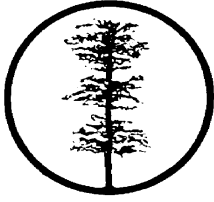


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20 December 2010

VIA EMAIL

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**Re: Submission regarding the Alpha Coal Mine and Rail Project,
Queensland (EPBC 2008/4648)**

Pursuant to s 34 of the *State Development and Public Works Organisation Act 1971 (Qld)* ("SDPWO Act") and s 74 of the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)* ("EPBC Act"), the Environmental Defenders Office of Northern Queensland Inc. ("EDO-NQ") and Environmental Defenders Office - Queensland Inc. ("EDO-Qld") (collectively, "the EDOs") hereby make this public submission regarding the above-referenced project (the "Alpha Coal Project").

I. BACKGROUND/OVERVIEW OF THE ALPHA COAL PROJECT.

As described in the environmental impact statement and related documents, the proposed Alpha Coal Project is a very large coal mining development consisting of numerous elements, key of which are:

A. The Mine Component.

- An open cut coal mine capable of producing 30 million tonnes per annum (Mta) of thermal coal for the export market over the next 30 years, with the prospect of extending the mine's operational life for some time beyond 30 years based on anticipated coal reserves.
- The proposed mine plan for the Alpha Coal Project comprises four open cut pits with a total strike length of 24 km.
- The proposed Alpha Coal Project would include construction and operation of ancillary infrastructure including a ground tailings storage facility, environmental water and raw water dams, water supply and treatment infrastructure, quarry pits, access roads, workshops, fuel and oil storage, communications and power infrastructure, offices and accommodation facilities.

B. The Rail Component.

- In addition, the proposed Alpha Coal Project includes construction and operation of a privately owned and operated railway line, approximately 495 km in length, consisting of two balloon loops, eight passing loops, maintenance sidings, signalling, a marshalling yard and accommodation facilities along the rail corridor between the mine and supporting port infrastructure located at Abbot Point, from whence the coal is proposed to be shipped for export.
- It is proposed that, at the Mine Component of the Alpha Mine Project, the coal will be mined, washed and conveyed to a train load-out facility. From the train load-out facility, the coal will then be transported to the Abbot Point port facility.

II. THE RELEVANT ASSESSMENT FRAMEWORK.

As noted in the environmental impact statement and related documents, the proposed Alpha Coal Project has been declared to be a "significant project" under s 26(1) of the *SDWPWO Act* and a "controlled action" under the *EPBC Act* given its potential to impact on matters of national environmental significance ("MNES").

III. SUBMITTERS' CONCERNS.

A. Summary.

As the foregoing summary makes clear, the proposed Alpha Mine Project is a very large-scale mining operation, involving the production - and ultimate burning for energy of - 30 million tonnes coal per year over at least 30 years and perhaps longer. At minimum, this means the extraction and burning of at least 900 million tonnes of coal over the life of the mine. This represents a significant contribution of greenhouse gas ("GHG") emissions to the atmosphere that must be considered carefully particularly in the context of other large coal mining projects that are currently proposed for approval.

Likewise the EDOs are extremely concerned regarding manner of mining proposed for the Alpha Mine Project (i.e., open cut mining) given the depth of the coal to be mined and the volume and characteristics of overburden that must be removed, stored and backfilled in order to reach the merchantable coal identified in the mining proposal. Such mining methods will clearly have a massive and potentially adverse impact on the landscape and terrestrial ecosystems in the active mining and adjacent areas. In addition, the potential for disturbance of surface water and groundwater quantity and quality associated with the proposed manner of mining must be considered a matter of significant concern.

Finally, the EDOs note that a good portion of the proposed railway has not been carefully studied with regard to its potential environmental and other effects. The EDOs believe that the environmental impact statement ("EIS") prepared by the proponent of the Alpha Mine Project needs to prepare a supplemental EIS in order to fully consider impacts associated with the Rail Component of the proposed Alpha Mine Project.

