



Central Queensland Coal Project

CQC EPBC Proposed Decision Response

August 2022

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1 Introduction

We refer to your letter dated 1 August 2022 inviting comment on your proposed decision to refuse approval for the Central Queensland Coal (CQC) Project (EPBC 2016/7851), a proposed coal project. We also refer to our previous submissions and requests to the government and the independent committee whose independence we question. We request the government and in particular the Minister actions the above matters without delay. We expect the review process for new projects to be based on scientific and technological grounds and in accordance with previous approvals made for coal mining projects in the past.

We hasten to point out coal mining has existed at the Ogmore and Bowman townships from 1918 to as recently as 1964. Mineral mining began as early as 1858 in this area. The historical Bowman Coal Mine is contiguous to the CQC Project and the historical Ogmore Coal Mine is located further downstream of the CQC Project and 5km from the Great Barrier Reef World Heritage Area (GBRWHA). Neither of these have any environmental legacy issues. Outcropping of coal seams naturally occurs in Tooloombah Creek which flows into the Styx River.

In this instance we contend that the review was not fair and reasonable and failed to take into account the scientific and technological studies, and the engineering safeguards provided by CQC. Such information appears to have been completely overlooked in arriving at the refusal decision. We are disappointed in the process that has been accorded to our company. We contend that the advice provided to the Department of Environment and Science by the Independent Expert Scientific Committee (IESC) during December 2020 was inaccurate, unfair and failed to take into account or deliberately ignored the findings of the various technical studies carried out for the Project. The advice did not properly consider our submissions and requests and is therefore considered not relevant. The attendance of Government officers at meetings of the independent committee is of concern as well as the appointment of such committee and individuals making up the committee by the Government. The Government and Minister then allegedly relying on such a government appointed committee with its member's public views on coal mining known by the Government prior to appointment, is nothing more than a set up designed to provide an excuse for the Government to reject our Project. We understand this is the first coal mine in Australia's history which faces such rejection and the treatment dealt out to our company is different from projects that have been approved previously. Our company had a legitimate expectation that the Minister would have provided us with fair treatment and approve the Project in the same manner as previous Australian governments would have approved the Project. This advice was relied upon heavily in the decision making to invest in the project and we are therefore challenging the proposed Minister's decision. The current net present value of the project ranges up to \$20.0 billion and the refusal of the Minister to approve the Project effectively destroys this value as well as the considerable revenue detailed further in the following submission.

The recommendation to refuse approval was stated as due to unacceptable impacts on the following:

- A world heritage Property (Sections 12 & 15A);
- A National Heritage Place (Sections 15B & 15C);
- The Great Barrier Reef Marine Park (Sections 24B & 24C);
- A water resource in relation to a coal seam gas development or large coal mining development (Sections 24D & 24E).

We have addressed our concerns on these issues in detail in the following pages and have refuted all claims raised in the recommendation for refusal. In particular we note you have publicly stated on several occasions (as well the Prime Minister and on record by the IESC) that the CQC project is 10km from the Great Barrier Reef. This is emotive and misleading as the CQC mine is actually:

- 192 km from the Great Barrier Reef
- 44 km from the Great Barrier Reef Marine National Park, and
- 10km from the Great Barrier Reef Marine Park General Use Zone and GBRWHA.

The GBRMP General Use Zone and the GBRWHA boundaries extend 34km up the Styx River from the mouth of the river to the rail bridge. The sediment load washes up and down the Styx River between the rail bridge and the mouth of the Styx River.

The current sediment load from the CQC Project area is estimated to represent only 6 % of the total Styx Basin load and 0.24% of the Fitzroy Basin load, and this would be reduced by 50% after allowing for the proposed mine water management measures. Run-off from within the CQC Project area, with or without the mine, would thus have no impact on downstream water quality, and would not present significant impacts or risks nationally and internationally recognised assets of high ecological value as claimed. Note that the Styx River catchment sediment loads are some 4% of the total Fitzroy Basin loads (Bartley et al 2017).

We note that in making a determination the Minister must also take into account economic and social matters, which in this instance are of no small importance, given the economically depressed and declining local rural communities in the Marlborough, St Lawrence and Ogmoo districts.

Accordingly we request that you reconsider the recommendation to refuse the approval of the Central Queensland Coal Project, taking into account the information provided herein and submissions and requests made to the Minister and the Committee and the attached technical documents. We would also like to invite you to inspect first-hand the location and setting of the proposed mine and to meet with the residents of the Marlborough and St Lawrence district.

Singling out our Companies and Directors within our group is unfair treatment by the Government and in particular the Labour Governments within the Commonwealth and the State. It is our submission that any failure to approve the Project in a continuation of the prejudicial treatment of the Government against our operations.

2 Executive Summary

I refer to your letter dated 1st of August 2022, inviting comment on a proposed refusal decision of the planned Central Queensland Coal Project, Central Queensland (EPBC 2016/7851).

The Central Queensland Coal Project (the Project) plans to construct and operate an open-cut coal mine, train load out facility and necessary infrastructure, located approximately 180km south of two of the largest coal export ports in the world, Dalrymple Bay Terminal and Hay Point Coal Terminal. The Project will utilise existing port capacity and established infrastructure at the multi-user export terminal of Dalrymple Bay.

Dalrymple Bay Terminal has been in operation since 1983 and is capable of exporting 85 million tonnes per annum (Mtpa). Hay Point Coal Terminal has been in operation since 1971 and is capable of exporting 55Mtpa. The port's combined export capacity is 140Mtpa of coal throughput and have operated safely over the past five decades, contiguous to the Great Barrier Reef Marine Park, World Heritage Listed Areas and National Heritage values of a National Heritage place.

Minister, your proposed decision to refuse approval for the Project relies on reasons that the Project presents unacceptable impacts on the following controlling provisions of the EPBC Act - a World Heritage Property, a National Heritage Place, the Great Barrier Reef Marine Park and a water resource in relation to a coal seam gas development or large coal mining development.

However, this area is already home to two of the largest established coal ports in the world, exporting 140 million tonnes per annum. One is owned by the Queensland State Government, and both have operated safely for the past five decades contiguous to the Great Barrier Reef Marine Park boundary.

In addition to the Port of Hay Point, bulk terminals exporting coal, fuel, sugar, alumina, cement, bauxite, magnetite, LNG and other products are similarly located between Gladstone and Weipa on the GBRMP and GBRWHA, exporting quantities greater than those terminals at the Port of Hay Point.

For environmental safety, the current conditions that apply to other coal mines and coal ports in the area are relevant. The proposed mine itself is not contiguous to, but rather located more than 44 kilometres away from the Great Barrier Reef Marine National Park boundary. The nearby Kunwarara Magnesite Mine Project is closer to the coastline and Great Barrier Reef and has been operating with government approvals for over three decades.

The Project has clearly demonstrated that it can be conditioned similar to many of the coal mines, coal ports and similar industrial projects, where water quality and sediment control have had an improving impact on the Great Barrier Reef and be enhanced, with approval of the Project and environmental conditions.

2.1 Environmental Considerations – IESC, MAW, Sediment Release, GW

2.1.1 Independent Expert Scientific Committee Review

Key to the assessment and relied upon by all agencies was the advice from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC). Three joint referrals to the IESC for advice by State and Commonwealth agencies were made: the first on the Environmental Impact Statement (EIS); the second on the revised EIS (v1); and the final on the

Amended EIS (AEIS). The first two referrals to the IESC requested responses to three specific questions, and the final referral had two questions.

The final referral responses provided by the IESC regarding the two questions related to addressing the IESC's previous advice and whether the mitigation measures proposed were appropriate.

The final referral responses provided by the IESC indicates inadequate regard was given by the IESC to documentation provided by CQC in the AEIS.

Possibly due to the assessing agencies heavy reliance on the IESC response (which itself lacked detail), no response or consideration could be found in the assessment material of much of the significant body of new work and Project changes detailed in the AEIS – specifically undertaken in response to earlier matters raised by of the IESC. It appears that the IESC advice was provided despite (rather than based upon) this significant body of new work and project changes. While we provided a detailed response to the IESC issues (see Attachment H4), we are astounded we were not given a response to our detailed submission. Further detail on this is provided in Section 3.2.

2.1.2 Mine Affected Water Releases

One of the two main reasons to refuse approval of the Project is the assertion that there will be unacceptable impacts – this assertion is derived from concerns about mine affected water releases. These can essentially be reduced to two risks: The potential risks of dam and levee failure, and the potential risks from releases from Dam 1.

DES provides reasons in terms of mine site releases for which it is believed that the Project would result in unacceptable risks to the GBWHA, GBRNHP and GBRMP.

2.1.2.1 The potential risks of dam and levee failure

The potential risks of dam and levee failure is impossible – to restate what we have said repeatedly in the EIS and AEIS process.

The dam and levees will be designed and constructed according to all relevant standards, including the specific requirements of the Department of Natural Resources and Mines for regulated dams and levees. By using the correct embankment material, excavating the dam cut off down to impervious material and ensuring proper compaction of fill at optimum moisture contact, dam failure will not occur. Design, construction and quality assurance will be completed by a RPEQ Engineer with significant experience in constructing major dams.

Geotechnically stable dams and levees which are properly constructed using suitable clayey material, do not fail. Embankment batter slopes are generally 1 (vertical) on 3 (horizontal). The crest width is dependent on the height of the structure. An effective cut off trench is necessary to prevent piping failure. Compaction quality control is required by suitably qualified personnel. The onsite water dam is deemed to be a referable dam and will be constructed to the Department of Natural Resources and Mines requirements for such dams and associated spillways. Properly designed and constructed engineering structures do not fail.

2.1.2.2 Potential risks from releases from Dam 1

CQC explained in the AEIS that there would be no impacts from the proposed release strategy on downstream waters, including in the Great Barrier Reef (GBR), with the AEIS demonstrating that there will be no changes to the downstream receiving environment or water quality. The AEIS in fact

demonstrates that there is actually a net positive benefit to the downstream receiving environment including the Great Barrier Reef Marine Park, with a 50% reduction in sediment loads.

Controlled releases from the site have been designed to only occur during periods where there is flow in the receiving waters. The volume of discharge will be constrained by the amount of flow in the receiving waters. Any uncontrolled releases over the spillway would only occur during much higher than normal flows in the downstream environment, but will in any case be through a design structure, thus avoiding potential for failure. Discharge rules have been developed (using modelling drawing on 130 years of climatic records) to ensure that outflows from the site are within the assimilative capacity of the downstream waters. The modelling showed that when discharging within the discharge rules, as well as rare flows over the spillways in much larger than average events, water quality remained within the assimilative capacity of the downstream environment, and all parameters were well within the range of the typical historical receiving water concentrations (i.e. within the derived site-specific guideline values for the site). Therefore, any releases from site will not cause any environmental damage or adverse impacts to MNES.

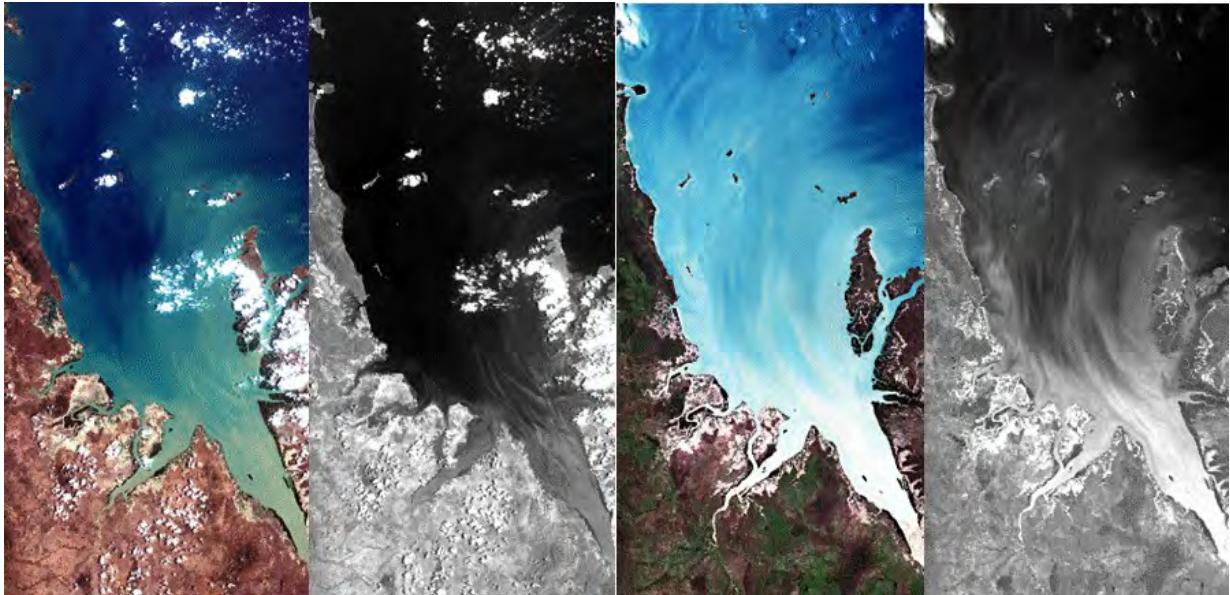
2.1.3 Sediment Release and Transport

Paragraphs 37-41 of Attachment A1 discusses the findings of a peer reviewed research article published in the Marine Pollution Bulletin which investigated the potential environmental impact of the proposed Central Queensland Coal Project on the Great Barrier Reef and adjacent ecosystems. Specifically, the research evaluated the dispersal potential of mine-affected waters from the proposed Central Queensland Coal Project to Broad Sound and the adjacent Great Barrier Reef through the Styx River.

