

Rusty Clark Survey Co.
SURVEY DATA

MEASURED DEPTH	DRIFT ANGLE	QUADRANT	AZIMUTH DIRECTION	VERTICAL DEPTH	SUB SEA TVD	VERTICAL SECTION	RECTANGULAR COORDINATES	CLOSURES DISTANCE	AZIMUTH	DIRECTION	DOG LEG DEG/100FT.
0.00	0.00	N 0.00 E	0.00	0.00	18.00	0.00	0.00 N 0.00 E	0.00	0.00	N 0.00 E	0.00
100.00	0.54	S 38.40 E	141.60	100.00	118.00	-0.37	0.37 S 0.29 E	0.47	141.60	S 38.40 E	0.54
200.00	0.35	S 32.70 E	147.30	200.00	218.00	-1.00	1.00 S 0.75 E	1.25	143.11	S 36.89 E	0.19
300.00	0.17	S 54.90 E	125.10	299.99	317.99	-1.34	1.34 S 1.04 E	1.70	142.33	S 37.67 E	0.20
400.00	0.42	S 29.40 E	150.60	399.99	417.99	-1.75	1.74 S 1.34 E	2.20	142.45	S 37.55 E	0.28
500.00	0.98	S 5.30 E	174.70	499.99	517.99	-2.91	2.91 S 1.60 E	3.32	151.22	S 28.78 E	0.62
600.00	1.00	S 18.90 W	198.90	599.97	617.97	-4.59	4.59 S 1.40 E	4.79	163.07	S 16.93 E	0.42
700.00	0.89	S 22.30 W	202.30	699.96	717.96	-6.13	6.13 S 0.82 E	6.19	172.36	S 7.64 E	0.12
800.00	0.83	S 25.20 W	205.20	799.95	817.95	-7.50	7.50 S 0.22 E	7.51	178.34	S 1.66 E	0.07
900.00	0.92	S 6.80 W	186.80	899.93	917.93	-8.95	8.95 S 0.18 W	8.95	181.17	S 1.17 W	0.29
1000.00	0.94	S 10.20 W	190.20	999.92	1017.92	-10.55	10.55 S 0.42 W	10.56	182.28	S 2.28 W	0.06
1100.00	1.13	S 38.00 W	218.00	1099.91	1117.91	-12.13	12.13 S 1.17 W	12.19	185.52	S 5.52 W	0.53
1200.00	1.26	S 48.50 W	228.50	1199.88	1217.88	-13.64	13.64 S 2.60 W	13.88	190.80	S 10.80 W	0.25
1300.00	0.73	S 38.40 W	218.40	1299.87	1317.87	-14.87	14.87 S 3.82 W	15.35	194.41	S 14.41 W	0.56
1400.00	0.58	S 70.30 W	250.30	1399.86	1417.86	-15.54	15.54 S 4.69 W	16.23	196.80	S 16.80 W	0.39
1500.00	1.05	N 61.80 W	298.20	1499.85	1517.85	-15.28	15.28 S 5.97 W	16.40	201.36	S 21.36 W	0.79
1600.00	1.37	N 77.30 W	282.70	1599.83	1617.83	-14.58	14.58 S 7.94 W	16.61	208.58	S 28.58 W	0.45
1700.00	1.65	N 71.60 W	288.40	1699.80	1717.80	-13.86	13.86 S 10.47 W	17.37	217.07	S 37.07 W	0.32
1800.00	1.68	N 87.70 W	272.30	1799.75	1817.75	-13.35	13.35 S 13.30 W	18.84	224.90	S 44.90 W	0.47
1900.00	1.28	S 81.00 W	261.00	1899.72	1917.72	-13.47	13.47 S 15.87 W	20.81	229.68	S 49.68 W	0.49
2000.00	0.78	S 71.80 W	251.80	1999.70	2017.70	-13.86	13.86 S 17.62 W	22.42	231.82	S 51.82 W	0.53
2100.00	0.32	N 19.40 W	340.60	2099.70	2117.70	-13.81	13.81 S 18.36 W	22.97	233.05	S 53.05 W	0.84
2200.00	0.62	S 78.00 W	258.00	2199.70	2217.70	-13.66	13.66 S 18.98 W	23.39	234.26	S 54.26 W	0.66
2300.00	0.93	S 60.20 W	240.20	2299.69	2317.69	-14.18	14.18 S 20.21 W	24.69	234.96	S 54.96 W	0.39
2400.00	0.81	S 1.50 E	178.50	2399.68	2417.68	-15.29	15.29 S 20.90 W	25.89	233.81	S 53.81 W	0.90
2500.00	0.33	S 78.80 E	101.20	2499.68	2517.68	-16.05	16.05 S 20.60 W	26.12	232.07	S 52.07 W	0.80
2600.00	0.39	N 29.10 W	330.90	2599.67	2617.67	-15.81	15.81 S 20.48 W	25.87	232.34	S 52.34 W	0.65
2700.00	0.56	S 77.80 W	257.80	2699.67	2717.67	-15.62	15.62 S 21.12 W	26.27	233.53	S 53.53 W	0.58
2800.00	0.16	N 76.70 W	283.30	2799.67	2817.67	-15.69	15.69 S 21.73 W	26.81	234.17	S 54.17 W	0.42
2900.00	0.46	S 58.10 W	238.10	2899.67	2917.67	-15.87	15.87 S 22.21 W	27.29	234.45	S 54.45 W	0.37
3000.00	0.77	S 48.20 W	228.20	2999.66	3017.66	-16.53	16.53 S 23.05 W	28.37	234.36	S 54.36 W	0.33
3100.00	0.83	S 12.00 W	192.00	3099.65	3117.65	-17.69	17.69 S 23.70 W	29.57	233.27	S 53.27 W	0.50
3200.00	0.67	S 1.60 W	181.60	3199.64	3217.64	-18.98	18.98 S 23.87 W	30.50	231.50	S 51.50 W	0.21
3300.00	0.43	S 89.70 E	90.30	3299.64	3317.64	-19.57	19.57 S 23.51 W	30.59	230.23	S 50.23 W	0.80

