



Job Number: SVGJ-150082
 Company: PDC
 Lease/Well: Miller 2
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.36°
 Grid: East To True North
 File name: Y:\WINSER~1\2015SU~1\PDC\GJ\MILLER\2.SVY
 Date/Time: 08-Apr-15 / 09:35
 Curve Name: Surface - 6800' 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	.23	141.27	100.00	-.16	.13	-.16	.20	141.27	.23
200.00	.04	278.39	200.00	-.31	.22	-.31	.38	144.88	.26
300.00	.42	293.19	300.00	-.16	-.15	-.16	.22	224.30	.38
400.00	.52	290.89	400.00	.15	-.92	.15	.93	279.15	.10
500.00	.64	297.89	499.99	.57	-1.83	.57	1.92	287.29	.14
600.00	.56	286.64	599.98	.97	-2.80	.97	2.96	289.17	.14
700.00	.60	301.09	699.98	1.38	-3.71	1.38	3.96	290.42	.15
800.00	.47	297.79	799.98	1.84	-4.52	1.84	4.88	292.18	.13
900.00	.42	330.77	899.97	2.35	-5.06	2.35	5.59	294.94	.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	
1000.00	.32	346.93	999.97	2.95	-5.31	2.95	6.07	299.04	.14
1100.00	.37	4.13	1099.97	3.54	-5.35	3.54	6.41	303.51	.11
1200.00	.31	345.10	1199.97	4.12	-5.39	4.12	6.79	307.41	.13
1300.00	.37	10.35	1299.96	4.70	-5.40	4.70	7.16	311.03	.16
1400.00	.31	347.94	1399.96	5.29	-5.40	5.29	7.56	314.37	.14
1500.00	.29	1.90	1499.96	5.80	-5.45	5.80	7.96	316.79	.08
1600.00	.12	46.83	1599.96	6.13	-5.37	6.13	8.15	318.79	.22
1700.00	.23	45.88	1699.96	6.34	-5.15	6.34	8.16	320.93	.11
1800.00	.07	105.54	1799.96	6.46	-4.94	6.46	8.14	322.59	.20
1900.00	.14	84.24	1899.96	6.46	-4.76	6.46	8.02	323.59	.08
2000.00	.26	169.63	1999.96	6.25	-4.60	6.25	7.76	323.63	.29
2100.00	.34	152.55	2099.96	5.76	-4.42	5.76	7.26	322.49	.12
2200.00	.39	170.64	2199.96	5.16	-4.23	5.16	6.67	320.66	.12
2300.00	.42	168.33	2299.95	4.47	-4.10	4.47	6.06	317.44	.03
2400.00	.55	197.48	2399.95	3.65	-4.17	3.65	5.54	311.19	.27
2500.00	.51	202.98	2499.95	2.78	-4.49	2.78	5.28	301.79	.06
2600.00	.51	204.45	2599.94	1.97	-4.85	1.97	5.23	292.10	.01
2700.00	.63	205.71	2699.94	1.07	-5.27	1.07	5.38	281.45	.12
2800.00	.60	211.73	2799.93	.13	-5.78	.13	5.78	271.25	.07
2900.00	.65	204.50	2899.93	-.83	-6.29	-.83	6.35	262.44	.09
3000.00	.64	211.64	2999.92	-1.83	-6.82	-1.83	7.06	255.01	.08
3100.00	.64	202.25	3099.91	-2.82	-7.33	-2.82	7.85	248.96	.10
3200.00	.73	205.31	3199.91	-3.91	-7.81	-3.91	8.74	243.40	.10
3300.00	.69	193.20	3299.90	-5.07	-8.22	-5.07	9.66	238.32	.15
3400.00	.78	195.43	3399.89	-6.32	-8.54	-6.32	10.62	233.51	.09
3500.00	.97	175.56	3499.88	-7.82	-8.65	-7.82	11.66	227.91	.36
3600.00	1.14	180.47	3599.86	-9.65	-8.60	-9.65	12.93	221.68	.19
3700.00	1.29	177.65	3699.84	-11.77	-8.56	-11.77	14.56	216.01	.16
3800.00	1.27	179.52	3799.81	-14.01	-8.50	-14.01	16.39	211.26	.05

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	1.47	182.85	3899.79	-16.40	-8.56	-16.40	18.50	207.56	.22
4000.00	1.43	183.83	3999.75	-18.92	-8.71	-18.92	20.83	204.70	.05
4100.00	1.78	195.22	4099.71	-21.67	-9.20	-21.67	23.54	203.00	.47
4200.00	2.01	203.88	4199.66	-24.77	-10.31	-24.77	26.83	202.61	.37
4300.00	2.13	202.25	4299.59	-28.09	-11.73	-28.09	30.44	202.66	.13
4400.00	1.94	201.24	4399.53	-31.39	-13.04	-31.39	33.99	202.57	.19
4500.00	2.00	200.47	4499.47	-34.60	-14.27	-34.60	37.43	202.41	.07
4600.00	1.96	199.06	4599.41	-37.85	-15.44	-37.85	40.88	202.19	.06
4700.00	1.71	206.18	4699.36	-40.81	-16.65	-40.81	44.08	202.20	.34
4800.00	1.39	206.64	4799.32	-43.23	-17.86	-43.23	46.77	202.44	.32
4900.00	1.26	211.25	4899.30	-45.26	-18.97	-45.26	49.07	202.74	.17
5000.00	1.21	203.99	4999.27	-47.16	-19.97	-47.16	51.21	202.95	.16
5100.00	1.01	206.78	5099.26	-48.91	-20.80	-48.91	53.15	203.03	.21
5200.00	.63	207.26	5199.25	-50.19	-21.44	-50.19	54.58	203.14	.38
5300.00	.14	209.95	5299.24	-50.78	-21.76	-50.78	55.25	203.19	.49
5400.00	.21	227.51	5399.24	-51.01	-21.95	-51.01	55.53	203.29	.09
5500.00	.14	129.55	5499.24	-51.21	-21.99	-51.21	55.74	203.24	.27
5600.00	.16	74.78	5599.24	-51.25	-21.77	-51.25	55.68	203.01	.14
5700.00	.29	72.82	5699.24	-51.14	-21.39	-51.14	55.44	202.70	.13
5800.00	.28	61.21	5799.24	-50.95	-20.93	-50.95	55.08	202.34	.06
5900.00	.44	63.77	5899.24	-50.66	-20.37	-50.66	54.61	201.91	.16
6000.00	.51	79.45	5999.23	-50.41	-19.59	-50.41	54.09	201.24	.15
6100.00	.67	74.44	6099.23	-50.17	-18.59	-50.17	53.51	200.33	.17
6200.00	.67	84.32	6199.22	-49.96	-17.45	-49.96	52.92	199.25	.12
6300.00	.97	95.40	6299.21	-49.98	-16.02	-49.98	52.49	197.77	.34
6400.00	1.17	101.37	6399.19	-50.26	-14.18	-50.26	52.22	195.75	.23
6500.00	1.07	118.41	6499.18	-50.91	-12.36	-50.91	52.39	193.64	.35
6600.00	.94	183.60	6599.16	-52.17	-11.59	-52.17	53.44	192.52	1.09
6700.00	.79	155.34	6699.15	-53.61	-11.35	-53.61	54.80	191.95	.45

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	
Last Survey Depth Recorded									
6800.00	1.35	115.47	6799.14	-54.75	-10.00	-54.75	55.65	190.35	.90