85	43.62	1977.29	3.58
3270.00	89.01	175.50	1868.55	-2021.72	46.93	2022.23	1.34
3315.00	89.26	175.68	1869.23	-2066.59	50.39	2067.18	0.68
3360.00	89.14	175.40	1869.86	-2111.44	53.89	2112.12	0.68
3405.00	90.49	177.08	1870.00	-2156.35	56.84	2157.09	4.79
3450.00	91.17	178.14	1869.35	-2201.30	58.71	2202.08	2.80
3495.00	92.28	179.41	1867.99	-2246.27	59.68	2247.05	3.75
3540.00	91.85	179.33	1866.37	-2291.24	60.17	2292.02	0.97
3584.00	91.73	178.87	1865.00	-2335.21	60.86	2335.99	1.08
3629.00	90.99	177.69	1863.93	-2380.17	62.21	2380.98	3.09
3674.00	90.56	177.99	1863.32	-2425.14	63.91	2425.97	1.17
3719.00	90.74	177.37	1862.81	-2470.10	65.73	2470.97	1.43
3764.00	89.26	179.10	1862.81	-2515.07	67.12	2515.96	5.06
3809.00	89.51	180.34	1863.29	-2560.07	67.33	2560.95	2.81
3854.00	88.15	179.40	1864.21	-2605.06	67.44	2605.92	3.67

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
3899.00	88.83	179.60	1865.40	-2650.04	67.83	2650.89	1.58
3944.00	88.94	179.96	1866.27	-2695.03	68.00	2695.87	0.84
3989.00	89.81	179.83	1866.77	-2740.03	68.08	2740.85	1.95
4034.00	89.01	179.83	1867.23	-2785.03	68.22	2785.83	1.78
4079.00	89.12	179.61	1867.96	-2830.02	68.44	2830.81	0.55
4124.00	90.00	179.91	1868.31	-2875.02	68.63	2875.80	2.07
4169.00	89.74	178.55	1868.41	-2920.01	69.23	2920.79	3.08
4213.00	89.63	177.14	1868.65	-2963.98	70.89	2964.79	3.21
4258.00	90.49	176.62	1868.61	-3008.91	73.33	3009.77	2.23
4303.00	90.56	176.21	1868.19	-3053.82	76.15	3054.75	0.92
4348.00	89.38	175.30	1868.22	-3098.70	79.48	3099.70	3.31
4393.00	88.46	176.20	1869.07	-3143.56	82.81	3144.64	2.86
4437.00	89.75	178.17	1869.75	-3187.50	84.97	3188.63	5.35
4482.00	89.63	178.76	1870.00	-3232.49	86.18	3233.63	1.34
4524.00	88.76	178.33	1870.59	-3274.47	87.25	3275.62	2.31
4569.00	88.95	178.59	1871.49	-3319.44	88.45	3320.61	0.72
4614.00	89.08	178.12	1872.26	-3364.42	89.75	3365.61	1.08
4659.00	90.37	178.06	1872.47	-3409.39	91.25	3410.60	2.87
4704.00	90.68	178.01	1872.06	-3454.36	92.79	3455.60	0.70
4749.00	90.43	178.05	1871.63	-3499.33	94.34	3500.60	0.56
4793.00	90.06	178.64	1871.44	-3543.31	95.61	3544.60	1.58
4838.00	89.32	178.83	1871.68	-3588.30	96.60	3589.60	1.70
4883.00	89.94	179.33	1871.97	-3633.30	97.32	3634.59	1.77
4928.00	90.37	179.33	1871.85	-3678.29	97.85	3679.58	0.96
4973.00	90.99	179.05	1871.32	-3723.28	98.49	3724.57	1.51
5018.00	91.05	178.68	1870.52	-3768.27	99.38	3769.57	0.83
5063.00	90.19	177.80	1870.03	-3813.24	100.76	3814.56	2.73
5108.00	89.08	176.51	1870.32	-3858.19	102.99	3859.55	3.78
5153.00	89.69	176.92	1870.80	-3903.11	105.57	3904.53	1.63
5198.00	90.00	176.26	1870.92	-3948.03	108.25	3949.51	1.62
5243.00	90.26	176.61	1870.82	-3992.94	111.04	3994.48	0.97
5287.00	89.21	176.61	1871.02	-4036.86	113.65	4038.46	2.39
5332.00	89.01	176.49	1871.72	-4081.78	116.35	4083.43	0.52
5377.00	90.25	177.17	1872.01	-4126.71	118.84	4128.42	3.14
5422.00	89.75	177.68	1872.01	-4171.66	120.86	4173.41	1.59
5467.00	88.77	177.90	1872.59	-4216.62	122.60	4218.40	2.23
5512.00	88.83	178.73	1873.53	-4261.59	123.92	4263.39	1.85
5557.00	89.32	178.93	1874.26	-4306.58	124.84	4308.39	1.18
5602.00	90.25	179.46	1874.43	-4351.57	125.47	4353.38	2.38
5647.00	90.44	179.96	1874.16	-4396.57	125.70	4398.37	1.19
5692.00	90.74	180.26	1873.70	-4441.57	125.61	4443.34	0.94
5737.00	90.25	180.51	1873.31	-4486.56	125.31	4488.31	1.22
5782.00	89.82	180.58	1873.28	-4531.56	124.88	4533.28	0.97
5827.00	89.69	180.11	1873.47	-4576.56	124.61	4578.25	1.08
5872.00	90.43	179.29	1873.42	-4621.56	124.85	4623.24	2.45
5916.00	90.31	178.77	1873.14	-4665.55	125.59	4667.23	1.21
5961.00	90.25	178.77	1872.92	-4710.54	126.56	4712.23	0.13
6006.00	89.82	179.20	1872.89	-4755.53	127.36	4757.23	1.35
6051.00	89.07	177.64	1873.33	-4800.51	128.60	4802.22	3.85
6096.00	88.89	176.74	1874.13	-4845.45	130.80	4847.21	2.04

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
6141.00	90.00	176.93	1874.57	-4890.38	133.29	4892.19	2.50
6183.00	89.81	177.47	1874.64	-4932.33	135.34	4934.18	1.36
6206.00	89.81	177.47	1874.71	-4955.31	136.35	4957.18	0.00

Vertical Section is 4957.36 ft along the target direction of 178.34 deg at a measured depth of 6206.18 ft.
Horizontal Displacement is 4957.36 ft along the well bore azimuth of 178.42 deg.
The total correction is 2.08 deg relative to Grid North.
