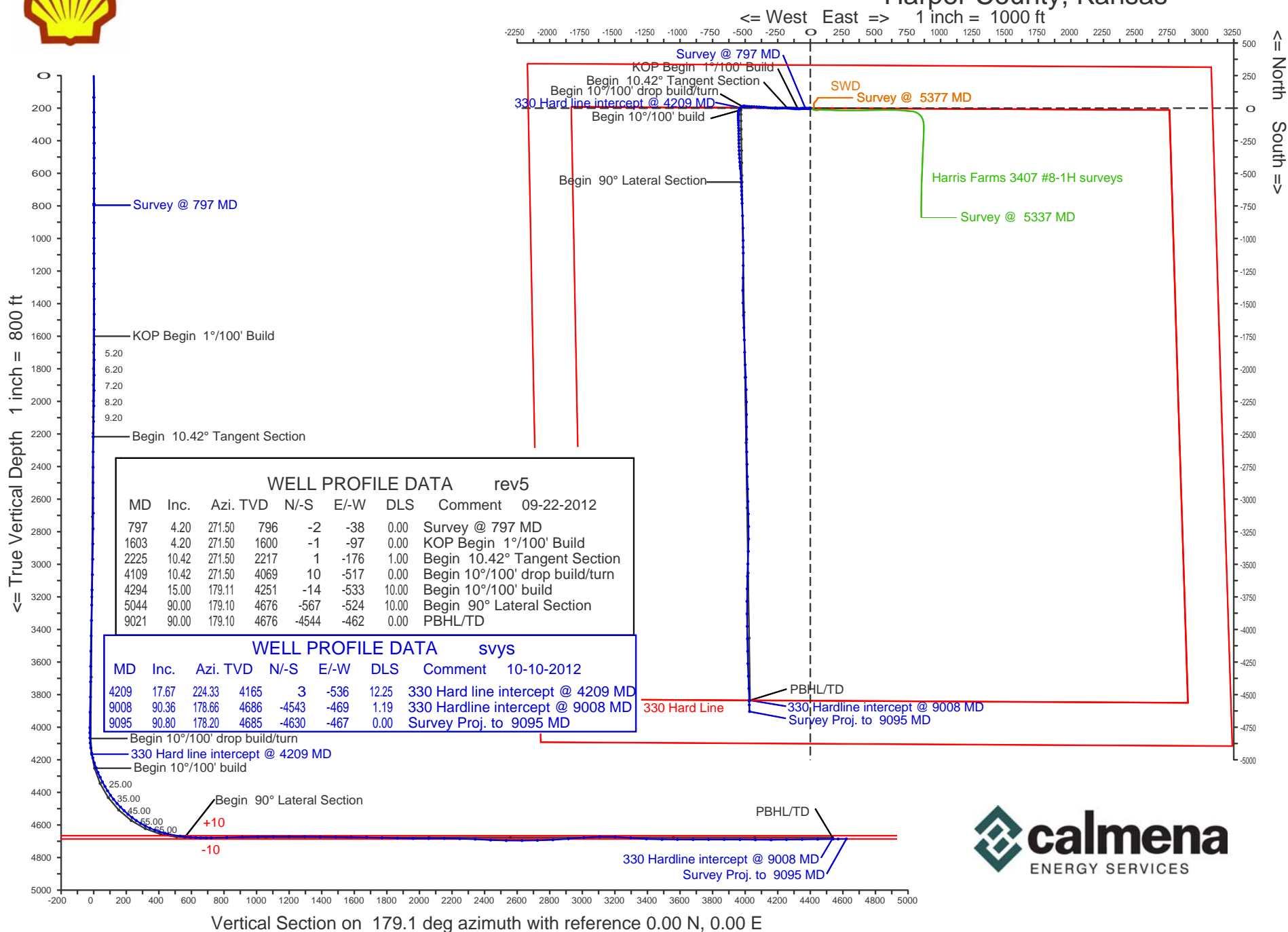




Shell Exploration and Production Company Harris Farms 3407 #8-2H (F01) Harper County, Kansas



Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-2H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 10-Oct-2012
 Surveys
 Page 1
 Job# : 6718

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								160780.94	2115535.11	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160780.94	2115535.11	
134.00	0.70	198.70	134.00	-0.78	-0.26	0.52	0.77	160780.16	2115534.85	
226.00	1.60	257.40	225.98	-1.59	-1.70	1.49	1.56	160779.35	2115533.41	
318.00	3.10	261.80	317.90	-2.22	-5.41	1.64	2.14	160778.72	2115529.70	
415.00	3.90	264.40	414.72	-2.92	-11.29	0.84	2.74	160778.02	2115523.82	
507.00	4.30	273.60	506.48	-3.01	-17.85	0.84	2.73	160777.93	2115517.26	
601.00	3.90	274.40	600.24	-2.54	-24.55	0.43	2.16	160778.40	2115510.56	
694.00	3.80	268.90	693.03	-2.36	-30.79	0.41	1.87	160778.58	2115504.32	
788.00	4.20	271.50	786.80	-2.33	-37.34	0.47	1.74	160778.61	2115497.77	
797.00	4.20	271.50	795.78	-2.31	-38.00	0.00	1.71	160778.63	2115497.11	
904.00	3.80	268.60	902.52	-2.29	-45.46	0.42	1.58	160778.65	2115489.65	
1000.00	3.60	271.20	998.32	-2.31	-51.66	0.27	1.50	160778.63	2115483.45	
1094.00	3.70	271.10	1092.13	-2.19	-57.64	0.11	1.28	160778.75	2115477.47	
1186.00	3.50	265.00	1183.95	-2.38	-63.40	0.47	1.38	160778.56	2115471.71	
1280.00	3.50	261.30	1277.77	-3.06	-69.10	0.24	1.97	160777.88	2115466.01	
1374.00	3.00	254.80	1371.62	-4.14	-74.31	0.66	2.97	160776.80	2115460.80	
1468.00	4.40	274.40	1465.43	-4.51	-80.28	1.99	3.25	160776.43	2115454.83	
1562.00	3.80	268.90	1559.19	-4.29	-86.99	0.76	2.92	160776.65	2115448.12	
1654.00	5.60	270.40	1650.87	-4.32	-94.52	1.96	2.83	160776.62	2115440.59	
1749.00	5.30	267.40	1745.44	-4.48	-103.54	0.44	2.86	160776.46	2115431.57	
1843.00	5.90	270.50	1838.99	-4.64	-112.71	0.71	2.87	160776.30	2115422.40	
1938.00	7.50	276.00	1933.34	-3.95	-123.76	1.81	2.00	160776.99	2115411.35	
2033.00	7.40	274.00	2027.54	-2.87	-136.03	0.29	0.74	160778.07	2115399.08	
2129.00	8.80	276.80	2122.58	-1.57	-149.49	1.51	-0.77	160779.37	2115385.62	
2225.00	10.50	274.00	2217.22	-0.09	-165.51	1.84	-2.51	160780.85	2115369.60	
2319.00	9.80	270.40	2309.75	0.56	-182.05	1.00	-3.42	160781.50	2115353.06	
2415.00	10.80	271.40	2404.20	0.84	-199.21	1.06	-3.97	160781.78	2115335.90	
2511.00	10.00	266.90	2498.63	0.61	-216.53	1.19	-4.01	160781.55	2115318.58	
2607.00	11.60	267.30	2592.92	-0.30	-234.49	1.67	-3.38	160780.64	2115300.62	
2702.00	10.70	267.00	2686.13	-1.21	-252.84	0.95	-2.76	160779.73	2115282.27	

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-2H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 10-Oct-2012
 Surveys
 Page 2
 Job# : 6718

