

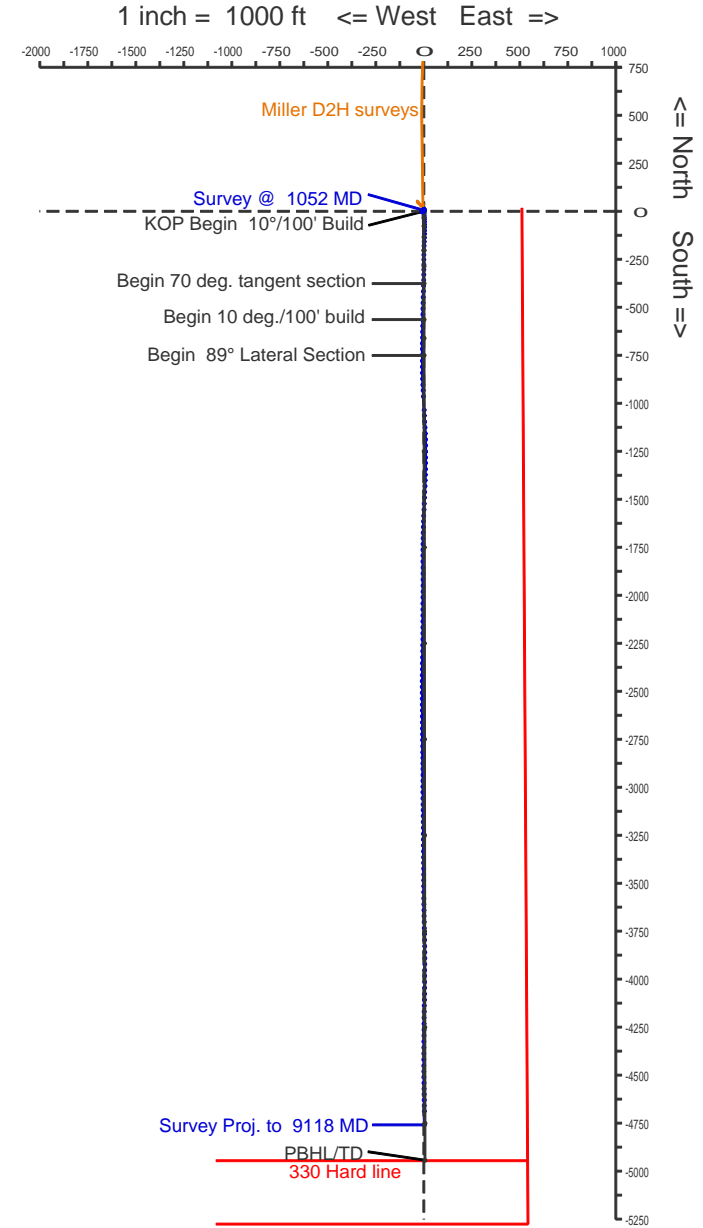
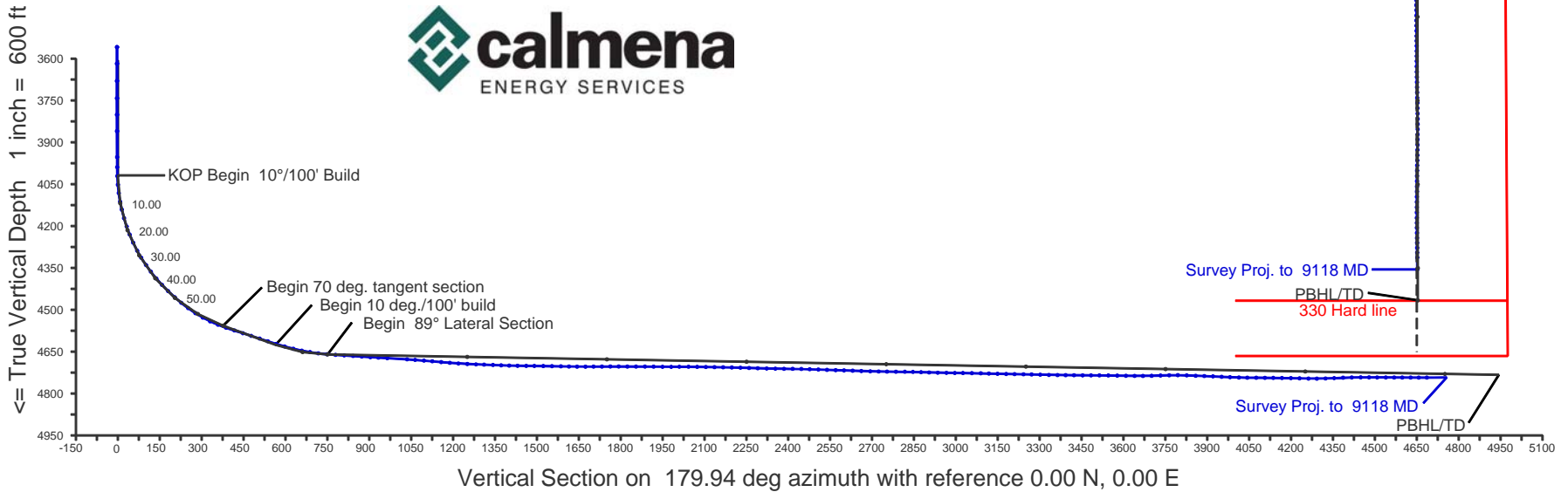
# Woolsey Operating Company, LLC

