



Job Number: SVGJ-141081
 Company: PDC
 Lease/Well: Weingardt 33-22
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.53°
 Grid: East To True North
 File name: S:\2014SU~1\PDC\GJ\WEINGA~1\3322.SVY
 Date/Time: 05-Sep-14 / 12:39
 Curve Name: Surface - 7319' 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	.20	150.70	100.00	-.15	.09	-.15	.17	150.70	.20
200.00	.05	222.00	200.00	-.34	.14	-.34	.37	157.19	.19
300.00	.23	156.41	300.00	-.55	.19	-.55	.59	160.79	.21
400.00	.07	154.73	400.00	-.79	.30	-.79	.85	159.32	.16
500.00	.19	174.25	500.00	-1.01	.34	-1.01	1.07	161.34	.13
600.00	.33	143.31	600.00	-1.41	.53	-1.41	1.51	159.36	.19
700.00	.46	154.46	700.00	-2.00	.88	-2.00	2.18	156.37	.15
800.00	.53	154.24	799.99	-2.78	1.25	-2.78	3.05	155.80	.07
900.00	.53	160.99	899.99	-3.63	1.60	-3.63	3.97	156.22	.06

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	.50	176.30	999.98	-4.51	1.78	-4.51	4.85	158.45	.14
1100.00	.58	195.08	1099.98	-5.43	1.68	-5.43	5.68	162.84	.19
1200.00	.68	210.59	1199.97	-6.43	1.24	-6.43	6.55	169.06	.20
1300.00	.98	229.53	1299.96	-7.50	.29	-7.50	7.50	177.78	.40
1400.00	.86	246.01	1399.95	-8.36	-1.05	-8.36	8.42	187.13	.29
1500.00	.99	247.04	1499.94	-9.00	-2.53	-9.00	9.35	195.68	.13
1600.00	.78	242.84	1599.92	-9.65	-3.93	-9.65	10.42	202.16	.22
1700.00	.90	256.22	1699.91	-10.14	-5.30	-10.14	11.44	207.57	.23
1800.00	.87	252.22	1799.90	-10.56	-6.78	-10.56	12.55	212.70	.07
1900.00	.66	268.53	1899.89	-10.81	-8.08	-10.81	13.50	216.78	.30
2000.00	.66	302.33	1999.89	-10.52	-9.14	-10.52	13.94	221.00	.38
2100.00	1.44	276.68	2099.87	-10.06	-10.88	-10.06	14.82	227.23	.89
2200.00	1.64	277.08	2199.83	-9.74	-13.55	-9.74	16.68	234.28	.20
2300.00	1.61	265.19	2299.79	-9.68	-16.37	-9.68	19.01	239.39	.34
2400.00	1.47	261.93	2399.76	-9.98	-19.04	-9.98	21.49	242.34	.17
2500.00	1.43	256.36	2499.73	-10.45	-21.52	-10.45	23.92	244.09	.15
2600.00	1.43	255.73	2599.69	-11.06	-23.94	-11.06	26.37	245.21	.02
2700.00	1.39	264.83	2699.66	-11.47	-26.36	-11.47	28.75	246.48	.23
2800.00	1.46	266.56	2799.63	-11.66	-28.84	-11.66	31.10	247.99	.08
2900.00	1.50	271.04	2899.60	-11.71	-31.42	-11.71	33.53	249.56	.12
3000.00	1.43	266.17	2999.57	-11.77	-33.97	-11.77	35.95	250.89	.14
3100.00	1.70	261.92	3099.53	-12.06	-36.68	-12.06	38.62	251.80	.29
3200.00	1.68	250.01	3199.49	-12.77	-39.53	-12.77	41.54	252.10	.35
3300.00	1.94	232.21	3299.44	-14.31	-42.25	-14.31	44.60	251.29	.62
3400.00	2.06	223.90	3399.38	-16.64	-44.83	-16.64	47.82	249.63	.31
3500.00	2.02	228.26	3499.31	-19.11	-47.39	-19.11	51.10	248.04	.16
3600.00	2.24	222.45	3599.24	-21.73	-50.02	-21.73	54.54	246.52	.31
3700.00	2.40	225.11	3699.16	-24.65	-52.83	-24.65	58.29	244.99	.19
3800.00	2.26	227.02	3799.08	-27.47	-55.75	-27.47	62.15	243.77	.16

