



Job Number: SVGJ-150035  
 Company: PDC  
 Lease/Well: Sorensson 6-D  
 Location: Weld County, CO  
 Rig Name: MS Energy Wireline  
 RKB: 0'  
 G.L. or M.S.L.: GL

State/Country: Colorado/USA  
 Declination: 8.56°  
 Grid: East To True North  
 File name: S:\2015SU~1\PDC\GJ\SORENS~1\6D.SVY  
 Date/Time: 05-Feb-15 / 10:23  
 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	.87	55.25	100.00	.43	.62	.43	.76	55.25	.87
200.00	.80	84.71	199.99	.93	1.94	.93	2.15	64.42	.43
300.00	.59	105.92	299.98	.85	3.13	.85	3.25	74.77	.33
400.00	.80	135.13	399.97	.22	4.12	.22	4.13	86.99	.41
500.00	.88	135.61	499.96	-.83	5.15	-.83	5.22	99.12	.08
600.00	1.58	163.88	599.94	-2.70	6.07	-2.70	6.64	113.98	.91
700.00	2.58	197.53	699.87	-6.17	5.78	-6.17	8.45	136.90	1.54
800.00	3.10	220.27	799.75	-10.38	3.35	-10.38	10.91	162.12	1.23
900.00	3.16	223.22	899.61	-14.45	-.29	-14.45	14.45	181.13	.17

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	3.15	222.53	999.45	-18.48	-4.03	-18.48	18.92	192.30	.04
1100.00	3.03	223.17	1099.31	-22.44	-7.70	-22.44	23.72	198.93	.12
1200.00	2.42	217.61	1199.19	-26.04	-10.79	-26.04	28.19	202.51	.66
1300.00	2.10	223.85	1299.12	-29.03	-13.35	-29.03	31.95	204.70	.40
1400.00	1.84	220.26	1399.06	-31.58	-15.66	-31.58	35.25	206.37	.29
1500.00	1.80	229.58	1499.01	-33.82	-17.89	-33.82	38.26	207.88	.30
1600.00	1.61	228.90	1598.96	-35.76	-20.14	-35.76	41.05	209.39	.19
1700.00	1.44	222.76	1698.93	-37.61	-22.06	-37.61	43.60	210.39	.24
1800.00	1.34	220.92	1798.90	-39.41	-23.68	-39.41	45.98	210.99	.11
1900.00	.87	218.00	1898.88	-40.90	-24.91	-40.90	47.89	211.34	.47
2000.00	.96	218.91	1998.87	-42.15	-25.90	-42.15	49.47	211.57	.09
2100.00	.88	215.48	2098.85	-43.42	-26.87	-43.42	51.07	211.75	.10
2200.00	.93	215.11	2198.84	-44.71	-27.79	-44.71	52.64	211.86	.05
2300.00	1.10	222.89	2298.83	-46.08	-28.91	-46.08	54.40	212.10	.22
2400.00	1.06	231.75	2398.81	-47.36	-30.29	-47.36	56.21	212.60	.17
2500.00	1.05	236.13	2498.79	-48.44	-31.77	-48.44	57.93	213.26	.08
2600.00	1.07	236.04	2598.77	-49.47	-33.31	-49.47	59.64	213.95	.02
2700.00	1.23	227.03	2698.75	-50.72	-34.87	-50.72	61.55	214.50	.24
2800.00	1.36	232.52	2798.73	-52.18	-36.60	-52.18	63.73	215.04	.18
2900.00	1.29	225.53	2898.70	-53.69	-38.34	-53.69	65.97	215.53	.18
3000.00	.94	229.97	2998.68	-55.01	-39.77	-55.01	67.88	215.87	.36
3100.00	.71	195.95	3098.67	-56.13	-40.57	-56.13	69.26	215.86	.53
3200.00	.82	179.61	3198.66	-57.44	-40.74	-57.44	70.42	215.34	.24
3300.00	.28	210.94	3298.66	-58.36	-40.86	-58.36	71.24	214.99	.60
3400.00	.34	220.86	3398.66	-58.80	-41.18	-58.80	71.78	215.00	.08
3500.00	.34	209.34	3498.66	-59.28	-41.52	-59.28	72.37	215.00	.07
3600.00	.24	241.62	3598.65	-59.64	-41.85	-59.64	72.86	215.05	.19
3700.00	.35	207.04	3698.65	-60.01	-42.17	-60.01	73.35	215.09	.20
3800.00	.36	227.78	3798.65	-60.49	-42.54	-60.49	73.95	215.11	.13

