



Job Number: SVGJ-131237
 Company: PDC
 Lease/Well: Booth 34-35
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.47°
 Grid: East To True North
 File name: S:\2013SU~1\PDC\GJ\BOOTH\3435.SVY
 Date/Time: 20-Nov-13 / 09:47
 Curve Name: Surface - 7064' 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	.99	187.90	100.00	-.86	-.12	-.86	.86	187.90	.99
200.00	.85	160.93	199.98	-2.41	.00	-2.41	2.41	179.88	.45
300.00	.61	132.17	299.97	-3.47	.64	-3.47	3.53	169.52	.43
400.00	.33	139.82	399.97	-4.05	1.22	-4.05	4.23	163.20	.29
500.00	.97	158.11	499.96	-5.05	1.72	-5.05	5.34	161.17	.66
600.00	1.22	130.96	599.95	-6.54	2.84	-6.54	7.13	156.50	.57
700.00	1.24	132.71	699.92	-7.97	4.44	-7.97	9.12	150.86	.04
800.00	1.40	149.72	799.90	-9.76	5.85	-9.76	11.38	149.04	.42
900.00	1.00	165.24	899.88	-11.66	6.69	-11.66	13.44	150.14	.51

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	1.30	168.34	999.86	-13.61	7.14	-13.61	15.37	152.31	.31
1100.00	1.06	165.45	1099.83	-15.62	7.60	-15.62	17.37	154.04	.25
1200.00	1.01	149.72	1199.82	-17.27	8.28	-17.27	19.16	154.39	.29
1300.00	1.02	162.05	1299.80	-18.88	9.00	-18.88	20.92	154.52	.22
1400.00	1.58	160.28	1399.78	-21.03	9.74	-21.03	23.17	155.15	.56
1500.00	1.30	150.89	1499.74	-23.32	10.76	-23.32	25.68	155.23	.37
1600.00	1.19	153.40	1599.72	-25.23	11.77	-25.23	27.85	154.99	.12
1700.00	.82	175.39	1699.71	-26.88	12.30	-26.88	29.56	155.42	.53
1800.00	1.25	198.19	1799.69	-28.63	12.01	-28.63	31.04	157.23	.59
1900.00	1.03	223.26	1899.67	-30.32	11.06	-30.32	32.27	159.96	.54
2000.00	.74	209.33	1999.66	-31.53	10.12	-31.53	33.12	162.20	.36
2100.00	1.08	262.82	2099.65	-32.22	8.87	-32.22	33.41	164.60	.87
2200.00	1.27	253.05	2199.63	-32.66	6.88	-32.66	33.37	168.11	.28
2300.00	1.35	277.30	2299.60	-32.83	4.65	-32.83	33.16	171.94	.56
2400.00	1.25	292.91	2399.58	-32.26	2.48	-32.26	32.35	175.61	.37
2500.00	1.56	286.14	2499.55	-31.45	.16	-31.45	31.45	179.70	.35
2600.00	1.64	301.07	2599.51	-30.34	-2.37	-30.34	30.43	184.47	.42
2700.00	1.26	331.74	2699.48	-28.63	-4.12	-28.63	28.92	188.18	.85
2800.00	2.04	331.47	2799.43	-26.10	-5.49	-26.10	26.67	191.87	.78
2900.00	1.70	325.78	2899.38	-23.31	-7.17	-23.31	24.38	197.10	.39
3000.00	2.10	341.55	2999.33	-20.34	-8.58	-20.34	22.08	202.88	.65
3100.00	1.76	352.67	3099.27	-17.08	-9.36	-17.08	19.48	208.72	.50
3200.00	1.72	9.15	3199.22	-14.08	-9.32	-14.08	16.88	213.50	.50
3300.00	1.95	7.09	3299.17	-10.91	-8.87	-10.91	14.06	219.12	.24
3400.00	1.80	13.59	3399.12	-7.69	-8.29	-7.69	11.31	227.15	.26
3500.00	.87	9.10	3499.09	-5.41	-7.80	-5.41	9.50	235.24	.94
3600.00	.26	154.96	3599.09	-4.87	-7.58	-4.87	9.01	237.30	1.09
3700.00	.46	83.87	3699.09	-5.03	-7.09	-5.03	8.69	234.63	.45
3800.00	.47	140.99	3799.08	-5.31	-6.43	-5.31	8.34	230.47	.44

