

ANALYTICAL REPORT

PETROGRAPHIC ANALYSIS

LAST CHANCE #3A

PREPARED FOR
GASSY COAL COMPANY NL

APRIL 2050



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EXAMPLE PETROGRAPHY REPORT

PETROGRAPHIC ANALYSIS

INTRODUCTION

Three samples were received (see table below) to be evaluated for vitrinite reflectance and maceral content.

Last Chance #3a

Sample No.	From (m)	To (m)	Adsorption Isotherm	Temp. (°C)	Maceral Analysis	Vitrinite Reflectance
LC3A_001	1504.74	1505.74	N	-	Yes	Yes
LC3A_002	1515.17	1516.67	N	-	Yes	Yes
LC3A_003	1526.14	1526.71	N	-	Yes	Yes

METHODS

Samples were supplied in a crushed to less than 6 mm state. The two adsorption isotherm samples were received as composites i.e. the compositing had been done by the supplying laboratory. The -6 mm coal was sub-sampled by evenly spreading the coal and taking between 10 to 30 scoops using 30 mm wide spatula, ensuring that the entire thickness of the spread coal was sampled. Approximately 25g of coal was taken. The -6 mm samples were stored at -10°C for adsorption isotherm analysis at a later date.

The maceral sub-sample was then gently crushed and sieved to pass through a 1 mm sieve, keeping fines to a minimum. The -1 mm coal was sub-sampled by evenly spreading the coal and taking between 10 to 15 scoops using 5 mm wide spatula, ensuring that the entire thickness of the spread coal was sampled, until about 10 g of coal was obtained. This sub-sample was mounted in epoxy resin and polished for microscopic examination in reflected light. The polished sample was desiccated for at least 12 hours prior to analysis.

Maceral composition was determined by point counting the polished block using 500X magnification and oil immersion. A minimum of 500 points were counted using a motorised stage and Hilgers DISKUS software. Maceral classification followed Australian Standard AS2856-1986 except where noted.

Mean maximum reflectance of vitrinite in oil was determined by using a mechanical stage to traverse the sample at regular intervals. A minimum of 50 measurements were made using a Leica MP4500P system with Hilgers DISKUS software. Reflectance was determined of a 20 μm^2 area at 546nm using a total magnification of 500X.

PETROGRAPHIC ANALYSIS

Client Gassy Coal Company NL
Sample Details Last Chance 3a - LC3A_001 (1504.74 - 1505.74 m)
Date

Maceral Analysis									
Maceral	Vol % (aa)	Vol % (mmf)	Maceral Subgroup	Vol % (aa)	Vol % (mmf)	Maceral	No.	Vol % (aa)	Vol % (mmf)
Vitrinite	62.1	63.5	Telovitrinite	54.8	56.1	Textinite	0	0.0	0.0
						Textu-ulminite	0	0.0	0.0
						Eu-ulminite	0	0.0	0.0
						Telocollinite	295	54.8	56.1
			Detrovitrinite	7.1	7.2	Attrinite	0	0.0	0.0
						Densinite	0	0.0	0.0
						Desmocollinite	38	7.1	7.2
			Gelovitrinite	0.2	0.2	Corpogelinite	1	0.2	0.2
						Porogelinite	0	0.0	0.0
						Eugelinite	0	0.0	0.0
Liptinite	2.2	2.3		2.2	2.3	Sporinite	11	2.0	2.1
						Cutinite	1	0.2	0.2
						Resinite	0	0.0	0.0
						Liptodetrinite	0	0.0	0.0
						Alginite	0	0.0	0.0
						Suberinite	0	0.0	0.0
						Fluorinite	0	0.0	0.0
						Exsudatinite	0	0.0	0.0
						Bituminite	0	0.0	0.0
Inertinite	33.4	34.2	Telo-inertinite	29.9	30.6	Fusinite	85	15.8	16.2
						Semifusinite	76	14.1	14.4
			Detro-inertinite	3.5	3.6	Sclerotinite	0	0.0	0.0
						Inertodetrinite	19	3.5	3.6
			Gelo-inertinite	0.0	0.0	Micrinite	0	0.0	0.0
Minerals	2.2	n/a		2.2	n/a	Macrinite	0	0.0	0.0
Total	99.9	100.0		99.9	100.0		12	2.2	n/a
							538	99.9	100.0