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	.58	206.23	3898.65	-61.16	-43.00	-61.16	74.76	215.11	.28
4000.00	1.19	195.57	3998.64	-62.61	-43.50	-62.61	76.24	214.79	.63
4100.00	1.39	198.33	4098.61	-64.77	-44.16	-64.77	78.39	214.29	.21
4200.00	1.39	198.10	4198.58	-67.07	-44.92	-67.07	80.72	213.81	.01
4300.00	1.30	197.96	4298.55	-69.30	-45.64	-69.30	82.98	213.37	.09
4400.00	1.07	213.19	4398.53	-71.16	-46.50	-71.16	85.01	213.16	.39
4500.00	.75	224.48	4498.52	-72.41	-47.47	-72.41	86.59	213.25	.37
4600.00	.90	251.52	4598.51	-73.13	-48.68	-73.13	87.85	213.65	.41
4700.00	.84	246.74	4698.50	-73.67	-50.10	-73.67	89.09	214.22	.09
4800.00	.63	258.32	4798.49	-74.07	-51.31	-74.07	90.10	214.71	.26
4900.00	.77	268.92	4898.48	-74.19	-52.52	-74.19	90.90	215.29	.19
5000.00	.75	260.84	4998.47	-74.31	-53.84	-74.31	91.76	215.92	.11
5100.00	.77	273.98	5098.47	-74.36	-55.15	-74.36	92.58	216.56	.18
5200.00	.80	277.56	5198.46	-74.23	-56.51	-74.23	93.29	217.29	.06
5300.00	.73	270.48	5298.45	-74.13	-57.84	-74.13	94.03	217.97	.12
5400.00	.60	268.13	5398.44	-74.14	-59.00	-74.14	94.75	218.51	.13
5500.00	.63	258.23	5498.43	-74.27	-60.07	-74.27	95.52	218.96	.11
5600.00	1.13	255.17	5598.42	-74.63	-61.56	-74.63	96.74	219.52	.50
5700.00	1.39	259.97	5698.40	-75.10	-63.70	-75.10	98.48	220.31	.28
5800.00	1.58	260.12	5798.36	-75.55	-66.26	-75.55	100.48	221.25	.19
5900.00	1.90	260.74	5898.32	-76.05	-69.25	-76.05	102.86	222.32	.32
6000.00	3.31	270.19	5998.21	-76.31	-73.77	-76.31	106.14	224.03	1.47
6100.00	3.13	275.05	6098.05	-76.06	-79.38	-76.06	109.94	226.23	.33
6200.00	2.33	279.36	6197.94	-75.49	-84.11	-75.49	113.01	228.09	.83
6300.00	2.15	283.45	6297.86	-74.72	-87.94	-74.72	115.39	229.65	.24
6400.00	1.37	281.93	6397.82	-74.04	-90.93	-74.04	117.26	230.85	.78
6500.00	.83	271.01	6497.80	-73.78	-92.82	-73.78	118.57	231.52	.58
6600.00	.62	265.10	6597.79	-73.81	-94.09	-73.81	119.58	231.89	.22
6700.00	.56	258.30	6697.78	-73.95	-95.11	-73.95	120.47	232.13	.09

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	.10	193.39	6797.78	-74.14	-95.60	-74.14	120.98	232.21	.53
6900.00	.10	66.87	6897.78	-74.19	-95.54	-74.19	120.97	232.17	.18
7000.00	.04	150.40	6997.78	-74.18	-95.45	-74.18	120.89	232.14	.10
<b>Last Survey Depth Recorded</b>									
7100.00	.57	155.54	7097.78	-74.67	-95.22	-74.67	121.01	231.90	.53