SANDIA TECHNOLOGIES, LLC CFU 31F, WELL #3

MINIMUM CURVATURE METHOD ** RESULTS IN FEET **

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Rusty Clark Survey Co.
SURVEY DATA

MEASURED DEPTH	DRIFT ANGLE	QUADRANT	AZIMUTH DIRECTION	VERTICAL DEPTH	SUB SEA TVD	VERTICAL SECTION	RECTANGULAR COORDINATES	CLOSURES DISTANCE	AZIMUTH	DIRECTION	DOG LEG DEG/100FT.
3400.00	0.43	N 5.30 E	5.30	3399.64	3417.64	-19.20	19.20 S 23.10 W	30.04	230.27	S 50.27 W	0.58
3500.00	0.47	N 24.30 W	335.70	3499.64	3517.64	-18.45	18.45 S 23.23 W	29.67	231.54	S 51.54 W	0.23
3600.00	0.56	N 60.40 W	299.60	3599.63	3617.63	-17.84	17.83 S 23.82 W	29.76	233.18	S 53.18 W	0.33
3700.00	0.45	S 74.50 W	254.50	3699.63	3717.63	-17.69	17.69 S 24.62 W	30.32	234.30	S 54.30 W	0.40
3800.00	0.45	S 79.70 W	259.70	3799.63	3817.63	-17.86	17.87 S 25.38 W	31.04	234.86	S 54.86 W	0.04
3900.00	0.43	S 71.30 W	251.30	3899.62	3917.62	-18.06	18.06 S 26.12 W	31.76	235.34	S 55.34 W	0.07
4000.00	0.49	S 75.60 W	255.60	3999.62	4017.62	-18.29	18.29 S 26.89 W	32.52	235.78	S 55.78 W	0.07
4100.00	0.29	S 17.60 W	197.60	4099.62	4117.62	-18.64	18.64 S 27.38 W	33.12	235.76	S 55.76 W	0.42
4200.00	0.24	S 23.10 W	203.10	4199.62	4217.62	-19.07	19.07 S 27.54 W	33.50	235.29	S 55.29 W	0.06
4300.00	0.27	N 7.70 E	7.70	4299.62	4317.62	-19.03	19.03 S 27.59 W	33.52	235.41	S 55.41 W	0.51
4400.00	0.40	N 26.70 E	26.70	4399.61	4417.61	-18.49	18.48 S 27.40 W	33.05	236.00	S 56.00 W	0.17
4500.00	0.72	N 10.00 W	350.00	4499.61	4517.61	-17.55	17.55 S 27.35 W	32.50	237.32	S 57.32 W	0.47
4600.00	0.49	N 29.00 W	331.00	4599.60	4617.60	-16.56	16.56 S 27.67 W	32.24	239.10	S 59.10 W	0.30
4700.00	0.50	N 10.30 W	349.70	4699.60	4717.60	-15.76	15.76 S 27.96 W	32.09	240.59	S 60.59 W	0.16
4800.00	0.39	N 48.70 W	311.30	4799.60	4817.60	-15.11	15.11 S 28.29 W	32.07	241.90	S 61.90 W	0.31
4900.00	0.74	N 67.30 W	292.70	4899.59	4917.59	-14.64	14.64 S 29.14 W	32.61	243.33	S 63.33 W	0.39