Vitrinite Reflectance

Analysis date

Mean maximum reflectance measured in oil

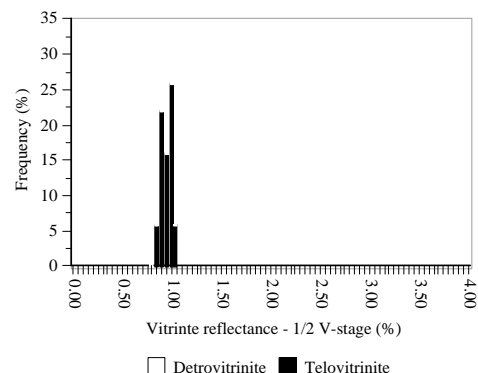
	Ro max	Range	n	std.dev.
Telovitrinite	0.97	0.84 - 1.05	38	0.059
Detrovitrinite	0.94	0.83 - 0.99	12	0.049
Total Vitrinite	0.96	0.83 - 1.05	50	0.058

Comments

Rare siderite as nodules

Rare detrital clay minerals and quartz

Vitrinite Reflectance Distribution
 Last Chance 3a - LC3A_001 (1504.74 - 1505.74 m)



Determined in accordance with Australian Standards AS 2856.1 (2000); AS 2856.2 (1998); AS 2586.3 (2000)
 Conducted by ICCP accredited analyst

PETROGRAPHIC ANALYSIS

Client Gassy Coal Company NL
Sample Details Last Chance 3a - LC3A_001 (1504.74 - 1505.74 m)
Date

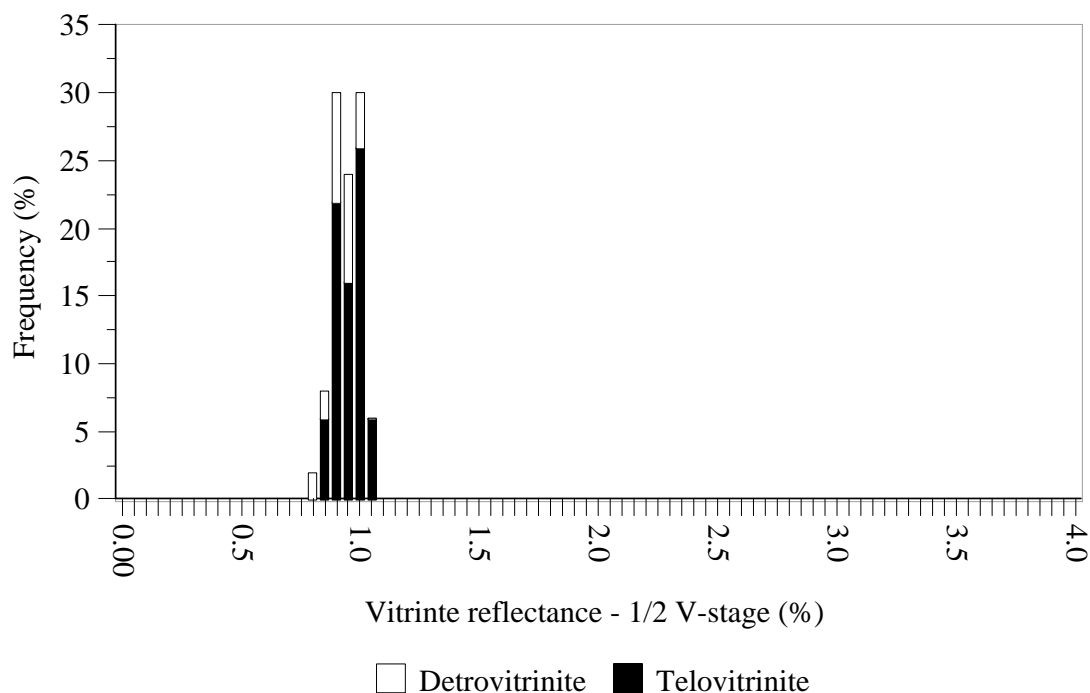
Vitrinite Reflectance

Mean maximum reflectance measured in oil

	Ro max	Range	n	std.dev.
Telovitrinite	0.97	0.84 - 1.05	38	0.059
Detrovitrinite	0.94	0.83 - 0.99	12	0.049
Total Vitrinite	0.96	0.83 - 1.05	50	0.058