B. GHG Emissions.

First and foremost, the proposed Alpha Mine Project will clearly result in significant contributions of GHG emissions overall. The EIS and related documents are wholly inadequate in relation to understanding and assessing the impacts of GHG emissions associated with the mining and burning of the huge amount of coal that the Alpha Mine is expected to produce. The EIS and related documents do not

sufficiently identify the amount of the GHG emissions that the proposed project will produce overall, or the associated effects of those emissions on the Great Barrier Reef and listed threatened species, communities and migratory species.

The EIS and related documents identify only the GHG emissions directly associated with the operation of the proposed mine and operation of the railway that transports coal from the mine to Abbot point. Obviously, the coal being produced by the mine will be burned for energy overseas (i.e., thermal coal for export). The burning of 900 million tonnes of coal over 30 years, or even 30 million tonnes of coal per annum, represents a significant contribution of GHG emissions to the planet's atmosphere and the effects of such emissions on the global climate will obviously impact not only the country(ies) where the coal is burned but Australia as well.

In the absence of more detailed calculation of the GHG emissions associated with the coal produced by the proposed Alpha Mine Project, the EDOs have estimated that the burning of this coal will result in at least 2.3 billion tonnes of carbon dioxide (CO₂) being emitted to the atmosphere over the mine's expected 30-year life, (900 Mt x 2.56) and provides a rough estimate of total GHG emissions associated with the Alpha Mine¹. Put another way, on an annual basis, 30 million tonnes of coal burned for energy would produce roughly 77 million tonnes of CO₂. This represents more than 10% of Australia's current annual emissions of approximately 550 million tonnes of CO₂ equivalents². In other words, the total CO₂ emissions associated with the proposed Alpha Mine Project (2.3 billion tonnes) would amount to a little over 4 years' worth of Australia's total annual CO₂ emissions.

Looking at the Alpha Mine's contribution to global GHG emissions another way, the mine will raise global atmospheric CO₂ levels by around 1/10 of 1 part per million ("ppm")³. This may seem like an insignificant figure, but 1/10 of 1 ppm represent nearly 10% of the annual increase in atmospheric CO₂ levels. - at a time when countries have recently pledged in Cancun, Mexico to significantly reduce CO₂ levels in the atmosphere.

¹ This rough estimate was undertaken using the formulae and figures set out in the *National Greenhouse and Energy Reporting (Measurement) Determination 2008*. The EDOs' calculation obviously is a rough estimate only and there are significant uncertainties that cannot be resolved without detailed information on the coal resource and mining methods.

² Over the four quarters to the June quarter of 2010, Australia's national inventory was an estimated 548 Mt CO₂-e (million tonnes of carbon dioxide equivalent), excluding emissions from Land Use, Land Use Change and Forestry activities (LULUCF) activities: Department of Climate Change and Energy Efficiency, *Australian National Greenhouse Accounts – Quarterly Update of Australia's National Greenhouse Gas Inventory – June Quarter 2010*, available at <http://www.climatechange.gov.au/en/climate-change/~media/0ABE1E44D0D24473B1C29D19395A2913.ashx>

³ The Global Carbon Project reports that the annual growth rate of atmospheric CO₂ was 1.6 ppm in 2009, which brought the atmospheric CO₂ concentration to 387 ppm by the end of 2009. Fossil fuel CO₂ emissions in 2009 were 8.4±0.5 PgC emitted to the atmosphere (30.8 Pg of CO₂; 1 Pg = 1 billion tons or 1000 x million tons). Land use change was responsible for estimated net emissions of 1.1±0.7 PgC per year for the decade of 2000s. Figures for “carbon equivalents” can be converted to “carbon dioxide equivalents” by multiplying by 44/12 making the roughly 9.1 PgC carbon emitted by human activities in 2009 equivalent to 32 Gt of CO₂. See Global Carbon Project at <http://www.globalcarbonproject.org/carbonbudget/09/hl-compact.htm>.

The fact that the mine will produce coal for 30 years means little for the atmosphere given the fact that the CO₂ released by the burning of coal will continue to affect the atmosphere for “300 years, plus 25% that lasts forever”⁴.