Whilst the Department of Climate Change, Energy the Environment and Water (DCCEEW) have failed to note several very important issues with the study. The substantial issues which the paper that appears to have not been considered are:

- The model has not been validated for tide or flow patterns in the inshore area. Instead, tidal validation is only undertaken at a point over 200km seaward and well outside the Broad Sound Bay and nearshore areas.
- The model did not validate sediment plume dynamics, most importantly ignoring the very high existing sediment loads in the region, which contain a high proportion of clays in existing runoff.
- The impacts in the paper focus on direct smothering of seagrasses from settlement of sediments and light attenuation, making the assumption that fine particles reaching seagrass areas, when released from 20km up to 40km seaward from the Project will automatically cause substantial impacts (no releases from the mine site itself were modelled).
- No consideration of mine inputs or existing sediment conditions is made, even though a simple review of available satellite imagery shows substantial sediment plumes are frequent occurrences in the Broad Sound area, extending well across the region covered by the model. Refer to Figure 2-1 – Broad Sound satellite imagery and more images are contained in the main report, showing randomly selected satellite imagery and the associated turbidity usually present within the bay. Importantly, since the authors state that the mine will impact and damage seagrasses, then it follows that these 'major and irreversible changes' must already be occurring – i.e. without the mine.

It is important to note that since the Project will reduce sediment loss from the site, the natural turbidity plumes shown below would be less rather than more intense. See Figure 2-2 – Surveyors Creek, Figure 2-3 – Tooloombah Creek coal seam outcrop and Figure 2-4 – Tooloombah Creek natural sediment flow.



Turbidity plumes: 24 December 2019 (left) and 12 April 2021 (right), showing natural colour (first) and the red-edge band (second, B5, black and white), showing current sediment deposition

Figure 2-1: Broad Sound satellite imagery



Figure 2-2: Surveyors Creek, upstream of Tooloombah Creek



Figure 2-3: Tooloombah Creek – showing coal seam outcrop



Figure 2-4: Tooloombah Creek – Pre-mining flooding event showing sediment flowing into Styx River and GBRMP

2.1.4 Groundwater Drawdown

Attachment A1 states that the SAR concluded that the project would result in unacceptable risks to water resources in relation to a large coal mining development. DES based this recommendation on:

- the perceived significant impacts of groundwater drawdown to groundwater dependent ecosystems (GDEs) and stygofauna communities, permanent pools along Tooloombah and Deep Creeks and stream/riparian biota, and
- the perceived significant downstream impacts to the Great Barrier Reef resulting from sedimentation associated with riparian habitat loss along Tooloombah and Deep Creeks (discussed above).

In essence this relates to three key perceived processes:

- drawdown impacts directly on creek flow and pools
- drawdown impacts to vegetation in terrestrial GDEs and riparian areas, in particular in the 165ha of identified potential impact area and
- impacts to stygofauna communities.

With reference to the three perceived impacts, CQC contend that:

- the work conducted by CQC appears not have been considered properly (or not considered at all). The CQC studies shows impacts would NOT be significant, and result in NO net loss of vegetation in GDE areas, with A REDUCTION in the release of sediments into the GBRWHA
- the Department did not consider all of the relevant information, including the proponent's responses (**Attachment F1, F3**, and see also **Attachment F14** [see **Attachment A1** – Paragraph 46]), and failed to assess some of the information, relying instead on advice from the IESC that, CQC contends provides an unreasonable degree of emphasis given the flaws outlined in that assessment (see **Attachment H4**). The department denied our company a fair process and assessment.

It is important to understand that the assessments were conservative due to the sensitive nature of the environment, which is the right and proper way to approach such an assessment (refer to Attachment G, Volume 2, Chapter 16, Section 16.7.7.4 of the AEIS). It is highly unfortunate that the IESC, DES and the department have chosen to ignore the details of the work we have done, and have instead settled on the headlines rather than considering the details, which show that the widespread impacts suggested by the agencies will not occur. For example, the assessment showed there could be some impacts within an area of 165ha of terrestrial GDEs (but not impacts to all 165ha), and that this could be mitigated with relatively simple measures. The agencies instead appear to have assumed that 165ha of GDEs will be irretrievably lost, with other flow on impacts. If the material is read and considered, this is clearly not the case.

2.1.4.1 Drawdown impacts on creek flow and pools

The two creeks within the mining area are ephemeral and flow only during rain events, with short duration flows occurring after as they draw on accumulated water in the nearby shallow alluvial sand aquifers. Thereafter they revert to dry creek beds with disconnected permanent pools. The fresh water alluvial sand aquifers, which are recharged from creek flows, and the permanent pools, retain water because they are underlain by impermeable clay deposits, or in some cases by the equally impermeable bedrock.

The fine grained Cretaceous sediments (Styx Coal Measures) forming the bedrock contain saline water (>20,000 ppm) derived from the original seawater at the time of deposition. Groundwater flow rates will be very slow due to the very low permeability of the rock. Excavation of the mine will cause the water table to be drawn down in the vicinity of the void, within the Styx Coal Measures, but the impermeable barriers between that and the creeks limit the effect on the more permeable aquifers in the area.

It is important to understand that in essence, for drawdown to have an effect on flow in creeks, the groundwater level must be at or above the base of the creek (i.e. interacting with the creek). Investigations have shown that the bedrock groundwater table is below the level of the creeks, and as such that any subsequent drawdown as a result of mining would not influence flow within the creeks, otherwise not having impact on the shallow aquifers or the permanent pools. The hydrogeological study indicated a possibility of some reduction in pool permanence for a small number of pools in the lower reaches, on the assumption of a shallower groundwater table, but not widespread drying out.

Despite a detailed response on this matter, no response was made by DES, these matters were not considered. The DES assessment oversimplified the impacts and have ignored our valid concerns in favour of DAWE and the IESC's advice without due consideration of the actual hydrogeological and comprehensive field permeability testing work completed.

2.1.4.2 Impacts to vegetation in terrestrial GDEs and riparian areas

Conservative assessments of the potential impacts to riparian groundwater dependent ecosystems (GDEs) predicted that an area of 165 ha could potentially be affected. However, the impacts to the majority of the 165 ha were predicted to be a loss of bio condition, and not a complete loss of the vegetation as is implied in the DES assessment report. Of the 165 ha, 17% was predicted to have the potential to have some areas with loss of vegetation, should mitigation measures not be undertaken. However, mitigation measures were proposed to minimise this possibility the department has ignored the mitigation measures in its assessment which is not normal treatment of the Project. As such, the impact assessments undertaken for the EIS conclude that there would not be follow on impacts on the downstream environment, as a result of any impacts to GDEs.

Mitigation measures that were proposed included:

- enhancement of the resilience of the riparian zone via weed removal and revegetation with non-groundwater dependent species, commencing from project inception (well before any project influences or impacts).
- Early warning monitoring (foliage cover, leaf water potential, isotope and soil moisture potential etc.).
- Revegetation prior to vegetation loss. This would of course include both suitable succession species and long term replacement species where required, and where necessary structural features (e.g. staking with wood, live cuttings, etc.) to ensure that banks are never subjected to structural or erosional failure. This is standard rehabilitation practice at all coal mines.

The coal seams typically contain a small amount of connate water and can be regarded as minor aquifers, although the groundwater is invariably highly saline and as such unsuitable for use by groundwater dependent ecosystems. The hydrogeological setting is typical of Bowen Basin coal mines. The reality is that any riparian groundwater dependent ecosystems are only accessing the shallow, perched alluvial sand aquifers along the creek beds; these are recharged during rain events

when the ephemeral creeks are flowing. The EIS identified that there is an aquitard separating coal bearing groundwater and the overlying shallow alluvial sand aquifers.

In summary the work showed that:

- There would be NO loss of riparian vegetation, as has been suggested elsewhere in **Attachment A1**, through active monitoring and replacement planting prior to any vegetation failure occurring, complete loss of vegetation to bare ground would not occur. This will act to maintain bank stability, unless the agencies are of the opinion that bank stabilisation cannot occur within central Queensland coastal areas.
- ALL of the identified area would be offset, to remove any doubt that any net impact to terrestrial GDEs would occur, given the highly emotive nature of such systems. This had the unfortunate effect of convincing DES that the assessment was (we assume) biased or faulty (p155, 'That the proponent has appropriately concluded that an offset is required for the potential loss of 165ha of terrestrial GDE vegetation, supports my concerns.').

We note in the DES SAR the repeated claim (from DAWE) that the groundwater model had underestimated the impacts (e.g. p110, 126), regardless that the peer review concluded the model to be suitable. Importantly, it appears this is based on DAWE's contention that despite it finding that 'it had an increased level of confidence in the ability of the groundwater model to predict the likely direct and indirect impacts on MNES within, adjacent to and downstream of the project site. DAWE also acknowledged that the groundwater model had been peer-reviewed and that the peer reviewer concluded the model was generally suitable and did not identify any fundamental flaws which were likely to significantly affect model predictions', that nevertheless 'it considers the IESC to be the most appropriate source of advice with respect to the groundwater model and the associated technical analysis of the potential water-related impacts of the proposed action on MNES'.

In other words, the groundwater model, the independent peer review and the associated findings were completely disregarded in favour of the IESC advice, which was found to have employed insufficient reasoning in its findings and ignored extensive hydrogeological permeability fieldwork. This is a not a substantial excuse by the Department and the Minister in seeking not to approved the Project.

Despite a detailed response on this matter by CQC, it appears that no response was made by DES, and there is no evidence that the detailed response was considered by the Department or the Minister. Importantly responses have been ignored. The assessment oversimplified the impacts and appears to have ignored our valid concerns in favour of DAWE and the IESC's advice without due consideration of the actual science and work completed.

2.1.4.3 Impacts to stygofauna communities

Subterranean fauna are an important issue in Environmental Impact Assessment because a high proportion of subterranean species have geographically restricted ranges (short range endemism).

Stygofauna were collected from bores intersecting the alluvium near the Styx River during baseline studies but are likely to occur more broadly than the points of collection. The Styx River alluvium extends south from the collection bores, through ML 80187, and further south for another 12 km. This makes it unlikely that the stygofauna taxa sampled as part of the Project investigations are short range endemics, and these taxa are likely to be well represented in the areas surrounding the mine site.

The impact assessment regarding stygofauna was completed based on the high likelihood that stygofauna communities extend throughout the Styx River alluvium, as well as the alluvium of

Tooloombah Creek and Deep Creek, but that their distribution is limited to parts of the aquifer where EC is less than 7,000 $\mu\text{S}/\text{cm}$. EC in the central part of the aquifer at the mine site is higher (up to 37,400 mg/L) than in the coastal section near Broad Sound, or close to waterways, and is not suitable for stygofauna.

The risk assessment for impacts on stygofauna concludes that the drawdown in alluvium from aquifer dewatering could result in direct disturbance to stygofauna habitat. However, any drawdown is effectively limited to the Styx Coal Measures, with the impermeable layers between limiting any impacts on alluvium. As stated in Appendix 10a of the AEIS, 'Overall, impacts on stygofauna is acceptable, as they will result in the very localised loss of assemblages that are likely to be well represented in adjacent areas', based on a number of aspects, including that 'it unlikely that the stygofauna taxa sampled as part of the Project investigations are short range endemics.

Note also that the lack of significant impacts to stygofauna was explained at Section 1.4.3 of **Attachment H4**, which, as explained in Section 3.2.1 of this document, has not been taken into consideration.

2.2 Economic and Social Matters – Economic, Need for the Project, Social Matters, Safety, Cultural, Public, NGOs, Bruce Highway, GHG and Sediment

Minister, in line with Labor's policy I urge you to consider the potential *economic and social impacts* of this Project for the communities in which it is located, and for Queensland and Australia, more broadly. The Project involves the development of an open cut mine producing semi-soft coking coal, a necessary element for the production of steel and energy, which is still the most efficient refining method. The Project will produce 1.6 to 10.0 Mtpa of product coal, over a mine life of 20 years, employing up to 500 persons.

