



Job Number: SVGJ-160131
 Company: PDC
 Lease/Well: Wiedeman 12-21U
 Location: Weld County, CO
 Rig Name: MS Slickline
 RKB: 0'
 G.L. or M.S.L.: GL

State/Country: Colorado/USA
 Declination: 8.56°
 Grid: East To True North
 File name: W:\2016\PDC\GJ\WIEDEMAN\1221U.SVY
 Date/Time: 29-Mar-16 / 15:09
 Curve Name: Surface - 7500' M.D. (Rate Gyro)
 Lat: 40.38697 Long: -104.90458

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	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	.95	14.70	100.00	.80	.21	.80	.83	14.70	.95
200.00	.82	3.97	199.98	2.32	.47	2.32	2.36	11.47	.21
300.00	.87	5.32	299.97	3.79	.59	3.79	3.83	8.86	.05
400.00	.80	322.08	399.96	5.09	.23	5.09	5.10	2.60	.62
500.00	1.14	286.80	499.95	5.93	-1.15	5.93	6.04	349.03	.67
600.00	1.13	288.07	599.93	6.53	-3.04	6.53	7.20	335.02	.03
700.00	1.18	282.14	699.91	7.05	-4.98	7.05	8.63	324.74	.13
800.00	1.24	288.23	799.89	7.60	-7.02	7.60	10.35	317.29	.14
900.00	1.23	281.77	899.86	8.16	-9.10	8.16	12.22	311.90	.14
1000.00	1.32	286.91	999.84	8.71	-11.25	8.71	14.23	307.76	.15
1100.00	1.47	280.43	1099.81	9.28	-13.61	9.28	16.48	304.29	.22
1200.00	1.63	283.65	1199.77	9.85	-16.26	9.85	19.01	301.21	.18

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	
1300.00	1.61	285.31	1299.73	10.56	-18.99	10.56	21.73	299.06	.05
1400.00	1.65	284.73	1399.69	11.29	-21.74	11.29	24.50	297.45	.04
1500.00	1.64	286.14	1499.65	12.06	-24.51	12.06	27.31	296.20	.04
1600.00	1.35	286.84	1599.62	12.80	-27.01	12.80	29.89	295.35	.29
1700.00	1.29	286.94	1699.59	13.47	-29.21	13.47	32.17	294.75	.06
1800.00	1.24	283.28	1799.57	14.04	-31.34	14.04	34.35	294.13	.09
1900.00	1.07	285.98	1899.55	14.55	-33.29	14.55	36.33	293.60	.18
2000.00	1.16	282.84	1999.53	15.03	-35.18	15.03	38.25	293.13	.11
2100.00	1.09	291.97	2099.51	15.61	-37.05	15.61	40.20	292.85	.19
2200.00	1.05	307.24	2199.49	16.52	-38.66	16.52	42.04	293.14	.29
2300.00	1.07	307.28	2299.47	17.64	-40.13	17.64	43.84	293.73	.02
2400.00	1.03	302.18	2399.46	18.68	-41.64	18.68	45.64	294.17	.10
2500.00	1.03	311.95	2499.44	19.76	-43.06	19.76	47.38	294.65	.18
2600.00	1.00	302.97	2599.43	20.84	-44.47	20.84	49.11	295.11	.16
2700.00	1.20	300.22	2699.41	21.84	-46.10	21.84	51.01	295.35	.21
2800.00	1.24	283.78	2799.38	22.63	-48.06	22.63	53.12	295.21	.35
2900.00	1.25	276.77	2899.36	23.01	-50.19	23.01	55.22	294.63	.15
3000.00	1.35	282.58	2999.33	23.40	-52.42	23.40	57.41	294.05	.17
3100.00	1.29	280.48	3099.31	23.86	-54.68	23.86	59.66	293.57	.08
3200.00	1.10	312.13	3199.29	24.71	-56.50	24.71	61.67	293.62	.68
3300.00	1.16	320.25	3299.27	26.13	-57.86	26.13	63.49	294.30	.17
3400.00	1.41	329.67	3399.24	27.97	-59.13	27.97	65.41	295.32	.33
3500.00	1.50	337.34	3499.21	30.24	-60.25	30.24	67.42	296.65	.21
3600.00	1.54	334.45	3599.18	32.66	-61.34	32.66	69.49	298.03	.09
3700.00	1.48	330.97	3699.14	35.00	-62.54	35.00	71.67	299.23	.11
3800.00	1.46	328.40	3799.11	37.22	-63.84	37.22	73.89	300.24	.07
3900.00	1.23	316.53	3899.08	39.08	-65.24	39.08	76.05	300.92	.36
4000.00	1.16	270.60	3999.06	39.87	-66.99	39.87	77.96	300.76	.93
4100.00	1.36	262.46	4099.04	39.72	-69.18	39.72	79.78	299.86	.27
4200.00	1.32	264.46	4199.01	39.46	-71.51	39.46	81.67	298.89	.06
4300.00	1.23	266.01	4298.99	39.27	-73.72	39.27	83.53	298.04	.10
4400.00	1.47	270.59	4398.96	39.21	-76.08	39.21	85.59	297.27	.26
4500.00	1.71	263.12	4498.92	39.04	-78.84	39.04	87.98	296.35	.32
4600.00	1.89	257.07	4598.87	38.50	-81.93	38.50	90.52	295.17	.26

