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NT Minerals & Energy InfoCentre
Northern Territory Geological Survey
GPO Box 3000
Darwin, NT, 0801
Australia

Dear Sir/Madam

Subject: Report on Sampling & Geochemical Analyses of Well Samples from Thomas 1, Poepples Corner 1 & Beachcomber 1, EP 163.

On behalf of Tamboran Resources Pty Ltd, I submit a report on the sampling of cuttings from petroleum exploration wells Thomas 1, Poepples Corner 1 & Beachcomber 1, EP 163, and their subsequent analyses for total organic carbon (TOC) and vitrinite reflectance (VR) by Geotech.

The rationale behind the sampling was to re-assess the source rock potential of formations towards the base of the Eromanga Basin, with a view to assessing their potential for shale gas. The results are attached. We have interpreted those results positively.

Tamboran is the current holder of EP 163.

Yours sincerely

David A Falvey
Managing Director

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Reporting Under the Petroleum Act

Titleholder	Tamboran Resources Pty Ltd
Operator	<i>as above</i>
Petroleum Title	EP 163
Tenement Manager	David Falvey
Project Name	"Snooker"
Report Title	TOC & VR measurements on Thomas 1, Poepples Corner 1 and Beachcomber 1
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Company Reference	Year 1 Work Program Report
Target Commodity	Petroleum
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THOMAS-1



<i>Upp Depth (m)</i>	<i>Low Depth (m)</i>		<i>TOC</i>
1417.0	1417.0	Ctgs	0.69
1432.0	1432.0	Ctgs	0.58
2083.0	2083.0	Ctgs	28.84
2086.0	2086.0	Ctgs	6.91
2158.0	2158.0	Ctgs	1.90
2173.0	2173.0	Ctgs	42.60
2182.0	2182.0	Ctgs	5.21
2185.0	2185.0	Ctgs	2.08
2191.0	2191.0	Ctgs	1.10
2200.0	2200.0	Ctgs	0.71
2209.0	2209.0	Ctgs	14.24
2212.0	2212.0	Ctgs	8.79
2215.0	2215.0	Ctgs	1.71
2218.0	2218.0	Ctgs	0.43
2260.0	2260.0	Ctgs	4.74
2266.0	2266.0	Ctgs	0.84
2272.0	2272.0	Ctgs	0.65
2284.0	2284.0	Ctgs	1.03
2293.0	2293.0	Ctgs	0.78
2299.0	2299.0	Ctgs	0.39
2308.0	2308.0	Ctgs	0.16
2317.0	2317.0	Ctgs	0.66
2329.0	2329.0	Ctgs	0.74
2338.0	2338.0	Ctgs	1.69
2347.0	2347.0	Ctgs	0.94
2359.0	2359.0	Ctgs	0.35
2368.0	2368.0	Ctgs	3.57
2371.0	2371.0	Ctgs	1.16
2374.0	2374.0	Ctgs	1.33
2383.0	2383.0	Ctgs	1.37
2398.0	2398.0	Ctgs	0.11
2408.0	2408.0	Ctgs	0.17
2416.0	2416.0	Ctgs	0.18
2434.0	2434.0	Ctgs	0.29
2446.0	2446.0	Ctgs	0.18
2455.0	2455.0	Ctgs	0.20
2461.0	2461.0	Ctgs	0.13
2470.0	2470.0	Ctgs	0.90

POPELLE CORNER-1



<i>Upp Depth (ft)</i>	<i>Low Depth (ft)</i>		<i>TOC</i>
6720.0	6720.0	Ctgs	1.75
6750.0	6750.0	Ctgs	1.01
6780.0	6780.0	Ctgs	2.89
6810.0	6810.0	Ctgs	3.93
6840.0	6840.0	Ctgs	0.87
6900.0	6900.0	Ctgs	0.18
6930.0	6930.0	Ctgs	0.18
6960.0	6960.0	Ctgs	0.08
6990.0	6990.0	Ctgs	0.63
7020.0	7020.0	Ctgs	2.12
7050.0	7050.0	Ctgs	1.07
7360.0	7360.0	Ctgs	0.28
7390.0	7390.0	Ctgs	0.94
7420.0	7420.0	Ctgs	0.51
7450.0	7450.0	Ctgs	0.41
7510.0	7510.0	Ctgs	0.95
7540.0	7540.0	Ctgs	1.53
7570.0	7570.0	Ctgs	5.31
7600.0	7600.0	Ctgs	1.01
7660.0	7660.0	Ctgs	0.30
7690.0	7690.0	Ctgs	0.07
7840.0	7840.0	Ctgs	0.39
7860.0	7860.0	Ctgs	0.46
7880.0	7880.0	Ctgs	0.14

BEACHCOMBER-1

<i>Upp Depth (m)</i>	<i>Low Depth (m)</i>		<i>TOC</i>
930.0	930.0	Ctgs	1.85
940.0	940.0	Ctgs	1.00
950.0	950.0	Ctgs	2.26
960.0	960.0	Ctgs	1.98
970.0	970.0	Ctgs	1.19
980.0	980.0	Ctgs	1.29
990.0	990.0	Ctgs	2.39
1010.0	1010.0	Ctgs	1.40
1030.0	1030.0	Ctgs	0.96
1050.0	1050.0	Ctgs	1.24
1060.0	1060.0	Ctgs	1.32
1070.0	1070.0	Ctgs	1.27
1090.0	1090.0	Ctgs	1.10
1100.0	1100.0	Ctgs	1.32
1110.0	1110.0	Ctgs	0.90
1130.0	1130.0	Ctgs	0.84
1630.0	1630.0	Ctgs	3.40
1650.0	1650.0	Ctgs	1.84
1660.0	1660.0	Ctgs	0.25
1670.0	1670.0	Ctgs	1.04
1680.0	1680.0	Ctgs	0.56
1710.0	1710.0	Ctgs	3.15
1720.0	1720.0	Ctgs	1.30
1750.0	1750.0	Ctgs	3.96
1770.0	1770.0	Ctgs	0.42