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
2799.00	11.20	275.90	2781.37	-0.71	-271.21	1.82	-3.55	160780.23	2115263.90	
2894.00	10.90	273.80	2874.61	0.83	-289.35	0.53	-5.37	160781.77	2115245.76	
2990.00	10.20	270.20	2968.99	1.46	-306.90	1.00	-6.28	160782.40	2115228.21	
3086.00	10.80	279.30	3063.38	2.94	-324.28	1.83	-8.04	160783.88	2115210.83	
3181.00	10.30	276.30	3156.78	5.31	-341.51	0.78	-10.68	160786.25	2115193.60	
3276.00	10.40	273.10	3250.23	6.71	-358.51	0.61	-12.34	160787.65	2115176.60	
3372.00	10.80	275.30	3344.60	8.01	-376.12	0.59	-13.92	160788.95	2115158.99	
3468.00	10.60	273.50	3438.93	9.38	-393.89	0.41	-15.57	160790.32	2115141.22	
3564.00	12.00	275.00	3533.06	10.79	-412.64	1.49	-17.27	160791.73	2115122.47	
3659.00	11.40	272.20	3626.09	12.01	-431.86	0.87	-18.79	160792.95	2115103.25	
3756.00	10.80	268.70	3721.28	12.17	-450.53	0.93	-19.25	160793.11	2115084.58	
3851.00	11.10	275.90	3814.55	12.91	-468.53	1.47	-20.27	160793.85	2115066.58	
3946.00	10.40	273.30	3907.88	14.34	-486.18	0.90	-21.98	160795.28	2115048.93	
4042.00	9.80	276.00	4002.40	15.70	-502.96	0.80	-23.59	160796.64	2115032.15	
4074.00	9.30	267.60	4033.95	15.87	-508.25	4.62	-23.85	160796.81	2115026.86	
4106.00	10.60	259.70	4065.47	15.24	-513.73	5.88	-23.31	160796.18	2115021.38	
4138.00	13.10	249.80	4096.79	13.46	-520.03	10.04	-21.63	160794.40	2115015.08	
4169.00	15.40	239.00	4126.84	10.12	-526.86	11.31	-18.40	160791.06	2115008.25	
4201.00	17.20	227.20	4157.56	4.72	-533.97	11.75	-13.11	160785.66	2115001.14	
4209.00	17.67	224.33	4165.19	3.05	-535.69	12.25	-11.46	160783.99	2114999.42	330 Hard line intercept
4233.00	19.30	216.60	4187.96	-2.74	-540.60	12.25	-5.75	160778.20	2114994.51	
4265.00	19.50	204.10	4218.16	-11.87	-545.94	12.97	3.29	160769.07	2114989.17	
4297.00	22.40	196.00	4248.04	-22.61	-549.80	12.79	13.97	160758.33	2114985.31	
4329.00	23.90	187.20	4277.48	-34.91	-552.29	11.77	26.23	160746.03	2114982.82	
4361.00	24.80	181.20	4306.63	-48.05	-553.25	8.22	39.35	160732.89	2114981.86	
4393.00	27.30	179.60	4335.38	-62.10	-553.34	8.11	53.40	160718.84	2114981.77	
4425.00	30.00	179.10	4363.46	-77.44	-553.16	8.47	68.74	160703.50	2114981.95	
4456.00	32.10	178.10	4390.02	-93.42	-552.77	6.98	84.73	160687.52	2114982.34	
4489.00	35.10	177.40	4417.50	-111.67	-552.04	9.17	102.98	160669.27	2114983.07	
4520.00	38.90	177.80	4442.25	-130.30	-551.27	12.28	121.63	160650.64	2114983.84	

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-2H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 10-Oct-2012
 Surveys
 Page 3
 Job# : 6718

