



Job Number: 441D-2017  
 Company: TRANSCANADA / CPG  
 Lease/Well: RIPLEY 12597  
 Location: JACKSON COUNTY  
 Rig Name: YOST # 6  
 RKB: 794 + 16 = 810  
 G.L. or M.S.L.: 794'

State/Country: WEST VIRGINIA / USA  
 Declination: 7.41 DEGREES WEST  
 Grid: Referenced to GRID NORTH  
 File name: C:\WINSERVE\2017AS-1\TRANSC-1.SVY  
 Date/Time: 13-Jul-17 / 13:53  
 Curve Name: Ripley 12597 ( AS DRILLED SURVEYS )

**Panther Drilling Systems  
 SURVEY REPORT**

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WINSERVE SURVEY CALCULATIONS  
 Minimum Curvature Method  
 Vertical Section Plane 34.88  
 Vertical Section Referenced to Wellhead  
 Rectangular Coordinates Referenced to Wellhead

WV Department of  
 Environmental Protection

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
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.00	.00	100.00	.00	.00	.00	.00	.00	.00
200.00	.00	.00	200.00	.00	.00	.00	.00	.00	.00
300.00	.00	.00	300.00	.00	.00	.00	.00	.00	.00
400.00	.00	.00	400.00	.00	.00	.00	.00	.00	.00
500.00	.00	.00	500.00	.00	.00	.00	.00	.00	.00
600.00	.00	.00	600.00	.00	.00	.00	.00	.00	.00
700.00	.00	.00	700.00	.00	.00	.00	.00	.00	.00
800.00	.00	.00	800.00	.00	.00	.00	.00	.00	.00
900.00	.00	.00	900.00	.00	.00	.00	.00	.00	.00
1000.00	.00	.00	1000.00	.00	.00	.00	.00	.00	.00
1100.00	.00	.00	1100.00	.00	.00	.00	.00	.00	.00
1200.00	.00	.00	1200.00	.00	.00	.00	.00	.00	.00
1300.00	.00	.00	1300.00	.00	.00	.00	.00	.00	.00
1400.00	.00	.00	1400.00	.00	.00	.00	.00	.00	.00
1500.00	.00	.00	1500.00	.00	.00	.00	.00	.00	.00
1600.00	.00	.00	1600.00	.00	.00	.00	.00	.00	.00
1700.00	.00	.00	1700.00	.00	.00	.00	.00	.00	.00
1800.00	.00	.00	1800.00	.00	.00	.00	.00	.00	.00
1900.00	.00	.00	1900.00	.00	.00	.00	.00	.00	.00
2000.00	.00	.00	2000.00	.00	.00	.00	.00	.00	.00
2100.00	.00	.00	2100.00	.00	.00	.00	.00	.00	.00
2200.00	.00	.00	2200.00	.00	.00	.00	.00	.00	.00
2300.00	.00	.00	2300.00	.00	.00	.00	.00	.00	.00
2400.00	.00	.00	2400.00	.00	.00	.00	.00	.00	.00