VITRINITE REFLECTANCE MEASUREMENT

THOMAS-1



Sample	Std	No of	Sample Description Including Liptinite Fluorescence,		
Details	Mean	Range	Dev	Maceral Abundances, Mineral Fluorescence	
			Readings		
1417m \bar{R}_v max	0.57	0.47- 0.65	0.050	14	Sparse sporinite and liptodetrinite dull orange, rare cutinite orange. (Argillaceous siltstone> claystone> sandstone> carbonate. Dom common, L>I>V. Liptinite and inertinite sparse, vitrinite rare. Inorganic mud additives present. Mineral fluorescence weak to moderate orange. Glauconite rare. Iron oxides sparse. Pyrite sparse.)
Ctgs \bar{R}_l max	1.70	1.16- 2.22	0.380	5	
1432m \bar{R}_v max	0.59	0.50- 0.71	0.071	7	Sparse sporinite and rare liptodetrinite dull orange.
Ctgs \bar{R}_l max	1.45	0.92- 1.82	0.306	10	orange. (Argillaceous siltstone>sandstone>claystone> carbonate. Dom sparse, L>I>V. Liptinite sparse, inertinite rare to sparse, vitrinite rare. Inorganic mud additives present. Mineral fluorescence weak to moderate orange. Iron oxides sparse. Pyrite sparse.)
2086m \bar{R}_v max	0.76	0.63- 0.98	0.082	25	Sparse sporinite and liptodetrinite dull orange, rare resinite orange. (Sandstone>>coal>shaly coal>claystone. Coal abundant, V>I>L,
Ctgs \bar{R}_l max	1.45	0.92- 1.82	0.306	10	vitrite>vitrinertite(I)>clarite=inertite>duroclarite. Shaly coal common, I>L>V, durite>duroclarite> clarite. Dom sparse, L>I>V. Liptinite and inertinite sparse, vitrinite rare.

					Mineral fluorescence weak orange in argillaceous material. Iron oxides rare. Pyrite rare.)
2158m	\bar{R}_v max	0.75	0.68- 0.063 0.88	6	Abundant sporinite and sparse liptodetrinite dull orange, common lamalginite orange to dull orange. (Iron
Ctgs	\bar{R}_l max	1.76	1.34- 0.337 2.44	10	oxides>claystone>siltstone>sandstone. Dom abundant, L>I>V. Liptinite abundant, inertinite sparse, vitrinite rare. More than 50% of the sample is made up of iron oxides and the sample may not be representative of the stratigraphic interval sampled. Mineral fluorescence weak to moderate orange in fine grained sediments. Iron oxides major. Pyrite common.)
2173m	\bar{R}_v max	0.75	0.61- 0.082 0.93	25	Abundant sporinite and common liptodetrinite dull orange, abundant cutinite orange to dull orange, sparse resinite orange.
Ctgs	\bar{R}_l max	1.75	1.26- 0.553 2.72	5	(Coal>>siltstone>sandstone. Coal dominant, V>L>I, clarite>duroclarite>vitrite. Coal comprises about 90% of the sample and approximate maceral composition on mineral free basis: vitrinite 75%; liptinite 15%; inertinite 10%. Dom sparse, V>L>I. Vitrinite sparse, liptinite and inertinite rare. Mineral fluorescence none. Iron oxides rare. Pyrite rare.)
2182m	\bar{R}_v max	0.75	0.62- 0.055 0.87	25	Common sporinite and sparse liptodetrinite dull orange, sparse cutinite dull orange.
Ctgs	\bar{R}_l max	1.72	1.36- 0.358 2.36	5	(Sandstone>siltstone>claystone>coal > shaly coal. Coal abundant, V>L>I, duroclarite>vitrite> vitrinertite(V). Shaly coal common, V>L>I, duroclarite>clarite. Dom sparse, V>L>I. Vitrinite sparse, liptinite and inertinite rare. Mineral fluorescence mostly none, moderate orange in argillaceous material. Iron oxides

					rare. Pyrite sparse.)
2191m	\bar{R}_v max	0.74	0.63- 0.050 0.83	25	Sparse sporinite and rare liptodetrinite dull orange, sparse cutinite dull orange. (Sandstone>siltstone>claystone>shaly coal> coal. Shaly coal sparse, V>L>I, clarite>duroclarite. Coal sparse, V>L>I, vitrite>duroclarite. Dom sparse, L>V>I. Liptinite sparse, vitrinite rare to sparse, inertinite rare. Mineral fluorescence mostly none, moderate orange in argillaceous material. Iron oxides sparse. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.61	1.26- 0.272 1.94	5	
2200m	\bar{R}_v max	0.73	0.67- 0.041 0.80	10	Rare sporinite and liptodetrinite dull orange, rare cutinite dull orange. (Sandstone>>claystone>shaly coal>coal. Shaly coal sparse, V>I>L, duroclarite>clarodurite. Coal rare, I>V, inertite>vitrite. Dom rare, L>I>V. All three maceral groups rare. Mineral fluorescence mostly none weak to moderate orange in argillaceous material. Iron oxides sparse. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.62	1.24- 0.278 2.10	10	
2212m	\bar{R}_v max	0.75	0.64- 0.051 0.86	25	Common sporinite and sparse liptodetrinite dull orange, sparse cutinite dull orange to weak brown. (Siltstone>claystone>sandstone>coal>shaly coal. Coal abundant, V>I>L, vitrite>clarite>duroclarite>vitrinertite(V). Shaly coal common, V>L>I, duroclarite>clarite. Dom sparse, V>L>I. Vitrinite sparse, liptinite and inertinite rare. Mineral fluorescence mostly none weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.73	1.38- 0.283 2.18	5	
2218m	\bar{R}_v max	0.73	0.65- 0.039 0.77	7	Rare sporinite and liptodetrinite dull orange, rare cutinite orange to dull orange. (Sandstone>>claystone>>shaly coal>