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
4553.00	42.00	178.00	4467.36	-151.70	-550.48	9.40	143.03	160629.24	2114984.63	
4584.00	44.50	177.90	4489.94	-172.92	-549.72	8.07	164.27	160608.02	2114985.39	
4616.00	46.00	178.70	4512.47	-195.64	-549.05	5.01	186.99	160585.30	2114986.06	
4648.00	49.10	179.60	4534.06	-219.24	-548.70	9.91	210.60	160561.70	2114986.41	
4680.00	52.40	179.40	4554.31	-244.02	-548.49	10.32	235.37	160536.92	2114986.62	
4712.00	56.50	179.30	4572.91	-270.05	-548.19	12.82	261.40	160510.89	2114986.92	
4744.00	60.10	178.60	4589.72	-297.26	-547.69	11.40	288.62	160483.68	2114987.42	
4776.00	62.60	177.70	4605.06	-325.33	-546.78	8.19	316.70	160455.61	2114988.33	
4808.00	65.40	176.90	4619.09	-354.06	-545.42	9.03	345.44	160426.88	2114989.69	
4840.00	68.90	175.80	4631.51	-383.48	-543.54	11.39	374.89	160397.46	2114991.57	
4872.00	72.60	175.40	4642.06	-413.60	-541.22	11.62	405.04	160367.34	2114993.89	
4903.00	75.80	175.10	4650.50	-443.32	-538.75	10.36	434.80	160337.62	2114996.36	
4923.00	78.30	175.20	4654.98	-462.74	-537.11	12.51	454.24	160318.20	2114998.00	
5001.00	82.60	176.80	4667.92	-539.45	-531.75	5.87	531.03	160241.49	2115003.36	
5033.00	83.40	177.80	4671.82	-571.17	-530.25	3.98	562.78	160209.77	2115004.86	
5065.00	84.50	177.80	4675.19	-602.97	-529.03	3.44	594.59	160177.97	2115006.08	
5097.00	85.60	177.80	4677.96	-634.83	-527.81	3.44	626.46	160146.11	2115007.30	
5128.00	88.00	177.70	4679.69	-665.75	-526.59	7.75	657.40	160115.19	2115008.52	
5160.00	90.50	177.90	4680.10	-697.73	-525.36	7.84	689.39	160083.21	2115009.75	
5192.00	91.40	177.90	4679.57	-729.70	-524.19	2.81	721.38	160051.24	2115010.92	
5288.00	92.10	177.40	4676.64	-825.57	-520.26	0.90	817.30	159955.37	2115014.85	
5383.00	90.80	178.80	4674.24	-920.49	-517.11	2.01	912.25	159860.45	2115018.00	
5478.00	90.60	179.20	4673.08	-1015.46	-515.45	0.47	1007.24	159765.48	2115019.66	
5574.00	90.70	180.20	4671.99	-1111.46	-514.95	1.05	1103.23	159669.48	2115020.16	
5670.00	89.90	180.30	4671.49	-1207.45	-515.37	0.84	1199.21	159573.49	2115019.74	
5766.00	89.60	181.50	4671.91	-1303.44	-516.88	1.29	1295.16	159477.50	2115018.23	
5861.00	88.90	180.50	4673.15	-1398.41	-518.53	1.28	1390.10	159382.53	2115016.58	
5957.00	89.50	177.50	4674.49	-1494.38	-516.86	3.19	1486.08	159286.56	2115018.25	
6052.00	90.30	178.10	4674.66	-1589.31	-513.21	1.05	1581.05	159191.63	2115021.90	
6147.00	88.30	177.70	4675.82	-1684.23	-509.73	2.15	1676.02	159096.71	2115025.38	

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-2H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 10-Oct-2012
 Surveys
 Page 4
 Job# : 6718

