

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-1H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 22-Oct-2012
 Surveys
 Page 1
 Job# : 6717

| MD (feet) | Inclination (degrees) | Azimuth (degrees) | TVD RKB (feet) | N/-S (feet) | E/-W (feet) | DLS (deg/100') | VS @ 179.1° Az (feet) | Grid Y | Grid X | Comments |
|-------------------------|--------------------------|----------------------|-------------------|----------------|----------------|-------------------|--------------------------|------------------|-------------------|----------|
| Surface Location | | | | | | | | 160780.92 | 2115550.07 | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 160780.92 | 2115550.07 | |
| 134.00 | 1.30 | 229.90 | 133.99 | -0.98 | -1.16 | 0.97 | 0.96 | 160779.94 | 2115548.91 | |
| 226.00 | 1.30 | 191.40 | 225.97 | -2.67 | -2.17 | 0.93 | 2.64 | 160778.25 | 2115547.90 | |
| 318.00 | 2.20 | 142.30 | 317.93 | -5.09 | -1.29 | 1.81 | 5.07 | 160775.83 | 2115548.78 | |
| 415.00 | 3.70 | 124.40 | 414.80 | -8.34 | 2.43 | 1.80 | 8.37 | 160772.58 | 2115552.50 | |
| 507.00 | 4.10 | 121.50 | 506.58 | -11.73 | 7.68 | 0.48 | 11.85 | 160769.19 | 2115557.75 | |
| 601.00 | 3.70 | 95.10 | 600.37 | -13.76 | 13.57 | 1.94 | 13.97 | 160767.16 | 2115563.64 | |
| 694.00 | 4.30 | 97.40 | 693.15 | -14.47 | 20.01 | 0.67 | 14.79 | 160766.45 | 2115570.08 | |
| 788.00 | 5.00 | 98.60 | 786.84 | -15.54 | 27.56 | 0.75 | 15.97 | 160765.38 | 2115577.63 | |
| 858.00 | 5.00 | 96.80 | 856.57 | -16.36 | 33.60 | 0.22 | 16.88 | 160764.56 | 2115583.67 | |
| 908.00 | 4.90 | 86.90 | 906.39 | -16.50 | 37.90 | 1.72 | 17.09 | 160764.42 | 2115587.97 | |
| 1004.00 | 5.50 | 76.20 | 1001.99 | -15.18 | 46.46 | 1.19 | 15.91 | 160765.74 | 2115596.53 | |
| 1098.00 | 5.30 | 77.30 | 1095.58 | -13.15 | 55.07 | 0.24 | 14.01 | 160767.77 | 2115605.14 | |
| 1190.00 | 5.70 | 89.40 | 1187.16 | -12.17 | 63.79 | 1.33 | 13.17 | 160768.75 | 2115613.86 | |
| 1284.00 | 6.40 | 88.80 | 1280.63 | -12.01 | 73.69 | 0.75 | 13.17 | 160768.91 | 2115623.76 | |
| 1377.00 | 5.90 | 86.20 | 1373.10 | -11.59 | 83.64 | 0.62 | 12.90 | 160769.33 | 2115633.71 | |
| 1471.00 | 5.30 | 99.00 | 1466.65 | -11.94 | 92.75 | 1.47 | 13.40 | 160768.98 | 2115642.82 | |
| 1566.00 | 4.40 | 95.60 | 1561.31 | -12.99 | 100.71 | 0.99 | 14.57 | 160767.93 | 2115650.78 | |
| 1658.00 | 6.00 | 90.70 | 1652.93 | -13.39 | 109.03 | 1.80 | 15.10 | 160767.53 | 2115659.10 | |
| 1752.00 | 6.70 | 92.90 | 1746.35 | -13.73 | 119.42 | 0.79 | 15.60 | 160767.19 | 2115669.49 | |
| 1846.00 | 6.30 | 92.10 | 1839.75 | -14.19 | 130.05 | 0.44 | 16.23 | 160766.73 | 2115680.12 | |
| 1940.00 | 8.00 | 92.50 | 1933.01 | -14.67 | 141.74 | 1.81 | 16.89 | 160766.25 | 2115691.81 | |
| 2036.00 | 9.10 | 92.30 | 2027.94 | -15.26 | 156.00 | 1.15 | 17.71 | 160765.66 | 2115706.07 | |
| 2162.00 | 9.80 | 89.70 | 2152.23 | -15.61 | 176.68 | 0.65 | 18.38 | 160765.31 | 2115726.75 | |
| 2228.00 | 11.50 | 91.80 | 2217.09 | -15.78 | 188.88 | 2.64 | 18.75 | 160765.14 | 2115738.95 | |
| 2322.00 | 12.00 | 90.60 | 2309.12 | -16.18 | 208.01 | 0.59 | 19.45 | 160764.74 | 2115758.08 | |
| 2418.00 | 12.60 | 93.30 | 2402.92 | -16.89 | 228.45 | 0.87 | 20.48 | 160764.03 | 2115778.52 | |
| 2514.00 | 14.60 | 93.30 | 2496.23 | -18.19 | 250.98 | 2.08 | 22.13 | 160762.73 | 2115801.05 | |
| 2610.00 | 15.90 | 90.00 | 2588.84 | -18.88 | 276.21 | 1.63 | 23.22 | 160762.04 | 2115826.28 | |
| 2705.00 | 15.30 | 88.00 | 2680.35 | -18.45 | 301.75 | 0.85 | 23.18 | 160762.47 | 2115851.82 | |