Ctgs	\bar{R}_I max	1.64	1.22- 0.225 2.04	10	coal. Shaly coal rare, I>V>L, clarodurite=clarite. Coal rare, I>L, durite. Dom rare, L>V>I. All three maceral groups rare. Coalified leaf tissues present. Mineral fluorescence mostly none weak dull orange in argillaceous material. Iron oxides rare. Pyrite rare)
2260m	\bar{R}_V max	0.79	0.68- 0.068 0.92	25	Sparse sporinite and rare liptodetrinite dull orange, sparse cutinite dull orange. (Sandstone>> coal>claystone>shaly coal. Coal abundant, I>V>L,
Ctgs	\bar{R}_I max	2.06	1.36- 0.623 3.18	5	duroclarite>inertite>vitrinite>clarodurite =vitrinertite(V). Shaly coal rare, V>I>L, duroclarite. Dom rare, V>I>L. All three maceral groups rare. Mineral fluorescence mostly none weak dull orange in argillaceous material. Iron oxides rare. Pyrite rare)
2272m	\bar{R}_V max	0.75	0.68- 0.044 0.85	19	Rare sporinite and liptodetrinite dull orange, rare cutinite orange to dull orange. (Sandstone>>claystone>>shaly coal> coal. Shaly coal sparse, V>I>L,
Ctgs	\bar{R}_I max	1.57	1.34- 0.153 1.78	5	duroclarite>clarodurite. Coal sparse, V>I>L, duroclarite>vitrinertite(I)=clarite. Dom rare to sparse, I>V>L. Inertinite rare to sparse, vitrinite and liptinite rare. Coalified leaf tissues present. Micrinite abundant in some vitrinite. Mineral fluorescence mostly none weak dull orange in argillaceous material. Iron oxides sparse. Pyrite rare)
2284m	\bar{R}_V max	0.79	0.67- 0.088 0.97	9	Rare sporinite and liptodetrinite dull orange, rare cutinite orange to dull orange. (Sandstone>>claystone> coal. Coal rare, V>L, clarite>vitrinite. Dom rare to sparse, I>V>L. Inertinite rare to sparse, vitrinite and liptinite rare. Mineral fluorescence mostly none weak dull orange in argillaceous
Ctgs	\bar{R}_I max	1.61	1.24- 0.382 2.58	10	

					material. Iron oxides sparse. Pyrite rare)
2293m	\bar{R}_v max	0.82	0.74- 0.055 0.90	10	Sparse sporinite and rare liptodetrinite dull orange to weak brown. (Sandstone>siltstone>claystone. Dom sparse to common I>L>V.
Ctgs	\bar{R}_l max	1.76	1.60- 0.130 1.98	10	Inertinite and liptinite sparse, vitrinite rare. Mineral fluorescence mostly none weak dull orange in fine grained material. Iron oxides common. Pyrite sparse.)
2299m	\bar{R}_v max	0.80	0.73- 0.053 0.91	9	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite weak brown. (Sandstone>claystone. Dom sparse, I>V>L. Inertinite sparse, vitrinite and liptinite rare. Rare coal of clarite composition with a reflectance of 0.64%, probably a caving. Mineral fluorescence mostly none weak to moderate orange in fine grained material. Iron oxides common. Pyrite rare.)
Ctgs	\bar{R}_l max	1.68	1.24- 0.326 2.36	20	
2308m	\bar{R}_v max	0.77	- -	1	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange to weak brown. (Siltstone>sandstone> claystone. Dom rare to sparse, L>I>V. All three maceral groups rare. Mineral fluorescence mostly none weak to moderate orange in claystones. Iron oxides common. Pyrite rare.)
Ctgs	\bar{R}_l max	1.76	1.14- 0.416 2.72	12	
2317m	\bar{R}_v max	0.82	0.70- 0.064 0.98	19	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange. (Sandstone>siltstone>claystone>coal. Coal rare, I, inertite. Dom common, I>V>L.
Ctgs	\bar{R}_l max	1.57	1.20- 0.276 2.16	10	Inertinite sparse, vitrinite rare to sparse, liptinite rare. Mineral fluorescence mostly none weak to moderate orange in claystones. Iron oxides common. Pyrite rare.)

2329m	\bar{R}_v max	0.82	0.74- 0.049 0.96	20	Sparse sporinite and rare liptodetrinite dull orange to weak brown, rare cutinite dull orange. (Sandstone> siltstone> claystone>carbonate>coal>igneous rocks. Coal rare, V>L>I, vitrite=clarite. Dom sparse to common, I>L>V. Inertinite and liptinite sparse, vitrinite rare. Liptinite occur in few claystone grains where it is abundant. Mineral fluorescence mostly none weak to moderate orange in claystones. Iron oxides common. Pyrite rare.)
Ctgs	\bar{R}_l max	1.70	1.18- 0.416 2.68	10	
2338m	\bar{R}_v max	0.83	0.71- 0.055 1.00	25	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange. (Sandstone> siltstone>claystone> carbonate>coal. Coal sparse, V>I>L, vitrite=duroclarite> inertite. Dom common, I>V>L. Inertinite and vitrinite sparse, liptinite rare. Mineral fluorescence mostly none weak to moderate orange in claystones. Iron oxides common. Pyrite rare.)
Ctgs	\bar{R}_l max	1.80	1.26- 0.482 2.68	5	
2347m	\bar{R}_v max	0.78	0.70- 0.062 0.87	4	Rare sporinite and liptodetrinite orange to dull orange. (Fine claystone> sandstone>siltstone>igneous rocks>coal. Coal rare, I, inertite. Dom abundant, I>V>L. Inertinite abundant, vitrinite and liptinite rare. Liptinite could be in cavings and liptinite may be absent on mineral free basis. Mineral fluorescence moderate orange in claystones. Iron oxides sparse. Pyrite rare.)
Ctgs	\bar{R}_l max	1.80	1.14- 0.343 2.60	25	
2359m	\bar{R}_v max	0.86	0.79- 0.063 0.99	8	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange. (Coarse sandstone>>claystone> siltstone>igneous rocks>shaly coal. Shaly coal rare, I>V>L, clarodurite. Dom sparse, I>V>L. Inertinite sparse,
Ctgs	\bar{R}_l max	1.81	1.26- 0.328 2.32	16	