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
6241.00	88.20	178.70	4678.69	-1778.14	-506.78	1.07	1769.96	159002.80	2115028.33	
6336.00	88.60	177.90	4681.34	-1873.06	-503.96	0.94	1864.91	158907.88	2115031.15	
6432.00	89.00	177.70	4683.35	-1968.97	-500.28	0.47	1960.87	158811.97	2115034.83	
6527.00	91.20	177.60	4683.18	-2063.88	-496.38	2.32	2055.83	158717.06	2115038.73	
6623.00	89.30	178.10	4682.77	-2159.81	-492.78	2.05	2151.80	158621.13	2115042.33	
6718.00	89.10	179.20	4684.09	-2254.77	-490.54	1.18	2246.79	158526.17	2115044.57	
6814.00	87.00	180.00	4687.36	-2350.71	-489.87	2.34	2342.72	158430.23	2115045.24	
6909.00	86.90	179.60	4692.41	-2445.57	-489.54	0.43	2437.58	158335.37	2115045.57	
7004.00	89.50	179.60	4695.40	-2540.52	-488.88	2.74	2532.52	158240.43	2115046.23	
7101.00	90.20	179.20	4695.65	-2637.51	-487.86	0.83	2629.52	158143.43	2115047.25	
7196.00	91.00	178.70	4694.66	-2732.49	-486.12	0.99	2724.51	158048.45	2115048.99	
7291.00	93.50	178.30	4690.93	-2827.37	-483.64	2.66	2819.43	157953.57	2115051.47	
7386.00	94.10	178.70	4684.63	-2922.13	-481.16	0.76	2914.21	157858.81	2115053.95	
7482.00	94.70	178.40	4677.27	-3017.82	-478.74	0.70	3009.93	157763.12	2115056.37	
7578.00	91.00	178.40	4672.49	-3113.64	-476.06	3.85	3105.78	157667.30	2115059.05	
7674.00	87.80	178.70	4673.50	-3209.60	-473.63	3.35	3201.76	157571.35	2115061.48	
7770.00	85.50	181.20	4679.11	-3305.42	-473.54	3.54	3297.57	157475.52	2115061.57	
7866.00	86.80	181.60	4685.55	-3401.17	-475.88	1.42	3393.28	157379.77	2115059.23	
7962.00	89.50	182.10	4688.65	-3497.06	-478.98	2.86	3489.11	157283.88	2115056.13	
8057.00	90.20	182.10	4688.90	-3592.00	-482.46	0.74	3583.97	157188.95	2115052.65	
8153.00	89.60	181.30	4689.07	-3687.95	-485.31	1.04	3679.87	157092.99	2115049.80	
8249.00	90.40	179.90	4689.07	-3783.94	-486.32	1.68	3775.84	156997.00	2115048.79	
8345.00	89.80	179.30	4688.90	-3879.94	-485.65	0.88	3871.83	156901.00	2115049.46	
8441.00	89.10	178.90	4689.82	-3975.92	-484.14	0.84	3967.83	156805.02	2115050.97	
8536.00	89.30	179.00	4691.15	-4070.90	-482.40	0.24	4062.82	156710.04	2115052.71	
8632.00	90.40	179.20	4691.40	-4166.88	-480.89	1.16	4158.82	156614.06	2115054.22	
8727.00	91.30	178.50	4689.99	-4261.85	-478.98	1.20	4253.80	156519.09	2115056.13	
8823.00	90.30	177.40	4688.65	-4357.78	-475.55	1.55	4349.77	156423.16	2115059.56	
8918.00	91.20	178.00	4687.41	-4452.69	-471.74	1.14	4444.73	156328.25	2115063.37	
9008.00	90.36	178.66	4686.19	-4542.65	-469.11	1.19	4534.72	156238.29	2115066.00	330 Hardline intercept

Calmena Energy Services

Company: Shell Exploration and Production Company
 Well: Harris Farms 3407 #8-2H
 Location: Harper County, Kansas Sect8-34S-7W

Date: 10-Oct-2012
 Surveys
 Page 5
 Job# : 6718

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
9014.00	90.30	178.70	4686.15	-4548.64	-468.97	1.19	4540.72	156232.30	2115066.14	
9044.00	90.80	178.20	4685.86	-4578.63	-468.16	2.36	4570.71	156202.31	2115066.95	
9095.00	90.80	178.20	4685.15	-4629.60	-466.56	0.00	4621.70	156151.34	2115068.55	Survey Proj. to 9095 MD