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	2.11	239.49	3899.01	-29.75	-58.78	-29.75	65.88	243.16	.50
4000.00	1.91	284.92	3998.95	-30.25	-61.98	-30.25	68.97	243.98	1.56
4100.00	1.88	306.78	4098.90	-28.84	-64.90	-28.84	71.02	246.04	.72
4200.00	1.89	295.02	4198.85	-27.16	-67.71	-27.16	72.95	248.14	.39
4300.00	1.72	278.20	4298.80	-26.25	-70.69	-26.25	75.41	249.63	.55
4400.00	1.82	258.34	4398.75	-26.36	-73.73	-26.36	78.30	250.33	.62
4500.00	1.75	248.90	4498.70	-27.23	-76.71	-27.23	81.40	250.46	.30
4600.00	1.77	253.23	4598.65	-28.22	-79.61	-28.22	84.47	250.48	.13
4700.00	1.63	246.93	4698.61	-29.23	-82.40	-29.23	87.43	250.47	.23
4800.00	1.46	255.76	4798.57	-30.10	-84.94	-30.10	90.12	250.49	.29
4900.00	1.19	253.15	4898.55	-30.71	-87.17	-30.71	92.42	250.59	.28
5000.00	1.10	253.59	4998.53	-31.28	-89.09	-31.28	94.42	250.65	.09
5100.00	1.02	252.86	5098.51	-31.82	-90.86	-31.82	96.27	250.70	.08
5200.00	1.05	248.60	5198.49	-32.41	-92.56	-32.41	98.07	250.70	.08
5300.00	1.11	241.73	5298.48	-33.21	-94.27	-33.21	99.95	250.60	.14
5400.00	1.24	241.75	5398.45	-34.18	-96.07	-34.18	101.97	250.42	.13
5500.00	1.48	236.67	5498.43	-35.40	-98.11	-35.40	104.30	250.16	.27
5600.00	1.60	239.39	5598.39	-36.82	-100.39	-36.82	106.93	249.86	.14
5700.00	1.10	237.13	5698.36	-38.05	-102.40	-38.05	109.24	249.61	.50
5800.00	.74	255.04	5798.35	-38.74	-103.83	-38.74	110.82	249.54	.46
5900.00	.81	251.17	5898.34	-39.13	-105.12	-39.13	112.17	249.58	.09
6000.00	.91	246.96	5998.33	-39.67	-106.52	-39.67	113.67	249.57	.12
6100.00	.85	242.31	6098.32	-40.33	-107.91	-40.33	115.20	249.51	.09
6200.00	.96	245.14	6198.30	-41.02	-109.32	-41.02	116.77	249.43	.12
6300.00	.73	253.07	6298.29	-41.56	-110.69	-41.56	118.24	249.42	.26
6400.00	.99	241.21	6398.28	-42.16	-112.06	-42.16	119.73	249.38	.31
6500.00	1.10	251.21	6498.27	-42.89	-113.72	-42.89	121.54	249.34	.21
6600.00	1.06	241.01	6598.25	-43.65	-115.44	-43.65	123.42	249.29	.20
6700.00	1.24	247.93	6698.23	-44.50	-117.25	-44.50	125.41	249.22	.23

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	1.06	253.06	6798.21	-45.18	-119.14	-45.18	127.42	249.23	.21
6900.00	.93	237.68	6898.19	-45.88	-120.71	-45.88	129.14	249.19	.30
7000.00	.69	245.56	6998.18	-46.56	-121.95	-46.56	130.53	249.10	.26
7100.00	.65	227.88	7098.18	-47.19	-122.92	-47.19	131.66	249.00	.21
7200.00	.50	220.57	7198.17	-47.90	-123.62	-47.90	132.58	248.82	.17
7300.00	.56	218.03	7298.17	-48.62	-124.20	-48.62	133.38	248.62	.06
Last Survey Depth Recorded									
7319.00	.57	217.98	7317.17	-48.77	-124.32	-48.77	133.54	248.58	.05