



Job Number: SVGJ-140078
 Company: PDC
 Lease/Well: Guttersen 44-12
 Location: Weld County, CO
 Rig Name: Lightning Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.35°
 Grid: East To True North
 File name: S:\2014SU~1\PDC\GJ\GUTTER~1\4412.SVY
 Date/Time: 23-Jan-14 / 14:24
 Curve Name: Surface - 6700' M.D. (Rate Gyro)

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>C L O S U R E</i>		<i>Dogleg Severity Deg/100</i>
							<i>Distance FT</i>	<i>Direction Deg</i>	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.34	147.21	100.00	-.25	.16	-.25	.30	147.21	.34
200.00	.56	235.72	200.00	-.77	-.08	-.77	.78	186.08	.65
300.00	.54	226.60	299.99	-1.37	-.83	-1.37	1.60	211.11	.09
400.00	.44	284.04	399.99	-1.60	-1.54	-1.60	2.23	223.90	.48
500.00	.34	14.99	499.99	-1.22	-1.84	-1.22	2.21	236.36	.56
600.00	.25	104.17	599.99	-.99	-1.55	-.99	1.84	237.43	.42
700.00	.67	313.16	699.99	-.64	-1.77	-.64	1.88	249.96	.90
800.00	.08	165.51	799.98	-.31	-2.17	-.31	2.20	261.84	.74
900.00	.53	262.01	899.98	-.44	-2.62	-.44	2.65	260.37	.54

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	.29	225.87	999.98	-.68	-3.26	-.68	3.33	258.13	.34
1100.00	.08	93.21	1099.98	-.86	-3.37	-.86	3.48	255.60	.35
1200.00	.32	236.38	1199.98	-1.02	-3.53	-1.02	3.68	253.84	.39
1300.00	.59	343.45	1299.98	-.68	-3.91	-.68	3.97	260.08	.75
1400.00	.16	215.04	1399.97	-.30	-4.14	-.30	4.15	265.79	.70
1500.00	.57	337.94	1499.97	.04	-4.40	.04	4.40	270.55	.67
1600.00	.43	138.82	1599.97	.22	-4.34	.22	4.35	272.91	.99
1700.00	.65	150.54	1699.97	-.56	-3.82	-.56	3.86	261.71	.25
1800.00	.26	129.95	1799.96	-1.20	-3.36	-1.20	3.57	250.44	.42
1900.00	.70	159.75	1899.96	-1.91	-2.98	-1.91	3.54	237.27	.49
2000.00	.77	229.85	1999.95	-2.92	-3.28	-2.92	4.39	228.32	.85
2100.00	.38	269.89	2099.95	-3.35	-4.13	-3.35	5.32	230.89	.54
2200.00	.30	204.26	2199.95	-3.59	-4.56	-3.59	5.81	231.79	.37
2300.00	.79	271.69	2299.94	-3.81	-5.36	-3.81	6.58	234.59	.73
2400.00	1.24	230.64	2399.93	-4.48	-6.89	-4.48	8.22	236.97	.83
2500.00	1.94	229.94	2499.89	-6.25	-9.02	-6.25	10.98	235.26	.70
2600.00	2.35	244.03	2599.82	-8.24	-12.16	-8.24	14.69	235.87	.67
2700.00	2.08	231.53	2699.75	-10.27	-15.42	-10.27	18.53	236.35	.55
2800.00	2.24	238.99	2799.68	-12.40	-18.52	-12.40	22.29	236.19	.32
2900.00	1.90	253.91	2899.61	-13.87	-21.79	-13.87	25.83	237.52	.63
3000.00	1.53	260.82	2999.57	-14.54	-24.70	-14.54	28.66	239.51	.42
3100.00	1.68	244.57	3099.53	-15.38	-27.34	-15.38	31.37	240.63	.48
3200.00	.79	286.67	3199.50	-15.82	-29.32	-15.82	33.32	241.66	1.22
3300.00	.51	287.48	3299.50	-15.48	-30.41	-15.48	34.12	243.01	.28
3400.00	.50	307.20	3399.49	-15.09	-31.18	-15.09	34.64	244.18	.17
3500.00	.75	321.35	3499.49	-14.31	-31.94	-14.31	35.00	245.86	.29
3600.00	1.74	307.30	3599.46	-12.88	-33.55	-12.88	35.94	249.00	1.03
3700.00	1.54	329.34	3699.42	-10.81	-35.45	-10.81	37.06	253.05	.66
3800.00	1.43	320.07	3799.39	-8.69	-36.93	-8.69	37.94	256.76	.26

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3900.00	2.35	328.60	3899.33	-5.99	-38.80	-5.99	39.26	261.23	.96
4000.00	2.38	320.55	3999.25	-2.63	-41.19	-2.63	41.27	266.34	.33
4100.00	2.63	334.11	4099.15	1.04	-43.51	1.04	43.52	271.36	.64
4200.00	2.79	341.15	4199.04	5.40	-45.30	5.40	45.62	276.80	.37
4300.00	3.40	333.75	4298.90	10.37	-47.40	10.37	48.52	282.34	.73
4400.00	2.78	340.51	4398.75	15.31	-49.52	15.31	51.83	287.18	.72
4500.00	2.73	334.99	4498.64	19.76	-51.33	19.76	55.00	291.05	.27
4600.00	1.66	319.20	4598.56	23.01	-53.29	23.01	58.04	293.36	1.22
4700.00	1.47	340.12	4698.53	25.31	-54.67	25.31	60.24	294.85	.60
4800.00	1.14	309.94	4798.50	27.16	-55.87	27.16	62.12	295.92	.75
4900.00	1.68	330.09	4898.47	29.07	-57.36	29.07	64.30	296.87	.73
5000.00	1.00	322.63	4998.44	31.03	-58.62	31.03	66.33	297.89	.70
5100.00	.45	5.26	5098.44	32.12	-59.11	32.12	67.28	298.51	.74
5200.00	.79	59.86	5198.43	32.85	-58.48	32.85	67.08	299.33	.64
5300.00	.46	95.19	5298.42	33.16	-57.49	33.16	66.37	299.98	.49
5400.00	.85	98.06	5398.42	33.02	-56.35	33.02	65.31	300.37	.39
5500.00	1.98	92.94	5498.39	32.83	-53.89	32.83	63.10	301.35	1.14
5600.00	1.46	92.28	5598.34	32.69	-50.89	32.69	60.49	302.71	.52
5700.00	2.03	89.20	5698.29	32.66	-47.85	32.66	57.94	304.32	.58
5800.00	1.89	104.93	5798.24	32.26	-44.49	32.26	54.95	305.95	.55
5900.00	1.92	96.01	5898.18	31.66	-41.23	31.66	51.98	307.53	.30
6000.00	1.96	73.68	5998.12	31.97	-37.92	31.97	49.60	310.13	.75
6100.00	2.83	67.05	6098.04	33.41	-34.00	33.41	47.67	314.50	.91
6200.00	2.58	74.45	6197.93	34.98	-29.56	34.98	45.80	319.80	.43
6300.00	1.80	70.67	6297.85	36.10	-25.91	36.10	44.44	324.33	.79
6400.00	2.07	70.35	6397.79	37.23	-22.73	37.23	43.62	328.59	.27
6500.00	2.91	75.09	6497.70	38.49	-18.58	38.49	42.74	334.24	.86
6600.00	3.55	79.98	6597.54	39.68	-13.07	39.68	41.78	341.76	.70

Last Survey Depth Recorded

6700.00	3.32	87.04	6697.36	40.37	-7.13	40.37	40.99	349.98	.48
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