2-9-2017

WV Department of Environmental Protection  
Dogleg  
Priority  
1100  
Division

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	SURFACE Direction Deg	Vertical Section FT
2500.00	.00	.00	2500.00	.00	.00	.00	.00	.00	.00
<b>FIRST SVY</b>									
2569.00	1.50	216.90	2568.99	-.72	-.54	-.90	.90	216.90	2.17
2614.00	.40	82.60	2613.99	-1.17	-.74	-1.39	1.39	212.25	4.00
2658.00	1.90	22.10	2657.98	-.48	-.31	-.57	.57	213.28	3.95
2703.00	3.70	27.50	2702.92	1.50	.64	1.60	1.63	23.01	4.04
2748.00	5.50	28.50	2747.78	4.69	2.34	5.18	5.24	26.51	4.00
2793.00	7.40	27.30	2792.49	9.16	4.70	10.20	10.29	27.15	4.23
2838.00	9.20	25.80	2837.02	14.97	7.59	16.62	16.78	26.89	4.03
2883.00	11.00	24.10	2881.32	22.13	10.91	24.39	24.67	26.24	4.05
2928.00	12.80	24.00	2925.35	30.60	14.69	33.51	33.95	25.64	4.00
2973.00	14.70	26.40	2969.06	40.27	19.26	44.05	44.64	25.56	4.41
3015.00	15.70	28.20	3009.59	50.05	24.31	54.96	55.64	25.91	2.63
3060.00	17.10	28.20	3052.76	61.25	30.32	67.58	68.34	26.33	3.11
3105.00	18.80	27.70	3095.56	73.50	36.81	81.35	82.20	26.60	3.79
3149.00	19.95	27.83	3137.07	86.42	43.61	95.83	96.80	26.78	2.62
3194.00	21.44	27.04	3179.17	100.53	50.94	111.60	112.70	26.87	3.37
3236.00	22.30	25.00	3218.14	114.59	57.79	127.06	128.34	26.76	2.73
3281.00	22.90	23.20	3259.69	130.38	64.85	144.04	145.62	26.45	2.03
3326.00	22.90	26.77	3301.14	146.24	72.24	161.28	163.11	26.29	3.09
3371.00	24.60	32.20	3342.34	161.99	81.18	179.31	181.19	26.62	6.15
3416.00	25.48	34.95	3383.11	177.85	91.72	198.35	200.11	27.28	3.24
3461.00	27.50	35.56	3423.38	194.24	103.31	218.42	220.00	28.01	4.53
3505.00	29.13	27.39	3462.13	212.02	114.15	239.20	240.79	28.30	9.55
3549.00	30.05	21.24	3500.40	231.80	123.07	260.53	262.44	27.96	7.21
3594.00	32.91	16.05	3538.78	254.06	130.53	283.06	285.63	27.19	8.75
3641.00	33.00	20.54	3578.22	278.32	138.55	307.55	310.90	26.47	5.20
3686.00	32.56	24.32	3616.06	300.83	147.84	331.33	335.19	26.17	4.65
3731.00	32.60	26.95	3653.98	322.67	158.32	355.24	359.42	26.14	3.15
3775.00	32.56	29.85	3691.06	343.51	169.59	378.78	383.09	26.28	3.55
3820.00	32.73	33.19	3728.96	364.19	182.27	403.00	407.26	26.59	4.02
3865.00	33.31	36.97	3766.69	384.25	196.37	427.51	431.52	27.07	4.75
3910.00	33.70	39.61	3804.22	403.74	211.76	452.30	455.90	27.68	3.35
3955.00	33.75	40.49	3841.64	422.86	227.83	477.18	480.33	28.32	1.09
4000.00	34.32	41.10	3878.93	441.93	244.29	502.24	504.95	28.93	1.48
4042.00	33.61	40.49	3913.77	459.69	259.62	525.58	527.94	29.46	1.88
4086.00	32.78	41.80	3950.59	477.83	275.47	549.52	551.55	29.96	2.49
4131.00	29.44	44.35	3989.11	494.83	291.32	572.53	574.22	30.49	7.98
4173.00	27.42	47.96	4026.05	508.69	305.72	592.13	593.49	31.01	6.31
4218.00	26.05	47.78	4066.24	522.27	320.74	611.86	612.89	31.56	3.05
4263.00	25.04	46.02	4106.84	535.52	334.91	630.83	631.62	32.02	2.81
4308.00	23.86	44.53	4147.80	548.62	348.14	649.15	649.76	32.40	2.96
4353.00	22.85	43.03	4189.11	561.50	360.49	666.77	667.26	32.70	2.60
4397.00	20.61	42.16	4229.99	573.48	371.52	682.91	683.31	32.94	5.14
4443.00	19.20	43.04	4273.24	585.01	382.12	698.43	698.75	33.15	3.13
4488.00	18.76	42.07	4315.79	595.79	392.01	712.94	713.19	33.34	1.20

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth			Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
				N-S FT	E-W FT		Distance FT	Direction Deg	
4529.00	17.31	38.99	4354.78	605.43	400.27	725.56	725.78	33.47	4.23
4571.00	15.90	41.37	4395.02	614.60	408.00	737.51	737.70	33.58	3.73
4613.00	14.89	45.14	4435.52	622.73	415.63	748.54	748.69	33.72	3.38
4656.00	14.80	50.50	4477.08	630.12	423.79	759.27	759.37	33.92	3.20
4698.00	12.83	50.33	4517.87	636.51	431.52	768.93	768.99	34.13	4.69
4743.00	11.11	50.50	4561.89	642.46	438.71	777.92	777.96	34.33	3.82
4785.00	11.55	46.99	4603.07	647.90	444.90	785.93	785.95	34.48	1.95
4830.00	10.76	41.72	4647.22	654.11	450.99	794.50	794.51	34.59	2.86
4872.00	11.64	37.23	4688.42	660.41	456.17	802.63	802.64	34.63	2.95
4916.00	11.99	39.25	4731.49	667.48	461.74	811.62	811.63	34.67	1.23
4958.00	9.53	40.57	4772.75	673.50	466.77	819.43	819.44	34.72	5.89
5003.00	7.07	50.77	4817.27	678.08	471.34	825.80	825.81	34.80	6.35
5048.00	6.28	79.07	4861.98	680.30	475.90	830.23	830.24	34.97	7.43
<b>Top of Onondaga @ 5089 MD/ 4902 TVD</b>									
5089.00	6.26	91.79	4902.74	680.66	480.34	833.06	833.08	35.21	3.38
<b>Top of Oriskany @ 5194 MD/ 5007 TVD</b>									
5194.00	6.32	95.77	5007.10	679.90	491.81	839.00	839.13	35.88	.42
<b>PROJECTED TD @ 5313 MD/ 5125 TVD</b>									
5313.00	6.32	95.77	5125.38	678.58	504.84	845.37	845.78	36.65	.00

