



Job Number: SVGJ-140321  
 Company: PDC  
 Lease/Well: Peterson 5  
 Location: Weld County, CO  
 Rig Name: MS Slickline  
 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\PETERSON\5.SVY  
 Date/Time: 21-Mar-14 / 08:53  
 Curve Name: Surface - 6632' 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*

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	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.44	221.89	100.00	-.29	-.26	-.29	.38	221.89	.44
200.00	.31	355.28	200.00	-.30	-.54	-.30	.61	240.55	.69
300.00	.18	201.52	300.00	-.18	-.61	-.18	.64	253.81	.48
400.00	.37	53.00	400.00	-.13	-.41	-.13	.43	252.54	.53
500.00	.32	244.27	500.00	-.06	-.41	-.06	.41	262.01	.69
600.00	.37	6.95	600.00	.14	-.62	.14	.64	282.88	.61
700.00	.31	172.65	699.99	.19	-.55	.19	.58	289.54	.67
800.00	.36	356.03	799.99	.24	-.53	.24	.59	294.13	.67
900.00	.36	212.21	899.99	.29	-.72	.29	.78	291.63	.68

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	.34	15.26	999.99	.31	-.81	.31	.87	290.71	.69
1100.00	.23	171.06	1099.99	.40	-.70	.40	.81	299.33	.56
1200.00	.40	9.59	1199.99	.54	-.61	.54	.82	311.38	.62
1300.00	.31	270.46	1299.99	.89	-.83	.89	1.21	317.04	.54
1400.00	.78	.98	1399.99	1.57	-1.09	1.57	1.91	325.35	.84
1500.00	.50	320.92	1499.98	2.59	-1.35	2.59	2.92	332.49	.51
1600.00	.85	328.62	1599.97	3.56	-2.01	3.56	4.09	330.56	.36
1700.00	.99	352.20	1699.96	5.05	-2.51	5.05	5.64	333.54	.40
1800.00	.69	357.99	1799.95	6.51	-2.65	6.51	7.03	337.83	.31
1900.00	.43	263.09	1899.95	7.06	-3.05	7.06	7.69	336.68	.84
2000.00	.94	276.77	1999.94	7.12	-4.23	7.12	8.28	329.26	.53
2100.00	.80	290.75	2099.93	7.46	-5.70	7.46	9.39	322.62	.25
2200.00	.82	227.72	2199.92	7.23	-6.88	7.23	9.98	316.40	.85
2300.00	1.08	230.35	2299.91	6.14	-8.14	6.14	10.20	307.05	.26
2400.00	1.04	251.96	2399.89	5.26	-9.73	5.26	11.06	298.41	.40
2500.00	1.09	243.44	2499.87	4.55	-11.44	4.55	12.31	291.71	.17
2600.00	1.15	237.02	2599.85	3.58	-13.13	3.58	13.61	285.26	.14
2700.00	1.25	228.37	2699.83	2.31	-14.79	2.31	14.97	278.89	.21
2800.00	1.11	198.70	2799.81	.67	-15.92	.67	15.93	272.41	.62
2900.00	.85	225.72	2899.80	-.76	-16.76	-.76	16.77	267.39	.52
3000.00	1.09	215.80	2999.78	-2.05	-17.84	-2.05	17.96	263.43	.29
3100.00	1.52	196.04	3099.76	-4.10	-18.77	-4.10	19.21	257.68	.62
3200.00	1.64	180.51	3199.72	-6.81	-19.15	-6.81	20.32	250.43	.44
3300.00	1.62	155.78	3299.68	-9.53	-18.58	-9.53	20.88	242.85	.70
3400.00	1.37	151.16	3399.65	-11.86	-17.42	-11.86	21.08	235.75	.28
3500.00	1.37	149.56	3499.62	-13.94	-16.24	-13.94	21.40	229.36	.04
3600.00	1.47	159.31	3599.59	-16.17	-15.18	-16.17	22.18	223.19	.26
3700.00	2.06	154.89	3699.54	-19.00	-13.97	-19.00	23.58	216.32	.61
3800.00	1.99	137.47	3799.48	-21.90	-12.03	-21.90	24.99	208.77	.62

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	2.26	149.33	3899.41	-24.88	-9.85	-24.88	26.76	201.60	.51
4000.00	2.88	154.25	3999.31	-28.84	-7.75	-28.84	29.86	195.05	.66
4100.00	3.47	152.53	4099.15	-33.79	-5.27	-33.79	34.19	188.86	.60
4200.00	3.88	151.80	4198.95	-39.45	-2.27	-39.45	39.52	183.29	.41
4300.00	4.04	143.80	4298.71	-45.28	1.41	-45.28	45.30	178.22	.57
4400.00	3.76	141.70	4398.48	-50.69	5.52	-50.69	50.99	173.78	.31
4500.00	3.61	142.30	4498.27	-55.76	9.48	-55.76	56.56	170.35	.15
4600.00	3.40	131.11	4598.09	-60.20	13.64	-60.20	61.72	167.23	.71
4700.00	3.54	120.61	4697.90	-63.72	18.53	-63.72	66.36	163.79	.65
4800.00	3.52	115.25	4797.71	-66.60	23.96	-66.60	70.78	160.21	.33
4900.00	2.98	118.78	4897.55	-69.16	29.02	-69.16	75.00	157.24	.58
5000.00	2.31	128.65	4997.45	-71.67	32.87	-71.67	78.85	155.36	.81
5100.00	2.14	155.88	5097.37	-74.64	35.21	-74.64	82.52	154.75	1.06
5200.00	2.36	171.31	5197.30	-78.38	36.28	-78.38	86.37	155.16	.64
5300.00	1.85	168.65	5297.23	-81.99	36.91	-81.99	89.92	155.76	.52
5400.00	2.11	189.29	5397.17	-85.39	36.93	-85.39	93.04	156.61	.75
5500.00	2.41	187.39	5497.09	-89.29	36.36	-89.29	96.41	157.84	.31
5600.00	2.59	188.93	5597.00	-93.61	35.74	-93.61	100.20	159.10	.19
5700.00	2.59	187.57	5696.90	-98.08	35.09	-98.08	104.17	160.31	.06
5800.00	1.96	193.26	5796.82	-101.99	34.40	-101.99	107.63	161.36	.67
5900.00	2.58	192.50	5896.74	-105.85	33.52	-105.85	111.03	162.43	.62
6000.00	2.05	200.28	5996.66	-109.72	32.42	-109.72	114.41	163.54	.61
6100.00	2.62	189.28	6096.57	-113.66	31.43	-113.66	117.92	164.54	.72
6200.00	3.14	166.48	6196.45	-118.58	31.70	-118.58	122.74	165.03	1.25
6300.00	2.69	135.77	6296.33	-122.92	33.98	-122.92	127.53	164.55	1.60
6400.00	3.11	122.55	6396.20	-126.06	37.90	-126.06	131.64	163.27	.79
6500.00	2.81	110.25	6496.07	-128.37	42.49	-128.37	135.22	161.69	.70
6600.00	2.70	105.62	6595.95	-129.85	47.06	-129.85	138.12	160.08	.25

**Last Survey Depth Recorded**

6632.00	2.76	113.66	6627.92	-130.37	48.49	-130.37	139.09	159.60	1.21
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