

MINING REVIEW

Dartbrook Coal Mine MOD7 IPC Presentation

9 April 2019

Review conducted by
Michael White
BE Mining (Hons), MBA, GAICD
Resources Consultant

This application by Australia Pacific Coal should not be approved by the IPC

1. The key product quality assumption that drives project profitability and the stated project economics is that this mine will produce **10 million tonnes of unwashed product coal “ranging from 15%-24% ash and averaging 5,500 kcal/kg energy content.”***

The applicant’s own coal reserves information published in 2017 does not support this project product quality assumption.

*(Applicants Response to Submissions)

2. The impacts of this project have not been fully assessed by the Applicant or by the Department of Planning and Environment.

Global Coal High Ash Australia (HA AUS) Newcastle 5500 NAR Coal Specification

Parameter	Range
Calorific Value kcal/kg	5300-5700
Ash (ARB) %	17%-23%
Moisture (ARB)%	15% max.
Sulphur (ADB) %	1% max.

Global Coal Service Web site

AQC Product Quality Target– Not achievable based on AQC 2017 JORC Reserves Statement

Table 5-1: Modelling Parameters

Parameter	Unit	Value	Comment
Dilution Thickness (Out-of-seam)	mm	Up to 300	Roof – where mining into roof due to seam height
	mm	100	Roof – where mining up to roof horizon
	mm	0	Roof – where mining up to coal horizon
	mm	0	Floor – leaving 300mm of coal
Relative Density (RD) of Coal	t/m ³	1.40	Average RD of coal plies in ROM
Relative Density of Dilution	t/m ³	2.34	Average RD of dilution in ROM (Assumed interburden RD at 2.3t/m ³ and roof dilution RD at 2.5t/m ³)
Average ROM RD	t/m ³	1.51	Inclusive of coal, interburden and roof dilution
Average ROM Moisture	%	6.18	Coal inherent moisture as per geological model and assumed 8.5% dilution moisture (including added by mining)
Average ROM Ash	%	26.16	Inclusive of coal, interburden and roof dilution
Mining through Dykes and Faults	%	25	A reduction of 25% in yield on product tonnes have been assumed for ROM tonnages mined from 20m in advance and 20m beyond the structure for each roadway respectively

Why Coal Washery Operational Impacts have to be included as part of the Project Impact Assessments?

- To achieve the target product coal quality of 15%-24% ash stated in the Applicant's Response to Submissions over the life of the project some coal washing or blending with lower ash coals from elsewhere will be required.
- AQC have stated they may wash coal at a later stage

Why the Coal Washery is not included in the Project Plan

Costs Incurred To Operate The Coal Washery

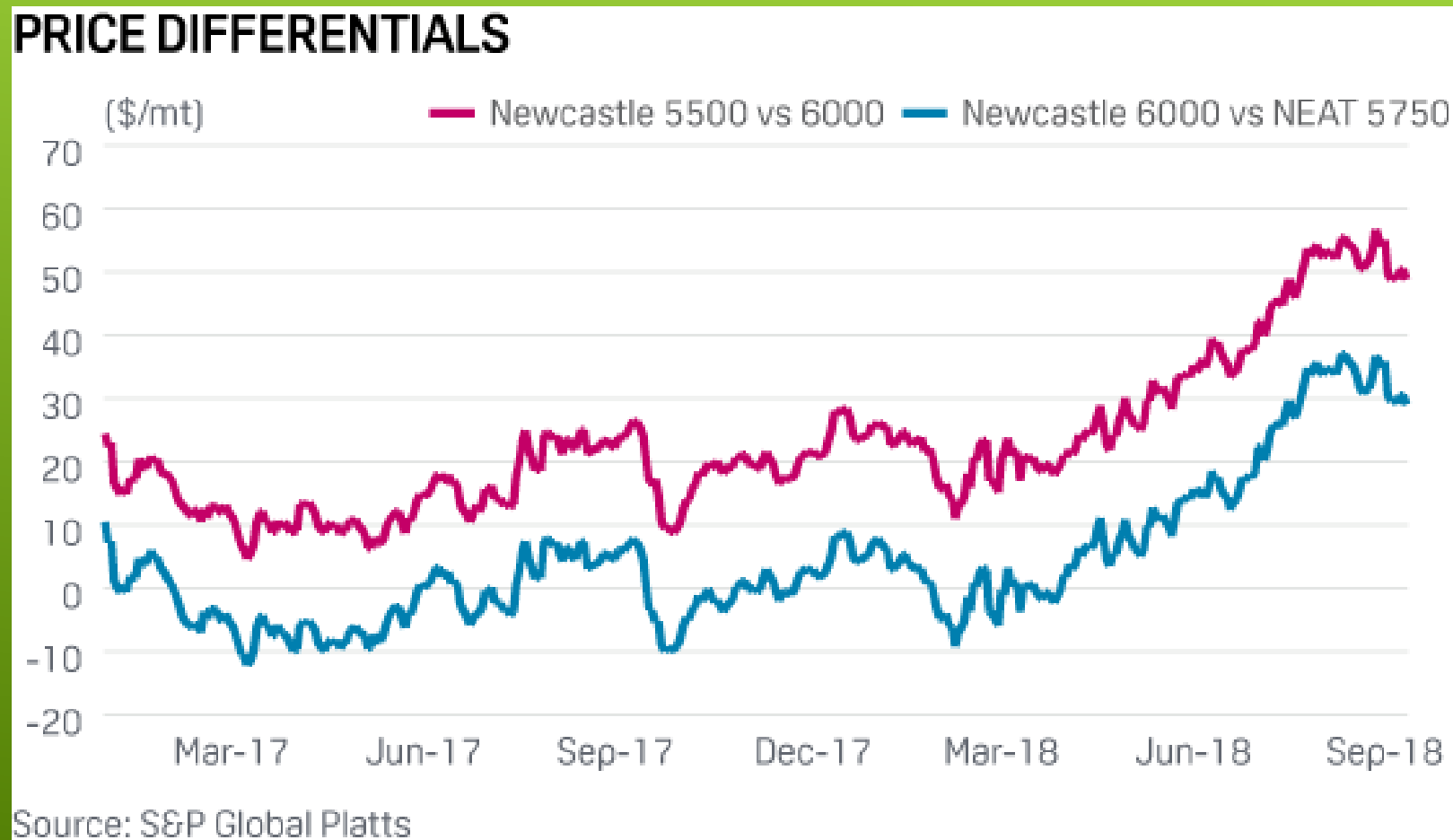
Item	Amount	Source of information
Repairs, replacements and critical spares	\$5.99million +/- 25%	Dartbrook Kayuga Seam Underground Reserves Statement February 2017, AQC
Fines rejects dewatering equipment	\$4.17million +/- 25%	As above
Processing cost	\$5.76/tonne	As above
Washery yield per ROM tonne to produce a 12% ash product (adb)	74.4%	As above
Rejects Emplacement Area	Currently rehabilitated and would need to be re-opened	

