



Job Number: SVGJ-141051  
 Company: PDC  
 Lease/Well: Gittlein 12-1  
 Location: Weld County, CO  
 Rig Name: MS Energy Wireline  
 RKB: 0'  
 G.L. or M.S.L.: GL

State/Country: Colorado/USA  
 Declination: 8.52°  
 Grid: East To True North  
 File name: S:\2014SU-1\PDC\GJ\GITTLEIN\121.SVY  
 Date/Time: 27-Aug-14 / 13:24  
 Curve Name: Surface - 7200' 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	.61	285.85	100.00	.15	-.51	.15	.53	285.85	.61
200.00	.28	255.99	200.00	.23	-1.26	.23	1.28	280.41	.39
300.00	.28	280.98	299.99	.22	-1.74	.22	1.75	277.18	.12
400.00	.53	218.64	399.99	-.10	-2.27	-.10	2.27	267.58	.47
500.00	.53	220.65	499.99	-.81	-2.86	-.81	2.97	254.21	.02
600.00	.66	215.27	599.98	-1.63	-3.49	-1.63	3.85	244.98	.14
700.00	.76	231.83	699.97	-2.51	-4.34	-2.51	5.02	239.99	.23
800.00	.58	235.30	799.97	-3.21	-5.28	-3.21	6.18	238.74	.18
900.00	.63	247.53	899.96	-3.71	-6.21	-3.71	7.23	239.16	.14

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	.82	235.20	999.95	-4.32	-7.30	-4.32	8.49	239.37	.24
1100.00	.79	233.52	1099.94	-5.14	-8.44	-5.14	9.89	238.66	.04
1200.00	.73	249.43	1199.94	-5.78	-9.59	-5.78	11.20	238.95	.22
1300.00	.67	230.82	1299.93	-6.37	-10.64	-6.37	12.40	239.11	.23
1400.00	.80	246.95	1399.92	-7.01	-11.74	-7.01	13.67	239.15	.24
1500.00	.80	238.52	1499.91	-7.65	-12.98	-7.65	15.06	239.48	.12
1600.00	.63	244.25	1599.90	-8.25	-14.07	-8.25	16.31	239.60	.18
1700.00	.66	254.07	1699.90	-8.65	-15.12	-8.65	17.42	240.22	.11
1800.00	.29	189.14	1799.89	-9.06	-15.71	-9.06	18.14	240.04	.60
1900.00	.13	169.71	1899.89	-9.42	-15.73	-9.42	18.34	239.09	.17
2000.00	.36	166.96	1999.89	-9.84	-15.64	-9.84	18.48	237.83	.23
2100.00	.26	147.38	2099.89	-10.33	-15.45	-10.33	18.58	236.22	.14
2200.00	.61	274.36	2199.89	-10.48	-15.86	-10.48	19.01	236.52	.79
2300.00	.84	296.92	2299.88	-10.11	-17.04	-10.11	19.81	239.31	.36
2400.00	.84	297.30	2399.87	-9.44	-18.34	-9.44	20.63	242.76	.01
2500.00	.53	284.63	2499.86	-8.99	-19.44	-8.99	21.42	245.18	.34
2600.00	.55	296.36	2599.86	-8.66	-20.32	-8.66	22.09	246.91	.11
2700.00	.41	263.18	2699.85	-8.49	-21.11	-8.49	22.75	248.09	.31
2800.00	.34	279.15	2799.85	-8.49	-21.75	-8.49	23.35	248.69	.13
2900.00	.43	286.78	2899.85	-8.33	-22.41	-8.33	23.91	249.61	.10
3000.00	.47	235.01	2999.85	-8.46	-23.10	-8.46	24.60	249.89	.39
3100.00	.58	245.84	3099.84	-8.90	-23.90	-8.90	25.50	249.58	.15
3200.00	.45	201.95	3199.84	-9.47	-24.51	-9.47	26.27	248.87	.40
3300.00	.63	212.62	3299.84	-10.30	-24.95	-10.30	26.99	247.57	.21
3400.00	.41	222.04	3399.83	-11.03	-25.49	-11.03	27.77	246.60	.24
3500.00	.29	236.73	3499.83	-11.43	-25.94	-11.43	28.35	246.22	.15
3600.00	.47	229.18	3599.83	-11.84	-26.46	-11.84	28.99	245.90	.19
3700.00	.46	240.99	3699.82	-12.30	-27.12	-12.30	29.78	245.60	.10
3800.00	.32	239.93	3799.82	-12.64	-27.71	-12.64	30.46	245.49	.14