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-1H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 22-Oct-2012
 Surveys
 Page 2
 Job# : 6717

| MD (feet) | Inclination (degrees) | Azimuth (degrees) | TVD RKB (feet) | N/S (feet) | E/W (feet) | DLS (deg/100') | VS @ 179.1° Az (feet) | Grid Y | NAD27 KS south gr elev=1343 RKB 1370.5 Grid X | Comments |
|--------------|--------------------------|----------------------|-------------------|---------------|---------------|-------------------|--------------------------|-----------|--|----------|
| 2801.00 | 16.90 | 90.70 | 2772.58 | -18.18 | 328.37 | 1.84 | 23.33 | 160762.74 | 2115878.44 | |
| 2897.00 | 18.30 | 90.00 | 2864.08 | -18.35 | 357.39 | 1.47 | 23.96 | 160762.57 | 2115907.46 | |
| 2993.00 | 17.60 | 87.90 | 2955.41 | -17.81 | 386.97 | 0.99 | 23.89 | 160763.11 | 2115937.04 | |
| 3088.00 | 18.30 | 86.40 | 3045.79 | -16.35 | 416.21 | 0.88 | 22.89 | 160764.57 | 2115966.28 | |
| 3184.00 | 18.30 | 88.20 | 3136.93 | -14.93 | 446.31 | 0.59 | 21.94 | 160765.99 | 2115996.38 | |
| 3279.00 | 19.10 | 90.50 | 3226.92 | -14.60 | 476.76 | 1.15 | 22.09 | 160766.32 | 2116026.83 | |
| 3375.00 | 19.80 | 89.20 | 3317.44 | -14.51 | 508.73 | 0.86 | 22.50 | 160766.41 | 2116058.80 | |
| 3471.00 | 19.40 | 89.30 | 3407.88 | -14.09 | 540.93 | 0.42 | 22.58 | 160766.83 | 2116091.00 | |
| 3567.00 | 20.70 | 89.80 | 3498.06 | -13.83 | 573.84 | 1.37 | 22.84 | 160767.09 | 2116123.91 | |
| 3662.00 | 19.70 | 89.90 | 3587.21 | -13.75 | 606.64 | 1.05 | 23.27 | 160767.17 | 2116156.71 | |
| 3758.00 | 17.90 | 92.50 | 3678.09 | -14.36 | 637.56 | 2.07 | 24.37 | 160766.56 | 2116187.63 | |
| 3853.00 | 17.70 | 92.80 | 3768.54 | -15.70 | 666.57 | 0.23 | 26.17 | 160765.22 | 2116216.64 | |
| 3949.00 | 18.90 | 97.30 | 3859.69 | -18.39 | 696.57 | 1.93 | 29.33 | 160762.53 | 2116246.64 | |