Vitrinite Reflectance Distribution
Last Chance 3a - LC3A_001 (1504.74 - 1505.74 m)

Comments

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PETROGRAPHIC ANALYSIS

Client Gassy Coal Company NL
Sample Details Last Chance 3a - LC3A_002 (1515.17 - 1516.67 m)
Date

Maceral Analysis									
Maceral	Vol % (aa)	Vol % (mmf)	Maceral Subgroup	Vol % (aa)	Vol % (mmf)	Maceral	No.	Vol % (aa)	Vol % (mmf)
Vitrinite	72.0	75.2	Telovitrinite	62.0	64.7	Textinite	0	0.0	0.0
						Textu-ulminite	0	0.0	0.0
						Eu-ulminite	0	0.0	0.0
						Telocollinite	328	62.0	64.7
			Detrovitrinite	9.8	10.3	Attrinite	0	0.0	0.0
						Densinite	0	0.0	0.0
						Desmocollinite	52	9.8	10.3
						Corpogelinite	1	0.2	0.2
			Gelovitrinite	0.2	0.2	Porigelinite	0	0.0	0.0
						Eugelinite	0	0.0	0.0
Liptinite	1.7	1.8		1.7	1.8	Sporinite	8	1.5	1.6
						Cutinite	1	0.2	0.2
						Resinite	0	0.0	0.0
						Liptodetrinite	0	0.0	0.0
						Alginate	0	0.0	0.0
						Suberinite	0	0.0	0.0
						Fluorinite	0	0.0	0.0
						Exsudatinite	0	0.0	0.0
						Bituminite	0	0.0	0.0
						Fusinite	38	7.2	7.5
Inertinite	22.2	23.1	Telo-inertinite	19.7	20.5	Semifusinite	66	12.5	13.0
			Detro-inertinite	2.5	2.6	Sclerotinite	0	0.0	0.0
			Gelo-inertinite	0.0	0.0	Inertodetrinite	13	2.5	2.6
						Micrinite	0	0.0	0.0
Minerals	4.2	n/a		4.2	n/a	Macrinite	0	0.0	0.0
Total	100.1	100.1		100.1	100.1		22	4.2	n/a
							529	100.1	100.1

Vitrinite Reflectance

Analysis date

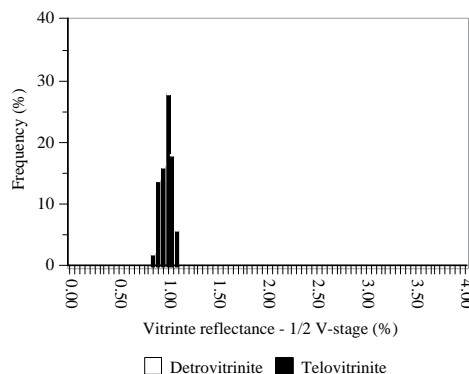
Mean maximum reflectance measured in oil

	Ro max	Range	n	std.dev.
Telovitrinite	1.00	0.89 - 1.11	42	0.056
Detrovitrinite	0.97	0.91 - 1.04	8	0.042
Total Vitrinite	1.00	0.89 - 1.11	50	0.055

Comments

Rare framboidal pyrite
Rare calcite as cleat infill

Vitrinite Reflectance Distribution
Last Chance 3a - LC3A_002 (1515.17 - 1516.67 m)



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PETROGRAPHIC ANALYSIS

Client Gassy Coal Company NL
 Sample Details Last Chance 3a - LC3A_002 (1515.17 - 1516.67 m)
 Date