Among other things, the proposed Alpha Mine Project will indirectly impact the Great Barrier Reef by the enormous amount of GHG emissions and their consequent impact on global warming and ocean acidification. There is an extensive body of science that coral reefs are highly vulnerable to rising global temperatures and ocean acidification.⁵ The Intergovernmental Panel on Climate Change ("IPCC") found that there is a very high confidence that increases in sea surface temperature of about 1 to 3°C above pre-industrial levels, associated with stabilising atmospheric greenhouse gases between 350 and 550 ppm CO₂-e,⁶ would result in widespread mortality to coral reefs.⁷

The EDOs further note that Nicolas Stern concluded that “coral reef ecosystems [will be] extensively and eventually irreversibly damaged” by temperature change relative to pre-industrial levels of 0.5-2°C.⁸ He found that at 2°C warming “coral reefs are expected to bleach annually in many areas, with most never recovering, affecting tens of millions of people that rely on coral reefs for their livelihood or food supply”.⁹

Likewise, Ross Garnaut recognised the damage to the Great Barrier Reef represented by CO₂ emissions when recommending stabilisation targets for such GHG emissions. His final report described the probable outcome of stabilising atmospheric CO₂ levels between 450 and 550 ppm for the Great Barrier Reef as follows:¹⁰

If atmospheric carbon dioxide concentrations increase beyond 450 ppm, together with a global temperature rise of 1°C, a major decline in reef-building corals is expected. Under these conditions, reef-building corals would be unable to keep pace with the rate of physical and biological erosion, and coral reefs would slowly shift towards non-carbonate reef ecosystems. Reef ecosystems at this point would resemble a mixed assemblage of fleshy seaweed, soft corals and other non-calcifying organisms, with reef-building corals being much less abundant, even rare. As a result, the three-dimensional structure of coral reefs would slowly crumble and disappear.

⁴ Archer D (2005), “Fate of Fossil Fuel in Geologic Time” 110 *Journal of Geophysical Research* C09S05, [doi: 10.1029/2004/2004JC002625](https://doi.org/10.1029/2004/2004JC002625).

⁵ See Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability. WGII Contribution to the IPCC AR4* (Cambridge University Press, 2007), pp 12, 321 and 850-854, available at <http://www.ipcc.ch/ipccreports/ar4-wg2.htm>.

⁶ *ibid*, n 5, pp 66-67.

⁷ *ibid*, n 5, pp 12, 321-322 and 850-854 (noting that the IPCC found the ability of corals to adapt or acclimatise was uncertain and requires further experimental and applied study).

⁸ Stern N, *The Stern Review on the Economics of Climate Change* (Cambridge University Press, Cambridge, 2007), p 330.

⁹ *ibid*, n 8, p 94.

¹⁰ Garnaut R, *Garnaut Climate Change Review Final Report* (Cambridge University Press, Cambridge, 2008), p 144.

A carbon dioxide concentration of 500 ppm or beyond, and likely associated temperature change, would be catastrophic for the majority of coral reefs across the planet. Under these conditions the three-dimensional structure of the Great Barrier Reef would be expected to deteriorate and would no longer be dominated by corals or many of the organisms that we recognise today.

The *EPBC Act* firmly fixes Australia's international obligations under the World Heritage Convention. Those obligations can be summarised as a requirement to identify, protect, conserve, present, transmit to future generations and, if appropriate, rehabilitate the world heritage values of the property.

Based on these impacts, the proposed Alpha Mine Project should be considered in light of Australia's obligations under the World Heritage Convention to identify, protect, conserve, present, transmit to future generations and, if appropriate, rehabilitate the World Heritage values of the property. Schedule 5 of the Regulations sets out Australia's World Heritage management principles pursuant to section 323 of the *EPBC Act*. In particular, Regulation 1.01 of Schedule 5 states that:

[T]he primary purpose of management of natural heritage and cultural heritage of a declared World Heritage property must be ... to identify, protect, conserve, present, transmit to future generations and, if appropriate, rehabilitate the World Heritage values of the property.