Impacts created by Coal Washery Operation

Washery operation will:

- increase project noise
- Increase project dust impacts
- Increase project water consumption
- Produce coarse reject waste
- Produce fines reject waste
- Increase the project disturbed area because the rejects emplacement area rehabilitation will be torn up and the area re-commissioned
- Increase visual impacts.

Dartbrook's Target Coal Product is 5500NAR
A growing gap from the Newcastle 6000NAR and the
actual achieved price gap will be greater again



Detailed Estimate of Project Capital Requirements

	Detailed Review Estimate \$M	Difference from AQC estimate
East Site shaft bin and coal clearance at Easter end of Hunter Tunnel	15	
Purchase installation and commissioning of drift conveyor and stockpiling facility West site	5	
Coal clearance system including electrics for the mains and panel belts to service 2 bord and pillar operations	40	
Diesel, gas monitoring and electrical requirements	20	
Ventilation fan including electrics and monitoring system	12	
Development mining equipment	70	
Total capital required \$M	162	117

Detailed Estimate of Project Headcount Requirements

Case: 1 Mtpa	Shift Manning	No. Shifts	Total	Comments
Super Panel #1				
Production Mon - Friday	16	3	48	As per JORC Coal Reserves Statement: 1 Deputy, 1 Supervisor, 2 trades, 12 miners
Maintenance Fri - Sunday	6	2	12	Assumption: 1 Deputy, 3 trades, 2 miners
Mains Panel				
Production Mon - Friday	10	3	30	Assumption: 1 Deputy, 1 Supervisor, 2 trades, 6 miners
Maintenance Fri - Sunday	6	2	12	Assumption: 1 Deputy, 3 trades, 2 miners
UG Support Manning				
Monday - Friday	7	3	21	(1 Undermanager, 1 Deputies, 3 Miners (conveyors, roadways, pumping and supplies), 2 tradesman)
Friday - Sunday	0	0	0	
Surface operations including train loading	3	3	9	Assumption: weekend trainloading covered by overtime
Management & Staff	8	1	8	(Manager, Electrical and Mechanical Managers, Accountant, Office Support, Stores,)
Total			140	
Case: 1.5 Mtpa	Shift Manning	No. Shifts	Total	Comments
Super Panel #1				
Production Mon - Friday	16	3	48	As per JORC Coal Reserves Statement: 1 Deputy, 1 Supervisor, 2 trades, 12 miners
Maintenance Fri - Sunday	6	2	12	Assumption: 1 Deputy, 3 trades, 2 miners
Supers Panel #2				
Production Mon - Friday	16	3	48	As per JORC Coal Reserves Statement: 1 Deputy, 1 Supervisor, 2 trades, 12 miners
Maintenance Fri - Sunday	6	2	12	Assumption: 1 Deputy, 3 trades, 2 miners
UG Support Manning				
Monday - Friday	7	3	21	(1 Undermanager, 1 Deputies, 3 Miners (conveyors, roadways, pumping and supplies), 2 tradesman)
Friday - Sunday	0	0	0	
Surface operations including train loading	3	3	9	Assumption: weekend trainloading covered by overtime
Management & Staff	8	1	8	(Manager, Electrical and Mechanical Managers, Accountant, Office Support, Stores,)
Total			158	

