

Job Number: SVGJ-120262

State/Country: Colorado/USA

Company: PDC

Declination: 8.67°

Lease/Well: Foe 33-20

Grid: East To True

Location: Weld County, CO

File name: F:\2012SU~1\PDC\LORENZ\FOE\33-20.SVY

Rig Name: Lightning Wireline

Date/Time: 29-Feb-12 / 15:29

RKB: 0'

Curve Name: Surface - 6937' M.D. (Rate Gyro)

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

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane .00

Vertical Section Referenced to offset from Wellhead: EW =.00 Ft , NS=.00 Ft

Rectangular Coordinates Referenced to Wellhead

Measured	Incl	Drift	TRUE	N-S	E-W	Vertical	CLOSURE	CLOSURE	Dogleg
Depth	Angle	Direction	Vertical	FT	FT	Section	Distance	Direction	Severity
FT	Deg	Deg	Depth			FT	FT	Deg	Deg/100
0	0	0	0	0	0	0	0	0	0
100	0.52	17.36	100	0.43	0.14	0.43	0.45	17.36	0.52
200	0.45	332.24	200	1.21	0.09	1.21	1.22	4.14	0.38
300	0.3	76.93	299.99	1.62	0.16	1.62	1.63	5.64	0.6
400	0.13	120.02	399.99	1.62	0.51	1.62	1.7	17.55	0.22
500	0.03	212.45	499.99	1.54	0.6	1.54	1.66	21.15	0.13
600	0.93	214.47	599.99	0.85	0.12	0.85	0.86	8.28	0.9
700	0.74	243.27	699.98	-0.11	-0.91	-0.11	0.92	263.33	0.45
800	0.89	208.82	799.97	-1.08	-1.86	-1.08	2.15	239.96	0.5
900	0.7	230.08	899.96	-2.15	-2.71	-2.15	3.46	231.53	0.35
1000	1.05	197.54	999.95	-3.42	-3.45	-3.42	4.86	225.29	0.59
1100	1.07	196.16	1099.93	-5.19	-3.99	-5.19	6.54	217.55	0.03
1200	1.11	208.46	1199.91	-6.93	-4.71	-6.93	8.38	214.17	0.24
1300	0.85	225.68	1299.9	-8.3	-5.7	-8.3	10.07	214.47	0.39
1400	0.92	219.83	1399.89	-9.44	-6.75	-9.44	11.6	215.55	0.11
1500	1.07	202.18	1499.87	-10.92	-7.61	-10.92	13.31	214.88	0.34
1600	0.97	190.26	1599.86	-12.62	-8.12	-12.62	15	212.75	0.23
1700	0.58	220.82	1699.85	-13.83	-8.6	-13.83	16.29	211.86	0.56
1800	0.49	213.94	1799.84	-14.57	-9.17	-14.57	17.21	212.17	0.11
1900	0.51	194.06	1899.84	-15.36	-9.51	-15.36	18.07	211.78	0.17
2000	0.25	253.15	1999.84	-15.85	-9.83	-15.85	18.65	211.8	0.44
2100	0.1	30.3	2099.84	-15.84	-9.99	-15.84	18.73	212.25	0.33
2200	0.27	165.6	2199.84	-15.99	-9.89	-15.99	18.81	211.74	0.35
2300	0.39	242.57	2299.84	-16.38	-10.14	-16.38	19.26	211.75	0.42
2400	0.34	315.48	2399.83	-16.32	-10.65	-16.32	19.49	213.11	0.44
2500	0.51	295.79	2499.83	-15.92	-11.25	-15.92	19.5	215.26	0.22
2600	0.37	308.28	2599.83	-15.52	-11.91	-15.52	19.57	217.49	0.17
2700	0.3	322.16	2699.83	-15.12	-12.32	-15.12	19.5	219.18	0.11
2800	0.51	256.81	2799.82	-15.01	-12.92	-15.01	19.8	220.71	0.47