The nearby townships to the Project – St Lawrence, Ogmore and Marlborough – are in decline and urgently need economic and population stimulation which the Project can bring and sustain.

2.2.1 Economic

Minister, the Central Queensland Coal Project will operate for 20 years and employ up to 500 people, providing exports up to \$60.0 billion, Commonwealth taxes up to \$10.0 billion and State Coal Royalties up to \$22.0 billion, calculating a *Project valuation up to \$20.0 billion.*

The regional areas of St Lawrence, Ogmore and Marlborough desperately require the economic and social growth that the Project can deliver. Given the extraordinary importance of this Project to this region and communities, I urge you to approve its operation, with environmental conditions similar to those that previous Ministers have delivered for the operations of the 140.0Mtpa coal port of and Hay Point. These export terminals are contiguous to the Great Barrier Reef and are currently owned by the Queensland Government. The history of mining and maritime exports from North Queensland for eleven ports between Gladstone and Weipa has demonstrated that these activities can be conducted safely in close proximity to the Great Barrier Reef Marine Park. I therefore urge you, for the sake of our communities, to find a positive pathway forward that will satisfy the very important environmental considerations, while also meeting the needs of these important regional communities.

Economically the Great Barrier Reef is described by the Great Barrier Reef Marine Park Authority, “as an economic powerhouse, contributing more than \$6.4 billion each year to the Australian economy and around 64,000 full-time jobs”.

The CQC proposal is a greater economic power house exceeding on multiple levels the revenue and jobs generated per hectare. The Great Barrier Reef extending over 3,444,000 ha contributes some \$6.4 billion per year to the economy, providing 64,000 full-time jobs, while the CQC proposed mining lease extends over 1,915 ha and generates up to \$3.1 billion per year and 500 full-time jobs. This equates to the Great Barrier Reef generating \$1,858 per ha, whereas CQC generates up to \$1,618,799 per hectare being an 871 times multiplier. Similar logic applied to jobs presents a 14 times multiplier.

2.2.2 Need for the Project

Minister, a need for the Project has been described in great detail in the AEIS, and more recently in a news written by Senior Business writer for the Australian, Mr Nick Evans, on Tuesday, 9th August 2022. The article describes the need for new coal projects to be developed in Queensland to supply steel manufacturing businesses such as Tata Steel, one of India’s top steel producing companies. The article goes on to write:

“One of the world’s biggest steel makers will tell the Queensland Government a failure to develop new coking coal supplies will inevitably lead India producers to buy cheaper supplies from Russia despite sanction on Moscow. Tata Steel, which has vowed to stop trading with Russia, will use a meeting with the Palaszczuk government to say the State could double its coking coal exports to India over the next decade to meet surging demand for steel.

However, failure to bring on new volumes of coal will inevitably result in other Indian steelmakers opting to buy cheaper Russian volumes, meaning Australia misses out on an extra \$4.0 billion in annual export revenue from one of its largest trading partners.”

2.2.3 Social Matters

Minister, the decline of populations and towns struggling in regional and remote Australia is a major priority to the Government. It is a grim reality for the people of these areas. The populations of the St Lawrence, Ogmoo and Marlborough districts has rapidly declined in recent years, in part due to the removal of service jobs for rail and electricity employees, which has impacted negatively on the social fabric of entire communities.

Regional communities such as St Lawrence, Ogmoo and Marlborough need every opportunity to sustain and grow their population. A Project such as the proposed mine represents a once-in-a-generation opportunity for these communities to achieve a critical population mass that will make them viable. The essential services such as health would return to revitalise these towns, which in turn will make attractive destinations for our teachers and emergency services workers.

2.2.4 Safety

Minister, Marlborough, St Lawrence and Ogmoo communities have been in decline for the past few decades and with a decrease in volunteers for social and community associations and more importantly for the volunteers that join lifesaving organisations such as State Emergency Services (SES) or Rural Fire Brigades.

Marlborough is fortunate enough to still have one paramedic position allocated to the town which essentially services the region between Yaamba and St Lawrence, a 200km stretch of the Bruce

Highway, which is notorious for car accidents and fatalities. In the normal process of emergency calls. (through '000'), the paramedic is often the 'first responder' to attend to these highway or rural road accidents along with the Marlborough SES and quite often also the Marlborough Rural Fire Brigade.

As the community families and numbers continue to dwindle it is possible that there will be no volunteers and no paramedic position in Marlborough. The result is this section of road having to rely on professionals and volunteers from Rockhampton, 130 km in the south and perhaps Sarina, 180km in the north, exceeding the time available to save lives.

The CQC Mine Project has committed to encourage its workers to live locally and be part of the local communities to not only re-energise the communities but to increase the safety of the region for all residents and road users that travel along these roads.

The CQC Project is the only current project that can positively contribute to the safety of the region particularly the Bruce Highway and road users, where community volunteers can be the first responders to traffic accidents, bush fires and other disaster call outs.

2.2.5 Indigenous and Cultural Matters

CQC have engaged with the traditional owners of these lands who are the Darumbal People and Biju Krushak Kalyan Yojana People, and will continue to liaise with both groups when the mine is approved.

2.2.6 Public Submissions

Minister, extensive public consultation was carried out by CQC, from 2019 to now, with an overwhelming response from the public, *'why can't you start the project now - we need it'* and *'why can't you bring the project forward; the town will be dead by then'*.

The Mine will have a net positive impact on the Great Barrier Reef, decreasing sediment flowing from the mine site into the downstream water, by over 50%, or 50,000 tonnes over the life of the mine.

Environmental safety is achieved by the construction of a protection levee surrounding the Mine, in conjunction with properly installed and maintained sediment retention structures ensuring sediment load reduction of 50% annually. The levee and sediment retention structures are properly engineered, constructed, maintained, RPEQ signed off and approved under dam criteria regulations administered by the Department of Natural Resources and Mines. The current Great Barrier Reef will be protected and water quality improved.

More recently the northern and central sections of the Great Barrier Reef have seen record-high coral cover as reported by the Australian Institute of Marine Science. The reef is flourishing.

The CQC net positive impact and record-high coral cover will ensure commercial and recreational fishers and users of the GBR areas will maintain their living and lifestyle.

The mine is viable today and well into the future with current coal prices over \$US400.00 per tonne and continuing to rise.

Emissions from the Mine will be negligible and when combined with water quality improvements, community jobs and business benefits, should be seen by decision makers as reasons for mine approval.

Should this Mine not proceed it will mean the opening of projects in other parts of the World to substitute for the coal produced by this Project. The result will be a lost opportunity by the Project

employing up to 500 persons, and a loss of exports for the life of Project of more than \$60.0 billion, along with Commonwealth taxes up to \$10.0 billion and State coal royalties up to \$22.0 billion.

The proposed Project is a coal project, including coal for the production of steel, which is essential. The proposed Mine as detailed in other documents will protect the Great Barrier Reef by improving water quality, as well as facilitating steel production. The refusal of the Project is not a logical decision.

2.2.7 Impacts on Users of the Bruce Highway

CQC is concerned at issues raised regarding the Bruce Highway as none were raised during the many meetings and correspondence with the Department of Transport and Main Roads (DTMR) during May 2017, June 2017 and two meetings in November 2017. The only concern raised by the DTMR was that mining was not to occur on both sides of the Bruce Highway at the same time. CQC has accepted that condition which has resulted in all other matters to be essentially run-of-mine controls. Following the meetings in November 2017, the DTMR has accepted the stability analyses for the design of pit wall batters adjacent to the Bruce Highway. These matters raised in the SAR should be disregarded as they are not the concerns of the authorising authority, the DTMR, as they are every day run-of-mine activities.

CQC considers safety concerns highlighted by DES regarding blast fly rock and fumes from Project towards the Bruce Highway users are technical issues, where proven engineering solutions are already in use elsewhere and which will be adopted. Appropriate conditions applied to an Environmental Authority will ensure the safety of road users and nearby residents. Examples of operations safely operating adjacent to busy motorways are Peak Downs Coal Mine, Norwich Park Coal Mine, Mt Coottha Quarry and Boral Quarry, Burleigh Heads, which operates within **80 metres** of the Gold Coast M1 Motorway, one of the busiest motorways in Australia. See Figure 2-5 for Boral Quarry location, operating 80m away from Gold Coast Motorway and Figure 3 for Peak Downs Mine operating 100 metres away from Peak Downs Highway,



Figure 2-5: Boral Quarry, Gold Coast, 80 metres from M1 Motorway



Figure 2-6: Peak Downs Mine, 100 metres from Peak Downs Highway

2.2.8 Marine Pollution Bulletin, Sediment Report

A review of the Marine Pollution Bulletin, Sediment Report found peculiarities and assumptions which lead to conclusions not representative of the Central Queensland Coal Project. Unusual for this level of reporting, a sediment model was presented which did not take into account any field information, questioning the relevance of model results and author's intentions.

Available to the authors of the Sediment Report are all the reports, appendices and field data recorded and presented as part of the Central Queensland Coal Project EIS and AEIS, being publicly available from the Central Queensland Coal webpage and the DES webpage. They have been ignored.

The reported model assumes run-off water is completely clear before any of the releases are modelled, which is not consistent with real conditions. The CQC site alone, undeveloped, releases over 5,040 tonnes of sediment annually, and generally the Styx catchment releases 0.7 tonnes of sediment per hectare annually into the Great Barrier Reef from natural and anthropogenic sources.

Without live sediment conditions in the model, the reported model cannot properly predict or model interaction between existing and proposed sediment particles, loads and their behaviour before and after project inception. The model results are unrealistic.

Based on their dubious report, if the authors are to be believed, these major and irreversible changes must already be occurring. Since the project will reduce sediment loss from the site, the natural turbidity plumes shown in Figure 2-1, would be less rather than more intense.

2.3 Mandatory Balancing – section 136

Paragraphs 28 and 29 (**Attachment 1**) correctly identify that pursuant to s 136(1)(b) the Minister must consider environmental impact and economic and social matters.

Firstly, CQC submits that all the evidence provided but not referenced or relied upon by either in the IESC or the SAR report supports the finding that the Project does not amount to an impact pursuant to Subdivision F s527E; either as a direct consequence or as an indirect consequence these criteria require that the action of (the mining of coal at CQC) must be a substantial cause of harm, which will not be the case.

CQC repeats and relies on its detailed submission in Section 3 Environmental Considerations that conclude that there would be no impacts from the proposed release strategy on downstream waters, including in the GBR; and the AEIS demonstrates that there is a net positive benefit to the downstream receiving environment including the Great Barrier Reef Marine Park.

Secondly, the Minister is mandated to consider economic and social matters. The Minister has a duty to perform a statutory balancing exercise. CQC submits that any supportable balancing exercise must necessarily have considered all material between competing interests and objectives, and then give the appropriate weight to the benefits as opposed to a perceived risk.

CQC submits that if due and proper attention is given to these submissions (Economic and Social Matters) then the Minister must find that the balance is for the approval of the Project.

CQC submits that the importance of the benefits to people must be given its appropriate weight especially since the definition of environment under the Act supports the fact that "people and communities" are a part of the environment and so too are "the social, economic, and cultural aspects "of the people and communities, as follows:

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environment includes:

- a. ecosystems and their constituent parts, including people and communities; and
- b. natural and physical resources; and
- c. the qualities and characteristics of locations, places and areas; and
- d. heritage values of places; and
- e. the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).

2.4 Reconsider a Proposed Decision to Refuse Approval

Minister, a recommendation by the Secretary that the Project be refused approval under section 133 of the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), should be reconsidered and the Project given approval, not only for the evidence provided, but for the following reasons.

We draw your attention particularly to the EPBC Act 1999 - Section 133(7) - If the Minister refuses to approve for the purposes of a controlling provision the taking of an action by the person who proposed to take the action, the Minister must give the person notice of the refusal. It is also noted that; under section 13 of the Administrative Decisions (Judicial Review) Act 1977, the person may request reasons for the refusal, and the Minister must give them.

Minister, the consideration for a recommendation to refuse approval of the Project, as detailed in 'Attachment A1', is that the Project presents unacceptable impacts on the following controlling provisions:

- a World Heritage Property (section 12 and 15A)
- a National Heritage Place (section 15B and 15C)
- the Great Barrier Reef Marine Park (section 24B and 24C)
- a water resource in relation to a coal seam gas development or large coal mining development (section 24D and 24E)

Under section 136 of the EPBC Act, in deciding to approve or refuse the Project, and what conditions to attach to the approval, the Minister must consider the following so they are not inconsistent with Subdivision B, Division 1 of Part 9 of EPBC Act:

- matters of national environmental significance; and
- economic and social matters.