Similarly, regulation 3.04 of Schedule 5 states that:

[A]n action should not be approved if it would be inconsistent with the protection, conservation, presentation or transmission to future generations of the World Heritage values of the property.

Australia's obligations under the World Heritage Convention should guide the Coordinator-General in considering the proposed Alpha Mine Project's impacts on the Great Barrier Reef and ensuring that the proposal does not jeopardise the Australia's World Heritage management principles.

Similarly, the Alpha Mine Project should be assessed against the potential that climate change - specifically global warming - associated with the burning of 30 million tonnes of thermal coal annually threatens biodiversity and threatened species of flora and fauna. While the EIS and related documents discuss "direct" effects of the Mine and Rail components of the Alpha Mine Project on threatened species and ecological communities and listed migratory species, they contain little discussion of the indirect impacts that the vast amount of GHG emission the project will release will have on these listed species and communities.

Australia's obligations under the Biodiversity Convention, which is likewise established under the *EPBC Act*, are also relevant to the Controller-General's decision whether to approve the proposed Alpha Mine Project and, if so, what conditions to attach to such approval. While there are a range of obligations imposed by the Biodiversity Convention, the EDOs suggest that the most relevant are found in Article 8 of the Biodiversity Convention, which imposes a general obligation on Australia to conserve biodiversity (in both terrestrial and marine ecosystems). Accordingly, the impact on listed threatened species, listed ecological communities and listed migratory species from global warming caused by the projects GHG emissions must be a factor that is considered in connection with the proposed Alpha Mine Project.

The proposed Alpha Mine Project should be assessed for “significance of impacts” within the context of the other coal mines operating in the area. Queensland’s coal exports totaled 190 million tonnes in 2008-09, with plans to increase that total by approximately 5% in the next 10 years.¹¹ This total coal extraction and anticipated increase is of paramount importance in terms of the substantial, cumulative effects the proposed Alpha Mine will likely have on global warming and its consequent effect on the Great Barrier Reef, listed threatened species, communities and migratory species.

With regard to the cumulative effects associated with the proposed Alpha Mine Project, the Federal Court's decision in *Booth v Bosworth* [2001] FCA 1453 should be considered. In *Booth v Bosworth*, Justice Branson stated that a significant impact means an "impact that is important, notable or of consequence having regard to its context or intensity." Consequently, an assessment of significance of impact associated with the proposed Alpha Mine Project should be made in the context of the cumulative impacts of similar activities.

There are a number of additional proposed major coal mines under consideration in within the Galilee Basin, including:

- Adani Mining Pty Ltd's Carmichael Coal Mine and Rail Project which proposes to develop a new open-cut and underground coal mine in the Galilee Basin, capable of producing up to 60 million tonnes of thermal coal annually over 150 years - primarily for India's energy-producing industry (making it the largest operating coal mine in Australia and one of the largest in the world when it reaches peak production)¹²;
- Hancock Galilee Pty Ltd's (a wholly owned subsidiary of Hancock) Kevin’s Corner Mine, which proposes to develop a combined open cut and underground mining operation in the Galilee Basin with a final capacity of 30 million tonnes of thermal coal per annum over 30 years for export markets¹³;
- Waratah Coal Inc's proposed open cut mine in the Galilee Basin that is expected to be have an initial export capacity of 25 million tonnes of thermal coal per annum, capable of being doubled to 50 million tonnes annually shortly thereafter¹⁴; and
- South Galilee Coal Project's proposal to develop an open cut and underground mining operation in the Galilee Basin southwest of Alpha that is expected to produce 15-20 million tonnes per annum of thermal coal destined for export to international energy markets¹⁵.

¹¹ Queensland Government (2010) Railing Queensland’s Coal: A new era for Queensland's coal export industry.

¹² See <http://www.dip.qld.gov.au/projects/mining-and-mineral-processing/coal/carmichael-coal-mine-and-rail-project.html>.

¹³ See <http://www.dip.qld.gov.au/projects/mining-and-mineral-processing/coal/kevins-corner-project.html>.