2900	0.51	248.51	2899.82	-15.28	-13.76	-15.28	20.56	222.02	0.07
3000	0.55	253.5	2999.82	-15.58	-14.64	-15.58	21.38	223.22	0.06
3100	0.07	100.36	3099.81	-15.72	-15.04	-15.72	21.76	223.72	0.61
3200	0.21	224.4	3199.81	-15.87	-15.11	-15.87	21.91	223.6	0.26
3300	0.33	240.98	3299.81	-16.14	-15.49	-16.14	22.37	223.82	0.14
3400	0.58	171.29	3399.81	-16.78	-15.66	-16.78	22.95	223.03	0.56
3500	0.52	224.92	3499.81	-17.6	-15.91	-17.6	23.72	222.11	0.5
3600	0.55	225.11	3599.8	-18.26	-16.57	-18.26	24.65	222.22	0.03
3700	0.62	223.3	3699.8	-18.99	-17.28	-18.99	25.67	222.3	0.07
3800	0.66	210.03	3799.79	-19.88	-17.94	-19.88	26.78	222.05	0.15
3900	0.82	187.45	3899.78	-21.09	-18.32	-21.09	27.94	220.97	0.33
4000	0.81	200.96	3999.77	-22.46	-18.66	-22.46	29.2	219.72	0.19
4100	0.48	210.92	4099.77	-23.48	-19.13	-23.48	30.29	219.17	0.35
4200	0.23	358.41	4199.77	-23.64	-19.35	-23.64	30.55	219.31	0.69
4300	0.48	347.57	4299.76	-23.03	-19.45	-23.03	30.14	220.18	0.26
4400	0.44	52.52	4399.76	-22.39	-19.23	-22.39	29.51	220.67	0.5
4500	0.81	25.75	4499.75	-21.52	-18.62	-21.52	28.46	220.87	0.46
4600	0.58	58.96	4599.75	-20.62	-17.88	-20.62	27.29	220.93	0.45
4700	0.95	16.71	4699.74	-19.56	-17.21	-19.56	26.06	221.34	0.65
4800	0.88	25.35	4799.73	-18.08	-16.64	-18.08	24.57	222.63	0.15
4900	0.74	67.08	4899.72	-17.13	-15.72	-17.13	23.25	222.54	0.59
5000	1.15	49.73	4999.7	-16.23	-14.36	-16.23	21.67	221.5	0.5
5100	0.84	60.57	5099.69	-15.22	-12.95	-15.22	19.99	220.4	0.36
5200	0.6	61.38	5199.68	-14.61	-11.86	-14.61	18.82	219.06	0.24
5300	0.52	78.71	5299.68	-14.27	-10.95	-14.27	17.99	217.5	0.19
5400	0.49	77.05	5399.67	-14.09	-10.09	-14.09	17.33	215.61	0.03
5500	0.3	27.53	5499.67	-13.76	-9.55	-13.76	16.75	214.77	0.37
5600	0.28	162.31	5599.67	-13.76	-9.36	-13.76	16.64	214.22	0.54
5700	0.23	218.3	5699.67	-14.15	-9.41	-14.15	16.99	213.62	0.24
5800	0.36	190.98	5799.67	-14.62	-9.59	-14.62	17.48	213.27	0.19
5900	0.39	133.07	5899.67	-15.16	-9.4	-15.16	17.84	211.81	0.36
6000	0.32	209.96	5999.66	-15.63	-9.29	-15.63	18.18	210.73	0.44
6100	0.54	196.15	6099.66	-16.32	-9.56	-16.32	18.92	210.36	0.24
6200	0.88	151.47	6199.65	-17.45	-9.33	-17.45	19.79	208.12	0.62
6300	0.72	198.39	6299.65	-18.72	-9.16	-18.72	20.84	206.07	0.65
6400	1.09	157.8	6399.63	-20.2	-9	-20.2	22.11	204.01	0.72
6500	1.15	181.4	6499.62	-22.08	-8.66	-22.08	23.72	201.42	0.46
6600	1.05	177.4	6599.6	-24	-8.65	-24	25.51	199.81	0.13
6700	1.57	164.28	6699.57	-26.24	-8.23	-26.24	27.5	197.42	0.6
6800	2.08	173.77	6799.52	-29.36	-7.66	-29.36	30.34	194.63	0.59
6900	2.66	190.45	6899.43	-33.45	-7.89	-33.45	34.36	193.27	0.9
6937	2.76	192.29	6936.39	-35.16	-8.23	-35.16	36.11	193.18	0.36