In Summary

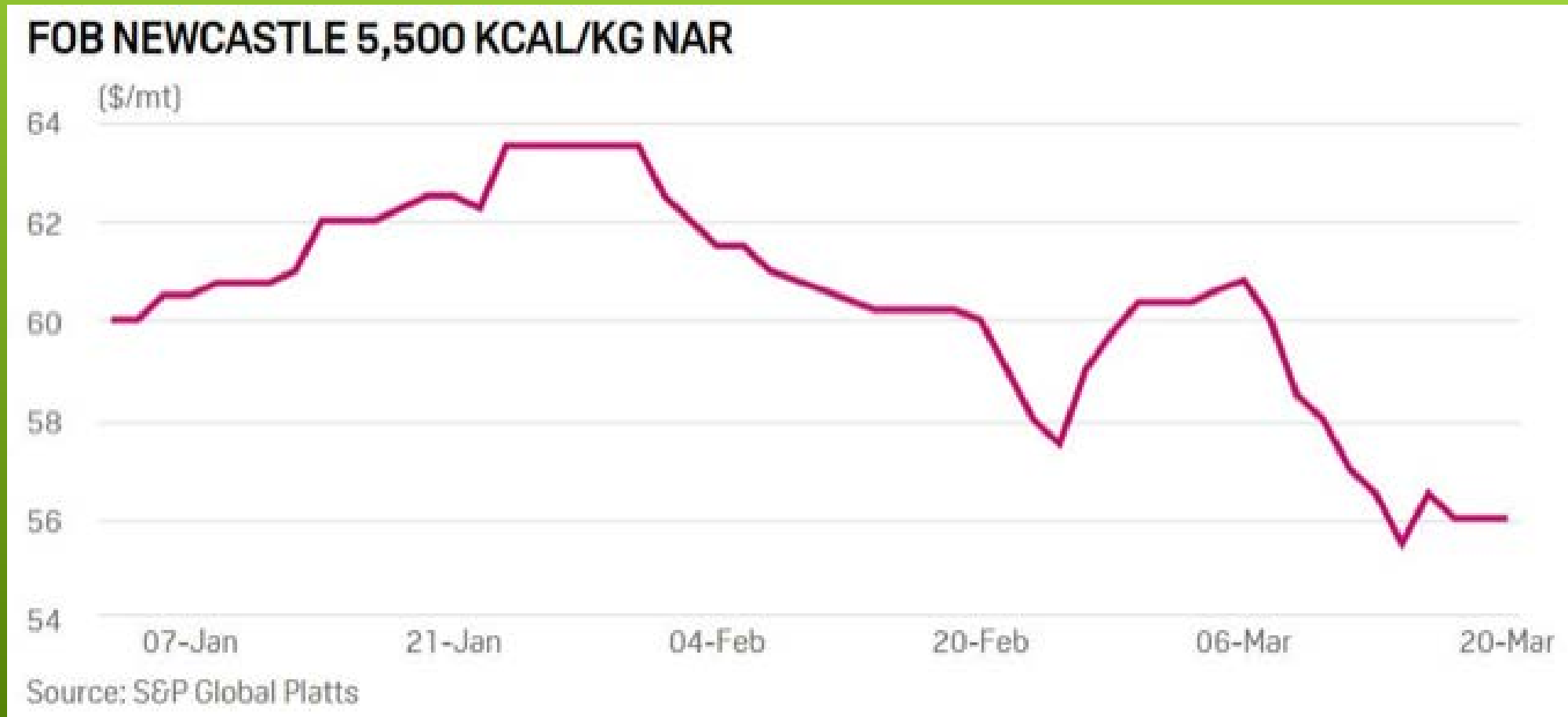
- This project proposal is in my view fatally flawed and will not deliver the benefits claimed.
- The target coal product cannot be consistently produced without upgrading the unwashed coal quality.
- The coal washery operational impacts have not been assessed in this proposed modification
- This project should not be approved

Project Economics and Profitability Challenges

	AQC EA/Response to submissions	Detailed Review Estimate	Difference
Project Capital (AUD million)	45*	162	117
Headcount	99	140-158	41-59
Average Unwashed Coal Product Ash %	15-24%	26% (as per JORC reserves statement)	2%-11%

* MOD7 EA stated \$15 million capital. Lifted to \$45million in Response to Submissions

Dartbrook's Target Coal Product is 5500NAR (Not achievable over the project life) Recent Price



Dartbrook's Target Coal Product is 5500NAR

A growing gap from the Newcastle 6000NAR