| 4044.00 | 17.00 | 94.40 | 3950.06 | -21.41 | 725.69 | 2.21 | 32.81 | 160759.51 | 2116275.76 | |
| 4140.00 | 15.10 | 90.70 | 4042.32 | -22.64 | 752.18 | 2.25 | 34.46 | 160758.28 | 2116302.25 | |
| 4172.00 | 16.00 | 95.30 | 4073.15 | -23.10 | 760.74 | 4.77 | 35.05 | 160757.82 | 2116310.81 | |
| 4204.00 | 18.40 | 99.60 | 4103.71 | -24.35 | 770.12 | 8.48 | 36.44 | 160756.57 | 2116320.19 | |
| 4236.00 | 21.30 | 105.20 | 4133.81 | -26.72 | 780.71 | 10.83 | 38.98 | 160754.20 | 2116330.78 | |
| 4268.00 | 24.40 | 111.10 | 4163.30 | -30.62 | 792.49 | 12.04 | 43.07 | 160750.30 | 2116342.56 | |
| 4299.00 | 26.20 | 119.00 | 4191.34 | -36.25 | 804.45 | 12.33 | 48.88 | 160744.67 | 2116354.52 | |
| 4331.00 | 26.50 | 127.90 | 4220.02 | -44.06 | 816.27 | 12.37 | 56.88 | 160736.86 | 2116366.34 | |
| 4363.00 | 26.60 | 135.40 | 4248.66 | -53.55 | 826.94 | 10.47 | 66.53 | 160727.37 | 2116377.01 | |
| 4396.00 | 26.90 | 144.50 | 4278.14 | -64.89 | 836.46 | 12.43 | 78.02 | 160716.03 | 2116386.53 | |
| 4427.00 | 26.90 | 153.40 | 4305.79 | -76.88 | 843.68 | 12.98 | 90.12 | 160704.04 | 2116393.75 | |
| 4459.00 | 27.60 | 162.00 | 4334.25 | -90.41 | 849.21 | 12.49 | 103.73 | 160690.51 | 2116399.28 | |
| 4491.00 | 28.70 | 169.80 | 4362.48 | -105.02 | 852.86 | 11.99 | 118.41 | 160675.90 | 2116402.93 | |
| 4523.00 | 31.00 | 174.60 | 4390.23 | -120.79 | 855.00 | 10.36 | 134.21 | 160660.13 | 2116405.07 | |
| 4555.00 | 34.00 | 177.10 | 4417.22 | -137.94 | 856.23 | 10.27 | 151.37 | 160642.98 | 2116406.30 | |
| 4587.00 | 37.60 | 180.10 | 4443.17 | -156.64 | 856.67 | 12.51 | 170.08 | 160624.28 | 2116406.74 | |
| 4619.00 | 41.40 | 182.10 | 4467.86 | -176.99 | 856.26 | 12.52 | 190.42 | 160603.93 | 2116406.33 | |

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-1H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 22-Oct-2012
 Surveys
 Page 3
 Job# : 6717