Minister, a review of **Attachment A1**, titled 'Consideration relating to Decision-making under Part 9 of the EPBC Act', being a recommendation to refuse approval of the action, relies on the Queensland Department of Environment and Science (DES) state assessment report (SAR) produced during 28 April 2021 and clarification from DES dated 11 May 2021, overall making a recommendation about the suitability of the project's impact on:

- a World Heritage Property
- a National Heritage Place
- the Great Barrier Reef Marine Park
- a water resource in relation to a coal seam gas development or large coal mining development

Minister, DES have stated: *“Having regard to the proposed action on listed MNES, along with proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the project impacts would be unacceptable.”* It would appear that the material provided by Central Queensland Coal to the Department has not been comprehensively reviewed, analysed or considered. The availability of technical engineering safeguards, and the willingness of the proponent to provide protection mechanisms to protect the Great Barrier Reef, have not been acknowledged, recognised and understood by the Department. They have been completely overlooked.

Minister, it is this recommendation by DES through the SAR, which the Department relies upon for a decision of refusal which Central Queensland Coal finds contentious, in particular reliance on reporting advice provided by the Independent Expert Scientific Committee during December 2017, July 2018 and December 2020, which failed to understand the detailed information provided to them.

Minister, consider all documents provided by Central Queensland Coal to DES, DAWE (now Department of Climate Change, Energy, the Environment and Water) during the course of assessing the Project from 2016 to today’s date, in a unbiased, fair and accurate manner. In particular consider the environmental safe guards, Project water quality and sediment delivery improvements to the Great Barrier Reef and economic benefits to the immediate local community, regional areas, state and the nation. More detailed consideration of Environmental Consideration and Economic and Social Matters are described in Sections 3 and 4 below.

3 Environmental Considerations

DCCEEW and DES assert that the Project will result in unacceptable impacts to the Great Barrier Reef (GBR) and the water resource (paragraph 2, **Attachment A1**).

Review of the **Attachment 1** – ‘*Considerations relating to decision-making under part 9 of the EPBC Act*,’ as well the Queensland Department of Science (DES) **Attachment D** – ‘*Environmental Impact Statement (EIS) Assessment Report under the Environmental Protection Act 1994*’ (**SAR**), reveals that the assertion that there will be unacceptable impacts derives from concerns about mine affected water releases (controlled, overtopping through the spillway, and dam failure), as well as the impacts on groundwater dependent ecosystems (**GDEs**) from groundwater drawdown from the Mine. As such, this submission focuses on these aspects of the decision and why the impacts to the GBR and the water resource are not unacceptable.

3.1 Basis of Decision

Attachment A1 sets out the reasons for the recommendation to refuse approval of the Central Queensland Coal (**CQC**) Project under section 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**). In summary, the Department considers that the proposed action will result in unacceptable impacts on the following controlling provisions:

- a World Heritage Property (section 12 and 15A) (addressed in paragraphs 28-42, 193-209)
- a National Heritage Place (section 15B and 15C) (addressed in paragraphs 28-42, 201-219)
- the Great Barrier Reef Marine Park (section 24B and 24C) (addressed in paragraphs 28-42), and
- a water resource in relation to a coal seam gas development or large coal mining development (section 24D and 24E) (addressed in paragraphs 43 to 49).

The Department considers that the proposed action will not result in unacceptable impacts on the following controlling provisions:

- listed threatened species and communities (section 18 and 18A), and
- listed migratory species (section 20 and 20A).

3.2 IESC Review

3.2.1 Overview and CQC Response

One of the key components of the assessment relied upon by all agencies was the advice from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (**IESC**) (**Attachments H1-3**). Three joint referrals to the IESC for advice by State and Commonwealth agencies were made: The first on the Environmental Impact Statement (**EIS**) (**Attachment H1**); the second on the revised EIS (v1) (**Attachment H2**); and the final on the Amended EIS (**AEIS**) (**Attachment H3**). The first two referrals to the IESC requested responses to three specific questions, and the final referral had two questions, specifically:

2. Question 1: Has the proponent considered and addressed the IESC’s previous advice and concerns (IESC 2018b-094 and IESC 2017-091):
 - Through the revised groundwater model and its predictions?

- Relating to the risks and impacts to water resources and water-related assets, including Tooloombah Creek and Deep Creek, GDEs, fish habitat and the GBRWHA?
3. Question 2: Advice is sought on whether the measures and commitments proposed in the revised documentation are appropriate to effectively manage impacts to water resources and water related assets?

The IESC provided six responses to each of the aforementioned questions (i.e. 12 responses in total).

CQC contend that the 12 responses given demonstrate that the IESC did not give adequate, and in some cases no regard to the documentation provided by CQC in the AEIS.

As such, CQC provided comments in response to the 12 responses given by the IESC (refer **Attachment H4**). However, CQC cannot find in any of the assessment material any responses or consideration of the points raised in **Attachment H4** (whereas the CQC responses to the earlier two IESC advice were summarised in the SAR), raising doubts with CQC as to whether the points raised in **Attachment H4** were ever considered (see also Section 3.2.2.1.1, below)¹. This is important, as the key premise of the CQC response (**Attachment H4**) was that the final IESC advice (**Attachment H3**) failed to adequately consider the significant body of new work and project changes detailed in the AEIS that were brought about in response to earlier concerns, and it appears that the IESC advice was provided despite (rather than based upon) these changes and the significant body of work undertaken.

3.2.2 Information not Taken into Account and Inaccurate or Misleading Statements

3.2.2.1 Information not taken into account

Information provided by CQC was not taken into account in the IESC advice (**Attachment H3**).

It should be noted that between the December 2018 version of the EIS and the AEIS, a number of project changes were enacted to further avoid and minimise impacts on environmental values (see Section 3.3. of Chapter 3, Volume 2 in **Attachment E**). Furthermore, the revised impact assessments undertaken for the AEIS were supported by extensive technical studies, 42 of which were new studies, commissioned especially to address previously stated concerns (the full list can be seen in Table 3-1, Section 3.2. of Chapter 3, Volume 2 in **Attachment E**). These included revised acoustic and air quality modelling, hydrological (surface water) modelling, a regional groundwater model, field studies on groundwater dependent ecosystems (GDEs), the geological properties of the alluvium of Tooloombah and Deep Creeks, a sediment budget for the site and upstream catchment, a fluvial geomorphology study, a surface water-groundwater interactions study and several ecological investigations. In addition, ongoing monitoring of surface water and groundwater quality enabled the supplementation of the previous existing baseline information, which further supported analyses associated with the impact assessment, and the continuation of baseline monitoring programs.

Information provided in the AEIS that was not taken into account in the third IESC advice (**Attachment H3**) included that:

¹ Paragraph 182 of **Attachment A1** notes that the CQC's response to the IESC advice (**Attachment H4**) was considered in the SAR on pages 152 and 153. CQC have never seen any evidence of their response being considered and Page 152 of the SAR simply states that "*The proponent responded to this (i.e. the IESC) advice outside of the EIS process. The proponent met with both the department and DAWE to discuss the advice. The proponent also provided three documents to the department and published the documents on the Central Queensland Coal website.*" Page 153 of the SAR does not discuss **Attachment H4** at all.

- While some changes to vegetation could occur, no loss of riparian vegetation would occur (based on highly conservative modelling, conservative offsets and mitigation measures). This was explained in detail in the AEIS and again in response to questions from DCCEEW in Section 2.3.3.4 of **Attachment F14**.
- Note that enhancement of the resilience of the riparian zone via weed removal and revegetation with non-groundwater dependent species, commencing from project inception (well before any groundwater impacts would propagate), was included as a mitigation measure. Early warning monitoring (foliage cover, leaf water potential, isotope and soil moisture potential etc.) was committed to occur from project commencement. Revegetation would of course, include both suitable succession species and long term replacement species where required prior to loss of stability from any lost tree, and where necessary structural features (e.g. staking with wood, live cuttings, etc.), to ensure that banks are never subjected to structural or erosional failure.
- That water quality downstream of the site would not change and that actual water quality is highly mineralised due to the catchment geology (enriched compared to default guideline values) in a number of key trace metals - aluminium, arsenic, chromium, cobalt, copper, selenium and zinc). The existing natural water quality is also highly turbid.
- That flow characteristics and the number of flow days would not change.
- That the ephemeral nature of the receiving waters, including existing recolonisation patterns after seasonal drying, would not be affected.
- That the geochemistry of the overburden and spoil was benign.
- That the defining characteristics of the subsurface environment means that aquifers will not be drawn down by the Project and will not supply flow to nearby waterways.

Furthermore, the IESC's failure to consider appropriate design and mitigation is a serious failure in their assessment. Despite modelling undertaken showing conclusively that downstream water quality (including the GBR) was not affected by the proposed release regime (over a 130 year historical climate record, including major cyclonic and rainfall events), the IESC (and other agencies) appeared to maintain a continued perception that any water release is equivalent to an impact, regardless of concentrations or flow. In fact, the assessment showed that sediment discharge would substantially improve (i.e. reduce) due to the Project, which is readily obvious (erosion and sediment controls, destocking, settlement basins and dams, improvement to currently degraded riparian and floodplain areas, total containment of the mine site within the water management system). To be clear, the CQC AEIS demonstrated no change to downstream water quality; no increase to sediment outflow (a reduction instead). Despite provision of repeated information expanding upon various points of interest to the agencies provided by CQC in many different forms and forums (meetings, responses to government material, revised strategies etc. – see material in **Attachment F**) it appears that the DCCEEW approach reflects that of the IESC, which is that *"The IESC cannot envisage any feasible mitigation measures, including offsets, that could safeguard these irreplaceable and internationally significant ecological assets and their associated water resources"*. None of the agencies appear to have reflected further on the CQC information provided where it differed from the IESC advice.

Notwithstanding that the AEIS found that there was no significant impact to the GBR matters (using the DCCEEW significant impact guidelines), the proposition that there are no *"feasible mitigation measures, including offsets, that could safeguard...significant ecological assets and their associated*

water resources” is flawed as there are a range of mitigation measures available (i.e. there are proven mitigation measures that can mitigate impacts used at other mines in the GBR catchment). Since the EIS process is supposed to provide sufficient information to support the application, but is not expected to have the final detailed design completed (this cannot occur prior to approval conditions being understood), then it is worth asking whether the IESC (and other agencies) are genuinely of the opinion, based on scientific evidence, that:

- It is not possible to design, construct and operate a dam that flows into the Great Barrier Reef catchment with a suitably low risk of structural failure? If this is the case, then no regulated structure should ever be built in a GBR catchment.
- It is not possible for any discharge towards the Great Barrier Reef to occur without impact? If this is the case, no discharge of any kind, from any enterprise, should ever occur in the GBR catchment.
- It is not possible to manage riparian areas predicted to have very minor impacts of decline in biocondition to avoid bank structural failure (i.e. sediment/turbidity impacts)?

As these issues appear to represent the crux of the IESC’s issues, then unless it is the case that these are just not possible (as posed by the above questions), then the IESC’s failure to consider appropriate design and mitigation is a serious failure in their assessment - i.e. the IESC did not conclude that the methodology was not sound, but that the *‘IESC cannot envisage any feasible mitigation measures...’*.

3.2.2.1.1 OWS advice regarding CQC’s response to the IESC advice

The IESC advice was adopted by the Department in the Proposed Decision Notice to Refuse the Application. Importantly, in considering CQC’s responses to the SAR, the Department consulted with the OWS, asking specifically whether the OWS ‘considered the document provided adequate information and mitigation measures to address the risks identified within previous IESC advice’ (**Attachment F19**). However, this request was based only on review of the *‘No Release Strategy’* document provided by CQC (**Attachment F18**), which was not intended to be read as a stand alone document, but instead in conjunction with the original water balance modelling and Mine Site Water Management Plan (OWS stated a key issue for rejecting the information was the lack of these elements). The ‘no release strategy’ document was not intended to address all of the concerns of the IESC (this was provided in **Attachment H4**), but rather, to demonstrate that, notwithstanding the finding of no significant impacts to MNES as a result of mine releases, there were numerous other options for water disposal available further to those that were provided in the AEIS.

Again, the Department has relied upon the IESC advice, and used inappropriate information to assess whether the IESC advice was satisfied. At no point in the documentation does it appear that CQC’s responses to the final IESC advice (**Attachment H4**) were considered. **Attachment H4** should have been provided to the OWS to review rather than, or in conjunction with, the *‘No Release Strategy’* document, as well as the original modelling and water management plan, as would have been obvious from the context of both documents.

