



Job Number: SVGJ-170058 - API: 05-123-20710

Company: PDC

Lease/Well: State Peterson 41-16

Location: Weld County, CO

Rig Name: MS Slickline 2788

RKB: 0'

G.L. or M.S.L.: GL

State/Country: Colorado/USA

Declination: 8.2°

Grid: East To True North

File name: C:\WINSER~1\2017\PDC\GJ\STATE\PETERSON\4116.SVY

Date/Time: 01-May-17 / 14:56

Curve Name: Surface - 6650' M.D. (Rate Gyro)

Lat: 40.405041 Long: -104.43442

MS Energy

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Declination To True North: 6.375°
 Grid Convergence Factor: -0° 59' 40.99841"
 Total Correction Mag to Grid: 7.4°

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	.13	304.65	100.00	.06	-.09	.06	.11	304.66	.13
200.00	.15	248.83	200.00	.08	-.31	.08	.32	284.83	.13
300.00	.12	228.12	300.00	-.04	-.51	-.04	.51	266.02	.06
400.00	.07	238.49	400.00	-.14	-.64	-.14	.65	257.87	.05
500.00	.23	333.34	500.00	.01	-.78	.01	.78	270.75	.25
600.00	.29	332.25	600.00	.41	-.99	.41	1.07	292.69	.06
700.00	.33	326.56	700.00	.88	-1.27	.88	1.54	304.75	.05
800.00	.33	314.17	799.99	1.32	-1.63	1.32	2.10	308.96	.07
900.00	.26	332.76	899.99	1.72	-1.94	1.72	2.59	311.56	.12
1000.00	.29	331.35	999.99	2.14	-2.17	2.14	3.05	314.72	.03
1100.00	.28	326.37	1099.99	2.57	-2.42	2.57	3.53	316.69	.03
1200.00	.39	323.34	1199.99	3.05	-2.76	3.05	4.11	317.81	.11

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	
1300.00	.29	330.31	1299.99	3.54	-3.09	3.54	4.70	318.88	.11
1400.00	.50	309.28	1399.99	4.04	-3.55	4.04	5.38	318.64	.25
1500.00	.35	307.26	1499.98	4.50	-4.13	4.50	6.11	317.41	.15
1600.00	.54	310.17	1599.98	4.99	-4.74	4.99	6.88	316.47	.19
1700.00	.42	287.13	1699.98	5.40	-5.45	5.40	7.67	314.74	.22
1800.00	.27	292.32	1799.97	5.60	-6.02	5.60	8.22	312.93	.15
1900.00	.34	244.92	1899.97	5.56	-6.50	5.56	8.55	310.53	.25
2000.00	.49	213.06	1999.97	5.07	-7.00	5.07	8.65	305.92	.27
2100.00	.58	199.04	2099.97	4.24	-7.40	4.24	8.53	299.79	.16
2200.00	.86	157.90	2199.96	3.06	-7.29	3.06	7.90	292.81	.57
2300.00	1.12	148.51	2299.94	1.54	-6.49	1.54	6.67	283.31	.31
2400.00	1.14	144.39	2399.92	-.11	-5.40	-.11	5.40	268.87	.08
2500.00	1.00	147.57	2499.91	-1.65	-4.36	-1.65	4.66	249.23	.15
2600.00	1.02	155.28	2599.89	-3.20	-3.52	-3.20	4.75	227.72	.14
2700.00	1.06	147.25	2699.87	-4.78	-2.64	-4.78	5.46	208.92	.15
2800.00	.98	149.88	2799.86	-6.30	-1.71	-6.30	6.53	195.21	.09
2900.00	1.26	156.61	2899.84	-8.05	-.85	-8.05	8.09	186.01	.31
3000.00	1.30	162.86	2999.81	-10.14	-.08	-10.14	10.14	180.44	.15
3100.00	1.02	173.05	3099.79	-12.11	.36	-12.11	12.12	178.27	.35
3200.00	.58	180.98	3199.78	-13.50	.46	-13.50	13.51	178.03	.45
3300.00	.59	168.07	3299.78	-14.51	.56	-14.51	14.52	177.78	.13
3400.00	.88	179.57	3399.77	-15.78	.67	-15.78	15.80	177.55	.32
3500.00	.91	182.33	3499.76	-17.34	.65	-17.34	17.35	177.86	.05
3600.00	.94	182.24	3599.75	-18.96	.58	-18.96	18.96	178.24	.03
3700.00	.96	179.82	3699.73	-20.61	.55	-20.61	20.62	178.46	.04
3800.00	1.02	177.26	3799.72	-22.34	.60	-22.34	22.35	178.46	.07
3900.00	1.00	170.58	3899.70	-24.09	.78	-24.09	24.10	178.14	.12
4000.00	1.02	171.44	3999.69	-25.83	1.06	-25.83	25.85	177.65	.03
4100.00	1.03	170.54	4099.67	-27.60	1.34	-27.60	27.63	177.22	.02
4200.00	.97	163.52	4199.65	-29.30	1.73	-29.30	29.35	176.63	.14
4300.00	.94	156.09	4299.64	-30.86	2.30	-30.86	30.94	175.74	.13
4400.00	1.40	153.09	4399.62	-32.70	3.19	-32.70	32.85	174.44	.46
4500.00	.56	195.76	4499.61	-34.26	3.61	-34.26	34.45	173.99	1.06
4600.00	.63	282.72	4599.60	-34.61	2.94	-34.61	34.73	175.15	.82