| MD (feet) | Inclination (degrees) | Azimuth (degrees) | TVD RKB (feet) | N/-S (feet) | E/-W (feet) | DLS (deg/100') | VS @ 179.1° Az (feet) | Grid Y | Grid X | Comments |
|--------------|--------------------------|----------------------|-------------------|----------------|----------------|-------------------|--------------------------|-----------|------------|----------|
| 4651.00 | 44.80 | 182.40 | 4491.22 | -198.83 | 855.40 | 10.64 | 212.24 | 160582.09 | 2116405.47 | |
| 4683.00 | 48.00 | 182.10 | 4513.29 | -221.99 | 854.49 | 10.02 | 235.38 | 160558.93 | 2116404.56 | |
| 4715.00 | 51.50 | 182.80 | 4533.96 | -246.38 | 853.44 | 11.06 | 259.76 | 160534.54 | 2116403.51 | |
| 4747.00 | 54.60 | 183.40 | 4553.19 | -271.92 | 852.06 | 9.80 | 285.27 | 160509.01 | 2116402.13 | |
| 4779.00 | 57.90 | 183.30 | 4570.97 | -298.47 | 850.50 | 10.32 | 311.80 | 160482.45 | 2116400.57 | |
| 4811.00 | 60.80 | 182.20 | 4587.28 | -325.97 | 849.19 | 9.53 | 339.27 | 160454.95 | 2116399.26 | |
| 4843.00 | 63.90 | 181.50 | 4602.13 | -354.29 | 848.28 | 9.88 | 367.57 | 160426.63 | 2116398.35 | |
| 4875.00 | 67.00 | 181.80 | 4615.42 | -383.39 | 847.44 | 9.72 | 396.65 | 160397.53 | 2116397.51 | |
| 4906.00 | 70.70 | 182.20 | 4626.61 | -412.28 | 846.43 | 12.00 | 425.52 | 160368.65 | 2116396.50 | |
| 4938.00 | 73.50 | 183.00 | 4636.44 | -442.69 | 845.04 | 9.07 | 455.91 | 160338.23 | 2116395.11 | |
| 4970.00 | 76.50 | 183.50 | 4644.72 | -473.55 | 843.29 | 9.50 | 486.73 | 160307.37 | 2116393.36 | |
| 5002.00 | 79.80 | 183.20 | 4651.29 | -504.81 | 841.46 | 10.35 | 517.96 | 160276.11 | 2116391.53 | |
| 5033.00 | 83.50 | 182.00 | 4655.80 | -535.44 | 840.07 | 12.53 | 548.57 | 160245.48 | 2116390.14 | |
| 5065.00 | 86.30 | 181.20 | 4658.64 | -567.30 | 839.18 | 9.10 | 580.41 | 160213.62 | 2116389.25 | |
| 5097.00 | 87.70 | 180.80 | 4660.31 | -599.25 | 838.62 | 4.55 | 612.35 | 160181.67 | 2116388.69 | |
| 5110.00 | 87.90 | 180.80 | 4660.81 | -612.24 | 838.44 | 1.54 | 625.33 | 160168.68 | 2116388.51 | |
| 5129.00 | 88.50 | 180.90 | 4661.41 | -631.23 | 838.16 | 3.20 | 644.31 | 160149.69 | 2116388.23 | |
| 5193.00 | 87.80 | 179.90 | 4663.48 | -695.19 | 837.71 | 1.91 | 708.26 | 160085.73 | 2116387.78 | |
| 5289.00 | 88.60 | 180.30 | 4666.49 | -791.14 | 837.55 | 0.93 | 804.20 | 159989.78 | 2116387.62 | |
| 5322.00 | 88.80 | 180.30 | 4667.24 | -824.13 | 837.37 | 0.61 | 837.18 | 159956.79 | 2116387.44 | |
| 5337.00 | 88.30 | 180.10 | 4667.62 | -839.13 | 837.32 | 3.59 | 852.18 | 159941.79 | 2116387.39 | |
| 5382.00 | 89.40 | 179.50 | 4668.52 | -884.12 | 837.48 | 2.78 | 897.16 | 159896.80 | 2116387.55 | |
| 5478.00 | 86.60 | 179.60 | 4671.87 | -980.05 | 838.23 | 2.92 | 993.09 | 159800.87 | 2116388.30 | |
| 5574.00 | 87.40 | 180.30 | 4676.90 | -1075.91 | 838.32 | 1.11 | 1088.95 | 159705.01 | 2116388.39 | |
| 5669.00 | 86.70 | 178.70 | 4681.79 | -1170.78 | 839.14 | 1.84 | 1183.82 | 159610.14 | 2116389.21 | |
| 5765.00 | 88.50 | 178.70 | 4685.81 | -1266.67 | 841.32 | 1.88 | 1279.73 | 159514.25 | 2116391.39 | |
| 5861.00 | 88.60 | 177.60 | 4688.24 | -1362.59 | 844.42 | 1.15 | 1375.68 | 159418.33 | 2116394.49 | |
| 5956.00 | 90.00 | 177.60 | 4689.40 | -1457.49 | 848.40 | 1.47 | 1470.64 | 159323.43 | 2116398.47 | |
| 6051.00 | 89.40 | 177.50 | 4689.89 | -1552.41 | 852.46 | 0.64 | 1565.60 | 159228.52 | 2116402.53 | |
| 6146.00 | 87.70 | 177.90 | 4692.30 | -1647.29 | 856.27 | 1.84 | 1660.54 | 159133.63 | 2116406.34 | |