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	.51	244.82	3899.82	-12.97	-28.36	-12.97	31.18	245.43	.19
4000.00	.42	265.59	3999.82	-13.18	-29.13	-13.18	31.97	245.65	.19
4100.00	.35	279.86	4099.81	-13.16	-29.79	-13.16	32.57	246.17	.12
4200.00	.52	284.80	4199.81	-12.99	-30.53	-12.99	33.18	246.95	.17
4300.00	.33	290.24	4299.81	-12.78	-31.24	-12.78	33.75	247.76	.19
4400.00	.47	239.89	4399.81	-12.88	-31.87	-12.88	34.37	247.99	.36
4500.00	.35	260.85	4499.80	-13.14	-32.52	-13.14	35.08	248.01	.19
4600.00	.70	246.53	4599.80	-13.43	-33.39	-13.43	35.98	248.09	.37
4700.00	.43	283.27	4699.79	-13.58	-34.31	-13.58	36.90	248.40	.44
4800.00	.95	247.69	4799.79	-13.81	-35.44	-13.81	38.04	248.71	.65
4900.00	.53	316.14	4899.78	-13.79	-36.53	-13.79	39.05	249.31	.90
5000.00	.55	252.98	4999.78	-13.60	-37.31	-13.60	39.71	249.97	.57
5100.00	.40	208.74	5099.77	-14.05	-37.94	-14.05	40.45	249.68	.38
5200.00	.26	345.98	5199.77	-14.13	-38.16	-14.13	40.69	249.68	.62
5300.00	.24	322.86	5299.77	-13.75	-38.34	-13.75	40.73	250.28	.10
5400.00	.53	302.06	5399.77	-13.33	-38.86	-13.33	41.08	251.06	.32
5500.00	.83	326.22	5499.76	-12.49	-39.65	-12.49	41.57	252.52	.41
5600.00	.68	331.91	5599.75	-11.36	-40.34	-11.36	41.91	254.27	.17
5700.00	.77	299.40	5699.75	-10.51	-41.20	-10.51	42.52	255.69	.41
5800.00	.79	290.93	5799.74	-9.93	-42.43	-9.93	43.58	256.83	.12
5900.00	.80	298.95	5899.73	-9.35	-43.69	-9.35	44.67	257.92	.11
6000.00	.54	286.47	5999.72	-8.88	-44.75	-8.88	45.62	258.78	.30
6100.00	.42	260.15	6099.72	-8.81	-45.56	-8.81	46.40	259.06	.25
6200.00	.58	227.00	6199.71	-9.21	-46.29	-9.21	47.20	258.74	.32
6300.00	.97	231.67	6299.70	-10.08	-47.33	-10.08	48.39	257.97	.39
6400.00	.86	236.08	6399.69	-11.03	-48.61	-11.03	49.85	257.22	.13
6500.00	.67	229.05	6499.68	-11.83	-49.68	-11.83	51.07	256.61	.21
6600.00	.71	202.41	6599.67	-12.78	-50.36	-12.78	51.95	255.75	.32
6700.00	.86	193.67	6699.67	-14.09	-50.77	-14.09	52.69	254.49	.19

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	.98	189.74	6799.65	-15.66	-51.09	-15.66	53.44	252.96	.14
6900.00	1.79	183.98	6899.62	-18.06	-51.34	-18.06	54.43	250.62	.82
7000.00	1.27	172.96	6999.59	-20.72	-51.32	-20.72	55.34	248.01	.60
7100.00	1.04	51.53	7099.58	-21.25	-50.47	-21.25	54.76	247.16	2.02
<b>Last Survey Depth Recorded</b>									
7200.00	1.27	34.70	7199.56	-19.78	-49.13	-19.78	52.96	248.07	.41