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	
4700.00	1.06	293.28	4699.59	-34.12	1.55	-34.12	34.15	177.40	.46
4800.00	2.06	307.25	4799.55	-32.67	-.73	-32.67	32.67	181.28	1.06
4900.00	2.09	304.27	4899.49	-30.55	-3.67	-30.55	30.77	186.84	.11
5000.00	2.44	303.73	4999.41	-28.34	-6.94	-28.34	29.18	193.77	.35
5100.00	2.21	303.74	5099.33	-26.09	-10.32	-26.09	28.06	201.58	.23
5200.00	1.65	309.18	5199.27	-24.11	-13.04	-24.11	27.41	208.40	.59
5300.00	1.34	324.27	5299.24	-22.25	-14.84	-22.25	26.74	213.70	.50
5400.00	.82	336.36	5399.22	-20.65	-15.81	-20.65	26.00	217.44	.56
5500.00	.58	12.72	5499.21	-19.50	-15.98	-19.50	25.21	219.34	.49
5600.00	.56	27.92	5599.21	-18.57	-15.64	-18.57	24.28	220.11	.15
5700.00	.56	52.50	5699.20	-17.84	-15.02	-17.84	23.32	220.10	.24
5800.00	.88	74.34	5799.19	-17.34	-13.90	-17.34	22.22	218.72	.42
5900.00	.90	71.03	5899.18	-16.87	-12.42	-16.87	20.95	216.35	.06
6000.00	.92	81.79	5999.17	-16.50	-10.88	-16.50	19.77	213.39	.17
6100.00	.75	66.85	6099.16	-16.13	-9.48	-16.13	18.71	210.45	.27
6200.00	.95	55.76	6199.15	-15.41	-8.19	-15.41	17.45	208.01	.26
6300.00	.83	68.71	6299.14	-14.68	-6.83	-14.68	16.19	204.97	.23
6400.00	1.01	64.63	6399.12	-14.04	-5.36	-14.04	15.03	200.91	.19
6500.00	.91	72.27	6499.11	-13.42	-3.81	-13.42	13.95	195.85	.16
6600.00	1.03	71.34	6599.09	-12.89	-2.20	-12.89	13.08	189.70	.12
Last Survey Depth Recorded									
6650.00	1.14	65.60	6649.08	-12.54	-1.32	-12.54	12.61	186.03	.31