					<p>vitrinite and liptinite rare. Mineral fluorescence mostly none weak moderate orange in fine grained sediments. Iron oxides sparse. Pyrite rare.)</p>
2368m	\bar{R}_v max	0.81	0.69- 0.067 0.98	25	<p>Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange weak brown. (Sandstone>claystone> siltstone>coal>igneous rocks>shaly coal. Coal abundant, V>>I>L, vitrite. Shaly coal rare, V>L, clarite. Dom rare to sparse, V>I>L. Vitrinite rare to sparse, inertinite and liptinite rare. Mineral fluorescence mostly none weak to moderate orange in fine grained material. Iron oxides sparse. Pyrite rare.)</p>
Ctgs	\bar{R}_l max	1.82	1.48- 0.242 2.16	5	
2374m	\bar{R}_v max	0.81	0.72- 0.045 0.90	21	<p>Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange weak brown. (Sandstone>claystone> carbonate>coal>shaly coal. Coal sparse, V>I>L, clarite> vitrite>inertite=duroclarite=vitrinertite(I). Shaly coal rare, V>I>L, clarite>clarodurite. Dom rare to sparse, I>V>L. Inertinite rare to sparse, vitrinite and liptinite rare. Mineral fluorescence mostly none weak to moderate orange in fine grained material. Iron oxides major. Pyrite rare.)</p>
Ctgs	\bar{R}_l max	1.79	1.22- 0.446 2.54	10	
2383m	\bar{R}_v max	0.83	0.72- 0.054 0.94	19	<p>Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange weak brown. (Sandstone>siltstone> claystone> carbonate>coal>shaly coal. Coal rare, V>I, vitrinertite(I)>vitrite. Shaly coal rare, V>I>L, duroclarite> clarodurite. Dom sparse, I>V>L. Inertinite sparse, vitrinite rare to sparse, liptinite rare. Mineral fluorescence mostly none weak to moderate orange in fine grained</p>
Ctgs	\bar{R}_l max	1.62	1.20- 0.256 2.16	10	

					material. Iron oxides abundant. Pyrite rare.)
2398m	\bar{R}_v max	0.80	0.79- 0.008 0.81	4	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange. (Sandstone>siltstone>claystone>shaly coal. Shaly coal rare, V>I>L, duroclarite. Dom rare. L>I>V. All three maceral groups rare. Mineral fluorescence mostly none, weak dull orange in fine grained sediments. Iron oxides abundant. Pyrite rare.)
Ctgs	\bar{R}_l max	2.00	1.48- 0.407 2.74	7	
2408m	\bar{R}_v max	0.86	0.81- 0.040 0.92	4	Rare sporinite and liptodetrinite dull orange to weak brown. (Sandstone>siltstone>claystone. Dom rare. I>L>V. All three maceral groups rare. Rare coal of vitrinertite composition and reflectance of 0.55%, probably a caving. Inorganic mud additives present. Mineral fluorescence mostly none, weak dull orange in fine grained sediments. Iron oxides common. Pyrite rare.)
Ctgs	\bar{R}_l max	1.76	1.20- 0.324 2.30	9	
2416m	\bar{R}_v max	0.85	0.82- 0.035 0.89	2	Rare sporinite and liptodetrinite dull orange to weak brown. (Siltstone>sandstone>claystone. Dom rare. I>L>V. All three maceral groups rare. Rare coal of vitrite composition and reflectance of 0.62%, probably a caving. Mineral fluorescence mostly none, weak dull orange in fine grained sediments. Iron oxides sparse. Pyrite rare.)
Ctgs	\bar{R}_l max	1.94	1.54- 0.327 2.40	6	
2434m	\bar{R}_v max	0.83	0.76- 0.050 0.90	5	Rare sporinite and liptodetrinite dull orange to weak brown. (Siltstone>sandstone>claystone>igneous rocks. Dom rare. I>V>L. All three maceral groups rare. Mineral fluorescence mostly none, weak to moderate orange in fine grained sediments. Iron oxides sparse. Pyrite rare.)
Ctgs	\bar{R}_l max	1.79	1.24- 0.342 2.36	10	

2446m	\bar{R}_v max	1.03	0.96- 0.065 1.09	2	Rare sporinite and liptodetrinite dull orange to weak brown. (Siltstone>claystone>sandstone>igneous rocks. Dom rare. I>L>V. All three maceral groups rare. Mineral fluorescence mostly none, weak dull orange in fine grained sediments. Iron oxides rare. Pyrite common.)
Ctgs	\bar{R}_l max	1.86	1.48- 0.289 2.28	4	
2455m	\bar{R}_v max	-	- -	-	Fluorescing liptinite absent. (Claystone>siltstone>sandstone>igneous rocks. Dom rare to sparse. I only. Inertinite rare to sparse, vitrinite and liptinite absent. Mineral fluorescence none, Iron oxides rare. Pyrite common.)
Ctgs	\bar{R}_l max	5.56	2.02- 1.586 8.14	14	
2461m	\bar{R}_v max	6.18	5.63- 0.351 6.88	25	Fluorescing liptinite absent. (Sandstone>siltstone>claystone. Dom sparse, I>V. Inertinite sparse, vitrinite rare to sparse, liptinite absent. Mineral fluorescence none. Iron oxides rare. Pyrite common.)
Ctgs	\bar{R}_l max			-	
2470m	\bar{R}_v max	P 1.82	- -	2	Rare sporinite and liptodetrinite dull orange to weak brown, rare cutinite dull orange. (Siltstone>claystone>sandstone. Dom rare. I>L>V. All three maceral groups rare. Population 2 could be cavings. Alternatively, both populations could be members of the same population showing different degrees of thermal alteration. Coal contaminants common and most have reflectance of about 0.29%. Mineral fluorescence weak dull orange to none. Iron oxides sparse. Pyrite sparse.)

Interpretation of cavings populations is hindered by a lack of formation tops. One possible interpretation of the deepest three samples is that that well has penetrated basement and L4519 contain a super mature assemblage of organic matter whereas L4518 and L4520 contain either dominantly or entirely cavings populations. Another option is the presence of an intrusion close to 2461 m.

VITRINITE REFLECTANCE MEASUREMENT

POPELLE'S CORNER-1



Sample		Std	N ^o of	Sample Description Including Liptinite Fluorescence,	
Details	Mean	Range	Dev	Readin gs	Maceral Abundances, Mineral Fluorescence
6720ft	\bar{R}_v max	0.56	0.43-0.062 0.67	25	Sparse sporinite and rare liptodetrinite orange to dull orange, rare resinite greenish yellow. (Sandstone>claystone>coal>shaly coal. Coal common V>I>L, vitrite>inertite=clarodurite>clarite =duroclarite. Shaly coal sparse, I>V>L, clarodurite>duroclarite =durite. . Dom common, I>V>L. Inertinite sparse to common, vitrinite sparse, liptinite rare to sparse. Micrinite abundant in some coals. . Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.48	1.24-0.273 1.96	5	
6750ft	\bar{R}_v max	0.56	0.41-0.069 0.66	25	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite dull orange. (Sandstone>claystone>siltstone> coal> shaly coal. Coal sparse V>I>L, vitrite>clarite=inertite. Shaly coal sparse, V>I>L, clarodurite. . Dom sparse to common, I>V>L. Inertinite sparse, vitrinite rare to sparse, liptinite rare. Micrinite abundant in some coals. Vitrinite in some coals resinous and has lower reflectance values. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.48	1.12-0.338 2.02	5	

