



Job Number: SVGJ-140313

Company: PDC

Lease/Well: Lauren 1

Location: Weld County, CO

Rig Name: MS Slickline

RKB: 0'

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

State/Country: Colorado/USA

Declination: 8.51°

Grid: East To True North

File name: S:\2014SU~1\PDC\GJ\LAUREN\1.SVY

Date/Time: 20-Mar-14 / 13:47

Curve Name: Surface - 7100' 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	.59	203.91	100.00	-.47	-.21	-.47	.51	203.91	.59
200.00	.17	92.52	200.00	-.95	-.27	-.95	.99	195.85	.67
300.00	.64	240.07	299.99	-1.23	-.60	-1.23	1.37	206.13	.79
400.00	.31	176.57	399.99	-1.78	-1.07	-1.78	2.08	211.05	.57
500.00	.80	230.55	499.99	-2.50	-1.60	-2.50	2.96	212.60	.67
600.00	.62	214.05	599.98	-3.39	-2.44	-3.39	4.17	215.74	.27
700.00	.44	292.73	699.98	-3.69	-3.09	-3.69	4.81	220.01	.69
800.00	.77	229.27	799.97	-3.98	-3.96	-3.98	5.61	224.86	.70
900.00	.70	214.09	899.96	-4.92	-4.81	-4.92	6.88	224.34	.21

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	.74	222.41	999.96	-5.90	-5.59	-5.90	8.13	223.42	.11
1100.00	.72	237.17	1099.95	-6.72	-6.55	-6.72	9.39	224.26	.19
1200.00	.21	243.15	1199.94	-7.15	-7.24	-7.15	10.17	225.39	.51
1300.00	.28	146.69	1299.94	-7.43	-7.27	-7.43	10.40	224.38	.37
1400.00	.35	113.00	1399.94	-7.76	-6.86	-7.76	10.35	221.48	.19
1500.00	.27	72.12	1499.94	-7.80	-6.35	-7.80	10.06	219.14	.23
1600.00	.12	243.61	1599.94	-7.78	-6.22	-7.78	9.96	218.66	.39
1700.00	.60	328.30	1699.94	-7.38	-6.59	-7.38	9.89	221.77	.60
1800.00	.47	283.70	1799.93	-6.84	-7.26	-6.84	9.97	226.74	.42
1900.00	.34	15.04	1899.93	-6.45	-7.58	-6.45	9.96	229.62	.59
2000.00	.40	326.04	1999.93	-5.88	-7.70	-5.88	9.69	232.66	.31
2100.00	.29	90.34	2099.93	-5.59	-7.64	-5.59	9.47	233.84	.61
2200.00	.45	126.19	2199.93	-5.82	-7.07	-5.82	9.16	230.55	.27
2300.00	.02	103.91	2299.93	-6.06	-6.74	-6.06	9.06	228.06	.43
2400.00	.74	128.68	2399.92	-6.46	-6.22	-6.46	8.97	223.89	.72
2500.00	.15	63.79	2499.92	-6.81	-5.60	-6.81	8.82	219.42	.69
2600.00	.69	128.00	2599.92	-7.12	-5.01	-7.12	8.71	215.10	.64
2700.00	.44	82.76	2699.91	-7.45	-4.15	-7.45	8.52	209.14	.49
2800.00	.58	147.75	2799.91	-7.83	-3.50	-7.83	8.57	204.10	.56
2900.00	.22	272.47	2899.91	-8.25	-3.42	-8.25	8.93	202.54	.73
3000.00	.57	193.19	2999.91	-8.72	-3.73	-8.72	9.48	203.14	.57
3100.00	.62	200.70	3099.90	-9.71	-4.03	-9.71	10.52	202.55	.09
3200.00	.77	260.84	3199.90	-10.32	-4.89	-10.32	11.42	205.33	.71
3300.00	.94	254.11	3299.88	-10.66	-6.34	-10.66	12.40	210.74	.20
3400.00	1.20	217.22	3399.87	-11.71	-7.76	-11.71	14.05	213.52	.72
3500.00	.82	231.05	3499.85	-13.00	-8.95	-13.00	15.78	214.55	.45
3600.00	1.14	238.91	3599.84	-13.96	-10.36	-13.96	17.39	216.57	.35
3700.00	.67	229.62	3699.82	-14.85	-11.66	-14.85	18.88	218.12	.49
3800.00	.57	270.75	3799.82	-15.23	-12.60	-15.23	19.76	219.61	.45