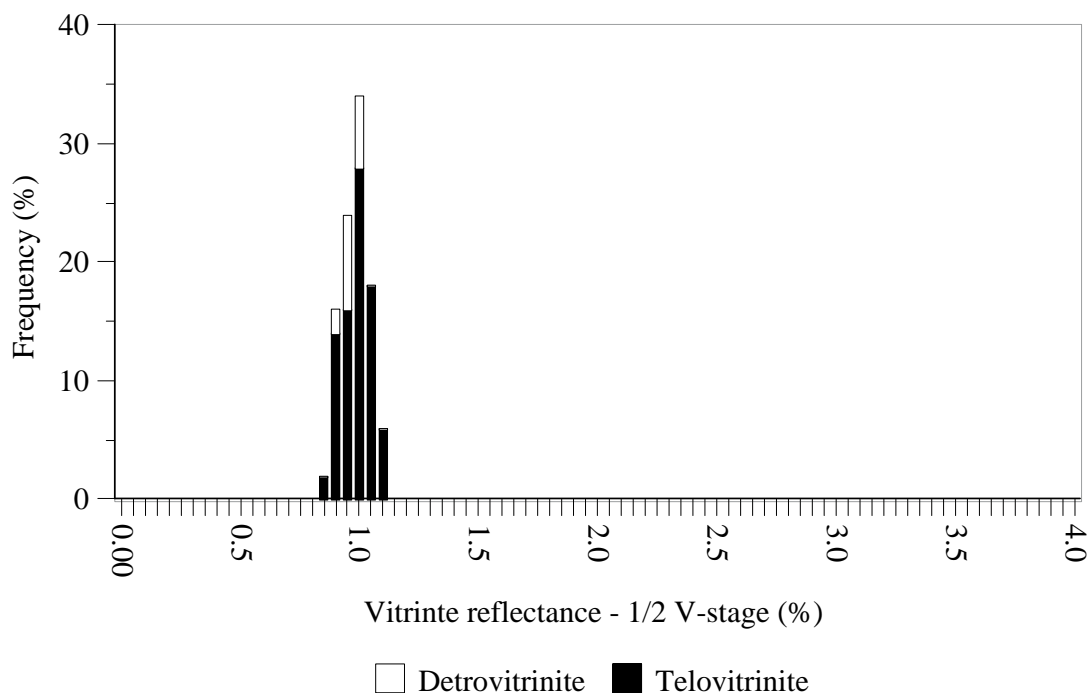
Vitrinite Reflectance

Mean maximum reflectance measured in oil

	Ro max	Range	n	std.dev.
Telovitrinite	1.00	0.89 - 1.11	42	0.056
Detrovitrinite	0.97	0.91 - 1.04	8	0.042
Total Vitrinite	1.00	0.89 - 1.11	50	0.055



Vitrinite Reflectance Distribution
 Last Chance 3a - LC3A_002 (1515.17 - 1516.67 m)



Comments

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PETROGRAPHIC ANALYSIS

Client	Gassy Coal Company NL
Sample Details	Last Chance 3a - LC3A_002 (1526.14 - 1526.71 m)
Date	

Maceral Analysis									
Maceral	Vol % (aa)	Vol % (mmf)	Maceral Subgroup	Vol % (aa)	Vol % (mmf)	Maceral	No.	Vol % (aa)	Vol % (mmf)
Vitrinite	63.8	69.4	Telovitrinite	49.7	54.1	Textinite	0	0.0	0.0
						Textu-ulminite	0	0.0	0.0
						Eu-ulminite	0	0.0	0.0
						Telocollinite	265	49.7	54.1
			Detrovitrinite	14.1	15.3	Attrinite	0	0.0	0.0
						Densinite	0	0.0	0.0
						Desmocollinite	75	14.1	15.3
			Gelovitrinite	0.0	0.0	Corpogelinite	0	0.0	0.0
						Porigelinite	0	0.0	0.0
						Eugelinite	0	0.0	0.0
Liptinite	0.0	0.0	0.0	0.0	Sporinite	0	0.0	0.0	
					Cutinite	0	0.0	0.0	
					Resinite	0	0.0	0.0	
					Liptodetrinite	0	0.0	0.0	
					Alginite	0	0.0	0.0	
					Suberinite	0	0.0	0.0	
					Fluorinite	0	0.0	0.0	
					Exsudatinite	0	0.0	0.0	
					Bituminite	0	0.0	0.0	
					Inertinite	28.1	30.6	Telo-inertinite	22.7
Semifusinite	98	18.4	20.0						
Sclerotinite	0	0.0	0.0						
Detro-inertinite	5.4	5.9	Inertodetrinite	29				5.4	5.9
			Micrinite	0				0.0	0.0
Gelo-inertinite	0.0	0.0	Macrinite	0				0.0	0.0
Minerals	8.1	n/a		8.1	n/a		43	8.1	n/a
Total	100.0	100.0		100.0	100.0		533	100.0	100.0