6810ft	\bar{R}_v max	0.67	0.55- 0.057 0.78	25	Common sporinite and rare liptodetrinite dull orange, rare cutinite dull orange, rare resinite orange. (Claystone>siltstone> sandstone>coal>shaly coal. Coal abundant, V>I>L, vitrite>duroclarite>clarodurite>vitrinertite(I). Shaly coal sparse, V>I>L, duroclarite>clarodurite. . Dom common, I>V>L. Inertinite common, vitrinite rare to sparse, liptinite rare. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.46	1.24- 0.187 1.72	5	
6840ft	\bar{R}_v max	0.61	0.53- 0.050 0.72	25	Rare sporinite and liptodetrinite orange to dull orange. (Sandstone>>siltstone>claystone>coal. Coal rare, V>I>L, duroclarite. Dom sparse, V>L>I. Vitrinite sparse, liptinite rare to sparse, inertinite rare. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.57	1.06- 0.409 2.16	5	
6900ft	\bar{R}_v max	0.55	0.48- 0.049 0.62	5	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite dull orange. (Sandstone>>claystone>coal=shaly coal. Coal rare, V>I, Vitrinertite(V). Shaly coal rare< V>I>L, duroclarite. Dom rare, I>L>V. All three maceral groups rare. Mineral fluorescence mostly none, weak dull orange in rare claystones. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.45	1.04- 0.397 2.48	14	
6930ft	\bar{R}_v max	0.57	0.47- 0.051 0.63	7	Rare sporinite and liptodetrinite orange to dull orange, rare resinite yellow. (Sandstone>>claystone>coal. Coal rare, V, Vitrite. Dom rare, I>L>V. All three maceral groups rare. Mineral fluorescence mostly none, weak dull orange in rare claystones. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.45	1.20- 0.164 1.66	7	

6960ft	\bar{R}_v max	-	-	-	-	Rare sporinite and liptodetrinite orange to dull orange. (Sandstone>>claystone. Dom rare, I>L. Inertinite and liptinite rare, vitrinite absent. Mineral fluorescence mostly none, weak dull orange in rare claystones. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.62	1.22-	0.195	8	
			1.88			
6990ft	\bar{R}_v max	0.62	0.53-	0.060	6	Common sporinite and sparse liptodetrinite orange to dull orange. (Sandstone>claystone>siltstone>carbonate. Dom common, L>I>V. Liptinite common, inertinite rare to sparse, vitrinite rare. Mineral fluorescence weak to moderate I orange in fine grained sediments. Iron oxides abundant. Pyrite sparse.)
Ctgs	\bar{R}_l max	1.50	0.96-	0.367	25	
			2.38			
7020ft	\bar{R}_v max	0.58	0.45-	0.059	25	Common sporinite and sparse liptodetrinite orange to dull orange, sparse cutinite orange to dull orange. (Sandstone>
Ctgs	\bar{R}_l max	1.57	1.22-	0.445	5	Coal sparse, V, vitrite. Dom abundant, V>L>I. Vitrinite and liptinite common, inertinite sparse. Coalified leaf tissues present. Mineral fluorescence weak to moderate I orange in fine grained sediments. Iron oxides sparse. Pyrite rare.)
			2.48			
7050ft	\bar{R}_v max	0.59	0.47-	0.058	25	Common sporinite and rare liptodetrinite orange to dull orange, rare cutinite orange to dull orange, rare resinite orange. (Sandstone>>claystone>carbonate>coal.
Ctgs	\bar{R}_l max	1.61	1.30-	0.276	5	Coal sparse, V>I>L, vitrite>durite=clarite. Dom common, V>L>I. Vitrinite common liptinite sparse, inertinite rare to sparse. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite rare.)
			2.06			

7360ft	\bar{R}_v max	0.64	0.59- 0.028 0.67	5	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite orange. (Sandstone>>siltstone>claystone>carbonate>coal. Coal rare, V, vitrite.
Ctgs	\bar{R}_l max	1.40	0.88- 0.325 2.00	15	Dom rare to sparse, I>L>V. All three maceral groups rare. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides sparse. Pyrite sparse.)
7390ft	\bar{R}_v max	0.70	0.50- 0.087 0.88	25	Rare to sparse sporinite and rare liptodetrinite orange to dull orange, rare to sparse cutinite orange. (Siltstone>sandstone> claystone>carbonate>coal. Coal abundant,
Ctgs	\bar{R}_l max	1.57	1.14- 0.346 2.30	10	V>I>L, vitrite>duroclarite>vitrinertite(V)>clarod urite=vitrinertite(I). Dom common, I>L>V. Inertinite sparse to common, liptinite rare to sparse, vitrinite rare. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides abundant. Pyrite sparse.)
7420ft	\bar{R}_v max	0.68	0.56- 0.056 0.76	9	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite dull orange, rare resinite yellow. (Sandstone>> siltstone>carbonate.
Ctgs	\bar{R}_l max	1.65	1.30- 0.216 1.98	10	Dom sparse, I>L>V. Inertinite rare to sparse, liptinite and vitrinite rare. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite rare.)
7450ft	\bar{R}_v max	0.67	0.55- 0.049 0.73	9	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite dull orange. (Sandstone>> siltstone>claystone> carbonate. Dom rare to sparse, L>I>V. All three maceral groups rare. Mineral fluorescence weak dull orange in fine grained sediments. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.61	1.14- 0.271 2.10	13	
7510ft	\bar{R}_v max	0.69	0.61- 0.053	25	Common sporinite and rare