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	
4700.00	1.79	263.60	4698.82	37.95	-85.09	37.95	93.17	294.04	.23
4800.00	1.50	261.72	4798.78	37.59	-87.93	37.59	95.63	293.15	.29
4900.00	1.45	259.80	4898.74	37.18	-90.48	37.18	97.82	292.34	.07
5000.00	1.17	264.87	4998.72	36.86	-92.74	36.86	99.80	291.68	.30
5100.00	1.12	265.11	5098.70	36.69	-94.73	36.69	101.58	291.17	.05
5200.00	.88	262.64	5198.68	36.51	-96.46	36.51	103.14	290.73	.24
5300.00	.62	274.80	5298.67	36.45	-97.76	36.45	104.34	290.45	.30
5400.00	.63	312.68	5398.67	36.87	-98.71	36.87	105.37	290.48	.41
5500.00	.39	317.44	5498.66	37.50	-99.34	37.50	106.18	290.68	.24
5600.00	.08	352.63	5598.66	37.82	-99.58	37.82	106.52	290.79	.33
5700.00	.12	285.93	5698.66	37.91	-99.69	37.91	106.66	290.82	.11
5800.00	.15	336.41	5798.66	38.06	-99.84	38.06	106.85	290.87	.12
5900.00	.03	23.85	5898.66	38.21	-99.89	38.21	106.94	290.93	.13
6000.00	.18	244.40	5998.66	38.16	-100.02	38.16	107.05	290.88	.20
6100.00	.21	309.68	6098.66	38.21	-100.30	38.21	107.33	290.86	.21
6200.00	.22	199.02	6198.66	38.15	-100.50	38.15	107.50	290.78	.35
6300.00	.22	248.68	6298.66	37.90	-100.74	37.90	107.64	290.61	.18
6400.00	.31	217.77	6398.66	37.61	-101.09	37.61	107.86	290.41	.17
6500.00	.43	225.43	6498.66	37.13	-101.52	37.13	108.10	290.09	.13
6600.00	.50	229.19	6598.65	36.59	-102.12	36.59	108.48	289.71	.08
6700.00	.44	237.97	6698.65	36.10	-102.78	36.10	108.93	289.35	.09
6800.00	.54	248.44	6798.65	35.72	-103.54	35.72	109.53	289.03	.13
6900.00	.30	243.83	6898.64	35.43	-104.21	35.43	110.07	288.78	.24
7000.00	.37	249.49	6998.64	35.20	-104.75	35.20	110.51	288.58	.08
7100.00	.24	214.69	7098.64	34.92	-105.17	34.92	110.82	288.37	.22
7200.00	.41	206.93	7198.64	34.43	-105.45	34.43	110.93	288.08	.18
7300.00	.10	135.16	7298.64	34.05	-105.55	34.05	110.91	287.88	.39
7400.00	.09	207.76	7398.64	33.91	-105.53	33.91	110.84	287.82	.11
Last Survey Depth Recorded									
7500.00	.14	198.31	7498.64	33.73	-105.60	33.73	110.86	287.71	.05