3.2.2.2 Inaccurate or misleading statements

Information is inaccurately or misleadingly referred to in much of the IESC advice.

This is set out in full in **Attachment H4** and as such will not be repeated here. However, for illustration, some of the more obvious inaccurate and misleading statements include:

- IESC response 2 and 3, while acknowledging in passing that the groundwater model had been improved, focus entirely on the perceived model shortcomings and uncertainties. This conflated issues identified in the iterative modelling and review process with failure of the modelling outcomes, but ignored the independent peer review finding that issues identified during the iterative modelling process did not undermine the final model findings (all models will have areas for improvement, but this does not mean that all models are unsuitable). The concluding statement of the independent peer review taking all of this into account is that the assessment and modelling work has *“been carried out in a professional and rigorous manner that meets current industry standards. The modelling work has generally been completed in line with the Guiding Principles included in the Australian Groundwater Modelling Guidelines and in the IESC Uncertainty Analysis Guidance Note and we have not identified any fundamental flaws in the work which are likely to significantly effect model predictions*
- IESC response 5 states: *“The coal conveyor near Deep Creek will be a constant source of coal dust into the waterway, posing serious risks to water quality and other water-related assets. These risks are particularly severe during the low-flow period in the dry season when dilution effects are minimal.”* This statement is incorrect as it fails to recognise that the coal conveyor has been relocated specifically to avoid any impact or interaction with Deep Creek. The conveyor was relocated in response to the DAWE comments on the amended EIS and this is described in Section 16.4.8 of Chapter 16, and Section 3.6.4.3.10 of Chapter 3 of the AEIS (**Attachment G**). Specifically, the conveyor is now located at least 550 m west along the Bruce Highway from Deep Creek (at its closest extent). Covered conveyors with water sprays do not emit dust.
- IESC response 6 states: *“Assessment of groundwater dependence (3d Environmental 2020) indicated that some vegetation at Wetland 1, Forest Red Gums (*Eucalyptus tereticornis*) along Tooloombah Creek, and Forest Red Gums and Weeping Paperbarks (*Melaleuca fluviatilis*) along Deep Creek are GDEs. Drawdown, enhanced leakage and decreases in bank storage are **predicted to increase the numbers of low-flow and no-flow days in several pools** along Tooloombah and Deep Creeks, and impact on the condition of vegetation, particularly along Deep Creek (Eco Logical Australia 2020, pp. 21, 40, 59–61, 93–96)”. This is incorrect as **the assessment specifically concluded that the Project would not result in any changes to low flow or no flow days in any of the creek systems**. Instead, the assessment has found that some specific pools may reduce their persistence as a result of the Project, although the predictions indicate that removal of groundwater bank inflows to pools completely would have the effect of the pool drying out only during major drought conditions (a reduction of permanent pools to containing water 96% of the time).*

3.2.2.3 Implications

Several assertions are made in the IESC advice (**Attachment H3**) regarding the impacts, which directly contradict those concluded by CQCs independent specialist consultants, leading CQC to believe that the large body of work undertaken to support the AEIS was not adequately examined.

These items are detailed in CQC’s response in **Attachment H4**, which, as noted above, do not appear to have been considered. Evidence for this appears at page 45 of the SAR (**Attachment D**) which states *“The IESC’s findings and the proponent’s responses are addressed in section 4.15–MNES (sic)”*.²

² This should have referred to Section 4.16 – MNES.

Whilst Section 4.16 provides 57 pages of assessment drawing heavily on the IESC advice, only two sentences are provided that discuss the proponent's response to the IESC findings. These are given on page 152 which simply states that *"The proponent responded to this (i.e. the IESC) advice outside of the EIS process. The proponent met with both the department and DAWE to discuss the advice. The proponent also provided three documents to the department and published the documents on the Central Queensland Coal website."*

CQC contends that the last IESC advice (**Attachment H3**) was not based on a suitable review of the information within the AEIS, and that, with agencies relying heavily on the IESC advice, this has significantly influenced the results of the assessment. The importance of the IESC advice in influencing the proposed decision can be illustrated as follows:

- Comments made in the State SAR (**Attachment D**):
 - p48 – *"The advice provided by the IESC... has been valuable in understanding the potential risks of the project"... "I have reviewed the IESC advice and have considered this advice in the assessment of the EIS material. I consider the latest IESC advice highlights the potential unmitigated risks of the project to downstream environmental values."*
 - p108 - *" DAWE acknowledged in its assessment the substantial amount of work undertaken to inform the revised groundwater model and the additional studies undertaken by the proponent in the EIS. It considers that it had an increased level of confidence in the ability of the groundwater model to predict the likely direct and indirect impacts on MNES within, adjacent to and downstream of the project site. DAWE also acknowledged that the groundwater model had been peer-reviewed and that the peer reviewer concluded the model was generally suitable and did not identify any fundamental flaws which were likely to significantly affect model predictions. However, DAWE stated that it considers the IESC to be the most appropriate source of advice with respect to the groundwater model and the associated technical analysis of the potential water-related impacts of the proposed action on MNES".*
 - p111 – *"DAWE stated that it agrees with the IESC position"... "This view (i.e. DAWE's finding that the information provided was inadequate) has been informed by extensive technical advice from the IESC and advice from the Authority".*
 - p153 – *"The IESC advice was reviewed by DAWE and highlighted in DAWE's advisory agency response on the EIS. DAWE stated that they agree with the IESC..."*
 - p155 - *"I have reviewed the IESC advice and considered this advice in the assessment of the EIS material. I consider that the latest IESC advice highlights the potential risks of the project to downstream environmental values."*
- Comments made by DCCEEW in **Attachment A1**
 - Paragraph 103 – *"The IESC 2020 report warns of significant damage to the Great Barrier Reef as a result of the action"*
 - Paragraph 108 – *"The conclusion of the IESC report on the EIS was significant and irreversible impacts to the Great Barrier Reef and its associated habitats due to contaminated mine water and sediment flows"*

- Paragraph 109 *“The IESC and Queensland state assessment reports clearly identify that it would put the Great Barrier Reef in danger”³.*
- Reliance by NGOs and other submitters on the IESC material in their submissions advocating for refusal of the project as presented in **Attachment A1**
 - Paragraph 103 – *“Approximately 12,000 identical campaign submissions to the former Minister for the Environment (see example at **Attachment G1**). These submissions raise the following matters:...The IESC 2020 report warns of significant damage to the Great Barrier Reef as a result of the action...”.*
 - Paragraph 108 - *“On 22 September 2021, the former Minister for the Environment met with representatives of the Capricorn Conservation Council (CCC) to discuss their concerns about the proposed Central Queensland Coal Mine (Attachment G75). Specific to the Central Queensland Coal Project, CCC raised the following concerns:... The conclusion of the IESC report on the EIS was significant and irreversible impacts to the Great Barrier Reef and its associated habitats due to contaminated mine water and sediment flows.”.*
 - Paragraph 109 – *“The CCC stated that the proposed action is inappropriate because:...The IESC and Queensland state assessment reports clearly identify that it would put the Great Barrier Reef in danger.”*

3.3 Mine Affected Water Releases

As identified above, one of the two main reasons to refuse approval of the Project is the assertion that there will be unacceptable impacts derives from concerns about mine affected water releases. These can essentially be reduced to two risks: The potential risks of dam and levee failure, and the potential risks from releases from Dam 1.

Paragraphs 28-36 of **Attachment A1** discuss the reasons in terms of mine site releases for which it is believed that the Project would result in unacceptable risks to the GBWHA, GBRNHP and GBRMP. A detailed response to each paragraph relevant to environmental considerations (i.e. paragraphs 1 - 87) set out in **Attachment A1** is provided in Appendix 1 of this document.

3.3.1 Dam and Levee Failure

The potential risks of dam and levee failure appears to have been confused with the level of engineering design required, the level of flood immunity provided, and the probability of an overflow over the spillway. This has resulted in an overstatement of the risk of catastrophic failure.

3.3.1.1 Flood immunity and consequence category

In determining the design requirements for any structure, a consequence category assessment needs to be undertaken in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (the Manual). This considers only the consequences, with those having Significant or High consequence categories being designated regulated structures, requiring a detailed and rigorous design process, including design by a Registered Professional Engineer of Queensland (RPEQ), review and certification by an independent

³ Note that this comment has the effect of inflating the IESC advice as the DES advice relies upon the IESC material.

certifier, and approval of design plans. Note the consequence assessment explicitly includes the nature of the downstream environment (a point that does not seem to have been acknowledged in the assessment). The design requirements are then specified to adequately reduce the risk. The design requirements for Dam 1 have been complied with and include a spillway suitable to pass at least the 1:1000 year event (with rationale for the event size provided by the certifier, as required in the Manual). Note that the SAR (**Attachment D**) appears to accept this strategy, outlining a mechanism whereby a dam failure analysis, and requirements to meet the commitments made by the proponent (suitable material, construction methods, etc.) could be conditioned and required prior to construction, which have been committed to by CQC (SAR, p52).

The AEIS also specified that a Failure Impact Assessment would be undertaken as required as outlined in the 'Guidelines for Failure Impact Assessment of Water Dams', although initial design indicates that none of the dams exceed the 10m height triggering this assessment. Subsequently CQC has committed, regardless, to undertaking a Failure Impact Assessment.

Since the Dam 1 wall is essentially part of the flood protection levee, flood immunity for both has been considered together. According to the Manual, this requires a 1:1000 year flood immunity plus suitable freeboard, which has been incorporated into the design.

Design to a 1:1000 year event does not mean that the structures will collapse in an event above this design level. A 1:1000 year event has a 0.1% probability in any year. We also trust that the Department understands that the risk of a 1:1000 year event occurring is the same for every single project anywhere; and that this should be a defining feature for future approvals.

Note that the design standard for any structure (e.g. the 1:1000 year event, or 0.1% AEP) is set by engineering bodies and Government to achieve a suitable level of design and suitably reduce risks of structures failing. CQC have adopted all required design standards for the level of risk identified, and have committed to good design practice, including materials, to manage events through the system without actual wall failure. The design allows for up to the 1:1000 year event with no flood inflows to the mine site (i.e. excluded by the levee and dam walls) and the ability to pass without issue the 1:1000 year flow (or higher if required by the certifier) through the dam spillway. Events above this design standard may overtop flood levees, but would still be conveyed through the site without gross failure. Pits may fill with water. However, in an event of such magnitude, stop work requirements should not be considered to be an important factor to the Department. Note also that the modelling showed the site to appropriately manage all water flows for the actual climate record from 1889 to the present without failure or overtopping. Due to substantive engineering design and planning, the likelihood of any failure will be forced very very low, making the overall risk very very low. Fuse plug sites can be installed for emergency overflow.

It is also worth noting that risk, as specified in various sources including *AS/NZS ISO 31000 Risk Management*, requires understanding of both consequence AND likelihood. The assessment by DES appears to have ignored likelihood in assessing risk (in which case no regulated dam in Queensland should ever be approved, by definition); ignored that the Queensland Government's regulations and design requirements that explicitly factor in consequence, which has been used in the design; and ignored the work showing no impact to downstream waters – CQC can find no information from DES specifying why the modelling conducted by WRM Water and Environment was not acceptable.

To be clear then, the *consequence* of dam failure is not disputed, and has been taken into account in the design and management of the dam, and CQC have committed to not using any material that may compromise the safety of the dam wall (such as sodic materials). If the Department considers

that only the consequence be considered is risk assessment for dams, then all regulated structures in Queensland should be considered unsuitable, as their consequences are necessarily significant or high. This is clearly a ridiculous proposition, and DES does not appear to take this view based on their comments within the SAR.

3.3.1.2 Geotechnical Considerations

One of the key issues related to the structural engineering of the dams is the perceived use of sodic material in their construction. CQC has never proposed sodic or dispersive materials in the construction of any of the structures and is confident that there is sufficient non-sodic material on the site for all structures.

CQC understand there has been some confusion regarding this, as the geotechnical reports contained at **Attachment F7** could be read to imply that dispersive materials would be used for embankment batters. However, this ignores the following statements in those reports (**Attachment F7**) that 'Good quality, non-dispersive, impervious material is required for the dam embankment' and that the tested soils comply with this requirement.

The intention of the above statement was that dispersive material would need to be removed, and would be used as growth medium, with suitable amelioration, but **WOULD NOT BE USED FOR STRUCTURAL MATERIAL**. This was also made clear in other correspondence with the agency, and it is clear that the use of ameliorated sodic growth medium was immaterial to the dam structural stability and ability to withstand seepage or failure.