Vitrinite Reflectance

Analysis date

Mean maximum reflectance measured in oil

	Ro max	Range	n	std.dev.
Telovitrinite	1.88	1.65 - 2.10	33	0.116
Detrovitrinite	1.88	1.75 - 2.04	4	0.121
Total Vitrinite	1.88	1.65 - 2.10	37	0.116

Comments

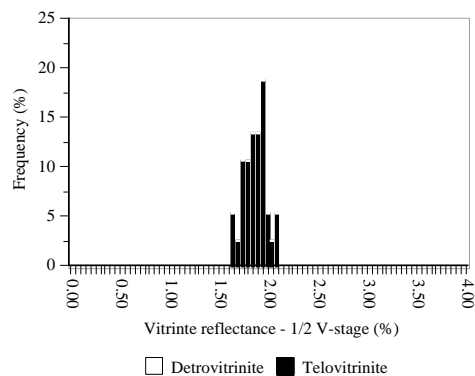
Common carbonates as cleat and fracture fill

Common degassification pores

Heat affected



Vitrinite Reflectance Distribution
Last Chance 3a - LC3A_002 (1526.14 - 1526.71 m)



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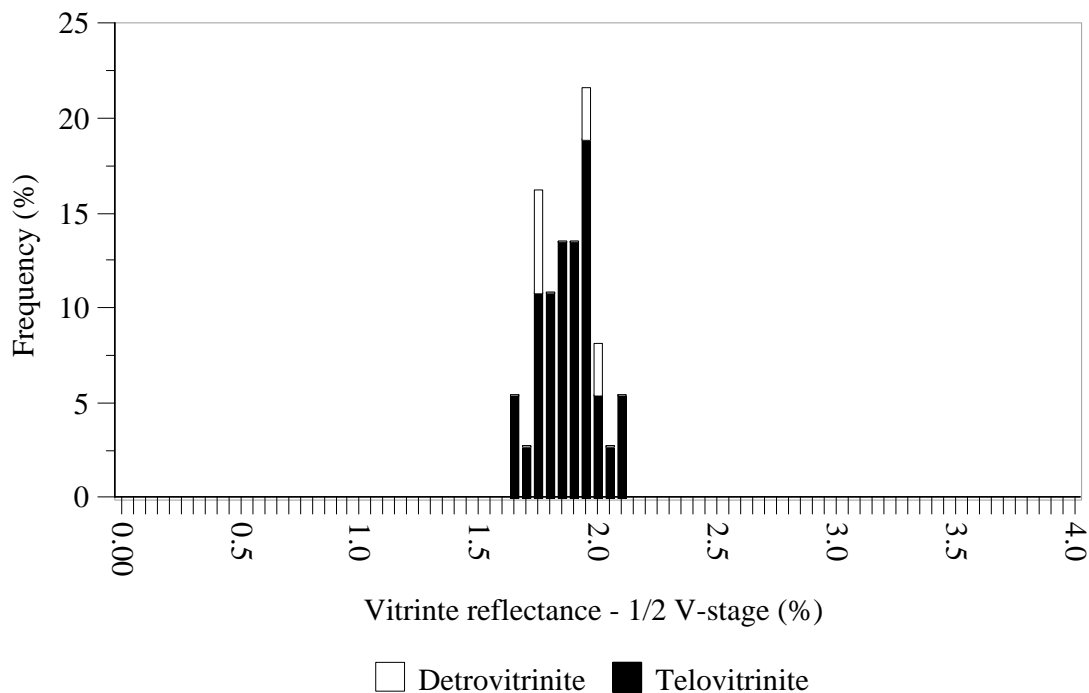
Vitrinite Reflectance

Mean maximum reflectance measured in oil

	Ro max	Range	n	std.dev.
Telovitrinite	1.88	1.65 - 2.10	33	0.116
Detrovitrinite	1.88	1.75 - 2.04	4	0.121
Total Vitrinite	1.88	1.65 - 2.10	37	0.116

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Vitrinite Reflectance Distribution
Last Chance 3a - LC3A_002 (1526.14 - 1526.71 m)

Comments

Large range in vitrinite reflectance
Common carbonates as cleat and fracture fill
Common degassification pores
Heat affected

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Director, ERC
1st April 2050