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-1H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 22-Oct-2012
 Surveys
 Page 4
 Job# : 6717

| MD (feet) | Inclination (degrees) | Azimuth (degrees) | TVD RKB (feet) | N/S (feet) | E/-W (feet) | DLS (deg/100') | VS @ 179.1° Az (feet) | Grid Y | Grid X | NAD27 KS south gr elev=1343 RKB 1370.5 Comments |
|--------------|--------------------------|----------------------|-------------------|---------------|----------------|-------------------|--------------------------|-----------|------------|--|
| 6241.00 | 90.20 | 179.00 | 4694.04 | -1742.23 | 858.84 | 2.87 | 1755.51 | 159038.69 | 2116408.91 | |
| 6335.00 | 90.00 | 180.10 | 4693.88 | -1836.23 | 859.57 | 1.19 | 1849.51 | 158944.69 | 2116409.64 | |
| 6431.00 | 89.20 | 180.30 | 4694.54 | -1932.23 | 859.24 | 0.86 | 1945.48 | 158848.69 | 2116409.31 | |
| 6526.00 | 90.60 | 179.90 | 4694.71 | -2027.22 | 859.07 | 1.53 | 2040.47 | 158753.70 | 2116409.14 | |
| 6622.00 | 88.50 | 180.00 | 4695.46 | -2123.22 | 859.16 | 2.19 | 2136.45 | 158657.71 | 2116409.23 | |
| 6718.00 | 90.20 | 179.10 | 4696.55 | -2219.20 | 859.91 | 2.00 | 2232.43 | 158561.72 | 2116409.98 | |
| 6813.00 | 89.30 | 178.10 | 4696.97 | -2314.17 | 862.23 | 1.42 | 2327.43 | 158466.75 | 2116412.30 | |
| 6908.00 | 89.40 | 178.00 | 4698.05 | -2409.11 | 865.47 | 0.15 | 2422.41 | 158371.81 | 2116415.54 | |
| 7004.00 | 89.90 | 177.00 | 4698.63 | -2505.01 | 869.65 | 1.16 | 2518.37 | 158275.91 | 2116419.72 | |
| 7100.00 | 82.90 | 175.80 | 4704.66 | -2600.57 | 875.66 | 7.40 | 2614.01 | 158180.35 | 2116425.73 | |
| 7195.00 | 85.60 | 176.20 | 4714.17 | -2694.86 | 882.25 | 2.87 | 2708.38 | 158086.06 | 2116432.32 | |
| 7290.00 | 88.10 | 177.00 | 4719.39 | -2789.54 | 887.88 | 2.76 | 2803.14 | 157991.38 | 2116437.95 | |
| 7386.00 | 89.80 | 178.00 | 4721.15 | -2885.43 | 892.06 | 2.05 | 2899.08 | 157895.49 | 2116442.13 | |
| 7482.00 | 91.10 | 179.40 | 4720.40 | -2981.39 | 894.24 | 1.99 | 2995.07 | 157799.53 | 2116444.31 | |
| 7577.00 | 91.20 | 178.90 | 4718.49 | -3076.37 | 895.65 | 0.54 | 3090.05 | 157704.56 | 2116445.72 | |
| 7673.00 | 92.10 | 180.20 | 4715.73 | -3172.32 | 896.40 | 1.65 | 3186.01 | 157608.60 | 2116446.47 | |
| 7769.00 | 92.50 | 179.20 | 4711.88 | -3268.24 | 896.91 | 1.12 | 3281.92 | 157512.68 | 2116446.98 | |
