



Job Number: SVGJ-141112
 Company: PDC
 Lease/Well: Guttersen 22-24
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.27°
 Grid: East To True North
 File name: Y:\WINSER~1\2014SU~1\PDC\GJ\GUTTER~1\2224.SVY
 Date/Time: 11-Sep-14 / 12:33
 Curve Name: Surface - 6700' M.D. (Rate Gyro)

MS Survey

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	.46	246.95	100.00	-.16	-.37	-.16	.40	246.95	.46
200.00	.17	289.64	200.00	-.26	-.88	-.26	.92	253.25	.35
300.00	.25	243.81	300.00	-.31	-1.21	-.31	1.25	255.64	.18
400.00	.03	346.67	400.00	-.38	-1.42	-.38	1.47	254.91	.26
500.00	.28	301.67	500.00	-.23	-1.63	-.23	1.65	262.04	.26
600.00	.24	250.77	600.00	-.17	-2.04	-.17	2.04	265.26	.23
700.00	.25	328.81	699.99	-.05	-2.35	-.05	2.35	268.76	.31
800.00	.33	316.12	799.99	.34	-2.66	.34	2.68	277.36	.10
900.00	.22	289.50	899.99	.61	-3.04	.61	3.10	281.44	.17

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	.19	354.89	999.99	.84	-3.24	.84	3.34	284.62	.22
1100.00	.32	349.12	1099.99	1.28	-3.30	1.28	3.54	291.24	.13
1200.00	.19	320.65	1199.99	1.69	-3.46	1.69	3.85	295.98	.18
1300.00	.27	34.22	1299.99	2.01	-3.43	2.01	3.98	300.34	.28
1400.00	.17	295.75	1399.99	2.27	-3.43	2.27	4.12	303.44	.34
1500.00	.30	16.23	1499.99	2.58	-3.49	2.58	4.35	306.48	.32
1600.00	.15	298.12	1599.99	2.90	-3.54	2.90	4.57	309.32	.31
1700.00	.27	302.98	1699.99	3.09	-3.85	3.09	4.93	308.72	.12
1800.00	.06	219.07	1799.99	3.17	-4.08	3.17	5.17	307.88	.27
1900.00	.28	255.82	1899.99	3.07	-4.35	3.07	5.33	305.25	.23
2000.00	.10	236.80	1999.99	2.97	-4.66	2.97	5.52	302.48	.19
2100.00	.26	225.84	2099.98	2.76	-4.90	2.76	5.62	299.42	.16
2200.00	.39	212.80	2199.98	2.32	-5.24	2.32	5.73	293.84	.15
2300.00	.38	178.95	2299.98	1.70	-5.42	1.70	5.68	287.40	.22
2400.00	.13	198.45	2399.98	1.26	-5.45	1.26	5.60	283.01	.26
2500.00	.32	189.74	2499.98	.88	-5.53	.88	5.60	279.00	.19
2600.00	.35	173.03	2599.98	.30	-5.54	.30	5.55	273.08	.10
2700.00	.42	206.36	2699.98	-.33	-5.67	-.33	5.68	266.64	.23
2800.00	.42	188.77	2799.97	-1.02	-5.89	-1.02	5.98	260.14	.13
2900.00	.42	182.51	2899.97	-1.75	-5.96	-1.75	6.21	253.62	.05
3000.00	.30	171.63	2999.97	-2.38	-5.94	-2.38	6.40	248.18	.14
3100.00	.12	195.13	3099.97	-2.74	-5.93	-2.74	6.53	245.21	.20
3200.00	.20	116.71	3199.97	-2.92	-5.80	-2.92	6.49	243.30	.21
3300.00	.26	173.40	3299.97	-3.22	-5.62	-3.22	6.48	240.17	.22
3400.00	.27	132.16	3399.97	-3.60	-5.42	-3.60	6.51	236.36	.19
3500.00	.39	141.77	3499.96	-4.03	-5.03	-4.03	6.45	231.31	.13
3600.00	.52	343.18	3599.96	-3.86	-4.95	-3.86	6.28	232.05	.89
3700.00	1.12	328.09	3699.95	-2.60	-5.60	-2.60	6.17	245.11	.63
3800.00	1.20	329.51	3799.93	-.87	-6.65	-.87	6.70	262.57	.09

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	1.49	323.03	3899.90	1.07	-7.96	1.07	8.03	277.68	.33
4000.00	1.38	321.39	3999.87	3.05	-9.49	3.05	9.97	287.83	.12
4100.00	1.33	307.66	4099.84	4.70	-11.16	4.70	12.12	292.85	.33
4200.00	1.40	303.69	4199.82	6.09	-13.10	6.09	14.45	294.94	.12
4300.00	1.61	294.24	4299.78	7.35	-15.40	7.35	17.06	295.50	.32
4400.00	1.72	286.38	4399.74	8.35	-18.12	8.35	19.95	294.73	.25
4500.00	1.17	285.71	4499.71	9.04	-20.54	9.04	22.44	293.77	.55
4600.00	.96	300.09	4599.69	9.74	-22.25	9.74	24.29	293.65	.34
4700.00	1.06	299.47	4699.67	10.62	-23.78	10.62	26.04	294.06	.10
4800.00	.98	283.49	4799.66	11.27	-25.42	11.27	27.80	293.92	.29
4900.00	.85	298.54	4899.65	11.82	-26.90	11.82	29.38	293.73	.27
5000.00	.75	277.20	4999.64	12.26	-28.20	12.26	30.75	293.50	.31
5100.00	.66	273.48	5099.63	12.38	-29.42	12.38	31.92	292.82	.10
5200.00	.47	273.20	5199.62	12.44	-30.41	12.44	32.85	292.24	.19
5300.00	.58	301.50	5299.62	12.72	-31.25	12.72	33.74	292.15	.28
5400.00	.55	289.87	5399.62	13.15	-32.13	13.15	34.72	292.26	.12
5500.00	.48	290.98	5499.61	13.46	-32.97	13.46	35.62	292.21	.07
5600.00	.40	274.28	5599.61	13.64	-33.71	13.64	36.37	292.03	.15
5700.00	.26	306.43	5699.61	13.80	-34.24	13.80	36.92	291.95	.23
5800.00	.39	289.53	5799.61	14.05	-34.75	14.05	37.48	292.01	.16
5900.00	.31	268.85	5899.60	14.16	-35.34	14.16	38.07	291.83	.15
6000.00	.15	332.09	5999.60	14.27	-35.67	14.27	38.42	291.80	.28
6100.00	.19	21.57	6099.60	14.54	-35.67	14.54	38.52	292.17	.15
6200.00	.18	306.65	6199.60	14.79	-35.74	14.79	38.67	292.48	.23
6300.00	.02	128.26	6299.60	14.87	-35.85	14.87	38.81	292.53	.20
6400.00	.43	150.41	6399.60	14.53	-35.65	14.53	38.50	292.18	.41
6500.00	.23	30.62	6499.60	14.38	-35.36	14.38	38.17	292.13	.58
6600.00	.23	51.84	6599.60	14.67	-35.10	14.67	38.05	292.69	.08

Last Survey Depth Recorded

6700.00	.14	65.72	6699.60	14.85	-34.83	14.85	37.87	293.09	.10
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