



Job Number: SVGJ-141096
 Company: PDC
 Lease/Well: Guttersen 11-24
 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: S:\2014SU~1\PDC\GJ\GUTTER~1\1124.SVY
 Date/Time: 09-Sep-14 / 09:06
 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	.38	191.84	100.00	-.32	-.07	-.32	.33	191.84	.38
200.00	.51	170.28	200.00	-1.09	-.06	-1.09	1.09	183.21	.21
300.00	.40	161.32	299.99	-1.86	.13	-1.86	1.86	176.12	.13
400.00	.40	177.41	399.99	-2.54	.25	-2.54	2.55	174.29	.11
500.00	.35	210.73	499.99	-3.15	.11	-3.15	3.15	177.94	.22
600.00	.23	162.11	599.99	-3.60	.02	-3.60	3.60	179.70	.26
700.00	.30	224.52	699.99	-3.98	-.10	-3.98	3.98	181.48	.28
800.00	.37	240.30	799.98	-4.33	-.57	-4.33	4.36	187.47	.12
900.00	.32	273.68	899.98	-4.47	-1.13	-4.47	4.61	194.15	.20

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	.35	221.07	999.98	-4.68	-1.61	-4.68	4.95	198.94	.30
1100.00	.35	223.51	1099.98	-5.13	-2.02	-5.13	5.51	201.45	.01
1200.00	.06	347.97	1199.98	-5.30	-2.24	-5.30	5.75	202.88	.39
1300.00	.19	260.71	1299.98	-5.28	-2.41	-5.28	5.80	204.56	.20
1400.00	.37	197.09	1399.98	-5.61	-2.67	-5.61	6.22	205.45	.33
1500.00	.28	262.14	1499.98	-5.96	-3.01	-5.96	6.67	206.80	.36
1600.00	.09	230.37	1599.98	-6.04	-3.31	-6.04	6.89	208.73	.21
1700.00	.30	223.70	1699.98	-6.28	-3.55	-6.28	7.21	209.50	.21
1800.00	.26	253.49	1799.97	-6.53	-3.95	-6.53	7.63	211.16	.15
1900.00	.50	279.51	1899.97	-6.52	-4.60	-6.52	7.98	215.17	.29
2000.00	.46	246.63	1999.97	-6.61	-5.40	-6.61	8.53	219.22	.27
2100.00	.19	281.13	2099.97	-6.74	-5.93	-6.74	8.97	221.34	.32
2200.00	.55	279.75	2199.97	-6.63	-6.56	-6.63	9.33	224.73	.36
2300.00	.59	309.41	2299.96	-6.22	-7.43	-6.22	9.69	230.10	.29
2400.00	.97	305.23	2399.95	-5.40	-8.52	-5.40	10.09	237.64	.38
2500.00	1.02	308.88	2499.94	-4.35	-9.91	-4.35	10.82	246.27	.08
2600.00	1.04	308.45	2599.92	-3.23	-11.31	-3.23	11.76	254.05	.02
2700.00	1.09	324.74	2699.90	-1.89	-12.57	-1.89	12.71	261.45	.31
2800.00	1.11	322.30	2799.88	-.35	-13.71	-.35	13.72	268.55	.05
2900.00	1.35	307.81	2899.86	1.14	-15.24	1.14	15.28	274.28	.39
3000.00	1.38	319.77	2999.83	2.78	-16.94	2.78	17.17	279.32	.29
3100.00	1.52	297.15	3099.80	4.31	-18.90	4.31	19.39	282.84	.59
3200.00	1.52	292.34	3199.77	5.42	-21.31	5.42	21.99	284.26	.13
3300.00	1.78	285.43	3299.73	6.33	-24.03	6.33	24.85	284.76	.33
3400.00	2.04	284.68	3399.67	7.20	-27.25	7.20	28.19	284.80	.26
3500.00	2.11	283.72	3499.60	8.09	-30.76	8.09	31.81	284.73	.08
3600.00	2.50	285.05	3599.52	9.09	-34.66	9.09	35.83	284.69	.39
3700.00	2.78	277.24	3699.42	9.96	-39.17	9.96	40.41	284.27	.46
3800.00	2.73	274.33	3799.30	10.45	-43.95	10.45	45.17	283.37	.15

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	2.54	272.75	3899.20	10.73	-48.54	10.73	49.71	282.47	.20
4000.00	2.50	268.15	3999.10	10.77	-52.93	10.77	54.01	281.50	.21
4100.00	2.75	263.41	4098.99	10.42	-57.49	10.42	58.43	280.27	.33
4200.00	2.63	262.42	4198.88	9.84	-62.15	9.84	62.92	279.00	.13
4300.00	2.81	261.57	4298.77	9.18	-66.85	9.18	67.48	277.82	.18
4400.00	3.15	265.74	4398.64	8.62	-72.01	8.62	72.53	276.82	.40
4500.00	2.88	263.54	4498.50	8.13	-77.25	8.13	77.68	276.01	.29
4600.00	2.49	264.81	4598.39	7.65	-81.91	7.65	82.27	275.34	.39
4700.00	2.60	274.55	4698.29	7.64	-86.33	7.64	86.67	275.05	.45
4800.00	2.71	282.25	4798.18	8.32	-90.91	8.32	91.28	275.23	.37
4900.00	2.74	293.79	4898.07	9.78	-95.40	9.78	95.90	275.86	.55
5000.00	2.83	288.61	4997.95	11.54	-99.93	11.54	100.59	276.58	.27
5100.00	3.11	292.61	5097.82	13.37	-104.77	13.37	105.62	277.27	.35
5200.00	3.14	291.98	5197.67	15.43	-109.82	15.43	110.90	278.00	.05
5300.00	2.63	288.21	5297.54	17.18	-114.54	17.18	115.82	278.53	.54
5400.00	1.21	296.57	5397.48	18.37	-117.66	18.37	119.08	278.87	1.44
5500.00	.35	269.80	5497.47	18.84	-118.91	18.84	120.39	279.00	.91
5600.00	.51	158.07	5597.47	18.42	-119.05	18.42	120.47	278.80	.72
5700.00	.75	127.62	5697.47	17.61	-118.36	17.61	119.67	278.46	.40
5800.00	.86	138.78	5797.46	16.65	-117.35	16.65	118.53	278.07	.19
5900.00	1.29	133.37	5897.44	15.31	-116.04	15.31	117.04	277.52	.44
6000.00	1.53	116.05	5997.41	13.95	-114.02	13.95	114.87	276.98	.49
6100.00	1.34	109.94	6097.38	12.96	-111.72	12.96	112.47	276.62	.24
6200.00	.87	97.15	6197.36	12.47	-109.87	12.47	110.58	276.48	.53
6300.00	1.10	87.64	6297.34	12.42	-108.16	12.42	108.87	276.55	.28
6400.00	.89	78.20	6397.33	12.61	-106.44	12.61	107.18	276.76	.27
6500.00	1.23	80.60	6497.31	12.95	-104.62	12.95	105.42	277.06	.34
6600.00	.80	74.07	6597.30	13.32	-102.89	13.32	103.75	277.37	.44

Last Survey Depth Recorded

6700.00	1.04	89.11	6697.28	13.52	Page 3 -101.31	13.52	102.21	277.60	.34
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