



Job Number: SVGJ-141407
 Company: PDC
 Lease/Well: Henry 5-1
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.35°
 Grid: East To True North
 File name: S:\2014SU~1\PDC\GJ\HENRY\51.SVY
 Date/Time: 18-Dec-14 / 10:56
 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	.37	139.00	100.00	-.24	.21	-.24	.32	139.00	.37
200.00	.47	159.42	200.00	-.87	.57	-.87	1.04	146.91	.18
300.00	.69	153.41	299.99	-1.79	.98	-1.79	2.04	151.31	.23
400.00	.95	140.18	399.98	-2.97	1.78	-2.97	3.46	149.03	.32
500.00	.95	139.72	499.97	-4.24	2.85	-4.24	5.11	146.09	.01
600.00	.86	143.71	599.96	-5.48	3.83	-5.48	6.68	145.04	.11
700.00	.78	155.68	699.94	-6.70	4.55	-6.70	8.10	145.80	.19
800.00	.84	170.17	799.93	-8.04	4.96	-8.04	9.45	148.34	.21
900.00	.72	186.71	899.93	-9.39	5.01	-9.39	10.64	151.91	.25

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	.89	192.24	999.92	-10.77	4.77	-10.77	11.78	156.10	.19
1100.00	.78	198.83	1099.91	-12.18	4.39	-12.18	12.94	160.18	.15
1200.00	.87	199.56	1199.89	-13.54	3.91	-13.54	14.09	163.87	.09
1300.00	.71	211.62	1299.89	-14.78	3.34	-14.78	15.15	167.28	.23
1400.00	.79	209.32	1399.88	-15.91	2.67	-15.91	16.13	170.46	.09
1500.00	.71	234.45	1499.87	-16.87	1.83	-16.87	16.97	173.80	.34
1600.00	.69	245.87	1599.86	-17.47	.78	-17.47	17.49	177.45	.14
1700.00	.75	260.05	1699.85	-17.83	-.42	-17.83	17.84	181.34	.19
1800.00	.65	280.03	1799.85	-17.85	-1.62	-17.85	17.92	185.19	.26
1900.00	.49	277.91	1899.84	-17.69	-2.60	-17.69	17.88	188.37	.16
2000.00	.49	274.13	1999.84	-17.60	-3.45	-17.60	17.94	191.10	.03
2100.00	.35	274.14	2099.83	-17.55	-4.18	-17.55	18.04	193.41	.14
2200.00	.39	269.70	2199.83	-17.53	-4.83	-17.53	18.18	195.40	.05
2300.00	.50	277.02	2299.83	-17.48	-5.60	-17.48	18.35	197.77	.12
2400.00	.39	271.44	2399.83	-17.41	-6.37	-17.41	18.54	200.11	.12
2500.00	.52	278.13	2499.82	-17.34	-7.16	-17.34	18.76	202.45	.14
2600.00	.41	265.90	2599.82	-17.30	-7.97	-17.30	19.05	204.73	.15
2700.00	.50	277.67	2699.82	-17.27	-8.76	-17.27	19.36	206.89	.13
2800.00	.36	264.37	2799.81	-17.24	-9.50	-17.24	19.69	208.86	.17
2900.00	.22	245.09	2899.81	-17.35	-9.99	-17.35	20.03	209.93	.17
3000.00	.14	245.27	2999.81	-17.49	-10.28	-17.49	20.28	210.44	.08
3100.00	.20	220.00	3099.81	-17.67	-10.50	-17.67	20.56	210.72	.09
3200.00	.10	93.76	3199.81	-17.81	-10.52	-17.81	20.69	210.58	.27
3300.00	.14	130.39	3299.81	-17.90	-10.34	-17.90	20.67	210.03	.08
3400.00	.19	4.11	3399.81	-17.81	-10.24	-17.81	20.54	209.90	.30
3500.00	.25	21.09	3499.81	-17.44	-10.15	-17.44	20.18	210.20	.09
3600.00	.22	48.45	3599.81	-17.11	-9.93	-17.11	19.78	210.12	.11
3700.00	.32	72.71	3699.81	-16.90	-9.52	-16.90	19.39	209.39	.15
3800.00	.32	95.96	3799.81	-16.85	-8.97	-16.85	19.09	208.04	.13

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	.34	115.36	3899.81	-17.00	-8.43	-17.00	18.97	206.36	.11
4000.00	.58	126.26	3999.80	-17.43	-7.75	-17.43	19.07	203.98	.25
4100.00	.79	157.01	4099.80	-18.36	-7.07	-18.36	19.68	201.07	.42
4200.00	.86	156.09	4199.78	-19.68	-6.50	-19.68	20.73	198.27	.07
4300.00	.89	163.17	4299.77	-21.11	-5.97	-21.11	21.94	195.79	.11
4400.00	.89	146.09	4399.76	-22.50	-5.31	-22.50	23.12	193.28	.26
4500.00	1.04	150.78	4499.75	-23.94	-4.44	-23.94	24.34	190.50	.17
4600.00	1.33	140.57	4599.73	-25.62	-3.26	-25.62	25.83	187.24	.36
4700.00	1.39	153.07	4699.70	-27.60	-1.97	-27.60	27.67	184.08	.30
4800.00	1.17	157.25	4799.67	-29.63	-1.03	-29.63	29.64	181.98	.24
4900.00	1.09	162.91	4899.65	-31.48	-.35	-31.48	31.48	180.64	.14
5000.00	.84	158.10	4999.64	-33.07	.20	-33.07	33.07	179.65	.26
5100.00	.80	162.27	5099.63	-34.41	.69	-34.41	34.42	178.85	.07
5200.00	.69	150.97	5199.62	-35.60	1.19	-35.60	35.62	178.08	.18
5300.00	.53	138.65	5299.61	-36.48	1.79	-36.48	36.52	177.19	.21
5400.00	.62	131.08	5399.61	-37.18	2.50	-37.18	37.26	176.15	.12
5500.00	.59	111.64	5499.60	-37.72	3.39	-37.72	37.88	174.86	.21
5600.00	.67	102.84	5599.60	-38.04	4.44	-38.04	38.30	173.34	.13
5700.00	.69	94.60	5699.59	-38.22	5.61	-38.22	38.63	171.65	.10
5800.00	.64	101.92	5799.58	-38.39	6.76	-38.39	38.98	170.02	.10
5900.00	.80	93.20	5899.58	-38.54	8.00	-38.54	39.36	168.27	.19
6000.00	.82	91.69	5999.57	-38.60	9.41	-38.60	39.73	166.30	.03
6100.00	1.21	89.94	6099.55	-38.62	11.18	-38.62	40.21	163.85	.39
6200.00	.77	79.27	6199.54	-38.49	12.90	-38.49	40.60	161.47	.48
6300.00	.98	96.11	6299.52	-38.46	14.41	-38.46	41.07	159.46	.33
6400.00	.88	95.00	6399.51	-38.62	16.02	-38.62	41.81	157.46	.10
6500.00	.98	97.33	6499.50	-38.79	17.64	-38.79	42.61	155.55	.11
6600.00	1.01	84.45	6599.48	-38.82	19.36	-38.82	43.38	153.49	.23
6700.00	.96	93.54	6699.47	-38.78	21.08	-38.78	44.14	151.48	.16

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	.98	84.69	6799.45	-38.76	22.76	-38.76	44.95	149.57	.15