

Job Number: SVGJ-150318

Company: PDC

Lease/Well: French 1

Location: Weld County, CO

Rig Name: MS Slickline

RKB: 0'

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

State/Country: Colorado/USA

Declination: 8.39°

Grid: East To True North

File name: W:\WINSER~1\2015SU~1\PDC\GJ\FRENCH\1.SVY

Date/Time: 14-Dec-15 / 11:43

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	106.56	100.00	-.09	.31	-.09	.32	106.56	.37
200.00	.12	44.31	200.00	-.11	.69	-.11	.70	98.96	.33
300.00	.25	53.18	300.00	.10	.94	.10	.94	84.13	.13
400.00	.24	94.73	400.00	.21	1.32	.21	1.34	80.98	.17
500.00	.23	136.37	500.00	.05	1.67	.05	1.67	88.37	.17
600.00	.33	94.32	600.00	-.12	2.10	-.12	2.10	93.26	.22
700.00	.17	159.61	699.99	-.28	2.44	-.28	2.45	96.56	.30
800.00	.27	167.33	799.99	-.65	2.54	-.65	2.62	104.35	.10
900.00	.50	130.04	899.99	-1.16	2.92	-1.16	3.15	111.63	.33
1000.00	.23	96.07	999.99	-1.46	3.46	-1.46	3.75	112.91	.33
1100.00	.16	178.61	1099.99	-1.62	3.66	-1.62	4.00	113.90	.26
1200.00	.36	115.77	1199.99	-1.90	3.95	-1.90	4.38	115.69	.32

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	.05	131.49	1299.99	-2.06	4.26	-2.06	4.74	115.84	.31
1400.00	.37	123.67	1399.99	-2.27	4.56	-2.27	5.10	116.46	.32
1500.00	.60	96.53	1499.98	-2.51	5.35	-2.51	5.91	115.13	.32
1600.00	.55	95.85	1599.98	-2.62	6.35	-2.62	6.87	112.41	.05
1700.00	.41	121.69	1699.97	-2.86	7.13	-2.86	7.68	111.82	.25
1800.00	.53	149.87	1799.97	-3.44	7.67	-3.44	8.41	114.18	.26
1900.00	.80	131.56	1899.96	-4.31	8.42	-4.31	9.46	117.08	.34
2000.00	.62	124.90	1999.96	-5.08	9.39	-5.08	10.68	118.41	.20
2100.00	1.15	155.23	2099.95	-6.30	10.25	-6.30	12.03	121.57	.69
2200.00	1.28	167.89	2199.92	-8.30	10.91	-8.30	13.71	127.28	.30
2300.00	1.20	180.39	2299.90	-10.44	11.14	-10.44	15.27	133.16	.28
2400.00	.93	196.62	2399.88	-12.27	10.90	-12.27	16.41	138.39	.40
2500.00	.76	206.19	2499.87	-13.64	10.37	-13.64	17.14	142.75	.22
2600.00	.60	220.70	2599.86	-14.63	9.74	-14.63	17.58	146.36	.23
2700.00	.63	217.46	2699.86	-15.47	9.06	-15.47	17.93	149.63	.05
2800.00	.58	205.28	2799.85	-16.36	8.51	-16.36	18.44	152.51	.14
2900.00	.41	188.84	2899.85	-17.17	8.24	-17.17	19.05	154.36	.22
3000.00	.33	185.78	2999.85	-17.81	8.16	-17.81	19.59	155.40	.08
3100.00	.26	187.93	3099.85	-18.32	8.10	-18.32	20.03	156.16	.07
3200.00	.46	283.32	3199.84	-18.45	7.67	-18.45	19.99	157.42	.55
3300.00	.51	293.36	3299.84	-18.19	6.87	-18.19	19.44	159.29	.10
3400.00	.53	292.61	3399.84	-17.83	6.04	-17.83	18.83	161.29	.02
3500.00	.38	301.97	3499.83	-17.48	5.33	-17.48	18.27	163.04	.17
3600.00	.15	340.95	3599.83	-17.18	5.01	-17.18	17.89	163.75	.28
3700.00	.05	103.92	3699.83	-17.07	5.01	-17.07	17.78	163.65	.18
3800.00	.19	34.01	3799.83	-16.94	5.14	-16.94	17.70	163.11	.18
3900.00	.21	75.48	3899.83	-16.76	5.41	-16.76	17.61	162.10	.14
4000.00	.16	80.80	3999.83	-16.69	5.73	-16.69	17.64	161.06	.05
4100.00	.44	55.10	4099.83	-16.44	6.18	-16.44	17.57	159.40	.30
4200.00	.25	41.07	4199.83	-16.06	6.64	-16.06	17.38	157.54	.21
4300.00	.14	1.27	4299.83	-15.77	6.78	-15.77	17.17	156.73	.17
4400.00	.22	201.29	4399.83	-15.83	6.72	-15.83	17.20	157.01	.35
4500.00	.21	122.93	4499.83	-16.11	6.80	-16.11	17.49	157.11	.27
4600.00	.28	111.75	4599.83	-16.30	7.18	-16.30	17.81	156.22	.08

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	.80	96.59	4699.82	-16.47	8.10	-16.47	18.36	153.81	.53
4800.00	1.61	111.57	4799.80	-17.07	10.10	-17.07	19.83	149.38	.86
4900.00	1.44	117.24	4899.76	-18.16	12.53	-18.16	22.06	145.40	.23
5000.00	1.21	128.85	4999.74	-19.40	14.47	-19.40	24.20	143.28	.35
5100.00	1.16	140.70	5099.72	-20.84	15.93	-20.84	26.23	142.61	.25
5200.00	1.16	153.92	5199.69	-22.53	17.01	-22.53	28.24	142.94	.27
5300.00	1.12	167.79	5299.68	-24.40	17.67	-24.40	30.12	144.09	.28
5400.00	.98	186.65	5399.66	-26.20	17.77	-26.20	31.66	145.85	.37
5500.00	.64	208.72	5499.65	-27.54	17.41	-27.54	32.58	147.71	.46
5600.00	.55	241.91	5599.64	-28.26	16.72	-28.26	32.83	149.39	.35
5700.00	.79	254.90	5699.64	-28.66	15.63	-28.66	32.65	151.40	.28
5800.00	1.06	262.33	5799.62	-28.97	14.04	-28.97	32.19	154.13	.29
5900.00	1.16	263.44	5899.60	-29.21	12.12	-29.21	31.62	157.46	.10
6000.00	1.15	263.70	5999.58	-29.43	10.12	-29.43	31.12	161.03	.01
6100.00	1.14	255.77	6099.56	-29.79	8.16	-29.79	30.88	164.69	.16
6200.00	.76	261.65	6199.55	-30.13	6.54	-30.13	30.83	167.76	.39
6300.00	.68	305.02	6299.54	-29.88	5.39	-29.88	30.37	169.77	.54
6400.00	.61	344.87	6399.54	-29.03	4.77	-29.03	29.42	170.67	.44
6500.00	.42	7.20	6499.53	-28.15	4.68	-28.15	28.54	170.57	.27
6600.00	.49	15.17	6599.53	-27.37	4.83	-27.37	27.80	169.99	.09
6700.00	.25	51.17	6699.53	-26.82	5.12	-26.82	27.31	169.20	.32
Last Survey Depth Recorded									
6800.00	.43	92.42	6799.53	-26.70	5.66	-26.70	27.30	168.03	.29