



CRL Energy Ltd

Client: NZ Coal and Carbon

Client Ref:	Echo ROM Export Stockpile
CRL Ref:	111/790
Date	12-Jan-18

ANALYSIS

		<u>Size Analysis</u>			
Total Moisture (As received)	%	8.3			
<u>PROXIMATE ANALYSIS: (Air Dried Basis)</u>					
Inherent Moisture	%	3.3	Screen Size mm		
Volatile Matter	%	40.8	+38.0	%	-
Ash	%	3.3	+32.0	%	0.5
Fixed Carbon	%	52.6	+25.4	%	5.3
Gross Calorific Value	MJ/Kg	31.73	+19.0	%	7.5
Total Sulphur	%	1.05	+12.7	%	9.1
Carbon	%	76.5	+9.5	%	5.2
Hydrogen	%	5.30	+6.3	%	8.5
Nitrogen	%	1.29	+3.2	%	15.5
Oxygen (by difference)	%	9.3	+2.0	%	8.3
Swelling No.		3	+1.0	%	12.2
			+0.5	%	9.5
Phosphorus in coal	%	0.009	<0.5	%	18.3
Fluorine	µg/g	32			

Ash Constituents

SiO ₂	%	32.23			
Al ₂ O ₃	%	14.07			
Fe ₂ O ₃	%	39.51			
CaO	%	3.95			
MgO	%	2.94			
Na ₂ O	%	0.21			
K ₂ O	%	1.85			
TiO ₂	%	0.60			
Mn ₃ O ₄	%	0.40			
SO ₃	%	3.21			
P ₂ O ₅	%	0.62			

Plastometer

Initial Softening	°C	410			
Fusion (5ddpm)	°C	-			
Maximum Fluidity	°C	418			
Maximum dial divisions per min	ddpm	3			
Resolidification	°C	443			
Range	°C	33			

Audibert Arnu Dilatometer

Softening	°C	368			
Max Contraction	°C	425			
Max Contraction	%	30			
Max Dilatation	°C	-			
Max Dilatation	%	-			

Petrographics

Ro Max	%	0.74			
V ₉ -V ₁₄	%	0.0			
Vitrinite	%	91.6			
Liptinite	%	3.2			
Inertinite	%	3.0			
Mineral Matter	%	2.2			

AUDIBERT ARNU DILATATION REPORT

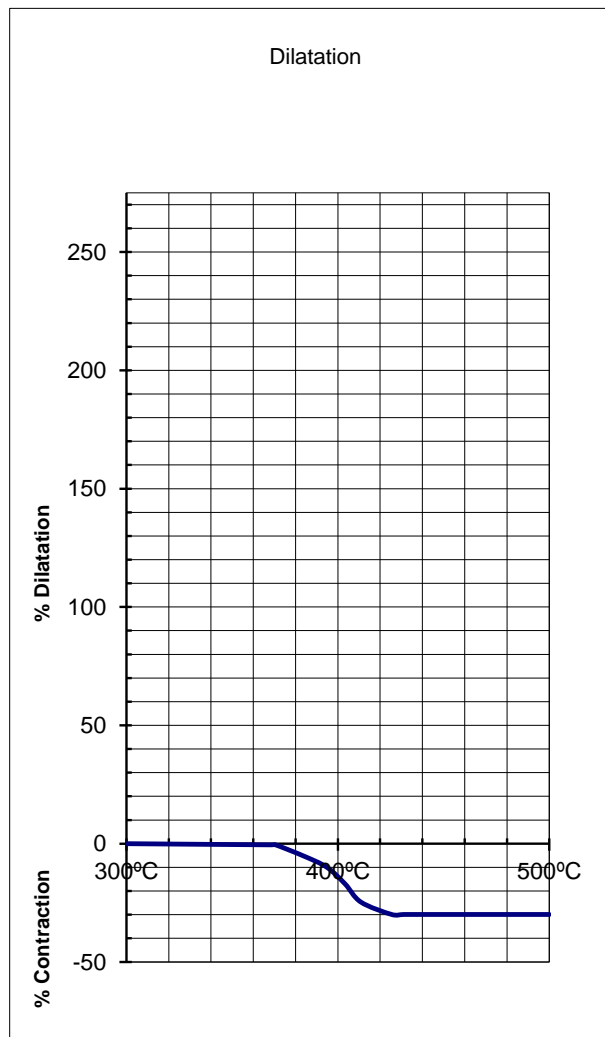
Customer: NZ Coal and Carbon
Comments: Coal supplied by client

CRL Energy Ltd Ref: 111/790
Description: Echo ROM
 Export Stockpile

TEMPERATURES

(1) Initial Softening	°C	368
(2) Maximum Contraction	°C	425
(3) Maximum Contraction	%	30
(4) Maximum Dilatation	°C	-
(5) Maximum Dilatation	%	-

Heating Rate 3°C/min



This report must be quoted in full except with permission from CRL Energy Ltd

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Signature: _____

GC Murray
 Laboratory Supervisor

Distribution:
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