¹⁴ See <http://www.dip.qld.gov.au/projects/mining-and-mineral-processing/coal/waratah-galilee-coal-project.html>.

¹⁵ See <http://www.dip.qld.gov.au/projects/mining-and-mineral-processing/coal/south-galilee-coal-mine.html>.

In other words, just in the Galilee Basin of central Queensland alone, there are 5 proposed mines projected to produce 160 million tonnes of thermal coal for export annually. The proposed Alpha Mine would account for roughly 1/5 of this total¹⁶. In this regard it is hard to consider that the cumulative impact of the proposed Alpha Mine Project, in conjunction with the foregoing, could be anything but *significant*.

Finally, in considering the proposed Alpha Mine Project, the precautionary principle must be taken into account when deciding whether or not an action needs approval.¹⁷ The precautionary principle provides that, if a proposal involves a threat of serious or irreversible environmental harm, then lack of scientific certainty about the potential impacts of that proposal should not be used as a reason for postponing preventative measures.¹⁸ In other words, the government should err on the side of caution in considering the proposed Alpha Mine Project.

While it is generally accepted that the earth is undergoing an increased greenhouse effect causing global warming from the additional anthropogenic GHG emission, it is argued that the precise timing of impacts on the Great Barrier Reef has not been agreed. Consequently, application of the precautionary principle in this case would warrant the consideration of the GHG emissions that are likely to be released as a result of the Alpha Mine Project and their consequent affect on the Great Barrier Reef.

C. Impact Of Proposed Method Of Mining.

Aside from concerns with the GHG emissions associated with the proposed Alpha Mine Project and their cumulative impacts on such MNES as the Great Barrier Reef, the EDOs have concerns with the type of mining proposed for this project - namely open cut (i.e., strip) mining. Based on the depth of the coal seams proposed to be mined and the nature of the lithography in the area, the EDOs believe that a less damaging method of mining should be approved - namely underground mining to the maximum extent possible, with strip mining reserved for those areas where underground mining is not technically feasible.

Based on the EIS and related documents reviewed, the EDOs understand that Hancock proposes to mine the C and D seams of coal located on the property¹⁹. It is the EDOs' understanding, based on the EIS and related documents, that the relatively thin A and B seams of coal are considered uneconomic by Hancock.

The primary rationale for strip mining the coal in seams C and D is offered in section 1.7.3 of its EIS, entitled "Mining Methods". In that section Hancock states:

The relatively shallow surface depth to coal and near horizontal seam gradient (< 1°) of the deposit at the Project are ideal for open cut mining extraction techniques.

¹⁶ The amount of CO₂ emissions associated with these 4 mines, together with the proposed Alpha Mine, becomes truly mind boggling. 160 million tonnes of coal would be expected to produce roughly 409 million tonnes of CO₂ emissions per year over the next two decades at least - resulting in some 8 billion tonnes of CO₂ emissions over this time.

¹⁷ Section 391 EPBC Act.

¹⁸ Section 391(2) EPBC Act

¹⁹ See Hancock Alpha Coal Project EIS, Vol 1, ss 2.4.1.2.3, 4.3.1 through 4.3.3.6.

Underground mining was considered as a resource extraction methodology; however, the seam geometry and stripping ratio are not conducive to maximum resource recovery relative to the open cut mining method. Thus the option with the greatest resource recovery utilising proven techniques and technologies was chosen as the best long-term option for the proposed Project, enabling maximum input into the local economy and community.

However, closer review of the EIS suggests that this statement is misleading. The geology of the mine area is provided by Hancock in Table 4.2 of its EIS, which is reproduced below:

Table 4-2 Late Permian Coal Measure Stratigraphy - Galilee Basin, Alpha Project area

