



Job Number: SVGJ-140960
 Company: PDC
 Lease/Well: Degenhart 43-5
 Location: Adams County, CO
 Rig Name: MS Slickline #6000
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.48°
 Grid: East To True North
 File name: S:\2014SU-1\PDC\GJ\DEGENH-1\435.SVY
 Date/Time: 07-Aug-14 / 12:47
 Curve Name: Surface - 8300' 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	.34	190.99	100.00	-.29	-.06	-.29	.30	190.99	.34
200.00	.22	197.18	200.00	-.77	-.17	-.77	.78	192.50	.12
300.00	.37	224.37	300.00	-1.18	-.45	-1.18	1.26	200.97	.20
400.00	.90	236.04	399.99	-1.85	-1.33	-1.85	2.28	215.71	.54
500.00	1.65	250.96	499.97	-2.76	-3.34	-2.76	4.33	230.47	.81
600.00	1.94	257.00	599.92	-3.61	-6.35	-3.61	7.31	240.40	.35
700.00	1.97	261.05	699.86	-4.26	-9.70	-4.26	10.59	246.30	.14
800.00	1.96	255.48	799.80	-4.95	-13.05	-4.95	13.96	249.22	.19
900.00	2.02	253.21	899.74	-5.89	-16.40	-5.89	17.42	250.24	.10

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	2.11	252.74	999.67	-6.95	-19.84	-6.95	21.02	250.71	.09
1100.00	2.50	257.65	1099.59	-7.96	-23.73	-7.96	25.03	251.46	.44
1200.00	2.65	266.88	1199.49	-8.55	-28.17	-8.55	29.44	253.11	.44
1300.00	2.80	272.09	1299.38	-8.59	-32.92	-8.59	34.02	255.38	.29
1400.00	2.80	272.35	1399.26	-8.40	-37.80	-8.40	38.72	257.47	.01
1500.00	2.51	271.46	1499.15	-8.24	-42.43	-8.24	43.22	259.01	.29
1600.00	2.28	272.62	1599.07	-8.10	-46.60	-8.10	47.30	260.15	.24
1700.00	2.21	274.87	1698.99	-7.84	-50.51	-7.84	51.12	261.18	.11
1800.00	2.13	276.12	1798.92	-7.48	-54.28	-7.48	54.79	262.15	.09
1900.00	2.06	278.00	1898.85	-7.03	-57.91	-7.03	58.33	263.08	.10
2000.00	1.96	279.30	1998.79	-6.50	-61.38	-6.50	61.72	263.95	.11
2100.00	1.77	278.31	2098.74	-6.01	-64.59	-6.01	64.87	264.69	.19
2200.00	1.39	275.38	2198.70	-5.67	-67.33	-5.67	67.57	265.19	.39
2300.00	1.12	268.64	2298.67	-5.58	-69.51	-5.58	69.74	265.41	.31
2400.00	1.15	270.19	2398.65	-5.60	-71.49	-5.60	71.71	265.52	.04
2500.00	1.28	265.54	2498.63	-5.68	-73.61	-5.68	73.83	265.59	.16
2600.00	1.38	266.05	2598.60	-5.85	-75.92	-5.85	76.15	265.59	.10
2700.00	1.42	265.13	2698.57	-6.04	-78.36	-6.04	78.59	265.59	.05
2800.00	1.43	258.70	2798.54	-6.39	-80.82	-6.39	81.07	265.48	.16
2900.00	1.20	258.02	2898.52	-6.85	-83.07	-6.85	83.35	265.29	.23
3000.00	.97	266.17	2998.50	-7.12	-84.94	-7.12	85.23	265.21	.28
3100.00	.93	307.43	3098.49	-6.69	-86.42	-6.69	86.68	265.58	.67
3200.00	1.30	321.15	3198.47	-5.31	-87.78	-5.31	87.94	266.54	.45
3300.00	1.57	317.36	3298.44	-3.42	-89.42	-3.42	89.49	267.81	.29
3400.00	1.78	311.53	3398.39	-1.38	-91.51	-1.38	91.52	269.13	.27
3500.00	1.73	301.51	3498.35	.44	-93.96	.44	93.96	270.27	.31
3600.00	1.69	297.01	3598.30	1.89	-96.56	1.89	96.58	271.12	.14
3700.00	1.52	293.75	3698.26	3.10	-99.09	3.10	99.14	271.79	.19
3800.00	1.48	288.19	3798.23	4.04	-101.53	4.04	101.61	272.28	.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	1.48	280.65	3898.20	4.68	-104.03	4.68	104.13	272.57	.19
4000.00	1.61	272.14	3998.16	4.97	-106.70	4.97	106.81	272.67	.26
4100.00	1.65	264.57	4098.12	4.89	-109.54	4.89	109.64	272.55	.22
4200.00	1.78	264.70	4198.07	4.61	-112.52	4.61	112.61	272.34	.13
4300.00	1.73	253.97	4298.03	4.05	-115.51	4.05	115.58	272.01	.33
4400.00	1.72	231.33	4397.98	2.69	-118.13	2.69	118.17	271.30	.68
4500.00	1.83	213.73	4497.94	.42	-120.19	.42	120.19	270.20	.55
4600.00	1.90	213.70	4597.88	-2.28	-122.00	-2.28	122.02	268.93	.07
4700.00	1.95	216.41	4697.83	-5.03	-123.93	-5.03	124.03	267.68	.10
4800.00	1.97	222.91	4797.77	-7.66	-126.11	-7.66	126.34	266.52	.22
4900.00	1.85	233.71	4897.71	-9.87	-128.58	-9.87	128.96	265.61	.38
5000.00	1.80	246.86	4997.66	-11.45	-131.33	-11.45	131.82	265.02	.42
5100.00	1.81	250.00	5097.61	-12.60	-134.25	-12.60	134.84	264.64	.10
5200.00	1.72	251.96	5197.57	-13.61	-137.17	-13.61	137.84	264.33	.11
5300.00	1.77	243.89	5297.52	-14.75	-139.98	-14.75	140.75	263.98	.25
5400.00	1.65	238.31	5397.47	-16.19	-142.59	-16.19	143.51	263.52	.21
5500.00	1.53	237.53	5497.44	-17.66	-144.94	-17.66	146.01	263.05	.12
5600.00	1.54	233.55	5597.40	-19.18	-147.15	-19.18	148.39	262.58	.11
5700.00	1.36	234.17	5697.37	-20.67	-149.19	-20.67	150.62	262.11	.18
5800.00	1.37	239.15	5797.34	-21.98	-151.18	-21.98	152.77	261.73	.12
5900.00	1.27	242.53	5897.31	-23.10	-153.19	-23.10	154.92	261.42	.13
6000.00	1.13	243.92	5997.29	-24.05	-155.06	-24.05	156.91	261.19	.14
6100.00	1.20	244.76	6097.27	-24.93	-156.89	-24.93	158.86	260.97	.07
6200.00	1.25	243.85	6197.25	-25.85	-158.82	-25.85	160.91	260.75	.05
6300.00	1.05	247.11	6297.23	-26.69	-160.64	-26.69	162.84	260.57	.21
6400.00	1.14	260.15	6397.21	-27.22	-162.47	-27.22	164.73	260.49	.26
6500.00	1.24	260.57	6497.19	-27.56	-164.51	-27.56	166.81	260.49	.10
6600.00	1.42	260.52	6597.16	-27.95	-166.80	-27.95	169.13	260.49	.18
6700.00	1.33	254.40	6697.13	-28.46	-169.14	-28.46	171.52	260.45	.17