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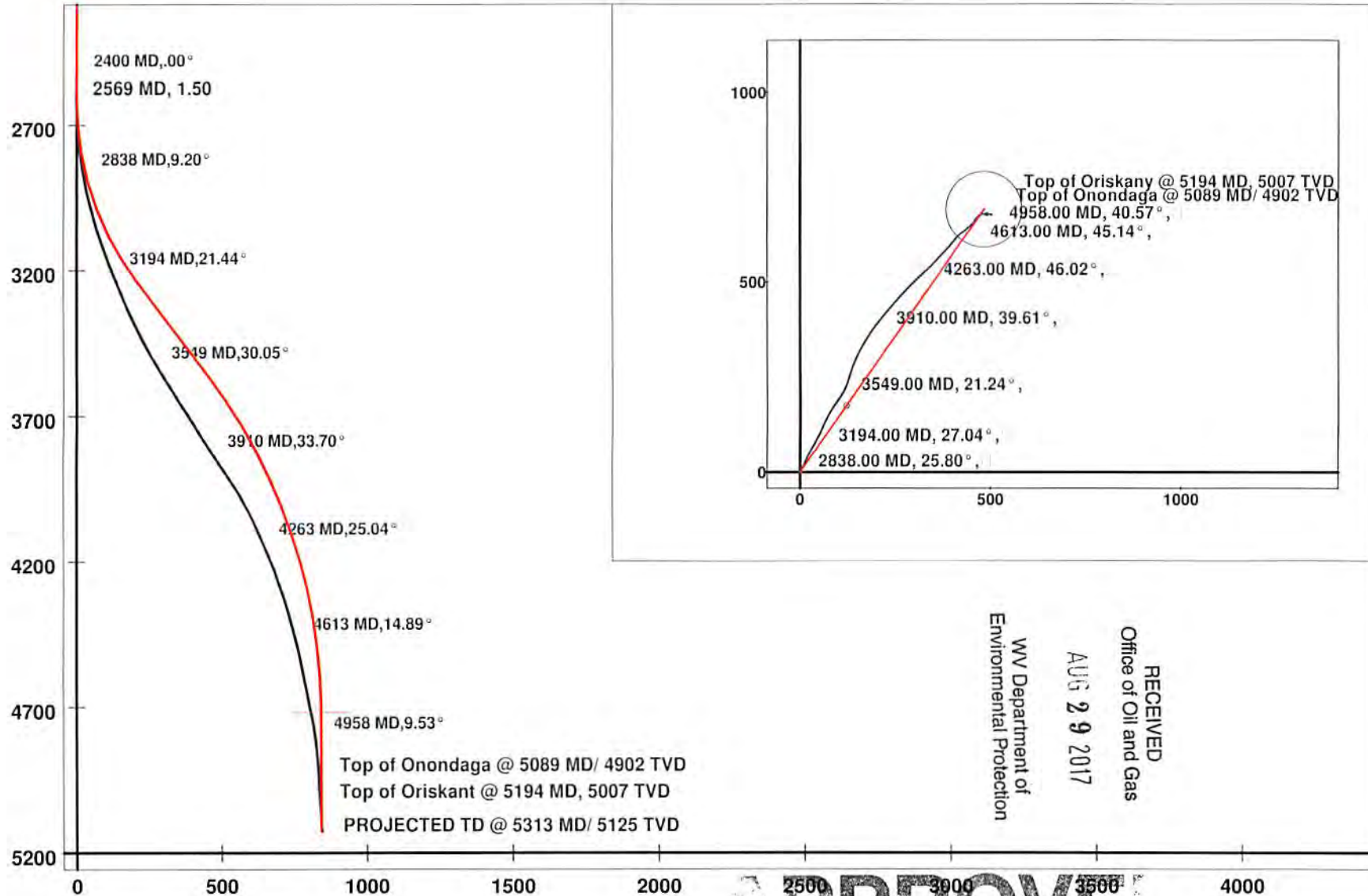
WV Department of  
Environmental Protection

Job Number: 441D-2017  
 Company: TRANSCANADA / CPG  
 Lease/Well: RIPLEY 12597  
 Location: JACKSON COUNTY  
 Rig Name: YOST # 6  
 State/Country: WEST VIRGINIA / USA

Declination: 7.41 DEGREES WEST  
 File name: C:\WINSERVE\2017AS~1\TRANSC-1.S  
 Date/Time: 13-Jul-17 / 13:41



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**APPROVE**  
 NAME: *James Stevens*  
 DATE: *10/26/2017*