5000.00	0.18	S 39.10 E	140.90	4999.59	5017.59	-14.51	14.51 S 29.64 W	33.00	243.91	S 63.91 W	0.90
5100.00	0.38	N 88.90 E	88.90	5099.59	5117.59	-14.63	14.63 S 29.21 W	32.67	243.40	S 63.40 W	0.30
5200.00	0.57	N 58.00 E	58.00	5199.59	5217.59	-14.36	14.36 S 28.46 W	31.87	243.22	S 63.22 W	0.31
5300.00	0.62	N 46.10 E	46.10	5299.58	5317.58	-13.72	13.72 S 27.65 W	30.87	243.61	S 63.61 W	0.13
5400.00	0.63	N 16.80 W	343.20	5399.58	5417.58	-12.82	12.82 S 27.42 W	30.27	244.94	S 64.94 W	0.65
5500.00	0.33	N 65.80 W	294.20	5499.57	5517.57	-12.18	12.18 S 27.84 W	30.39	246.38	S 66.38 W	0.48
5600.00	0.32	S 41.70 E	138.30	5599.57	5617.57	-12.27	12.27 S 27.92 W	30.49	246.27	S 66.27 W	0.64
5700.00	0.39	N 60.70 E	60.70	5699.57	5717.57	-12.31	12.31 S 27.44 W	30.07	245.83	S 65.83 W	0.45
5800.00	0.21	N 2.40 E	2.40	5799.57	5817.57	-11.96	11.96 S 27.14 W	29.65	246.21	S 66.21 W	0.33
5900.00	0.61	S 32.40 W	212.40	5899.57	5917.57	-12.23	12.23 S 27.42 W	30.02	245.97	S 65.97 W	0.80
6000.00	0.66	N 39.10 E	39.10	5999.57	6017.57	-12.23	12.23 S 27.34 W	29.95	245.90	S 65.90 W	1.27
6100.00	0.54	S 30.30 W	210.30	6099.56	6117.56	-12.19	12.19 S 27.21 W	29.82	245.87	S 65.87 W	1.20
6200.00	0.30	N 75.60 E	75.60	6199.56	6217.56	-12.53	12.53 S 27.19 W	29.94	245.26	S 65.26 W	0.78
6300.00	0.39	S 39.50 W	219.50	6299.56	6317.56	-12.73	12.73 S 27.15 W	29.99	244.89	S 64.89 W	0.66
6400.00	0.44	N 7.90 W	352.10	6399.56	6417.56	-12.61	12.61 S 27.42 W	30.18	245.30	S 65.30 W	0.76
6500.00	0.40	S 62.80 E	117.20	6499.56	6517.56	-12.39	12.39 S 27.16 W	29.85	245.48	S 65.48 W	0.75
6600.00	0.17	N 1.20 W	358.80	6599.56	6617.56	-12.40	12.40 S 26.85 W	29.58	245.21	S 65.21 W	0.50

SANDIA TECHNOLOGIES, LLC CFU 31F, WELL #3

MINIMUM CURVATURE METHOD ** RESULTS IN FEET **

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Rusty Clark Survey Co.
SURVEY DATA