Era	Period	Lithology	Stratigraphic Unit	Thickness (m)	Comments
Mesozoic	Triassic	Green brown-purple mudstone, siltstone and labile sandstone	Rewan Formation		Only in west
Palaeozoic	Late Permian	Sandstone	Bandanna Formation	10–30	Increasingly argillaceous
		Coal seam A. Seam contains thin dirt bands that thicken from south to north.		1–2.5	
		Labile sandstone, siltstone and mudstone		10	
		Coal seam B. Seam contains numerous dirt bands that constitute between 15 and 30% of seam. Variable in quality.		6–8	
		Labile sandstone, siltstone and mudstone		70–90	
		Coal seam C. Coal seam thins northward and splits apart	Colinlea Sandstone	2–3	Increasingly arenaceous
		Labile sandstone, siltstone and mudstone		5–20	
		Coal seam D. Stone bands present with seam thickening westward, upper section splits off main seam to north west		4.5–6	
		Labile sandstone, siltstone and mudstone		15	
		Coal seam E. Thin (0.2 m) clean coal bands, usually 2 bands E1 and E2		0.1 – 0.4	
Labile sandstone, siltstone and mudstone	15 – 20				

Era	Period	Lithology	Stratigraphic Unit	Thickness (m)	Comments
		Coal seam F. Localised thick geological section, no working section		0.5 – 5	
		Labile sandstone, siltstone and mudstone		Unknown	
	Early Permian	Labile and quartz sandstone	Undefined	Transition to Joe Joe Formation	

Based on the foregoing table, it appears that Hancock will need to remove approximately 97-140 metres of overburden to reach the C seam of coal that it proposes to extract. Another 5-20 metres of overburden would have to be removed to get to the D seam that Hancock proposes to mine. In other words, anywhere from 100 to 160 metres of rock and soil will need to be removed to mine all the coal reserves Hancock seeks to mine²⁰. That is a considerable amount of overburden, to say the least and runs counter to the notion that the coal to be mined is located at a "relatively shallow" depth.

Moreover, consideration must be had for the amount of overburden that will necessarily be removed as a result of the mining method proposed by Hancock. By any account, the amount of overburden that will be removed should be considered vast. The EIS supporting the proposed Alpha Mine Project advises that:

The mine will consist of a conventional dragline and truck-shovel pre-strip operation with coal haulage by bottom-dump coal hauler to one of two ROM dump stations located adjacent to the box cut. The total mine strike length of approximately 24 km will be divided into four main pit areas It has been estimated that a total of up to 12 pre-strip fleets will be required to service the 9 draglines.²¹

Moreover, the EIS notes that "[t]he estimated out-of-pit dump volume required for the box cuts is 340 m³ (loose); and at the end of mining the final landform is expected to be about 15 m above the natural surface"²².

The EDOs believe that the sheer volume of overburden and uneconomic coal that will be removed in the course of strip mining the site will have adverse impacts on the overall landscape that will be permanent and impossible to mitigate. However, particularly problematic is the amount of potentially acid-forming rock and coal that will be excavated from the mine area, temporarily stored around the active mine area and ultimately backfilled into the pit when mining has ceased. Hancock's EIS notes the acid-forming potential of the overburden and uneconomic coal being removed from the proposed mine.

For example, at s 4.9.3 of volume 1 of the EIS, Hancock notes:

²⁰ See also Hancock Alpha Coal Project EIS, Vol 1, ss 4.3.1 through 4.3.3.6.

²¹ *ibid*, ss 2.4.1.2 & 2.4.1.2.1.

²² *ibid*, s 2.4.1.2.4.

Preliminary geochemical assessments regarding the potential for the generation of acid and metalliferous drainage (AMD) is discussed in Section 4.6.4. Volume 5, Appendix J (Mine Waste) contains the detailed AMD study. The preliminary results indicate the potential for acid mine drainage, which has implications in terms of waste management, rehabilitation and backfilling, as well as final void considerations.

Mitigation

The stoney coal and mudstone within the overburden has the potential for acid generation and may require special management strategies to prevent/minimise oxidation and thus reduce acid generation.

The coal washery waste is expected to be net acid generating and will require measures to prevent or control acid generation. This has implications for disposal at the tailings storage facility (TSF) and long term impacts of possible acidic and metalliferous seepage²³.

It should be noted that the foregoing emphasised language is identified under "Mitigation", yet no discussion of mitigation measures is actually provided - only identification of the problems associated with acid and metalliferous drainage ("AMD").

