



Job Number: SVGJ-150317
 Company: PDC
 Lease/Well: B&H 1
 Location: Weld County, CO
 Rig Name: MS Energy Wireline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.43°
 Grid: East To True North
 File name: W:\WINSER~1\2015SU~1\PDC\GJ\B&H\1.SVY
 Date/Time: 11-Dec-15 / 10:55
 Curve Name: 4300' - 5750' 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

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
4200.00	.16	23.53	4199.93	9.59	-5.40	9.59	11.01	330.62	.00
Tied Rate Gyro Surveys Into Previous Rate Gyro Surveys									
4300.00	.20	272.85	4299.93	9.73	-5.52	9.73	11.18	330.43	.30
4400.00	.08	195.39	4399.93	9.67	-5.71	9.67	11.23	329.43	.20
4500.00	1.24	173.22	4499.92	8.53	-5.60	8.53	10.20	326.69	1.17
4600.00	1.00	181.77	4599.90	6.58	-5.50	6.58	8.58	320.10	.29
4700.00	.68	194.12	4699.89	5.13	-5.67	5.13	7.65	312.13	.37
4800.00	.52	299.15	4799.89	4.78	-6.21	4.78	7.84	307.55	.96
4900.00	.61	298.36	4899.88	5.25	-7.08	5.25	8.81	306.57	.09
5000.00	.59	293.11	4999.88	5.71	-8.02	5.71	9.84	305.43	.06
5100.00	.68	294.09	5099.87	6.15	-9.04	6.15	10.93	304.24	.09
5200.00	.53	291.38	5199.87	6.56	-10.01	6.56	11.97	303.25	.15

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 Distance FT	Direction Deg	Dogleg Severity Deg/100
5300.00	.43	303.45	5299.86	6.94	-10.75	6.94	12.80	302.83	.14
5400.00	.44	295.84	5399.86	7.31	-11.41	7.31	13.55	302.65	.06
5500.00	.34	282.32	5499.86	7.54	-12.05	7.54	14.21	302.05	.14
5600.00	.39	287.01	5599.86	7.70	-12.66	7.70	14.82	301.32	.06
5700.00	.56	307.58	5699.85	8.10	-13.37	8.10	15.64	301.21	.24

Last Survey Depth Recorded									
5750.00	.79	308.10	5749.85	8.46	-13.84	8.46	16.22	301.45	.46