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	.37	235.91	3899.82	-15.40	-13.36	-15.40	20.39	220.95	.34
4000.00	1.02	234.71	3999.81	-16.10	-14.36	-16.10	21.57	221.73	.65
4100.00	.78	300.25	4099.80	-16.27	-15.67	-16.27	22.59	223.93	.99
4200.00	.65	252.19	4199.79	-16.10	-16.80	-16.10	23.27	226.22	.59
4300.00	.44	194.52	4299.79	-16.64	-17.44	-16.64	24.10	226.33	.56
4400.00	.40	68.51	4399.79	-16.89	-17.21	-16.89	24.11	225.54	.75
4500.00	.52	101.14	4499.78	-16.85	-16.44	-16.85	23.54	224.30	.28
4600.00	.53	357.76	4599.78	-16.47	-16.01	-16.47	22.97	224.19	.82
4700.00	1.27	257.74	4699.77	-16.25	-17.11	-16.25	23.60	226.49	1.46
4800.00	1.02	241.55	4799.75	-16.90	-18.98	-16.90	25.42	228.31	.41
4900.00	1.04	236.91	4899.74	-17.82	-20.52	-17.82	27.18	229.02	.09
5000.00	1.47	257.04	4999.71	-18.61	-22.53	-18.61	29.22	230.45	.61
5100.00	1.13	265.12	5099.69	-18.98	-24.76	-18.98	31.20	232.53	.39
5200.00	.78	273.60	5199.67	-19.02	-26.43	-19.02	32.56	234.25	.38
5300.00	1.33	257.82	5299.65	-19.22	-28.24	-19.22	34.16	235.76	.62
5400.00	1.19	239.81	5399.63	-19.99	-30.27	-19.99	36.28	236.56	.42
5500.00	1.46	262.00	5499.60	-20.69	-32.43	-20.69	38.47	237.46	.57
5600.00	1.00	266.00	5599.58	-20.93	-34.56	-20.93	40.40	238.81	.47
5700.00	1.13	240.19	5699.56	-21.48	-36.29	-21.48	42.17	239.38	.49
5800.00	.53	280.62	5799.55	-21.88	-37.60	-21.88	43.50	239.80	.80
5900.00	.83	216.50	5899.55	-22.38	-38.48	-22.38	44.52	239.82	.77
6000.00	.19	203.16	5999.54	-23.11	-38.98	-23.11	45.32	239.33	.65
6100.00	.33	207.33	6099.54	-23.52	-39.18	-23.52	45.70	239.02	.14
6200.00	.66	203.34	6199.54	-24.31	-39.54	-24.31	46.41	238.42	.33
6300.00	.84	198.99	6299.53	-25.53	-40.00	-25.53	47.46	237.46	.19
6400.00	.88	196.59	6399.52	-26.96	-40.46	-26.96	48.62	236.33	.05
6500.00	1.15	175.35	6499.50	-28.69	-40.60	-28.69	49.72	234.75	.46
6600.00	1.07	159.14	6599.49	-30.57	-40.19	-30.57	50.49	232.74	.32
6700.00	.94	204.63	6699.47	-32.19	-40.20	-32.19	51.49	231.31	.79

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	.63	170.32	6799.46	-33.47	-40.44	-33.47	52.50	230.39	.55
6900.00	1.04	219.39	6899.45	-34.72	-40.93	-34.72	53.67	229.69	.79
7000.00	.51	193.58	6999.44	-35.85	-41.61	-35.85	54.92	229.25	.62
Last Survey Depth Recorded									
7100.00	.66	277.80	7099.44	-36.21	-42.28	-36.21	55.67	229.43	.79