



Job Number: SVGJ-130973
 Company: PDC
 Lease/Well: Randall 11-28
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.55°
 Grid: East To True North
 File name: S:\SURVEY\NEWSUR~1\RRC\WINSER~1\2013SU~1\PDC\GJ\RANDALL11
 Date/Time: 30-Sep-13 / 16:23
 Curve Name: Surface - 7300' M.D. (Rate Gyro)

WINSERVE PROPOSAL REPORT
Minimum Curvature Method
Vertical Section Plane .00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

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	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.28	281.43	100.00	.05	-.24	.05	.24	281.43	.28
200.00	.27	21.90	200.00	.32	-.39	.32	.50	308.89	.42
300.00	.64	66.12	300.00	.76	.21	.76	.79	15.27	.48
400.00	.65	63.03	399.99	1.24	1.22	1.24	1.74	44.54	.04
500.00	.65	63.41	499.98	1.75	2.24	1.75	2.84	51.88	.00
600.00	.72	60.13	599.98	2.32	3.29	2.32	4.03	54.78	.08
700.00	.76	60.73	699.97	2.96	4.41	2.96	5.31	56.15	.04
800.00	.77	72.20	799.96	3.49	5.63	3.49	6.62	58.22	.15
900.00	.82	82.31	899.95	3.79	6.98	3.79	7.94	61.50	.15

