



Job Number: SVGJ-140712  
 Company: PDC  
 Lease/Well: Gamewell 5  
 Location: Weld County, CO  
 Rig Name: MS Energy Wireline  
 RKB: 0'  
 G.L. or M.S.L.: GL

State/Country: Colorado/USA  
 Declination: 8.33°  
 Grid: East To True North  
 File name: S:\2014SU~1\PDC\GJ\GAMEWELL\5.SVY  
 Date/Time: 12-Jun-14 / 14:28  
 Curve Name: Surface - 6500' 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	.47	291.10	100.00	.15	-.38	.15	.41	291.10	.47
200.00	.22	323.39	200.00	.45	-.88	.45	.99	297.06	.31
300.00	.28	206.95	300.00	.39	-1.11	.39	1.17	289.24	.43
400.00	.13	74.86	400.00	.20	-1.11	.20	1.12	280.12	.38
500.00	.33	335.86	500.00	.49	-1.11	.49	1.22	293.73	.37
600.00	.17	67.31	599.99	.81	-1.10	.81	1.36	306.48	.38
700.00	.12	123.93	699.99	.81	-.87	.81	1.19	312.86	.14
800.00	.28	18.88	799.99	.98	-.71	.98	1.21	324.28	.33
900.00	.29	26.26	899.99	1.44	-.51	1.44	1.53	340.33	.04

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	350.24	999.99	1.92	-.45	1.92	1.97	346.91	.18
1100.00	.23	359.66	1099.99	2.37	-.49	2.37	2.42	348.31	.07
1200.00	.17	287.75	1199.99	2.61	-.63	2.61	2.69	346.39	.24
1300.00	.24	231.34	1299.99	2.53	-.94	2.53	2.69	339.65	.20
1400.00	.36	169.09	1399.99	2.09	-1.04	2.09	2.33	333.49	.33
1500.00	.23	97.77	1499.99	1.75	-.78	1.75	1.92	335.92	.36
1600.00	.29	224.31	1599.99	1.54	-.76	1.54	1.72	333.76	.47
1700.00	.23	350.60	1699.99	1.56	-.97	1.56	1.84	328.12	.46
1800.00	.67	306.32	1799.98	2.10	-1.47	2.10	2.57	324.99	.53
1900.00	.57	326.24	1899.98	2.86	-2.22	2.86	3.62	322.20	.24
2000.00	.92	310.90	1999.97	3.80	-3.10	3.80	4.91	320.78	.40
2100.00	.79	295.69	2099.96	4.63	-4.33	4.63	6.34	316.89	.26
2200.00	1.09	315.39	2199.94	5.60	-5.62	5.60	7.94	314.91	.44
2300.00	.84	314.94	2299.93	6.80	-6.81	6.80	9.62	314.96	.25
2400.00	.92	308.30	2399.92	7.81	-7.96	7.81	11.15	314.48	.13
2500.00	1.01	322.92	2499.90	9.01	-9.12	9.01	12.82	314.67	.26
2600.00	1.38	325.26	2599.88	10.71	-10.34	10.71	14.88	316.01	.37
2700.00	1.47	327.02	2699.85	12.77	-11.72	12.77	17.34	317.46	.10
2800.00	1.57	322.67	2799.82	14.94	-13.25	14.94	19.97	318.43	.15
2900.00	1.31	316.04	2899.79	16.85	-14.87	16.85	22.48	318.56	.31
3000.00	1.56	330.10	2999.75	18.85	-16.35	18.85	24.95	319.07	.43
3100.00	1.86	318.83	3099.71	21.26	-18.09	21.26	27.91	319.59	.45
3200.00	1.96	316.26	3199.65	23.71	-20.34	23.71	31.24	319.37	.13
3300.00	1.36	317.56	3299.61	25.82	-22.33	25.82	34.14	319.15	.60
3400.00	1.01	293.98	3399.59	27.06	-23.93	27.06	36.12	318.51	.59
3500.00	1.08	232.78	3499.58	26.85	-25.49	26.85	37.02	316.48	1.07
3600.00	1.70	241.66	3599.55	25.57	-27.55	25.57	37.58	312.87	.65
3700.00	1.49	239.54	3699.51	24.21	-29.97	24.21	38.53	308.93	.22
3800.00	2.12	237.74	3799.46	22.56	-32.66	22.56	39.69	304.64	.63

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	241.08	3899.38	20.58	-36.01	20.58	41.48	299.75	.26
4000.00	2.53	236.37	3999.29	18.37	-39.65	18.37	43.70	294.86	.27
4100.00	2.72	245.53	4099.19	16.16	-43.64	16.16	46.54	290.32	.46
4200.00	3.48	251.46	4199.04	14.22	-48.68	14.22	50.71	286.28	.82
4300.00	3.34	253.65	4298.86	12.43	-54.35	12.43	55.76	282.88	.19
4400.00	3.17	268.19	4398.70	11.52	-59.91	11.52	61.01	280.89	.84
4500.00	2.63	286.48	4498.58	12.09	-64.88	12.09	65.99	280.55	1.06
4600.00	2.97	311.52	4598.46	14.46	-69.02	14.46	70.51	281.83	1.26
4700.00	3.75	315.45	4698.29	18.50	-73.25	18.50	75.55	284.18	.81
4800.00	3.88	319.62	4798.07	23.41	-77.74	23.41	81.19	286.76	.31
4900.00	3.67	316.47	4897.85	28.31	-82.13	28.31	86.87	289.02	.30
5000.00	3.32	312.24	4997.66	32.58	-86.48	32.58	92.41	290.64	.43
5100.00	1.65	314.27	5097.57	35.53	-89.66	35.53	96.44	291.62	1.67
5200.00	.56	344.42	5197.55	37.00	-90.82	37.00	98.07	292.17	1.20
5300.00	.39	65.40	5297.54	37.62	-90.64	37.62	98.14	292.54	.63
5400.00	.85	136.49	5397.54	37.22	-89.82	37.22	97.23	292.51	.81
5500.00	1.12	143.76	5497.53	35.89	-88.73	35.89	95.72	292.02	.30
5600.00	.84	157.77	5597.51	34.43	-87.88	34.43	94.38	291.39	.37
5700.00	.96	178.67	5697.50	32.91	-87.58	32.91	93.56	290.60	.35
5800.00	1.72	205.12	5797.47	30.71	-88.20	30.71	93.39	289.20	.96
5900.00	1.28	218.58	5897.44	28.48	-89.53	28.48	93.95	287.65	.56
6000.00	1.05	213.41	5997.42	26.84	-90.73	26.84	94.62	286.48	.25
6100.00	.98	204.65	6097.40	25.30	-91.59	25.30	95.02	285.44	.17
6200.00	.64	202.89	6197.39	24.01	-92.17	24.01	95.24	284.60	.34
6300.00	.58	207.82	6297.38	23.05	-92.62	23.05	95.44	283.97	.08
6400.00	.42	213.46	6397.38	22.29	-93.06	22.29	95.69	283.47	.17
<b>Last Survey Depth Recorded</b>									
6500.00	.63	241.78	6497.38	21.73	-93.75	21.73	96.23	283.05	.33