Extensive geotechnical investigations, including excavation of backhoe test pits and determination of soil Atterberg Limits and Emerson Dispersion Classification have been completed at the sites of Dam 1 (northwest of the Bruce Highway), Dam 2 (southeast of the Bruce Highway) and the Bruce Highway intersection. In addition to the geotechnical reports provided, over 100 exploratory drill holes have been completed and geological logs are available. Geotechnical logging indicates that throughout the mine site area there is topsoil overlying a 0.5 m thick layer of dispersive soil, overlying good quality, non-dispersive clays. These non-dispersive good quality clays will be used as an engineering construction material with proper quality assurance by an RPEQ Engineer. Suitable embankment material has the following properties:

- Liquid Limit 30% to 60%
- Plasticity Index 15% to 45%
- Emerson Dispersion Classification ≥ 4 .
- The first 1000 mm placed in contact with natural foundations shall have a minimum of 20% passing the 75 μm sieve.

By using the correct embankment material, excavating the dam cut off down to impervious material and ensuring proper compaction of fill at optimum moisture contact, dam failure will not occur. Design, construction and quality assurance will be completed by a RPEQ Engineer with significant experience in constructing major dams.

To be clear, and as stated in numerous meetings and correspondence, **NO DISPERSIVE MATERIAL WILL BE USED IN DAM EMBANKMENT CONSTRUCTION**.

To reiterate, the risks of dam break or seepage remain very very low, as appropriate for the type of structures proposed.

3.3.2 Risks from Releases

Using the MNES Significant Impact Guidelines 1.1 (DE 2013a) CQC demonstrated in the AEIS that there would be no impacts from the proposed release strategy on downstream waters, including in the GBR. Despite this, there is a continuing perception that releases from the site will be detrimental to the environment despite the AEIS demonstrating that there will be no changes to the downstream receiving environment or water quality.

Contrary to the popular view propagated by the agencies, the AEIS demonstrates that there is actually a net positive benefit to the downstream receiving environment including the Great Barrier Reef Marine Park (GBRMP). Sediment load from the CQC project site will be reduced conservatively by over 50% (from 5,037 t/year, reduced to 2,297t/year) – a reduction of 2,740t/year which represents 2.74% of total Styx Basin load.

Note that controlled releases have been designed to only occur during periods where there is flow in the receiving waters. The volume of discharge will be constrained by the amount of flow in the receiving waters. Any flow over the spillway would only occur during higher than normal flows in the downstream environment. Discharge rules have been developed (using modelling drawing on 130 years of climatic records) to ensure that outflows from the site are within the assimilative capacity of the downstream waters. The modelling showed that when discharging within the discharge rules, as well as rarer flows over the spillways in larger events, water quality remained within the assimilative capacity of the downstream environment, and all parameters were well within the range of the typical historical receiving water concentrations (i.e. within the derived site-specific guideline values for the site).

3.3.2.1 Water Quality

Downstream water quality is within the range of natural variability under all release scenarios, and hence will not cause adverse impacts to MNES. Therefore any releases from site will not cause environmental damage. Despite this, the SAR (**Attachment D**) and **Attachment A1** imply that any releases will have an impact regardless of level of flows or water quality, or the findings of the significant impact assessment (which were done in accordance with the MNES Significant Impact Guidelines 1.1 (DE 2013a)).

As specified in Table 16-74 of AEIS, Volume 2, Chapter 16 (**Attachment G**), the potential impacts of controlled releases and uncontrolled overflows from the mine water management system was modelled for six water quality parameters, namely EC, sulphate, arsenic, molybdenum, selenium and vanadium. The first two were modelled as they are commonly adopted indicators of potential water quality impacts due to mining, and the latter four selected based on findings of the Geochemical Assessment of Waste Rock and Coal Reject Report (see AEIS, Volume 2, Appendix A3b (**Attachment G**)). The results of the modelling were assessed against the background concentrations in receiving waters. The modelling was conducted for three climatic scenarios, adopting an 18-year period from the climatic period used in the overall water balance modelling to that best representing the relevant climatic conditions, as follows:

- the 1%ile (very wet) climatic conditions adopted the 1890 – 1907 period
- the 10%ile (wet) climatic conditions adopted the 1938 – 1955 period and
- the 50%ile (median) climatic conditions adopted the 1970 – 1987 period.

The analysis was conducted for each day that a controlled release or uncontrolled overflow occurred. The days for which there was no release of water from the water management system (i.e. the majority of the time) were not assessed.

The results showed that all parameters were well within the range of the typical historical receiving water concentrations.

3.3.2.2 Sediment release and transport

Paragraphs 37-41 of **Attachment A1** discusses the findings of a peer reviewed research article published in the Marine Pollution Bulletin investigated the potential environmental impact of the proposed Central Queensland Coal project Great Barrier Reef and adjacent ecosystems. Specifically, the research evaluated the dispersal potential of mine-affected waters from the proposed Central Queensland Coal project to Broad Sound and the adjacent Great Barrier Reef through the Styx River.

CQC has reviewed the paper discussed in the paragraphs 37 – 41 of **Attachment A1**. While the department acknowledges that assumptions were made (paragraph 41, **Attachment A1**), it appears they have failed to note several very important elements of the study – in essence, while an interesting examination of potential flow patterns, the substantial issues with the paper that appear to have not been considered are:

- The model has not been validated for tide or flow patterns in the inshore area the model is focused on (the validation is made over 200km away and well outside the Broad Sound bay and nearshore areas)
- The model did not validate sediment plume dynamics, most importantly ignoring the very high existing sediment loads in the region, which contain a high proportion of clays in existing runoff.
- The impacts in the paper focus on direct smothering of seagrasses from settlement of sediments and light attenuation, making the assumption that fine particles reaching seagrass areas, when released from 20km up to 40km seaward from the Project (outside of the Styx River) automatically confirm that substantial impacts will occur.
- No consideration of mine inputs (i.e. the predicted reduction in sediment of 5,037 t/year for the Project under average climatic conditions), The assessment also considered non-average, very wet, climatic conditions when sediment might be expected to mobilise more readily and found that, even under non-average wet and very wet conditions, the sediment load from the Project will be less than that of current baseline conditions) or existing sediment conditions is made, even though a simple review of available satellite imagery shows substantial sediment plumes are frequent occurrences in the Broad Sound area, extending well across the region covered by the model – refer to example satellite imagery in Figures Figure 3-1 to Figure 3-3 below (Sentinel 2A imagery) – note that relatively random selections have been made, with no effort to select more turbid images.

If the authors are to be believed, these major and irreversible changes must already be occurring. Since the project will reduce sediment loss from the site, the natural turbidity plumes shown below would be less rather than more intense.



Figure 3-1: Turbidity plumes: 8 April (left) and 28 April (right) 2017, showing natural colour (first) and the red-edge band (second, B5, black and white)

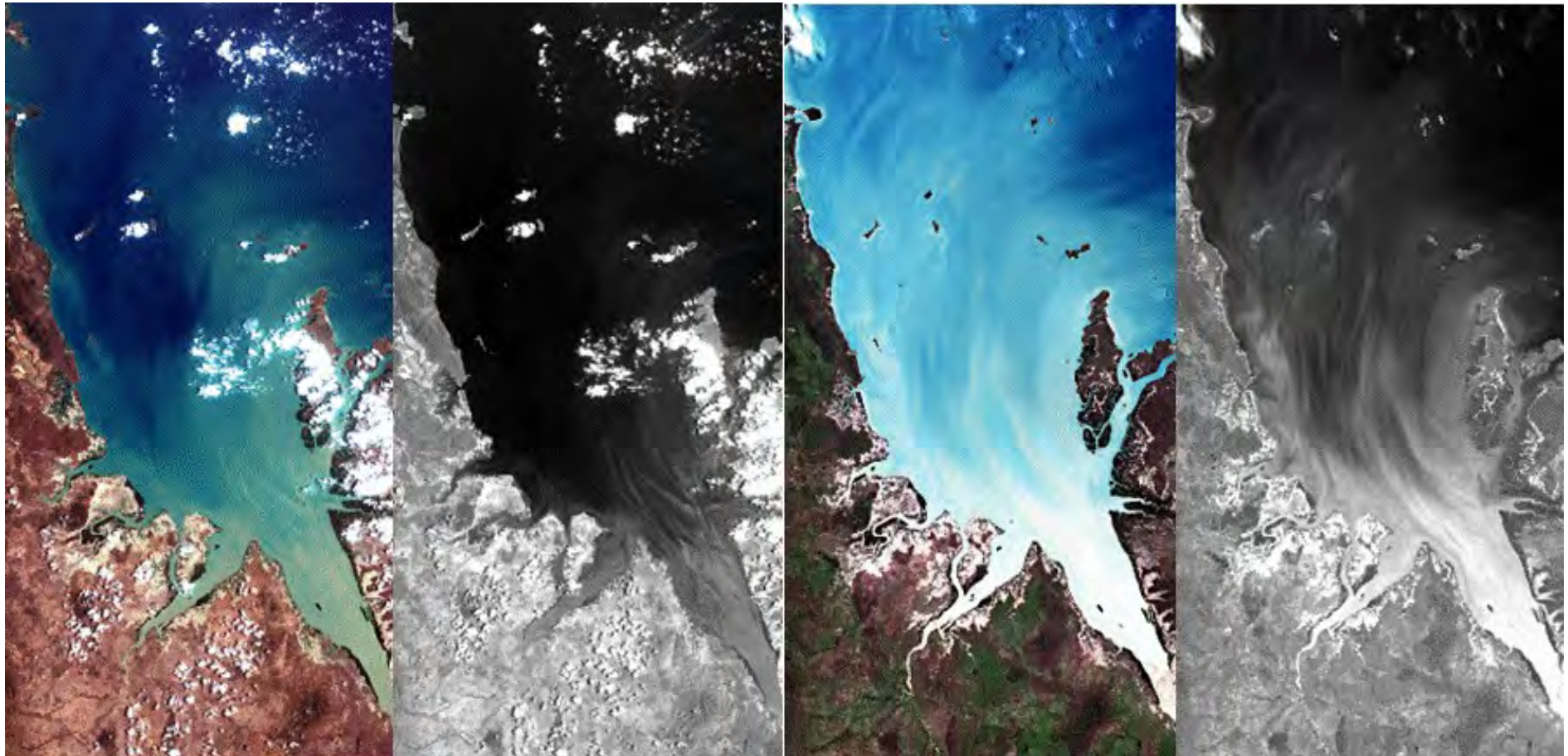


Figure 3-2: Turbidity plumes: 24 December 2019 (left) and 12 April 2021 (right), showing natural colour (first) and the red-edge band (second, B5, black and white)

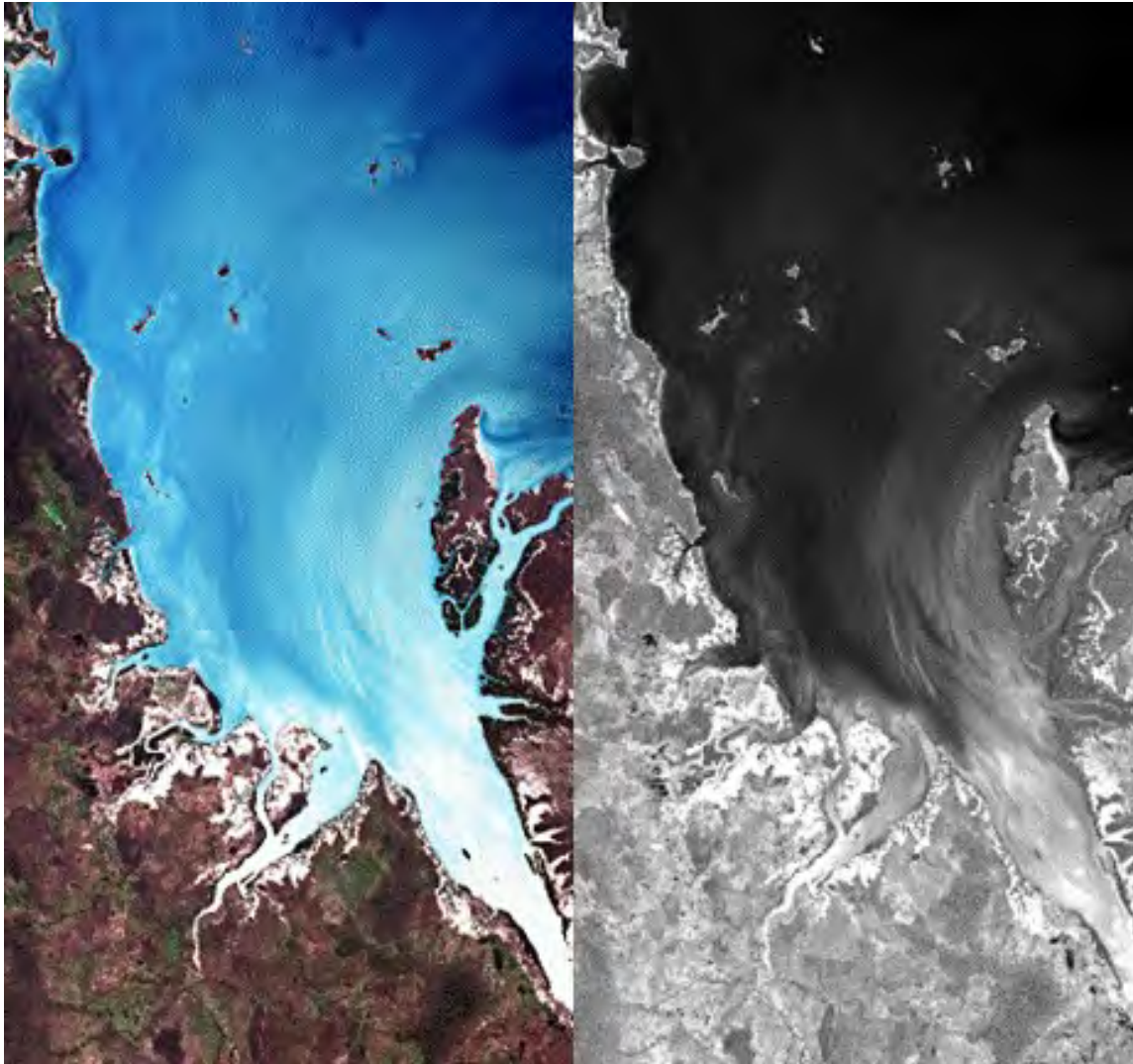


Figure 3-3: Turbidity plumes: 11 June 2022, showing natural colour (first) and the red-edge band (second, B5, black and white)