			0.80		liptodetrinite orange to dull orange, rare cutinite orange to dull orange.
Ctgs	\bar{R}_i max	1.78	1.14- 0.464 2.40	10	(Siltstone> sandstone>claystone>carbonate>shaly coal. Shaly coal rare, I>V>L, clarodurite. Dom common, L>I>V. Liptinite common, inertinite sparse, vitrinite rare to sparse. Mineral fluorescence weak to moderate orange. Iron oxides sparse. Pyrite sparse.)
7540ft	\bar{R}_v max	0.71	0.55- 0.076 0.89	25	Sparse sporinite and rare liptodetrinite orange to dull
Ctgs	\bar{R}_i max	1.77	1.46- 0.393 2.52	5	orange, rare cutinite orange. (Siltstone> sandstone>claystone> carbonate> coal. Coal sparse to common, V, vitrite. Dom common, I>L>V. Inertinite and liptinite sparse, vitrinite rare to sparse. Rare coalified leaf tissues. Mineral fluorescence weak to moderate orange. Iron oxides abundant. Pyrite sparse.)
7570ft	\bar{R}_v max	0.70	0.58- 0.066 0.82	25	Sparse sporinite and rare liptodetrinite orange to dull
Ctgs	\bar{R}_i max	1.56	1.20- 0.268 1.98	5	orange, rare cutinite orange. (Sandstone>siltstone> carbonate> coal>shaly coal. Coal abundant, V>I>L, vitrite>clarite>inertite. Shaly coal rare, V>L, clarite. Dom common, I>V>L. All three maceral groups sparse. Rare coalified leaf tissues. Micrinite abundant in some coals. Mineral fluorescence weak to moderate orange in fine grained sediments. Iron oxides sparse. Pyrite rare.)
7600ft	\bar{R}_v max	0.71	0.61- 0.057 0.81	15	Rare sporinite and liptodetrinite dull orange, rare cutinite orange.
Ctgs	\bar{R}_i max	1.62	1.18- 0.360 2.54	10	(Claystone> sandstone>siltstone> carbonate> shaly coal. Shaly coal rare, V>I>L, duroclarite. Dom common, I>L>V. Inertinite common, liptinite rare to sparse, vitrinite rare. Mineral fluorescence weak to moderate orange.

Iron oxides sparse. Pyrite sparse.)

7660ft	\bar{R}_v max	0.68	0.59- 0.050 0.76	7	Rare sporinite and liptodetrinite dull orange, rare cutinite orange. (Sandstone>carbonate>siltstone> shaly coal. Shaly coal rare, V>I>L, duroclarite. Dom rare, V>I>L. All three maceral groups rare. Mineral fluorescence weak to moderate orange in fine grained material. Iron oxides rare. Pyrite abundant.)
Ctgs	\bar{R}_l max	1.51	1.02- 0.241 1.78	7	
7690ft	\bar{R}_v max	0.72	0.61- 0.077 0.84	5	Rare sporinite and liptodetrinite orange to dull orange.
Ctgs	\bar{R}_l max	1.86	1.12- 0.435 2.66	8	(Sandstone>>carbonate>siltstone> shaly coal. Shaly coal rare, V>I>L, duroclarite. Dom rare, I>V>L. All three maceral groups rare. Mineral fluorescence mostly none, weak to moderate orange in fine grained material. Iron oxides abundant. Pyrite rare.)
7840ft	\bar{R}_v max	0.71	0.57- 0.078 0.86	11	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite orange.
Ctgs	\bar{R}_l max	1.79	1.26- 0.309 2.38	15	(Siltstone>sandstone>claystone> carbonate> igneous rocks> shaly coal>coal. Shaly coal rare, V>I>L, duroclarite. Coal rare, I>V, vitrinertite (I). Dom sparse, I>L>V. Inertinite rare to sparse, liptinite and vitrinite rare. Rare yellow fluorescing oil droplets in sandstones. Mineral fluorescence mostly none, weak to moderate orange in fine grained material. Iron oxides sparse. Pyrite sparse.)
7860ft	\bar{R}_v max	P1 5.12	4.83- 0.327 5.91	11	Fluorescing liptinite absent, except in cavings. (Claystone>
Ctgs	\bar{R}_l max	P2 0.71	0.59- 0.102 0.84	3	carbonate>coal. Coal rare, V>I>L, vitrinertite (V)>clarodurite, probably cavings. Dom rare, V>I. Vitrinite and inertinite rare, liptinite absent. Population 1 could be contact altered vitrinite but also could represent

basement. Population 2, measured from coal is cavings. Rare graphite with reflectance of 16.5%, probably detrital in origin. Mineral fluorescence none. Iron oxides sparse. Pyrite common.)

Ctgs	788 0	5.17	4.91- 0.280 5.59	4	<p>Fluorescing liptinite absent. (Claystone> siltstone>carbonate> sandstone. Dom rare, V>I. Vitrinite and inertinite rare, liptinite absent. Mineral fluorescence none. Iron oxides sparse. Pyrite sparse.)</p>
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7860ft and 7880ft probably penetrated basement. The organic matter shows distinct bireflectance and the coke mosaic textures found could be bitumen cokes.

VITRINITE REFLECTANCE MEASUREMENT

BEACHCOMBER-1



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Sample		Std	N ^o of	Sample Description Including Liptinite Fluorescence,	
Details	Mean	Range	Dev	Readin gs	Maceral Abundances, Mineral Fluorescence
930m	$\bar{R}_{v,max}$	0.41	0.32- 0.057 0.48	25	Abundant lamalginite and sparse liptodetrinite greenish yellow to orange, sparse acritarchs greenish yellow. (Siltstone> sandstone>claystone>carbonate>coal.
Ctgs	$\bar{R}_{l,max}$	1.29	1.04- 0.427 2.14	5	Coal sparse, V, vitrite. Dom abundant, L>I>V. Liptinite abundant, inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
940m	$\bar{R}_{v,max}$	0.40	0.31- 0.059 0.51	26	Common lamalginite and sparse liptodetrinite greenish yellow to orange, sparse acritarchs greenish yellow. (Claystone> carbonate>coal. Coal
Ctgs	$\bar{R}_{l,max}$	1.36	0.94- 0.294 1.64	5	sparse, V, vitrite. Dom abundant, L>I>V. Liptinite common to abundant, inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
950m	$\bar{R}_{v,max}$	0.40	0.31- 0.047 0.50	25	Abundant lamalginite and sparse liptodetrinite greenish yellow to orange, sparse acritarchs greenish yellow, sparse sporinite yellow to orange. (Claystone>siltstone>carbonate>coal.
Ctgs	$\bar{R}_{l,max}$	1.21	0.96- 0.184 1.48	5	Coal common, V, vitrite. Dom abundant, L>I>V. Liptinite abundant, inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Iron oxides rare. Pyrite

sparse.)