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	1.10	243.81	6797.11	-29.20	-171.12	-29.20	173.59	260.32	.32
6900.00	.76	236.26	6897.10	-29.99	-172.53	-29.99	175.12	260.14	.36
7000.00	.77	222.77	6997.09	-30.85	-173.54	-30.85	176.26	259.92	.18
7100.00	.79	222.25	7097.08	-31.85	-174.46	-31.85	177.35	259.65	.02
7200.00	.86	228.17	7197.07	-32.87	-175.48	-32.87	178.54	259.39	.11
7300.00	1.04	233.26	7297.05	-33.91	-176.77	-33.91	179.99	259.14	.20
7400.00	.61	197.89	7397.04	-34.96	-177.66	-34.96	181.07	258.87	.65
7500.00	.79	156.30	7497.04	-36.10	-177.55	-36.10	181.18	258.51	.52
7600.00	.60	171.39	7597.03	-37.25	-177.19	-37.25	181.07	258.13	.26
7700.00	1.17	162.01	7697.02	-38.73	-176.80	-38.73	180.99	257.64	.59
7800.00	1.35	178.75	7796.99	-40.88	-176.46	-40.88	181.13	256.96	.41
7900.00	.72	202.49	7896.98	-42.64	-176.67	-42.64	181.75	256.43	.75
8000.00	.68	226.32	7996.97	-43.63	-177.34	-43.63	182.63	256.18	.29
8100.00	.52	245.72	8096.97	-44.23	-178.19	-44.23	183.59	256.06	.26
8200.00	.19	9.06	8196.96	-44.25	-178.57	-44.25	183.97	256.08	.64

Last Survey Depth Recorded									
8300.00	.25	13.74	8296.96	-43.87	-178.49	-43.87	183.81	256.19	.06