3.3.2.3 No-release strategy

The catalyst for the provision of the 'No Release Strategy' (**Attachment F18**) was as follows:

- CQC provided a detailed assessment of water releases, which found no impact from the water release strategy, in the AEIS. It should be noted that the release scenarios presented in AEIS were formulated on the basis of the impact assessments revealing that there is no expected negative impact to downstream water quality or environmental values as a result of controlled (or uncontrolled) releases from the Project.
- Subsequently, the IESC drew unfounded and erroneous conclusions from this work, and provided advice on this basis, that the Project should not proceed (**Attachment F3**). It is clear that key information was not considered or simply disregarded out of hand and CQC have provided advice to this effect (see **Attachment F4**). The erroneous advice from the IESC was then reflected in the SAR. Importantly, it was clear that any releases were viewed as an impact regardless of any consideration of flows or quality.
- As such, CQC prepared the 'No Release Strategy' document (**Attachment F18**) to identify whether further reductions in water releases could be adopted (they can, are feasible, and demonstrable). This was intended to overcome the reluctance of any agency to consider the Project on its merits (instead considering any discharge to have an impact).

The OWC were asked by the Environment Approvals Division to assess whether the 'No Release Strategy' document (**Attachment F18**) addressed the IESC's concerns. Specifically, the Environmental Approvals Division asked "*Question 1: Does the OWS consider this document (Central Queensland Coal Project No Release Strategy), provides adequate information and mitigation measures to address the risks identified in the IESC's advice?*" and the OWS document (**Attachment F20**) states that "*This document, prepared at the request of the Environment Approvals Division, outlines the Office of Water Science's (OWS) technical advice on the Central Queensland Coal project's proposed mitigation measures, contained in the No Release Strategy (dated 23 July 2021).*"

CQC contend that the premise of this request for advice was incorrect, as the 'No Release Strategy' document was not intended to be read as a stand alone document but should be considered in conjunction with the original water balance modelling and Mine Site Water Management Plan. The 'no release strategy' document was not intended to address all of the concerns of the IESC (this was provided in **Attachment H4**), but rather, to demonstrate that there were numerous other options for water disposal available further to those that were provided in the AEIS. That is, CQC refutes that the OWS assessment considered the relevant information, and instead the OWS appear to have assessed the 'No Release Strategy' document without consideration of other important information to which it was essentially an addendum.

It appears that the OWS has missed the point of the 'No Release Strategy' document, which was to demonstrate that notwithstanding there would be no significant impacts to the receiving environment and there are a number of feasible and common options available to further reduce water volumes on site without the need for discharge.

Essentially however, the 'No Release Strategy' document demonstrates that there are a number of options and mechanisms that can be utilised to decrease the requirement for controlled releases, and, if it assists the approval of the Project, then CQC would be happy to accept conditions to that effect. This was made abundantly clear in the Document.

The additional information, responses from OWS, and CQCs responses to these is provided in Table 3-1 overleaf.

Table 3-1. OWS No Release Strategy Assessment Responses

Proponent Additional Information (in 'No Release Strategy')	OWS Response Summary	CQC Response (this response document)
<p>Water levels within Dam 1 will be reduced prior to the wet season each year to prevent uncontrolled releases of mine affected water occurring during wet years</p>	<p>The proponent has not provided an updated water balance or surface water management plan. The OWS also noted that the proponent indicated that a revised water management plan and water balance model would be submitted once the project received approval (page 8, Attachment F18). In the absence of these plans, the OWS noted that there was no modelling or data to support the proponent's adaptive management strategy</p>	<p>As noted above, there was no need to prepare an updated water balance model or surface water management plan, as the 'no release strategy' document was not intended as such. The findings of the impact assessment were that there is no significant impact to downstream environments and the 'no release water strategy' document demonstrated that CQC could further reduce discharges, thus resulting in a further lessening of potential impacts to downstream environments. Stating that these plans were absent is simply false, and the nature of the assessment in the 'no release water strategy' document was made clear, although apparently ignored by the OWS.</p> <p>Note that if the OWS was referring to lack of information related to the numerical analysis in the 'no release strategy' document, then at no time was this information requested, and at no time was it communicated to CQC that this was fundamental to assessing the document. Clarification of the methodology could have been provided on request if we were made aware, and further if the OWS is adamant that an entire updated and detailed water balance was critical to the decision we would have provided this information, although we refute that it was required, and it should be noted that we did commit to undertake a new water balance model prior to construction commencing on the site.</p> <p>To clarify the method used, CQC took the outputs from the water balance model to determine the effect of a reduction in volume in Dam 1 prior to the wet season on the overflows, using the method adopted (and accepted) in virtually all water balance models (irrigation to meet evaporative demand) demonstrating that there was adequate water demand potential to consume this water.</p>
<p>Water releases from Dam 1 will be significantly reduced through adaptive</p>	<p>An updated water balance was not provided and OWS cannot confirm if the reductions stated will reduce the amount</p>	<p>See above regarding revised water balance modelling.</p>

Proponent Additional Information (in 'No Release Strategy')	OWS Response Summary	CQC Response (this response document)
<p>management practices (page 3, Attachment F18). In a high rainfall event or period, controlled releases could be released into the open cut pit for dewatering rather than into Deep Creek</p>	<p>of mine affected water being discharged into the receiving environment by controlled and uncontrolled releases.</p>	
	<p>It is unclear if transferring Dam 1 water to the open cut pit would cause impacts to mining operations. This strategy could lead to stop work and OWS is not confident that it is an adequate mitigation approach.</p>	<p>As was made clear in the 'no release strategy' document, transferring Dam 1 water to the open cut pit is not the main form of water management proposed, but rather an option to be used in extreme events should it be required, as is common practice in other mines in Queensland. To be clear this is not proposed, nor required, as a routine water management measure, and was never stated to be such.</p> <p>Regarding the potential for impacts to mining operations leading to stop work effects, for the majority of the mine life there will be areas of the pit not being mined that would be available for this storage, and suitable demand that could be utilised in the dry season to draw down this storage.</p>
	<p>The methods used to dewater the open cut pit, such as the irrigation of waste rock stockpiles, could lead to increased turbidity in the receiving environment and would require ongoing mitigation.</p>	<p>Given that irrigation of spoil piles would be on-site rather than off-site, with irrigation within the daily evaporative potential (i.e. all water would be expected to evaporate, and irrigation would cease prior to causing any runoff), and that any runoff would be contained within the water management system, it is hard to understand how this would lead to increased turbidity or mobilisation of these metals in the receiving environment (note that aluminium, arsenic and selenium are elevated in the receiving waters (compared to default guideline values) as a result of the mineralised nature of the catchment, and how this could occur is not specified). If the 'no release strategy' document was read in context with the water management plan and water modelling reports, this would have been clear.</p>
	<p>The mine spoil also has elevated concentrations of aluminium, arsenic and selenium, which could be mobilised through irrigation</p>	<p>The potential for increased concentration of these elements was investigated in detail, finding no changes to receiving waters. The OWS was not requested to review this information in context with the 'no release strategy' document.</p>

Proponent Additional Information (in 'No Release Strategy')	OWS Response Summary	CQC Response (this response document)
	<p>methods applied to the spoil. It is unclear if the proponent intends to irrigate the mine spoil.</p>	<p>Finally, we cannot understand why the OWS states that irrigation of mine spoil is unclear – this was clearly identified in the 'no release water strategy' document.</p>
<p>Irrigation of waste rock stockpiles would occur during the wet season where evaporative demand allows (page 4, Attachment F18).</p>	<p>The proponent has not provided adequate information regarding the quantity of water being used for irrigation and if this surplus water will be used to irrigate only on site.</p>	<p>Refer above – note that if the OWS had considered the 'no release water strategy' document in the context of the water management plan (as it should have been), then it would have been clear that it was only to be irrigated on site, and all areas fully contained within the water management system, notwithstanding that irrigation would have ceased prior to causing any runoff.</p>
	<p>The addition of irrigation water during any rainfall event will increase the run-off in the catchment area within the tributaries of the Styx River.</p>	<p>It was made abundantly clear that this would only occur where required, and that such irrigation would be undertaken within the evaporative demand on the day – i.e. causing no runoff, with irrigation occurring within the site. It was not proposed to irrigate during a rainfall event as this would not make sense (i.e. it would not be within the evaporative demand on the day).</p>
	<p>During wetter periods, this irrigation could lead to increased sedimentation and mobilisation of mine contaminants into the receiving environment and the GBRWHA.</p>	<p>While this may increase runoff in subsequent rainfall events, the net effect would be to enhance the evaporation of water – i.e. a net water loss to the system, which was the intent. It would not result in increased water in the system (how this would possibly occur is unknown) and if read in the context of the water management system (as it should have been), it would have been clear that this would occur within the water management system (not in external areas of the catchment). Exactly how this would result in increased mobilisation to the environment is unclear in the extreme.</p>

Proponent Additional Information (in 'No Release Strategy')	OWS Response Summary	CQC Response (this response document)
<p>Water evaporators could be used to quickly dispose of excess water as needed (page 5, Attachment F18).</p>	<p>The proponent has not provided any information on the method and approach for evaporating water.</p>	<p>Detailed information on the use of water evaporators was not provided as these were not the main form of water management proposed, but rather an option to be used in the event excess water reduction is required. The OWS should know that substantial increases in water evaporation can be achieved through the use of these systems.</p>
	<p>Evaporating mine affected water would result in contaminated salt by-products, which would require storage and disposal. This approach will leave a long-term legacy impact.</p>	<p>To be clear, the term 'water evaporators' is a common term used to describe mechanical water evaporators (i.e. fans), NOT water evaporation ponds (which are commonly referred to as 'water evaporation ponds'). These systems are used in a number of settings in Queensland and could achieve quite easily a reduction of 5-10ML/day during the late dry season if additional water usage were required. This would have the effect of reducing overflows or releases by the same amount.</p> <p>These systems remove water through evaporation, leaving behind the other components of the water (salts etc.). Should the dam be say 95% full, then it would increase salinity by at most 10%. Since it would be undertaken when the dam was full rather than low, salinity would be lower, and so the increase in absolute terms would be relatively low (e.g. increase from 5mS/cm to 5.5mS/cm).</p>
	<p>The Queensland Government's Coal Seam Gas Water Management Policy states that evaporation dams, essentially, are not permitted as a water disposal option. Consequently, the use of water evaporators may not be an option to manage excess water on site.</p>	<p>To be clear then, no evaporation dams are suggested and 'contaminated salt by-products requiring storage and disposal' would not be required. The 'no release strategy' document made clear this was an additional option that could be considered, but that the calculations in the document did not rely on this method.</p> <p>Note that the Project is not a Coal Seam Gas Project. As such, the Queensland Government's Coal Seam Gas Water Management Policy is not relevant. Regardless, the intent of that policy is to prevent dams for which the sole purpose is evaporation. As described above, that has never been the intention (stated or otherwise).</p>
<p>Water could be provided for use in</p>	<p>The use of an RO plant will require the disposal of the</p>	<p>The response to this item is essentially identical to that for water evaporators above – i.e. an RO plant would extract a volume of water, with salts remaining within Dam 1, and avoiding any</p>