Similarly, AMD issues are expected in association with the C seam of coal that Hancock proposes to mine. The EIS notes:

The Upper C seam (CU) includes interbedded stoney coal, puggy clays and carbonaceous shale. This upper zone is not economic due to the inferior nature of the coal bands. The puggy clays within this unit will also present problems for processing.

The carbonaceous shale is potentially acid forming as well as the clay-rich material being dispersive. As it will be necessary to mine the lower seams, the CU will need to be excavated; therefore it needs to be understood in terms of waste disposal.

Mitigation

Consideration of the CU seam must be given when developing the optimum AMD, waste rock, and tailings management schemes²⁴.

Again, while the need for mitigation is noted, no mitigation measures are discussed - at least in this section of the EIS - nor is any other section of the EIS where such measures are discussed referenced.

The need for realistic mitigation measures to address the high potential for large amounts of AMD seeping from the massive amounts of overburden excavated in conjunction with the open cut mining proposed is further made clear in the next section of the EIS, which deals with the hydrologic regime associated with the active mine site. Section 4.9.5 of Volume 1 of the EIS states:

²³ *ibid*, s 4.9.3 (emphasis added).

²⁴ *ibid*, s 4.9.4 (emphasis added).

The main aquifer unit on site within the Bandanna Formation are the sediments comprising the C coal seam, underlying D coal seam, and interburden sediments. *The coal seams and interburden are in hydraulic connection and effectively form one hydrostratigraphic unit. This is referred to as the C-D sands aquifer* (JBT, 2010a).

High ingress is envisaged to occur from the C-D sandstone aquifer and other higher units, particularly as mining extends to the west and the depth to D seam (and hence thickness of saturated Permian sediments). It's predicted a potential for extensive inflows in areas where coarse sands occur.

Mitigation

In order to ensure a “dry” safe working environment active dewatering will be required within the hanging wall C-D aquifer, as well as the floor. Dewatering behind and within the high wall will ensure reduced pore pressure and ingress, which will reduce pit slope stability risks²⁵.

"High ingress" is simply another way of saying that the aquifer associated with the proposed mine will be, essentially removed, and that large amounts of groundwater are expected to flow into the active mine works, requiring significant dewatering activities in order to maintain a dry mine pit. Such disturbance of the groundwater regime associated with the proposed mine is another factor that should be considered in approving the proposed Alpha Mine Project, or at the least the proposed method of mining sought for the project.

D. Lack Of Data Associated With The Rail Component.

Based on the EDOs' review of the EIS and related information, it appears that there has been inadequate data developed to properly assess the impacts associated with the Rail Component of the proposed Alpha Mine Project.

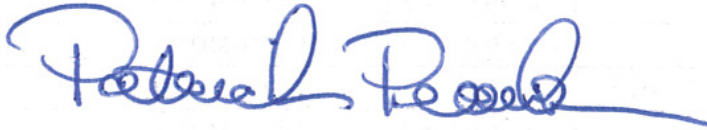
The EDOs note that the proposed Rail Component passes through 68 regional ecosystems and approximately 1,530 hectares of mapped remnant vegetation but that no biodiversity surveys were undertaken along 38% of the proposed rail route. Hancock's contention that the rail line will have no significant impact on biodiversity is therefore not proven and the EIS is incomplete. There are 22 regional ecosystems along the proposed rail route that fall within the 38% of the line that has not been surveyed for biodiversity. These are predominantly woodland regional ecosystems. In addition clearing of threatened and high value regional ecosystems is taking place along the current rail line into Abbot Point for more rail access. This land was never supposed to be cleared.

²⁵ *ibid*, s 4.9.5 (emphasis added).

All of the information included in this submission is true and correct to the best of knowledge and ability of the person making the submission.

Yours faithfully,

Environmental Defenders Office of
Northern Queensland Inc.



Patrick Pearlman
Principal Solicitor

Environmental Defenders Office (Qld) Inc



Jo-Anne Bragg
Principal Solicitor