MEASURED DEPTH	DRIFT ANGLE	QUADRANT	AZIMUTH DIRECTION	VERTICAL DEPTH	SUB SEA TVD	VERTICAL SECTION	RECTANGULAR COORDINATES	CLOSURES DISTANCE	AZIMUTH	DIRECTION	DOG LEG DEG/100FT.	
6700.00	0.73	N 8.40 W	351.60	6699.55	6717.55	-11.62	11.62 S	26.95 W	29.35	246.67	S 66.67 W	0.56
6800.00	0.42	N 44.60 E	44.60	6799.55	6817.55	-10.73	10.73 S	26.79 W	28.85	248.17	S 68.17 W	0.58
6900.00	0.58	N 72.40 W	287.60	6899.55	6917.55	-10.32	10.32 S	27.02 W	28.92	249.10	S 69.10 W	0.86
7000.00	0.75	N 21.70 W	338.30	6999.54	7017.54	-9.56	9.56 S	27.74 W	29.34	250.99	S 70.99 W	0.59
7100.00	0.62	N 20.80 E	20.80	7099.54	7117.54	-8.45	8.45 S	27.79 W	29.05	253.10	S 73.10 W	0.51
7200.00	0.50	N 50.90 W	309.10	7199.53	7217.53	-7.67	7.67 S	27.94 W	28.97	254.65	S 74.65 W	0.66
7300.00	0.87	N 7.80 E	7.80	7299.53	7317.53	-6.64	6.64 S	28.18 W	28.95	256.73	S 76.73 W	0.74
7400.00	0.16	S 83.20 W	263.20	7399.52	7417.52	-5.90	5.90 S	28.22 W	28.83	258.18	S 78.18 W	0.92
7500.00	0.66	N 7.90 W	352.10	7499.52	7517.52	-5.35	5.35 S	28.44 W	28.94	259.35	S 79.35 W	0.68
7600.00	0.51	N 46.30 E	46.30	7599.52	7617.52	-4.47	4.47 S	28.20 W	28.55	260.99	S 80.99 W	0.55
7700.00	0.13	N 41.00 E	41.00	7699.51	7717.51	-4.08	4.08 S	27.80 W	28.10	261.66	S 81.66 W	0.38
7800.00	0.53	N 14.00 E	14.00	7799.51	7817.51	-3.55	3.55 S	27.61 W	27.84	262.68	S 82.68 W	0.42
7900.00	0.79	N 3.60 W	356.40	7899.50	7917.50	-2.41	2.41 S	27.54 W	27.65	264.99	S 84.99 W	0.33
8000.00	0.94	N 38.90 E	38.90	7999.49	8017.49	-1.08	1.08 S	27.07 W	27.09	267.71	S 87.71 W	0.64
8100.00	0.33	N 82.20 E	82.20	8099.49	8117.49	-0.40	0.40 S	26.27 W	26.27	269.12	S 89.12 W	0.74
8200.00	0.58	N 54.40 W	305.60	8199.49	8217.49	-0.07	0.07 S	26.40 W	26.40	269.86	S 89.86 W	0.85
8300.00	0.60	N 18.10 W	341.90	8299.48	8317.48	0.72	0.72 N	26.97 W	26.98	271.53	N 88.47 W	0.37
8400.00	0.39	N 8.20 E	8.20	8399.48	8417.48	1.56	1.55 N	27.08 W	27.13	273.29	N 86.72 W	0.30
8500.00	0.16	S 17.50 W	197.50	8499.48	8517.48	1.75	1.75 N	27.07 W	27.13	273.71	N 86.29 W	0.55
8600.00	0.30	S 34.70 W	214.70	8599.48	8617.48	1.40	1.40 N	27.26 W	27.30	272.94	N 87.06 W	0.15
8700.00	0.64	S 73.80 W	253.80	8699.47	8717.47	1.03	1.03 N	27.95 W	27.96	272.11	N 87.89 W	0.45
8800.00	0.90	N 49.40 W	310.60	8799.47	8817.47	1.39	1.39 N	29.08 W	29.12	272.73	N 87.27 W	0.77
8900.00	0.82	N 62.90 W	297.10	8899.45	8917.45	2.23	2.23 N	30.31 W	30.40	274.20	N 85.80 W	0.22
9000.00	0.63	N 47.50 W	312.50	8999.45	9017.45	2.93	2.93 N	31.35 W	31.49	275.33	N 84.67 W	0.27
9100.00	0.36	N 26.80 W	333.20	9099.44	9117.44	3.58	3.58 N	31.90 W	32.10	276.41	N 83.59 W	0.32
9200.00	0.18	N 23.20 W	336.80	9199.44	9217.44	4.01	4.00 N	32.10 W	32.35	277.11	N 82.89 W	0.18
9300.00	0.37	N 40.80 W	319.20	9299.44	9317.44	4.39	4.39 N	32.37 W	32.67	277.72	N 82.28 W	0.21
9400.00	0.70	N 43.20 W	316.80	9399.44	9417.44	5.08	5.08 N	33.00 W	33.39	278.75	N 81.25 W	0.33
9500.00	0.82	N 45.80 W	314.20	9499.43	9517.43	6.02	6.02 N	33.93 W	34.46	280.07	N 79.93 W	0.12
9600.00	0.96	N 51.00 W	309.00	9599.41	9617.41	7.05	7.05 N	35.09 W	35.79	281.35	N 78.65 W	0.16
9700.00	0.76	N 31.90 W	328.10	9699.40	9717.40	8.14	8.14 N	36.09 W	37.00	282.71	N 77.29 W	0.35
9800.00	0.78	N 33.60 W	326.40	9799.39	9817.39	9.27	9.27 N	36.82 W	37.97	284.13	N 75.87 W	0.03
9900.00	0.60	N 0.50 W	359.50	9899.39	9917.39	10.36	10.36 N	37.20 W	38.62	285.56	N 74.44 W	0.43