## Miller-Diel #1H

### Barber County, Kansas

WELL PROFILE DATA rev2							
MD	Inc.	Azi.	TVD	N/S	E/W	DLS	Comment
4019	0.00	179.94	4019	0	0	0.00	KOP Begin 10°/100' Build
4719	70.00	179.94	4557	-377	0	10.00	Begin 70 deg. tangent section
4919	70.00	179.94	4625	-565	1	0.00	Begin 10 deg./100' build
5108	89.00	179.94	4660	-751	1	10.00	Begin 89° Lateral Section
9302	89.00	179.94	4733	-4943	5	0.00	PBHL/TD

WELL PROFILE DATA svys							
MD	Inc.	Azi.	TVD	N/S	E/W	DLS	Comment
9118	90.20	179.50	4742	-4759	2	0.00	Survey Proj. to 9118 MD



## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date: 5-Sep-2012  
 Surveys  
 Page 1  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
<b>Surface Location</b>								<b>150237.00</b>	<b>2003853.00</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150237.00	2003853.00	
686.00	1.00	4.30	685.97	5.97	0.45	0.15	-5.98	150242.97	2003853.45	
717.00	1.10	357.40	716.96	6.54	0.46	0.52	-6.55	150243.54	2003853.46	
747.00	0.70	356.10	746.96	7.01	0.43	1.33	-7.02	150244.01	2003853.43	
779.00	0.70	356.10	778.95	7.40	0.40	0.00	-7.41	150244.40	2003853.40	
809.00	0.60	325.70	808.95	7.71	0.30	1.18	-7.72	150244.71	2003853.30	
840.00	0.80	258.30	839.95	7.80	0.00	2.56	-7.80	150244.80	2003853.00	
870.00	1.00	248.90	869.95	7.66	-0.45	0.83	-7.65	150244.66	2003852.55	
902.00	1.30	237.50	901.94	7.37	-1.02	1.17	-7.34	150244.37	2003851.98	
931.00	1.20	235.40	930.93	7.02	-1.54	0.38	-6.97	150244.02	2003851.46	
963.00	1.00	227.90	962.93	6.64	-2.03	0.77	-6.58	150243.64	2003850.97	
992.00	1.10	222.60	991.92	6.27	-2.40	0.48	-6.19	150243.27	2003850.60	
1022.00	1.10	214.40	1021.92	5.82	-2.76	0.52	-5.73	150242.82	2003850.24	
1052.00	0.90	223.10	1051.91	5.41	-3.08	0.84	-5.32	150242.41	2003849.92	
1081.00	1.00	227.90	1080.91	5.07	-3.43	0.44	-4.97	150242.07	2003849.57	
1110.00	1.00	229.50	1109.90	4.74	-3.81	0.10	-4.63	150241.74	2003849.19	
1172.00	1.10	225.70	1171.89	3.97	-4.65	0.20	-3.83	150240.97	2003848.35	
1232.00	1.10	231.90	1231.88	3.21	-5.51	0.20	-3.05	150240.21	2003847.49	
1291.00	0.90	237.00	1290.87	2.61	-6.35	0.37	-2.43	150239.61	2003846.65	
1352.00	0.90	222.00	1351.87	1.99	-7.07	0.39	-1.79	150238.99	2003845.93	
1411.00	1.10	223.70	1410.86	1.24	-7.77	0.34	-1.02	150238.24	2003845.23	
1472.00	1.20	221.70	1471.85	0.34	-8.60	0.18	-0.09	150237.34	2003844.40	
1533.00	1.00	229.60	1532.83	-0.48	-9.43	0.41	0.75	150236.52	2003843.57	
1595.00	0.40	194.70	1594.83	-1.04	-9.90	1.14	1.33	150235.96	2003843.10	
1656.00	0.10	61.20	1655.83	-1.22	-9.90	0.78	1.51	150235.78	2003843.10	
1717.00	0.30	38.00	1716.83	-1.07	-9.76	0.35	1.35	150235.93	2003843.24	
1775.00	0.30	63.40	1774.83	-0.88	-9.53	0.23	1.16	150236.12	2003843.47	
1837.00	0.30	45.40	1836.83	-0.70	-9.27	0.15	0.96	150236.30	2003843.73	
1898.00	0.20	82.40	1897.83	-0.57	-9.05	0.30	0.83	150236.43	2003843.95	
1961.00	0.40	49.00	1960.83	-0.41	-8.77	0.41	0.66	150236.59	2003844.23	

## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date:5-Sep-2012  
 Surveys  
 Page 2  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/-S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
2024.00	0.40	23.70	2023.82	-0.07	-8.52	0.28	0.31	150236.93	2003844.48	
2084.00	0.30	83.10	2083.82	0.14	-8.28	0.60	0.09	150237.14	2003844.72	
2146.00	0.30	63.00	2145.82	0.24	-7.97	0.17	-0.01	150237.24	2003845.03	
2208.00	0.30	40.80	2207.82	0.43	-7.72	0.19	-0.21	150237.43	2003845.28	
2269.00	0.30	39.20	2268.82	0.68	-7.52	0.01	-0.46	150237.68	2003845.48	
2331.00	0.30	56.50	2330.82	0.89	-7.28	0.15	-0.68	150237.89	2003845.72	
2394.00	0.30	50.50	2393.82	1.09	-7.01	0.05	-0.89	150238.09	2003845.99	
2455.00	0.40	36.90	2454.82	1.36	-6.76	0.21	-1.17	150238.36	2003846.24	
2516.00	0.30	40.20	2515.82	1.65	-6.53	0.17	-1.47	150238.65	2003846.47	
2578.00	0.30	38.80	2577.82	1.90	-6.33	0.01	-1.72	150238.90	2003846.67	
2639.00	0.30	56.10	2638.81	2.12	-6.09	0.15	-1.94	150239.12	2003846.91	
2700.00	0.40	58.10	2699.81	2.32	-5.78	0.17	-2.15	150239.32	2003847.22	
2762.00	0.30	60.00	2761.81	2.52	-5.46	0.16	-2.36	150239.52	2003847.54	
2823.00	0.30	55.20	2822.81	2.69	-5.19	0.04	-2.54	150239.69	2003847.81	
2886.00	0.30	45.10	2885.81	2.90	-4.93	0.08	-2.75	150239.90	2003848.07	
2946.00	0.20	129.80	2945.81	2.94	-4.74	0.57	-2.80	150239.94	2003848.26	
3008.00	0.30	122.00	3007.81	2.79	-4.52	0.17	-2.65	150239.79	2003848.48	
3071.00	0.20	148.00	3070.81	2.61	-4.32	0.24	-2.48	150239.61	2003848.68	
3131.00	0.10	146.50	3130.81	2.47	-4.24	0.17	-2.35	150239.47	2003848.76	
3193.00	0.10	166.20	3192.81	2.37	-4.20	0.06	-2.25	150239.37	2003848.80	
3254.00	0.10	255.10	3253.81	2.31	-4.24	0.23	-2.19	150239.31	2003848.76	
3316.00	0.10	4.10	3315.81	2.35	-4.28	0.26	-2.23	150239.35	2003848.72	
3377.00	0.20	29.60	3376.81	2.50	-4.23	0.19	-2.37	150239.50	2003848.77	
3438.00	0.20	22.30	3437.81	2.69	-4.13	0.04	-2.57	150239.69	2003848.87	
3498.00	0.20	37.80	3497.81	2.87	-4.03	0.09	-2.75	150239.87	2003848.97	
3559.00	0.20	91.70	3558.81	2.95	-3.86	0.30	-2.83	150239.95	2003849.14	
3618.00	0.20	93.20	3617.81	2.94	-3.65	0.01	-2.83	150239.94	2003849.35	
3680.00	0.30	98.60	3679.81	2.91	-3.38	0.17	-2.81	150239.91	2003849.62	
3742.00	0.20	119.50	3741.81	2.83	-3.13	0.22	-2.74	150239.83	2003849.87	
3801.00	0.20	121.70	3800.81	2.73	-2.95	0.01	-2.64	150239.73	2003850.05	

## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date:5-Sep-2012  
 Surveys  
 Page 3  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/-S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
3860.00	0.20	114.20	3859.81	2.63	-2.77	0.04	-2.55	150239.63	2003850.23	
3953.00	0.20	99.00	3952.80	2.54	-2.46	0.06	-2.47	150239.54	2003850.54	
3989.00	0.50	155.40	3988.80	2.38	-2.34	1.18	-2.32	150239.38	2003850.66	
4021.00	2.40	163.10	4020.79	1.62	-2.08	5.96	-1.56	150238.62	2003850.92	
4052.00	4.70	166.10	4051.73	-0.24	-1.59	7.44	0.28	150236.76	2003851.41	
4082.00	7.50	170.80	4081.56	-3.36	-0.98	9.47	3.39	150233.64	2003852.02	
4113.00	10.50	173.90	4112.17	-8.17	-0.36	9.80	8.18	150228.83	2003852.64	
4142.00	13.20	175.60	4140.55	-14.10	0.18	9.39	14.09	150222.90	2003853.18	
4174.00	16.30	176.50	4171.49	-22.23	0.73	9.71	22.20	150214.77	2003853.73	
4205.00	19.10	177.20	4201.02	-31.64	1.25	9.06	31.59	150205.36	2003854.25	
4236.00	21.80	177.70	4230.07	-42.46	1.73	8.73	42.39	150194.54	2003854.73	
4268.00	24.90	177.40	4259.44	-55.13	2.27	9.69	55.04	150181.87	2003855.27	
4300.00	28.30	178.10	4288.05	-69.44	2.83	10.67	69.33	150167.56	2003855.83	
4329.00	31.50	179.50	4313.19	-83.89	3.12	11.29	83.77	150153.11	2003856.12	
4360.00	34.90	180.80	4339.13	-100.86	3.07	11.20	100.73	150136.14	2003856.07	
4390.00	37.50	181.40	4363.33	-118.58	2.72	8.75	118.45	150118.42	2003855.72	
4421.00	40.00	181.90	4387.51	-137.97	2.16	8.13	137.85	150099.03	2003855.16	
4452.00	42.90	182.20	4410.74	-158.48	1.43	9.38	158.37	150078.52	2003854.43	
4483.00	45.90	182.00	4432.89	-180.15	0.63	9.69	180.06	150056.85	2003853.63	
4515.00	48.60	181.10	4454.61	-203.64	0.00	8.69	203.55	150033.36	2003853.00	
4546.00	50.90	180.60	4474.63	-227.29	-0.35	7.52	227.21	150009.71	2003852.65	
4577.00	53.40	180.40	4493.65	-251.77	-0.56	8.08	251.68	149985.23	2003852.44	
4609.00	56.80	180.00	4511.96	-278.01	-0.65	10.67	277.91	149958.99	2003852.35	
4640.00	61.10	180.10	4527.95	-304.56	-0.67	13.87	304.45	149932.44	2003852.33	
4669.00	64.90	180.20	4541.11	-330.39	-0.74	13.11	330.28	149906.61	2003852.26	
4700.00	68.40	181.30	4553.39	-358.85	-1.12	11.75	358.73	149878.15	2003851.88	
4731.00	71.30	181.70	4564.07	-387.94	-1.88	9.43	387.83	149849.06	2003851.12	
4762.00	72.00	181.70	4573.83	-417.35	-2.75	2.26	417.25	149819.65	2003850.25	
4794.00	72.30	181.70	4583.64	-447.79	-3.66	0.94	447.71	149789.21	2003849.34	
4825.00	72.20	181.30	4593.09	-477.31	-4.43	1.27	477.24	149759.69	2003848.57	

## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date:5-Sep-2012  
 Surveys  
 Page 4  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/-S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
4857.00	72.00	181.00	4602.93	-507.75	-5.04	1.09	507.69	149729.25	2003847.96	
4888.00	71.80	180.50	4612.56	-537.22	-5.43	1.66	537.15	149699.78	2003847.57	
4919.00	72.20	180.60	4622.14	-566.70	-5.71	1.33	566.63	149670.30	2003847.29	
4951.00	74.20	181.10	4631.39	-597.33	-6.16	6.43	597.26	149639.67	2003846.84	
4983.00	76.50	181.20	4639.48	-628.28	-6.79	7.19	628.21	149608.72	2003846.21	
5014.00	78.80	180.80	4646.11	-658.55	-7.31	7.53	658.49	149578.45	2003845.69	
5044.00	80.90	180.10	4651.40	-688.08	-7.54	7.37	688.01	149548.92	2003845.46	
5074.00	82.70	180.20	4655.67	-717.77	-7.62	6.01	717.70	149519.23	2003845.38	
5105.00	84.90	180.40	4659.02	-748.59	-7.78	7.13	748.50	149488.41	2003845.22	
5136.00	86.40	180.40	4661.37	-779.50	-8.00	4.84	779.41	149457.50	2003845.00	
5167.00	87.10	180.00	4663.13	-810.45	-8.11	2.60	810.35	149426.55	2003844.89	
5199.00	86.10	178.70	4665.03	-842.39	-7.75	5.12	842.26	149394.61	2003845.25	
5230.00	85.50	177.90	4667.30	-873.29	-6.83	3.22	873.13	149363.71	2003846.17	
5261.00	86.00	177.10	4669.60	-904.18	-5.48	3.04	903.96	149332.82	2003847.52	
5290.00	86.90	177.50	4671.39	-933.09	-4.12	3.40	932.82	149303.91	2003848.88	
5322.00	87.30	177.10	4673.01	-965.01	-2.61	1.77	964.69	149271.99	2003850.39	
5393.00	85.90	177.10	4677.22	-1035.80	0.97	1.97	1035.34	149201.21	2003853.97	
5422.00	85.60	177.30	4679.37	-1064.68	2.39	1.24	1064.17	149172.32	2003855.39	
5454.00	85.60	176.90	4681.83	-1096.55	4.00	1.25	1095.98	149140.46	2003857.00	
5484.00	85.10	176.60	4684.26	-1126.40	5.70	1.94	1125.77	149110.60	2003858.70	
5516.00	84.50	177.50	4687.16	-1158.22	7.34	3.37	1157.53	149078.78	2003860.34	
5547.00	85.40	178.70	4689.89	-1189.09	8.36	4.83	1188.35	149047.91	2003861.36	
5578.00	86.30	179.70	4692.13	-1220.00	8.79	4.33	1219.24	149017.00	2003861.79	
5610.00	87.00	180.10	4694.00	-1251.95	8.85	2.52	1251.17	148985.05	2003861.85	
5641.00	87.80	180.60	4695.41	-1282.91	8.66	3.04	1282.13	148954.09	2003861.66	
5670.00	88.30	180.80	4696.39	-1311.89	8.30	1.86	1311.11	148925.11	2003861.30	
5702.00	87.80	181.30	4697.48	-1343.87	7.72	2.21	1343.09	148893.13	2003860.72	
5731.00	87.40	180.90	4698.70	-1372.84	7.16	1.95	1372.06	148864.16	2003860.16	
5760.00	88.20	181.60	4699.81	-1401.81	6.53	3.66	1401.04	148835.19	2003859.53	
5790.00	89.20	182.50	4700.49	-1431.78	5.46	4.48	1431.03	148805.22	2003858.46	

## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date:5-Sep-2012  
 Surveys  
 Page 5  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
5821.00	89.60	182.60	4700.81	-1462.75	4.08	1.33	1462.03	148774.25	2003857.08	
5850.00	89.70	182.60	4700.99	-1491.72	2.76	0.34	1491.02	148745.28	2003855.76	
5882.00	89.60	182.30	4701.19	-1523.69	1.39	0.99	1523.02	148713.31	2003854.39	
5913.00	88.80	182.40	4701.62	-1554.66	0.12	2.60	1554.01	148682.34	2003853.12	
5945.00	88.50	182.20	4702.37	-1586.63	-1.16	1.13	1586.00	148650.37	2003851.84	
5974.00	88.80	182.00	4703.06	-1615.60	-2.22	1.24	1614.99	148621.40	2003850.78	
6003.00	89.30	181.40	4703.54	-1644.58	-3.08	2.69	1643.99	148592.42	2003849.92	
6033.00	90.30	181.20	4703.64	-1674.57	-3.76	3.40	1673.99	148562.43	2003849.24	
6062.00	90.50	180.80	4703.44	-1703.57	-4.27	1.54	1702.98	148533.43	2003848.73	
6092.00	90.50	181.00	4703.18	-1733.56	-4.74	0.67	1732.98	148503.44	2003848.26	
6122.00	90.20	180.30	4703.00	-1763.56	-5.08	2.54	1762.98	148473.44	2003847.92	
6152.00	89.80	180.00	4703.00	-1793.56	-5.16	1.67	1792.97	148443.44	2003847.84	
6183.00	89.20	179.70	4703.27	-1824.56	-5.08	2.16	1823.95	148412.44	2003847.92	
6214.00	90.60	179.60	4703.32	-1855.56	-4.89	4.53	1854.93	148381.44	2003848.11	
6246.00	89.80	179.80	4703.21	-1887.56	-4.72	2.58	1886.91	148349.44	2003848.28	
6277.00	89.20	179.80	4703.48	-1918.56	-4.61	1.94	1917.89	148318.45	2003848.39	
6309.00	88.90	180.00	4704.01	-1950.55	-4.56	1.13	1949.87	148286.45	2003848.44	
6340.00	90.60	180.50	4704.14	-1981.55	-4.69	5.72	1980.86	148255.45	2003848.31	
6369.00	90.50	180.60	4703.87	-2010.55	-4.97	0.49	2009.86	148226.45	2003848.03	
6402.00	89.50	180.60	4703.87	-2043.54	-5.32	3.03	2042.85	148193.46	2003847.68	
6433.00	88.90	180.10	4704.30	-2074.54	-5.51	2.52	2073.84	148162.46	2003847.49	
6464.00	89.00	179.80	4704.87	-2105.53	-5.48	1.02	2104.82	148131.47	2003847.52	
6495.00	89.10	180.00	4705.38	-2136.53	-5.42	0.72	2135.80	148100.47	2003847.58	
6526.00	89.20	180.20	4705.84	-2167.53	-5.48	0.72	2166.79	148069.47	2003847.52	
6557.00	88.40	180.10	4706.49	-2198.52	-5.56	2.60	2197.77	148038.48	2003847.44	
6588.00	88.20	180.50	4707.41	-2229.51	-5.72	1.44	2228.75	148007.50	2003847.28	
6619.00	88.00	180.60	4708.44	-2260.49	-6.02	0.72	2259.72	147976.51	2003846.98	
6650.00	88.50	180.90	4709.38	-2291.47	-6.43	1.88	2290.70	147945.53	2003846.57	
6682.00	88.90	181.30	4710.11	-2323.46	-7.04	1.77	2322.70	147913.55	2003845.96	
6713.00	89.00	180.90	4710.68	-2354.44	-7.63	1.33	2353.69	147882.56	2003845.37	

## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date:5-Sep-2012  
 Surveys  
 Page 6  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
6744.00	89.40	180.90	4711.11	-2385.44	-8.12	1.29	2384.68	147851.56	2003844.88	
6775.00	89.40	181.00	4711.44	-2416.43	-8.64	0.32	2415.68	147820.57	2003844.36	
6806.00	88.90	180.30	4711.90	-2447.43	-8.99	2.77	2446.67	147789.57	2003844.01	
6836.00	88.00	179.80	4712.71	-2477.41	-9.01	3.43	2476.65	147759.59	2003843.99	
6867.00	87.80	179.80	4713.84	-2508.39	-8.90	0.65	2507.61	147728.61	2003844.10	
6898.00	87.90	179.30	4715.01	-2539.37	-8.66	1.64	2538.57	147697.63	2003844.34	
6929.00	88.20	179.40	4716.06	-2570.35	-8.31	1.02	2569.52	147666.65	2003844.69	
6959.00	88.20	179.60	4717.00	-2600.33	-8.05	0.67	2599.49	147636.67	2003844.95	
6990.00	88.10	179.70	4718.00	-2631.32	-7.86	0.46	2630.45	147605.68	2003845.14	
7021.00	87.80	179.80	4719.11	-2662.30	-7.72	1.02	2661.42	147574.70	2003845.28	
7053.00	88.20	179.60	4720.23	-2694.28	-7.56	1.40	2693.38	147542.72	2003845.44	
7083.00	89.20	179.40	4720.91	-2724.27	-7.29	3.40	2723.35	147512.73	2003845.71	
7113.00	89.10	179.30	4721.36	-2754.26	-6.95	0.47	2753.32	147482.74	2003846.05	
7145.00	89.80	179.00	4721.66	-2786.26	-6.48	2.38	2785.29	147450.74	2003846.52	
7177.00	89.50	179.40	4721.86	-2818.25	-6.03	1.56	2817.26	147418.75	2003846.97	
7206.00	88.40	179.10	4722.39	-2847.25	-5.65	3.93	2846.23	147389.75	2003847.35	
7235.00	87.70	179.60	4723.38	-2876.23	-5.32	2.97	2875.19	147360.77	2003847.68	
7264.00	88.20	179.40	4724.41	-2905.21	-5.07	1.86	2904.15	147331.79	2003847.93	
7295.00	89.10	180.00	4725.14	-2936.20	-4.91	3.49	2935.12	147300.80	2003848.09	
7326.00	89.00	180.40	4725.66	-2967.19	-5.02	1.33	2966.11	147269.81	2003847.98	
7356.00	89.30	180.20	4726.10	-2997.19	-5.17	1.20	2996.10	147239.81	2003847.83	
7385.00	89.70	179.90	4726.36	-3026.19	-5.20	1.72	3025.08	147210.81	2003847.80	
7417.00	89.40	179.50	4726.61	-3058.19	-5.03	1.56	3057.06	147178.81	2003847.97	
7449.00	88.40	178.90	4727.22	-3090.18	-4.59	3.64	3089.03	147146.82	2003848.41	
7478.00	88.00	179.10	4728.13	-3119.16	-4.08	1.54	3117.98	147117.84	2003848.92	
7509.00	88.60	179.50	4729.05	-3150.14	-3.70	2.33	3148.94	147086.86	2003849.30	
7540.00	88.70	179.60	4729.78	-3181.13	-3.46	0.46	3179.91	147055.87	2003849.54	
7570.00	89.00	179.50	4730.38	-3211.13	-3.22	1.05	3209.89	147025.87	2003849.78	
7602.00	89.10	179.80	4730.92	-3243.12	-3.03	0.99	3241.86	146993.88	2003849.97	
7631.00	88.70	179.70	4731.47	-3272.12	-2.90	1.42	3270.84	146964.89	2003850.10	

## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date:5-Sep-2012  
 Surveys  
 Page 7  
 Job# : 6708

NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
7662.00	88.20	179.40	4732.31	-3303.10	-2.66	1.88	3301.81	146933.90	2003850.34	
7693.00	88.50	179.50	4733.20	-3334.09	-2.36	1.02	3332.77	146902.91	2003850.64	
7724.00	89.30	179.20	4733.80	-3365.08	-2.01	2.76	3363.74	146871.92	2003850.99	
7753.00	89.90	179.50	4734.00	-3394.08	-1.68	2.31	3392.72	146842.92	2003851.32	
7783.00	89.10	179.40	4734.26	-3424.08	-1.39	2.69	3422.70	146812.93	2003851.61	
7814.00	89.50	179.80	4734.64	-3455.07	-1.17	1.82	3453.67	146781.93	2003851.83	
7844.00	89.80	180.10	4734.82	-3485.07	-1.15	1.41	3483.66	146751.93	2003851.85	
7874.00	90.30	179.90	4734.80	-3515.07	-1.15	1.80	3513.65	146721.93	2003851.85	
7906.00	89.10	179.80	4734.97	-3547.07	-1.06	3.76	3545.63	146689.93	2003851.94	
7938.00	88.80	179.30	4735.55	-3579.06	-0.81	1.82	3577.60	146657.94	2003852.19	
7969.00	89.00	179.30	4736.15	-3610.06	-0.43	0.65	3608.57	146626.95	2003852.57	
8000.00	89.40	178.90	4736.58	-3641.05	0.05	1.82	3639.54	146595.95	2003853.05	
8030.00	89.90	179.40	4736.76	-3671.04	0.50	2.36	3669.51	146565.96	2003853.50	
8061.00	91.80	178.80	4736.30	-3702.04	0.98	6.43	3700.47	146534.97	2003853.98	
8093.00	91.80	178.80	4735.30	-3734.01	1.65	0.00	3732.42	146502.99	2003854.65	
8124.00	91.20	178.10	4734.49	-3764.99	2.49	2.97	3763.36	146472.01	2003855.49	
8155.00	90.60	178.60	4734.00	-3795.97	3.38	2.52	3794.30	146441.03	2003856.38	
8187.00	86.20	178.80	4734.89	-3827.95	4.11	13.76	3826.24	146409.06	2003857.11	
8219.00	88.40	179.60	4736.40	-3859.90	4.56	7.31	3858.17	146377.10	2003857.56	
8250.00	89.10	180.40	4737.08	-3890.90	4.56	3.43	3889.15	146346.10	2003857.56	
8281.00	86.80	180.60	4738.19	-3921.87	4.29	7.45	3920.12	146315.13	2003857.29	
8312.00	86.80	180.50	4739.92	-3952.82	3.99	0.32	3951.07	146284.18	2003856.99	
8342.00	87.60	180.30	4741.38	-3982.79	3.78	2.75	3981.03	146254.21	2003856.78	
8374.00	88.40	180.70	4742.50	-4014.77	3.50	2.79	4013.00	146222.24	2003856.50	
8404.00	89.50	180.70	4743.05	-4044.76	3.13	3.67	4042.99	146192.24	2003856.13	
8436.00	89.60	180.90	4743.30	-4076.75	2.69	0.70	4074.99	146160.25	2003855.69	
8467.00	89.40	181.50	4743.57	-4107.75	2.04	2.04	4105.98	146129.25	2003855.04	
8497.00	89.40	180.90	4743.88	-4137.74	1.41	2.00	4135.98	146099.26	2003854.41	
8528.00	89.90	180.90	4744.07	-4168.73	0.92	1.61	4166.98	146068.27	2003853.92	
8560.00	88.50	180.50	4744.52	-4200.73	0.53	4.55	4198.97	146036.27	2003853.53	



## Calmena Energy Services

Company: Woolsey Operating Company  
 Well: Miller Diel #1H  
 Location: Barber County, Kansas

Date: 5-Sep-2012  
 Surveys  
 Page 8  
 Job# : 6708  
 NAD27 Ks South gr elev=1379

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/-S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.65° Az (feet)	Grid Y	Grid X	Comments
8591.00	88.50	180.20	4745.33	-4231.72	0.34	0.97	4229.95	146005.29	2003853.34	
8623.00	88.60	180.10	4746.14	-4263.71	0.26	0.44	4261.93	145973.30	2003853.26	
8653.00	90.00	180.60	4746.51	-4293.70	0.08	4.96	4291.92	145943.30	2003853.08	
8684.00	92.20	180.50	4745.91	-4324.69	-0.22	7.10	4322.91	145912.31	2003852.78	
8715.00	93.00	180.40	4744.51	-4355.66	-0.47	2.60	4353.87	145881.34	2003852.53	
8747.00	92.20	180.30	4743.06	-4387.63	-0.66	2.52	4385.83	145849.38	2003852.34	
8778.00	91.30	180.10	4742.11	-4418.61	-0.77	2.97	4416.80	145818.39	2003852.23	
8810.00	89.70	179.90	4741.83	-4450.61	-0.77	5.04	4448.79	145786.39	2003852.23	
8840.00	89.80	179.70	4741.96	-4480.61	-0.66	0.75	4478.77	145756.39	2003852.34	
8869.00	89.60	179.20	4742.11	-4509.61	-0.39	1.86	4507.75	145727.40	2003852.61	
8900.00	89.60	179.10	4742.33	-4540.60	0.07	0.32	4538.72	145696.40	2003853.07	
8930.00	90.00	179.40	4742.43	-4570.60	0.47	1.67	4568.69	145666.40	2003853.47	
8959.00	89.90	179.00	4742.46	-4599.60	0.87	1.42	4597.66	145637.40	2003853.87	
8989.00	89.80	179.40	4742.54	-4629.59	1.29	1.37	4627.64	145607.41	2003854.29	
9018.00	89.90	179.50	4742.61	-4658.59	1.57	0.49	4656.61	145578.41	2003854.57	
9047.00	90.20	179.50	4742.59	-4687.59	1.82	1.03	4685.59	145549.41	2003854.82	
9118.00	90.20	179.50	4742.34	-4758.59	2.44	0.00	4756.54	145478.41	2003855.44	Survey projected