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1000.00	1.06	84.67	999.94	3.97	8.61	3.97	9.48	65.24	.24
1100.00	1.19	90.83	1099.92	4.04	10.57	4.04	11.32	69.07	.18
1200.00	1.18	90.13	1199.89	4.02	12.64	4.02	13.26	72.33	.02
1300.00	1.25	94.02	1299.87	3.95	14.75	3.95	15.27	75.03	.11
1400.00	1.38	96.94	1399.85	3.72	17.04	3.72	17.44	77.67	.15
1500.00	1.55	103.32	1499.81	3.27	19.55	3.27	19.82	80.51	.24
1600.00	1.74	109.38	1599.77	2.45	22.30	2.45	22.43	83.73	.26
1700.00	1.86	108.58	1699.72	1.43	25.27	1.43	25.31	86.76	.12
1800.00	1.92	119.12	1799.67	.10	28.27	.10	28.27	89.80	.35
1900.00	1.91	125.39	1899.61	-1.68	31.09	-1.68	31.14	93.10	.21
2000.00	1.86	125.94	1999.56	-3.60	33.76	-3.60	33.96	96.09	.05
2100.00	1.88	126.91	2099.51	-5.54	36.39	-5.54	36.81	98.65	.04
2200.00	1.89	127.90	2199.45	-7.54	39.00	-7.54	39.72	100.94	.03
2300.00	2.10	129.10	2299.39	-9.70	41.73	-9.70	42.84	103.09	.21
2400.00	2.17	130.16	2399.32	-12.08	44.59	-12.08	46.20	105.16	.08
2500.00	2.27	132.30	2499.25	-14.63	47.51	-14.63	49.71	107.12	.13
2600.00	2.46	136.58	2599.16	-17.53	50.45	-17.53	53.40	109.16	.26
2700.00	3.14	142.23	2699.04	-21.25	53.60	-21.25	57.66	111.63	.73
2800.00	3.68	146.64	2798.86	-26.10	57.04	-26.10	62.73	114.58	.60
2900.00	4.27	153.73	2898.62	-32.11	60.45	-32.11	68.45	117.98	.77
3000.00	4.70	159.28	2998.32	-39.28	63.55	-39.28	74.71	121.72	.61
3100.00	5.05	165.39	3097.96	-47.38	66.11	-47.38	81.33	125.63	.63
3200.00	5.19	169.51	3197.56	-56.08	68.04	-56.08	88.18	129.50	.39
3300.00	5.07	174.86	3297.16	-64.93	69.26	-64.93	94.94	133.15	.49
3400.00	4.90	177.49	3396.78	-73.60	69.85	-73.60	101.46	136.50	.28
3500.00	4.90	179.11	3496.41	-82.13	70.10	-82.13	107.98	139.52	.14
3600.00	4.73	181.62	3596.06	-90.53	70.05	-90.53	114.46	142.27	.27
3700.00	4.07	183.89	3695.77	-98.19	69.69	-98.19	120.41	144.63	.68
3800.00	3.75	184.17	3795.53	-104.99	69.21	-104.99	125.75	146.61	.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	
3900.00	3.19	185.65	3895.35	-111.02	68.70	-111.02	130.56	148.25	.57
4000.00	2.72	187.16	3995.22	-116.14	68.13	-116.14	134.65	149.60	.48
4100.00	2.14	192.35	4095.13	-120.32	67.44	-120.32	137.93	150.73	.62
4200.00	1.56	197.38	4195.07	-123.45	66.63	-123.45	140.28	151.64	.60
4300.00	1.43	205.66	4295.04	-125.87	65.68	-125.87	141.98	152.44	.25
4400.00	1.17	215.00	4395.01	-127.83	64.56	-127.83	143.21	153.20	.33
4500.00	.92	216.14	4495.00	-129.31	63.50	-129.31	144.06	153.85	.25
4600.00	.78	214.06	4594.99	-130.53	62.64	-130.53	144.78	154.36	.14
4700.00	1.10	239.40	4694.97	-131.58	61.44	-131.58	145.22	154.97	.52
4800.00	1.53	264.01	4794.95	-132.21	59.28	-132.21	144.89	155.85	.70
4900.00	1.68	270.64	4894.91	-132.33	56.49	-132.33	143.88	156.88	.24
5000.00	1.49	281.60	4994.87	-132.05	53.75	-132.05	142.57	157.85	.36
5100.00	1.45	281.39	5094.84	-131.54	51.24	-131.54	141.17	158.72	.04
5200.00	1.25	290.43	5194.81	-130.91	48.97	-130.91	139.77	159.49	.29
5300.00	1.08	291.69	5294.79	-130.18	47.08	-130.18	138.43	160.12	.17
5400.00	1.15	321.17	5394.77	-129.05	45.57	-129.05	136.86	160.55	.57
5500.00	1.15	332.88	5494.75	-127.38	44.48	-127.38	134.92	160.75	.23
5600.00	.82	23.58	5594.74	-125.83	44.31	-125.83	133.40	160.60	.89
5700.00	.62	72.66	5694.73	-125.01	45.12	-125.01	132.90	160.16	.63
5800.00	1.63	93.91	5794.71	-124.95	47.05	-124.95	133.51	159.37	1.08
5900.00	.88	101.01	5894.69	-125.19	49.22	-125.19	134.52	158.54	.76
6000.00	.76	211.62	5994.68	-125.90	49.63	-125.90	135.33	158.49	1.35
6100.00	.98	206.43	6094.67	-127.23	48.90	-127.23	136.31	158.98	.23
6200.00	.95	220.25	6194.65	-128.63	47.99	-128.63	137.29	159.54	.23
6300.00	1.03	189.67	6294.64	-130.15	47.30	-130.15	138.48	160.03	.53
6400.00	.33	336.60	6394.64	-130.77	47.03	-130.77	138.97	160.22	1.32
6500.00	.38	24.10	6494.63	-130.20	47.05	-130.20	138.45	160.13	.29
6600.00	.19	267.77	6594.63	-129.91	47.02	-129.91	138.16	160.10	.49
6700.00	.36	242.68	6694.63	-130.06	46.58	-130.06	138.15	160.30	.20

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							Distance FT	Direction Deg	
6800.00	.29	262.29	6794.63	-130.24	46.05	-130.24	138.14	160.53	.13
6900.00	.34	255.04	6894.63	-130.35	45.51	-130.35	138.06	160.75	.06
7000.00	.33	270.50	6994.63	-130.42	44.94	-130.42	137.95	160.99	.09
7100.00	.32	250.76	7094.63	-130.51	44.39	-130.51	137.85	161.22	.11
7200.00	.22	264.45	7194.62	-130.62	43.93	-130.62	137.81	161.41	.12

Last Survey Depth Recorded									
7300.00	.15	313.42	7294.62	-130.55	43.64	-130.55	137.65	161.51	.17