Rusty Clark Survey Co.
SURVEY DATA

MEASURED DEPTH	DRIFT ANGLE	QUADRANT	AZIMUTH DIRECTION	VERTICAL DEPTH	SUB SEA TVD	VERTICAL SECTION	RECTANGULAR COORDINATES	CLOSURES DISTANCE	AZIMUTH	DIRECTION	DOG LEG DEG/100FT.
10000.00	0.35	N 47.10 W	312.90	9999.38	10017.38	11.09	11.09 N 37.43 W	39.04	286.51	N 73.49 W	0.44
10100.00	0.34	S 45.00 W	225.00	10099.38	10117.38	11.09	11.09 N 37.86 W	39.45	286.32	N 73.68 W	0.48
10200.00	0.39	S 54.70 W	234.70	10199.38	10217.38	10.68	10.68 N 38.35 W	39.81	285.57	N 74.43 W	0.08
10300.00	0.25	S 3.70 W	183.70	10299.38	10317.38	10.27	10.27 N 38.64 W	39.98	284.88	N 75.12 W	0.30
10400.00	0.24	S 39.70 E	140.30	10399.38	10417.38	9.89	9.89 N 38.52 W	39.77	284.40	N 75.60 W	0.18
10500.00	0.20	S 35.00 W	215.00	10499.38	10517.38	9.59	9.59 N 38.49 W	39.66	283.99	N 76.01 W	0.27
10600.00	0.16	S 62.80 W	242.80	10599.38	10617.38	9.38	9.38 N 38.71 W	39.84	283.62	N 76.38 W	0.09
10647.00	0.38	S 88.10 W	268.10	10646.38	10664.38	9.35	9.34 N 38.92 W	40.03	283.50	N 76.50 W	0.52

BOTTOM HOLE CLOSURE: 40.03 FEET AT N 76.50 W

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SANDIA TECHNOLOGIES, LLC
CFU 31F, WELL #3
CRANFIELD FIELD UNIT
RIG: SCHLUMBERGER WIRELINE

Surface Readout Gyroscopic Survey - MSL-09090162-GS - 9/11/2009

KELLY BUSHING ELEVATION = -18 FEET
MAGNETIC DECLINATION = ORIENTED TO GRID NORTH
PLANE OF PROPOSAL DIRECTION IS .00

MINIMUM CURVATURE METHOD - RESULTS IN FEET