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	1.00	127.14	3899.08	-6.15	-5.48	-6.15	8.24	221.68	.56
4000.00	.97	124.81	3999.06	-7.16	-4.09	-7.16	8.25	209.71	.05
4100.00	.68	127.25	4099.05	-8.01	-2.92	-8.01	8.52	200.04	.29
4200.00	.53	101.29	4199.04	-8.46	-1.99	-8.46	8.69	193.27	.31
4300.00	.41	45.16	4299.04	-8.29	-1.29	-8.29	8.39	188.82	.45
4400.00	.78	53.33	4399.04	-7.64	-.49	-7.64	7.65	183.66	.38
4500.00	.53	340.35	4499.03	-6.79	-.10	-6.79	6.79	180.82	.80
4600.00	1.16	358.63	4599.02	-5.35	-.28	-5.35	5.35	182.97	.68
4700.00	1.51	353.04	4698.99	-3.03	-.46	-3.03	3.06	188.66	.37
4800.00	2.36	340.06	4798.93	.22	-1.32	.22	1.34	279.32	.95
4900.00	3.38	325.54	4898.81	4.58	-3.69	4.58	5.89	321.14	1.24
5000.00	4.15	327.30	4998.59	10.06	-7.32	10.06	12.44	323.97	.78
5100.00	4.45	329.74	5098.31	16.45	-11.23	16.45	19.92	325.70	.35
5200.00	4.71	322.37	5197.99	23.06	-15.69	23.06	27.89	325.77	.64
5300.00	4.39	324.75	5297.68	29.43	-20.40	29.43	35.81	325.27	.37
5400.00	4.38	325.85	5397.38	35.72	-24.76	35.72	43.46	325.28	.08
5500.00	4.11	326.81	5497.11	41.88	-28.86	41.88	50.86	325.43	.28
5600.00	3.99	330.36	5596.86	47.90	-32.54	47.90	57.91	325.81	.28
5700.00	3.50	324.74	5696.65	53.42	-36.03	53.42	64.43	326.00	.61
5800.00	3.48	329.73	5796.46	58.53	-39.32	58.53	70.51	326.11	.30
5900.00	3.05	340.28	5896.30	63.66	-41.75	63.66	76.12	326.74	.74
6000.00	3.14	344.36	5996.15	68.80	-43.38	68.80	81.33	327.77	.24
6100.00	3.35	356.43	6096.00	74.35	-44.30	74.35	86.55	329.21	.71
6200.00	3.11	357.84	6195.84	79.98	-44.59	79.98	91.57	330.86	.25
6300.00	2.84	.32	6295.70	85.17	-44.67	85.17	96.17	332.32	.30
6400.00	2.38	.94	6395.60	89.72	-44.63	89.72	100.21	333.55	.46
6500.00	1.61	13.06	6495.54	93.17	-44.28	93.17	103.15	334.58	.87
6600.00	1.79	6.27	6595.49	96.09	-43.79	96.09	105.59	335.50	.27
6700.00	2.12	29.62	6695.44	99.25	-42.70	99.25	108.04	336.72	.85

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	
6800.00	2.01	23.30	6795.37	102.47	-41.09	102.47	110.40	338.15	.25
6900.00	2.20	34.45	6895.30	105.66	-39.32	105.66	112.74	339.59	.45
7000.00	1.76	39.56	6995.24	108.43	-37.25	108.43	114.65	341.04	.47
Last Survey Depth Recorded									
7064.00	1.20	39.51	7059.22	109.70	-36.20	109.70	115.52	341.74	.88