



Job Number: SVGJ-150198
 Company: PDC
 Lease/Well: Schaumberg 1
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.43°
 Grid: East To True North
 File name: W:\WINSER~1\2015SU~1\PDC\GJ\SCHAUM~1\1.SVY
 Date/Time: 02-Oct-15 / 15:15
 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	.20	194.97	100.00	-.17	-.05	-.17	.17	194.97	.20
200.00	.13	173.82	200.00	-.45	-.08	-.45	.46	189.83	.09
300.00	.16	164.04	300.00	-.70	-.03	-.70	.70	182.25	.04
400.00	.17	141.33	400.00	-.95	.10	-.95	.95	173.75	.07
500.00	.11	142.34	500.00	-1.14	.26	-1.14	1.17	167.38	.06
600.00	.12	204.78	600.00	-1.31	.27	-1.31	1.34	168.36	.12
700.00	.15	311.41	700.00	-1.32	.13	-1.32	1.32	174.46	.22
800.00	.16	289.51	800.00	-1.19	-.10	-1.19	1.19	184.92	.06
900.00	.11	270.27	900.00	-1.14	-.33	-1.14	1.18	196.15	.07
1000.00	.10	274.10	1000.00	-1.13	-.51	-1.13	1.24	204.37	.01
1100.00	.14	293.16	1100.00	-1.08	-.71	-1.08	1.29	213.46	.06
1200.00	.20	313.82	1200.00	-.91	-.95	-.91	1.31	226.29	.08

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	
1300.00	.28	320.94	1300.00	-.60	-1.23	-.60	1.37	244.08	.09
1400.00	.37	325.31	1399.99	-.14	-1.57	-.14	1.57	264.81	.09
1500.00	.48	346.79	1499.99	.53	-1.85	.53	1.92	286.03	.19
1600.00	.53	2.68	1599.99	1.40	-1.92	1.40	2.38	306.09	.15
1700.00	.52	7.31	1699.98	2.31	-1.84	2.31	2.96	321.46	.04
1800.00	.55	3.66	1799.98	3.24	-1.75	3.24	3.69	331.59	.05
1900.00	.29	334.26	1899.98	3.95	-1.83	3.95	4.35	335.10	.33
2000.00	.26	291.70	1999.98	4.26	-2.15	4.26	4.77	333.18	.20
2100.00	.35	285.31	2099.97	4.43	-2.66	4.43	5.16	329.00	.10
2200.00	.43	296.85	2199.97	4.68	-3.29	4.68	5.72	324.88	.11
2300.00	.63	289.32	2299.97	5.03	-4.14	5.03	6.51	320.51	.21
2400.00	.66	288.21	2399.96	5.39	-5.21	5.39	7.49	315.98	.03
2500.00	.60	292.33	2499.95	5.77	-6.24	5.77	8.50	312.75	.08
2600.00	.63	304.86	2599.95	6.28	-7.17	6.28	9.54	311.20	.14
2700.00	.75	314.45	2699.94	7.05	-8.09	7.05	10.74	311.07	.17
2800.00	1.12	328.12	2799.93	8.34	-9.08	8.34	12.33	312.58	.43
2900.00	1.46	344.18	2899.90	10.40	-9.94	10.40	14.38	316.29	.49
3000.00	1.73	354.98	2999.86	13.13	-10.42	13.13	16.76	321.56	.40
3100.00	1.80	355.80	3099.82	16.20	-10.67	16.20	19.39	326.63	.07
3200.00	1.13	347.52	3199.78	18.73	-10.99	18.73	21.71	329.58	.70
3300.00	1.11	348.50	3299.77	20.64	-11.40	20.64	23.58	331.08	.03
3400.00	1.06	330.77	3399.75	22.39	-12.05	22.39	25.43	331.72	.34
3500.00	1.03	305.66	3499.73	23.72	-13.23	23.72	27.16	330.86	.46
3600.00	.51	276.32	3599.72	24.30	-14.40	24.30	28.24	329.35	.64
3700.00	.71	142.39	3699.72	23.86	-14.46	23.86	27.90	328.77	1.13
3800.00	.93	160.66	3799.71	22.60	-13.82	22.60	26.49	328.56	.34
3900.00	.76	148.94	3899.70	21.27	-13.21	21.27	25.03	328.16	.24
4000.00	.62	138.78	3999.69	20.29	-12.51	20.29	23.84	328.35	.19
4100.00	.65	122.89	4099.69	19.58	-11.68	19.58	22.79	329.19	.18
4200.00	.59	109.59	4199.68	19.09	-10.71	19.09	21.90	330.70	.16
4300.00	.47	137.14	4299.68	18.62	-9.95	18.62	21.11	331.88	.28
4400.00	.34	106.99	4399.67	18.23	-9.39	18.23	20.51	332.76	.25
4500.00	.29	116.30	4499.67	18.04	-8.88	18.04	20.10	333.80	.07
4600.00	.41	64.27	4599.67	18.08	-8.33	18.08	19.90	335.27	.33

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	
4700.00	.68	52.87	4699.67	18.59	-7.53	18.59	20.06	337.95	.29
4800.00	.62	49.19	4799.66	19.30	-6.65	19.30	20.42	340.99	.07
4900.00	.80	49.23	4899.65	20.11	-5.71	20.11	20.91	344.15	.18
5000.00	.50	58.96	4999.64	20.79	-4.81	20.79	21.34	346.98	.32
5100.00	.58	84.65	5099.64	21.07	-3.93	21.07	21.43	349.43	.25
5200.00	.70	51.74	5199.63	21.49	-2.95	21.49	21.69	352.19	.38
5300.00	.91	50.44	5299.62	22.38	-1.86	22.38	22.45	355.26	.21
5400.00	.78	99.87	5399.61	22.76	-.57	22.76	22.77	358.56	.72
5500.00	.46	147.26	5499.61	22.31	.32	22.31	22.31	.81	.58
5600.00	.29	129.29	5599.61	21.81	.73	21.81	21.82	1.91	.20
5700.00	.49	129.81	5699.60	21.38	1.25	21.38	21.42	3.35	.20
5800.00	.62	146.59	5799.60	20.65	1.88	20.65	20.74	5.20	.21
5900.00	.62	126.12	5899.59	19.88	2.61	19.88	20.05	7.49	.22
6000.00	.42	110.97	5999.59	19.43	3.39	19.43	19.73	9.91	.24
6100.00	.24	133.55	6099.59	19.16	3.89	19.16	19.55	11.47	.22
6200.00	.18	108.26	6199.59	18.96	4.19	18.96	19.42	12.45	.11
6300.00	.44	99.83	6299.59	18.85	4.72	18.85	19.43	14.05	.26
6400.00	.51	99.18	6399.58	18.71	5.53	18.71	19.51	16.47	.07
6500.00	.55	111.96	6499.58	18.46	6.42	18.46	19.55	19.17	.12
6600.00	.41	113.79	6599.58	18.14	7.19	18.14	19.51	21.62	.14
Last Survey Depth Recorded									
6700.00	.56	96.19	6699.57	17.94	8.00	17.94	19.65	24.04	.21