960m	\bar{R}_v max	0.40	0.30- 0.063 0.56	26	Common lamalginitite and sparse liptodetrinite greenish yellow to orange, sparse sporinite orange, rare cutinite yellow. (Claystone>siltstone>carbonate>coal.
Ctgs	\bar{R}_l max	1.35	0.94- 0.269 1.78	5	Coal common, V, vitrite. Dom common, L>I>V. Liptinite and inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
970m	\bar{R}_v max	0.42	0.33- 0.051 0.53	25	Common lamalginitite and sparse liptodetrinite greenish yellow to orange, sparse acritarchs greenish yellow, rare sporinite orange. (Claystone>siltstone>carbonate>coal.
Ctgs	\bar{R}_l max	1.42	1.08- 0.239 1.80	5	Coal sparse, V, vitrite. Dom common, L>I>V. Liptinite and inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Iron oxides rare. Pyrite common.)
980m	\bar{R}_v max	0.41	0.34- 0.045 0.52	26	Common lamalginitite and sparse liptodetrinite yellow to orange, rare suberinite in coal, weak brown. (Claystone> siltstone> carbonate>coal.
Ctgs	\bar{R}_l max	1.28	0.94- 0.247 1.60	5	Coal common, V>L, vitrite>clarite. Dom common, L>I>V. Liptinite and, inertinite common, vitrinite rare to sparse. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
990m	\bar{R}_v max	0.44	0.37- 0.050 0.58	25	Common lamalginitite and sparse liptodetrinite yellow to orange, to orange, sparse sporinite orange, rare resinite yellow. (Claystone>siltstone>carbonate>coal>s
Ctgs	\bar{R}_l max	1.32	0.92- 0.263 1.96	10	haly coal. Coal sparse, V, vitrite. Shaly coal rare, I>L, durite. Dom common, L>I>V. Liptinite common, inertinite sparse, vitrinite rare. Mineral fluorescence weak to moderate orange. Iron oxides rare. Pyrite sparse.)

1010m	\bar{R}_v max	0.45	0.39- 0.038 0.50	14	Common lamalginite and sparse liptodetrinite greenish yellow to orange, sparse acritarchs greenish yellow, sparse sporinite orange.
Ctgs	\bar{R}_l max	1.42	1.04- 0.369 2.34	10	(Claystone>siltstone>carbonate>coal>shaly coal. Coal rare, V, vitrite. Shaly coal rare, V>I>L, duroclarite. Dom common to abundant, L>I>V. Liptinite and inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Iron oxides rare. Pyrite common.)
1030m	\bar{R}_v max	0.43	0.38- 0.043 0.54	18	Common lamalginite and sparse liptodetrinite orange to dull orange, sparse sporinite orange, rare cutinite orange, rare resinite yellow
Ctgs	\bar{R}_l max	1.32	0.78- 0.377 2.02	10	(Claystone>siltstone>carbonate>coal. Coal rare, V>I, vitrite>inertite. Dom common, L>I>V. Liptinite and inertinite common, vitrinite rare. Mineral fluorescence weak orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
1050m	\bar{R}_v max	0.47	0.34- 0.047 0.57	17	Sparse sporinite and rare liptodetrinite orange to dull orange, sparse lamalginite orange.
Ctgs	\bar{R}_l max	1.53	1.14- 0.273 2.00	10	(Claystone>argillaceous siltstone>carbonate>coal. Coal rare, V, vitrite. Dom common, I>L>V. Inertinite sparse to common, liptinite sparse, vitrinite rare. Mineral fluorescence moderate orange. Glauconite common. Iron oxides rare. Pyrite sparse.)
1060m	\bar{R}_v max	0.48	0.32- 0.070 0.61	25	Sparse sporinite and rare liptodetrinite orange to dull orange, sparse lamalginite yellow to orange, rare cutinite orange.
Ctgs	\bar{R}_l max	1.42	0.90- 0.386 2.18	10	(Claystone>argillaceous siltstone>carbonate>coal. Coal sparse, V, vitrite. Dom common, I>L>V. Inertinite common, liptinite sparse, vitrinite rare. Mineral fluorescence moderate orange. Glauconite sparse.)

Iron oxides sparse. Pyrite common.)

1070m	\bar{R}_v max	0.49	0.42- 0.047 0.59	13	Sparse sporinite and rare liptodetrinite orange to dull orange, sparse lamalginite orange to dull, rare cutinite dull orange. (Claystone>argillaceous siltstone>carbonate>coal. Coal rare, V, vitrite. Dom common, I>L>V. Inertinite sparse to common, liptinite sparse, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
Ctgs	\bar{R}_l max	1.27	0.88- 0.236 1.62	10	
1080m	\bar{R}_v max	0.50	0.36- 0.056 0.58	21	Sparse lamalginite and rare liptodetrinite orange to dull orange, rare sporinite orange to dull orange. (Claystone>argillaceous siltstone>carbonate>coal. Coal sparse, V, vitrite. Dom common, I>L>V. Inertinite common, liptinite sparse, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
Ctgs	\bar{R}_l max	1.38	1.14- 0.217 1.86	10	
1090m	\bar{R}_v max	0.49	0.37- 0.071 0.59	15	Common lamalginite and rare liptodetrinite orange to dull orange, sparse sporinite orange to dull orange. (Claystone> argillaceous siltstone>carbonate>coal. Coal rare, V, vitrite. Dom common to abundant, L>I>V. Liptinite and inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare. Pyrite common.)
Ctgs	\bar{R}_l max	1.38	1.04- 0.240 1.76	10	
1100m	\bar{R}_v max	0.50	0.38- 0.053 0.60	25	Abundant lamalginite and sparse liptodetrinite orange to dull orange, sparse acritarchs orange. (Claystone> argillaceous siltstone>carbonate>coal. Coal rare, V, vitrite. Dom abundant, L>I>V. Liptinite abundant, inertinite common, vitrinite rare. Mineral fluorescence weak to moderate orange. Glauconite sparse. Iron oxides rare.
Ctgs	\bar{R}_l max	1.28	1.12- 0.121 1.48	5	

Pyrite common.)