| 7865.00 | 92.00 | 180.10 | 4708.11 | -3364.16 | 897.49 | 1.07 | 3377.84 | 157416.76 | 2116447.56 | |
| 7961.00 | 90.90 | 179.60 | 4705.68 | -3460.13 | 897.74 | 1.26 | 3473.80 | 157320.79 | 2116447.81 | |
| 8056.00 | 90.90 | 179.80 | 4704.18 | -3555.12 | 898.24 | 0.21 | 3568.79 | 157225.81 | 2116448.31 | |
| 8153.00 | 90.30 | 178.80 | 4703.17 | -3652.10 | 899.43 | 1.20 | 3665.78 | 157128.82 | 2116449.50 | |
| 8248.00 | 89.40 | 178.90 | 4703.42 | -3747.08 | 901.33 | 0.95 | 3760.78 | 157033.84 | 2116451.40 | |
| 8344.00 | 89.00 | 179.40 | 4704.76 | -3843.06 | 902.76 | 0.67 | 3856.77 | 156937.86 | 2116452.83 | |
| 8440.00 | 88.90 | 178.60 | 4706.52 | -3939.03 | 904.43 | 0.84 | 3952.75 | 156841.89 | 2116454.50 | |
| 8535.00 | 89.40 | 178.30 | 4707.93 | -4033.98 | 907.00 | 0.61 | 4047.73 | 156746.94 | 2116457.07 | |
| 8631.00 | 87.30 | 178.90 | 4710.69 | -4129.91 | 909.35 | 2.27 | 4143.68 | 156651.01 | 2116459.42 | |
| 8726.00 | 88.10 | 180.30 | 4714.50 | -4224.83 | 910.01 | 1.70 | 4238.60 | 156556.09 | 2116460.08 | |
| 8821.00 | 90.30 | 182.00 | 4715.83 | -4319.79 | 908.10 | 2.93 | 4333.52 | 156461.13 | 2116458.17 | |
| 8917.00 | 89.90 | 181.70 | 4715.66 | -4415.74 | 905.00 | 0.52 | 4429.41 | 156365.18 | 2116455.07 | |
| 9013.00 | 89.60 | 180.40 | 4716.08 | -4511.72 | 903.24 | 1.39 | 4525.35 | 156269.20 | 2116453.31 | |

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-1H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 22-Oct-2012
 Surveys
 Page 5
 Job# : 6717

NAD27 KS south gr elev=1343 RKB 1370.5

| MD (feet) | Inclination (degrees) | Azimuth (degrees) | TVD RKB (feet) | N/S (feet) | E/-W (feet) | DLS (deg/100') | VS @ 179.1° Az (feet) | Grid Y | Grid X | Comments |
|--------------|--------------------------|----------------------|-------------------|---------------|----------------|-------------------|--------------------------|-----------|------------|-------------------------|
| 9052.00 | 89.01 | 180.27 | 4716.56 | -4550.72 | 903.01 | 1.56 | 4564.34 | 156230.20 | 2116453.08 | 330 Hard line intercept |
| 9105.00 | 88.20 | 180.10 | 4717.85 | -4603.70 | 902.84 | 1.56 | 4617.31 | 156177.22 | 2116452.91 | |
| 9152.00 | 88.20 | 180.10 | 4719.32 | -4650.68 | 902.76 | 0.00 | 4664.28 | 156130.24 | 2116452.83 | Survey Proj. to 9152 MD |