1110m	\bar{R}_v max	0.50	0.39- 0.058 0.60	25	Sparse lamalginite and rare liptodetrinite orange to dull orange, rare sporinite dull orange, rare cutinite dull orange. (Claystone>sandstone> argillaceous siltstone>carbonate>coal.
Ctgs	\bar{R}_l max	1.43	1.02- 0.359 2.02	10	Coal sparse, V, vitrite. Dom common, I>L>V. Inertinite and liptinite sparse, vitrinite rare. Mineral fluorescence weak to moderate orange in fine grained sediments. Glauconite rare. Iron oxides sparse. Pyrite common.)
1120m	\bar{R}_v max	0.51	0.40- 0.058 0.61	16	Common lamalginite and rare liptodetrinite orange to dull orange, rare sporinite dull orange. (Claystone>sandstone> argillaceous siltstone>carbonate>coal. Coal sparse,
Ctgs	\bar{R}_l max	1.29	0.84- 0.233 1.64	10	V, vitrite. Dom common, L>I>V. Liptinite common, inertinite sparse, vitrinite rare. Mineral fluorescence weak to moderate orange in fine grained sediments. Iron oxides rare. Pyrite common.)
1130m	\bar{R}_v max	0.50	0.40- 0.048 0.61	19	Sparse sporinite and rare liptodetrinite orange to dull orange, sparse lamalginite orange to dull orange. (Claystone> argillaceous siltstone>sandstone>carbonate>coal>s
Ctgs	\bar{R}_l max	1.31	1.06- 0.157 154	10	haly coal. Coal rare, V, vitrite. Shaly coal rare, V>I>L, duroclarite. Dom common, I>L>V. Inertinite sparse to common, liptinite sparse, vitrinite rare. Mineral fluorescence weak to moderate orange in fine grained sediments. Iron oxides rare. Pyrite sparse.)
1630m	\bar{R}_v max	0.57	0.49- 0.040 0.66	25	Sparse sporinite and rare liptodetrinite orange to dull orange, rare cutinite orange to dull orange, rare resinite orange. (Sandstone>claystone>carbonate>coal
Ctgs	\bar{R}_l max	1.24	1.00- 0.187 150	5	>shaly coal. Coal common, V>L>I, vitrite>clarite>duroclarite>clarodurite. Shaly coal rare, V>L, clarite. Dom rare,

					V>I>L. All three maceral groups rare. Mineral fluorescence weak orange in argillaceous material. Iron oxides rare. Pyrite rare.)
1650m	\bar{R}_v max	0.61	0.50- 0.046 0.70	25	Rare sporinite and liptodetrinite orange to dull orange, rare suberinite weak brown. (Sandstone>claystone>coal>shaly coal. Coal common, V>L>I, vitrite>vitrinertite (V)>duroclarite> clarodurite=vitrinertite (I). Shaly coal rare, V>I>L, duroclarite. Dom sparse, V>I>L. Vitrinite and inertinite sparse, liptinite rare. Mineral fluorescence weak orange in argillaceous material. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.38	0.90- 0.338 1.90	5	
1660m	\bar{R}_v max	0.60	0.52- 0.057 0.69	5	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite dull orange, rare resinite orange. (Sandstone>claystone>carbonate>coal. Coal rare, V, vitrite. Dom rare, I>V>L. All three maceral groups rare. Mineral fluorescence weak orange in argillaceous material. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.43	1.02- 0.260 1.76	6	
1670m	\bar{R}_v max	0.60	0.55- 0.029 0.63	4	Rare sporinite and liptodetrinite orange to dull orange. (Sandstone>claystone>coal. Coal rare, V, vitrite. Dom rare, I>V>L. All three maceral groups rare. Coal cavings with reflectance of 0.38% present. Mineral fluorescence weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.30	1.12- 0.137 1.48	4	
1680m	\bar{R}_v max	0.62	0.55- 0.035 0.66	6	Rare sporinite and liptodetrinite orange to dull orange, rare cutinite dull orange, rare resinite greenish yellow. (Sandstone>claystone>coal. Coal rare, V>I>L, vitrite=duroclarite. Dom rare, I>V>L. All three maceral groups rare. Coal cavings with reflectance range of 0.27-0.32% present. Mineral
Ctgs	\bar{R}_l max	1.49	0.96- 0.336 2.26	11	

fluorescence weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite rare.)

1710m	\bar{R}_v max	0.61	0.54- 0.041 0.72	25	Common sporinite and rare liptodetrinite orange to dull orange, rare cutinite orange. (Claystone>sandstone>carbonate>coal > shaly coal. Coal sparse, V>I>L, vitrite>duroclarite. Shaly coal rare, I>V>L, clarodurite. Dom common, L>I>V. Liptinite common, inertinite and vitrinite sparse. Mineral fluorescence weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.56	1.24- 0.273 1.94	5	
1720m	\bar{R}_v max	0.61	0.52- 0.042 0.71	25	Sparse sporinite and rare liptodetrinite orange to dull orange, rare cutinite orange. (Sandstone>claystone>coal. Coal sparse, I>V>L, vitrite>vitrinertite(I)>inertite>durite=clarite. Dom common, I>L>V. Inertinite sparse to common, liptinite and vitrinite sparse. Mineral fluorescence weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.33	1.02- 0.289 1.86	5	
1750m	\bar{R}_v max	0.62	0.55- 0.040 0.74	25	Common sporinite and sparse liptodetrinite orange to dull orange, rare cutinite orange, rare resinite yellow. (Sandstone> claystone>coal>shaly coal. Coal abundant, V>L>I, Duroclarite>clarite>vitrite>vitrinertite(V). Shaly coal rare, V>I>L, clarite=duroclarite. Dom common, V>I>L. All three maceral groups sparse. Mineral fluorescence weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite rare.)
Ctgs	\bar{R}_l max	1.70	1.36- 0.246 2.10	5	
1770m	\bar{R}_v max	0.61	0.58- 0.032 0.68	7	Rare sporinite and sparse liptodetrinite orange to dull orange, rare cutinite orange. (Sandstone>>claystone>coal. Coal sparse, V>I>L, vitrite>clarodurite. Dom
Ctgs	\bar{R}_l max	1.47	1.10- 0.243	4	

1.70

rare, L>I. Liptinite and inertinite rare, vitrinite absent. Micrinite abundant in some coals. Mineral fluorescence mostly none, weak to moderate orange in argillaceous material. Iron oxides rare. Pyrite sparse.)

Similar section to Thomas, but no high rank material in the deeper section at Beachcomber-1.