Proponent Additional Information (in 'No Release Strategy')	OWS Response Summary	CQC Response (this response document)
<p>cattle grazing and crop irrigation with an allowance to use a reverse osmosis plant (RO plant) to treat water to a level suitable for this use (page 5, Attachment F18).</p>	<p>reject brine produce from the treatment process.</p> <p>More than half of the volume of water (56%) processed by the RO plant would become reject brine.</p> <p>The proponent has not provided any information on how the brine will be stored or disposed.</p> <p>This approach will leave a legacy of long-term management required to deal with the reject brine produced from the treatment process.</p> <p>This approach will lead to the treated water being discharged into Deep Creek and result in impacts to aquatic environments within, adjacent to and downstream of the project site.</p>	<p>and all brine reject or evaporation ponds. The calculations in the 'no release strategy' document do not rely on the use of an RO plant for the reductions found, and CQC do not and have never intended to utilise an RO plant in a manner that would reduce the water in Dam 1 to a highly salinized level (if this could even be accomplished given the volumes involved).</p> <p>The other responses can be summarised as follows:</p> <ul style="list-style-type: none"> • The efficiency stated by the OWS appears to be very low, although this is immaterial to the findings (refer above) • There will be no brine storage or disposal required and so no legacy of long-term management required • Given the above, no treated water will be discharged into the creek. Importantly, these methods give flexibility to the system providing for options to achieve stricter release conditioning, but would in any case only be used where the dam volume is high, not low (i.e. lower salinity), and the resulting concentration of salts would be minimal and well within the range already seen in the dam due to drier conditions (where these options are not required).
<p>Release of non-mine-affected water could be done from sediment</p>	<p>This mitigation measure contradicts what the proponent states to be the</p>	<p>The adaptive management strategy is related to releases from Dam 1, as was made clear in the 'no release strategy' document, and the management of sediment (non mine affected water)</p>

Proponent Additional Information (in 'No Release Strategy')	OWS Response Summary	CQC Response (this response document)
<p>dams instead of Dam 1 (page 5, Attachment F18).</p>	<p>adaptive management approach; that there will be no release of water from the mine into the receiving environment.</p>	<p>releases would have been clear if the OWS had reviewed the document in context with the water management plan.</p> <p>Note that CQC have proposed release conditions for ALL water releases from the site, regardless of source (i.e. mine affected water and non-mine affected water). Further, this option is not required to achieve the reductions stated in the document, but instead, and similar to the water evaporators and RO options above, are included as additional options to provide flexibility should they be required. The approach is to preferentially release treated sediment basin (non-mine affected water) to Dam 1 waters, BUT ONLY in compliance with release criteria.</p> <p>To be clear, this mitigation measure DOES NOT contradict the adaptive management approach, and appears to be a result of the OWS' lack of contextual information (considering the 'no release strategy' document without the required contextual documents, including water management plan).</p>
<p>Controlled releases could be limited to only very wet years, for example a 1 in 1000-year rain event (page 3, Attachment F18).</p>	<p>This mitigation measure contradicts what the proponent states to be the adaptive management approach and there being no impact as a result of the project</p>	<p>The 'no release strategy' document did not at any stage state that no releases would occur from the site. The document, as stated above, outlined feasible methods to substantially reduce water releases, and through simple strategies could reduce these so that releases only occur in very wet years.</p> <p>Further, CQC cannot understand why a release is automatically assumed to have an impact, regardless of any consideration of flow or water quality. It is understandable for the OWS to make this conclusion perhaps, as the important contextual documents were not considered as part of the review.</p>

3.4 Groundwater Drawdown

Paragraph 43 of **Attachment A1** states that the SAR concluded that the Project would result in unacceptable risks to water resources in relation to a large coal mining development. DES based this recommendation on:

- the perceived significant impacts of groundwater drawdown to groundwater dependent ecosystems (GDEs) and stygofauna communities, permanent pools along Tooloombah and Deep Creeks and stream/riparian biota, and
- the perceived significant downstream impacts to the Great Barrier Reef resulting from sedimentation associated with riparian habitat loss along Tooloombah and Deep Creeks (discussed above).

In essence this relates to three key perceived processes:

- drawdown impacts directly on creek flow and pools
- vegetation impacts to terrestrial GDEs and riparian areas, in particular in the 165ha of identified *potential* impact area and
- impacts to stygofauna communities.

With reference to the three perceived impacts, CQC contend that:

- the work conducted by CQC appears not to have been considered properly (or not considered at all). The CQC studies show impacts would NOT be significant, and result in NO net loss of vegetation in GDE areas, with A REDUCTION in the release of sediments into the GBRWHA
- the Department did not consider all of the relevant information, including the proponent's responses (**Attachment F1, F3**, and see also **Attachment F14** [see **Attachment A1** – Paragraph 46]), and CQC contends that they failed to assess some of the information, relying instead on advice from the IESC to an unreasonable degree given the flaws outlined in that assessment (see **Attachment H4**).

It is important to understand that the assessments were conservative due to the sensitive nature of the environment, which is the right and proper way to approach such an assessment (refer to Attachment G, Volume 2, Chapter 16, Section 16.7.7.4 of the AEIS). It is highly unfortunate that the IESC, DES and the department have chosen to ignore the details of the work we have done, and have instead settled on the headlines rather than considering the details, which show that the widespread impacts suggested by the agencies will not occur. For example, the assessment showed there could be some impacts within an area of 165ha of terrestrial GDEs (but not impacts to all 165ha), and that this could be mitigated with relatively simple measures. The agencies instead appear to have assumed that 165ha of GDEs will be irretrievably lost, with other flow on impacts. If the material is read and considered, this is clearly not the case.

3.4.1 Drawdown Impacts on Creek Flow and Pools

The two creeks within the mining area are ephemeral and flow only during rain events and possibly for some time after as they draw on accumulated water in the shallow alluvial sand aquifers. Thereafter they revert to dry creek beds with disconnected permanent pools. The fresh water alluvial sand aquifers, which are recharged from creek flows, and the permanent pools, retain water because

they are underlain by more or less impermeable clay deposits, or in some cases by the equally impermeable bedrock.

The fine grained Cretaceous sediments (Styx Coal Measures) forming the bedrock contain saline water (>20,000 ppm) derived from the original seawater at the time of deposition. Groundwater flow rates will be very slow due to the very low permeability of the rock. Excavation of the mine will cause the water table to be drawn down in the vicinity of the void.

For drawdown to have an effect on flow in creeks, the groundwater level must be at or above the base of the creek, and thereafter (due to the project) be drawn down. The groundwater table is below the level of the creeks and so drawdown will have no appreciable effect. For Deep Creek, recharge from storms is lost into the banks (permeable material) and so no bank storage return occurs. When drawn down, any Styx Coal Measures water would still not influence the creek (i.e. no change). The work predicts some reduction in pool permanence for a small number of pools in the lower reaches, but not widespread drying out.

There is no aquifer in the coal measures. The highly saline water table (20 000 ppm) underlies Tooloombah and Deep Creeks by about 10.0 m. The Coal Measures have an average permeability of 3.96×10^{-8} m/sec which is effectively impervious.

The perched surface aquifer which occurs in isolated creeks pools and localised patches of sandy alluvium is separated from the highly saline Coal Measures water table by a significant aquitard comprising Tertiary Clay and bedrock.

Despite a detailed response on this matter, it appears the no response was made by DES, implying the matters were not considered. The DES assessment oversimplified the impacts and appears to have ignored our valid concerns in favour of DAWE and the IESC's advice without due consideration of the actual hydrogeological and comprehensive field permeability testing work completed.

3.4.2 Vegetation Impacts to Terrestrial GDEs and Riparian Areas

Conservative assessments of the potential impacts to riparian groundwater dependent ecosystems (GDEs) predicted that an area of 165 ha could potentially be affected. However, the impacts to the majority of the 165 ha were predicted to be a loss of bio condition, and not a complete loss of the vegetation as is implied in the DES assessment report. Of the 165 ha, 17% was predicted to have the potential to have some areas with loss of vegetation, should mitigation measures not be undertaken. However, mitigation measures were proposed to minimise this possibility. As such, the impact assessments undertaken for the EIS conclude that there would not be follow on impacts on the downstream environment as a result of any impacts to GDEs.

Mitigation measures that were proposed included:

- enhancement of the resilience of the riparian zone via weed removal and revegetation with non-groundwater dependent species, commencing from project inception (well before any groundwater impacts would propagate).
- Early warning monitoring (foliage cover, leaf water potential, isotope and soil moisture potential etc.).
- Revegetation prior to vegetation loss. This would of course, include both suitable succession species and long term replacement species where required, and where necessary structural features (e.g. staking with wood, live cuttings, etc.) to ensure that banks are never

subjected to structural or erosional failure. This is standard rehabilitation practice at all coal mines.

The coal seams typically contain a small amount of connate water and can be regarded as minor aquifers, although the groundwater is invariably highly saline and as such unsuitable for use by groundwater dependent ecosystems. The hydrogeological setting is typical of Bowen Basin coal mines. The reality is that any riparian groundwater dependent ecosystems are only accessing the shallow, perched alluvial sand aquifers along the creek beds; these are recharged during rain events when the ephemeral creeks are flowing. The EIS identified that there is an aquitard separating coal bearing groundwater and the overlying shallow alluvial sand aquifers.

In summary the work showed that:

- There would be NO loss of riparian vegetation, as has been suggested elsewhere in **Attachment A1**, through active monitoring and replacement planting prior to any vegetation failure occurring. This will act to maintain bank stability, unless the agencies are of the opinion that bank stabilisation cannot occur within central Queensland coastal areas.
- ALL of the identified area would be offset, to remove any doubt that any net impact to terrestrial GDEs would occur, given the highly emotive nature of such systems. This had the unfortunate effect of convincing DES that the assessment was (we assume) biased or faulty (p155, 'That the proponent has appropriately concluded that an offset is required for the potential loss of 165ha of terrestrial GDE vegetation, supports my concerns.').

We note that in the DES SAR the repeated claim (from DAWE) that the groundwater model had underestimated the impacts (e.g. p110, 126), regardless that the peer review concluded the model to be suitable. Importantly, it appears this is based on DAWE's contention that despite it finding that 'it had an increased level of confidence in the ability of the groundwater model to predict the likely direct and indirect impacts on MNES within, adjacent to and downstream of the project site. DAWE also acknowledged that the groundwater model had been peer-reviewed and that the peer reviewer concluded the model was generally suitable and did not identify any fundamental flaws which were likely to significantly affect model predictions', that nevertheless 'it considers the IESC to be the most appropriate source of advice with respect to the groundwater model and the associated technical analysis of the potential water-related impacts of the proposed action on MNES'.

In other words, the groundwater model, the peer review and the associated findings were completely disregarded in favour of the IESC advice, which was found to have employed insufficient reasoning in its findings and ignored extensive hydrogeological permeability fieldwork.

Despite a detailed response on this matter, it appears the no response was made by DES, implying the matters were not considered. The assessment oversimplified the impacts and appears to have ignored our valid concerns in favour of DAWE and the IESC's advice without due consideration of the actual science and work completed.

3.4.3 Impacts to Stygofauna Communities

Subterranean fauna are an important issue in Environmental Impact Assessment because a high proportion of subterranean species have geographically restricted ranges (short range endemism).

Stygofauna were collected from bores intersecting the alluvium near the Styx River during baseline studies, but are likely to occur more broadly than the points of collection. The Styx River alluvium extends south from the collection bores, through ML 80187, and further south for another 12 km.

This makes it unlikely that the stygofauna taxa sampled as part of the Project investigations are short range endemics, and these taxa are likely to be well represented in the areas surrounding the mine site.

The impact assessment regarding stygofauna was completed based on the high likelihood that stygofauna communities extend throughout the Styx River alluvium, as well as the alluvium of Tooloombah Creek and Deep Creek, but that their distribution is generally limited to parts of the aquifer where EC is less than 7,000 $\mu\text{S}/\text{cm}$. EC in the central part of the aquifer at the mine site is higher (up to 37,400 mg/L) than in the coastal section near Broad Sound, or close to waterways, and is less suitable for stygofauna.

The risk assessment for impacts on stygofauna concludes that the drawdown in alluvium from aquifer dewatering is likely to result in direct disturbance to stygofauna habitat. Mining cannot contribute to alluvial aquifer dewatering because there is no connection. However, as stated in Appendix 10a of the AEIS, 'Overall, impacts on stygofauna are considered to be acceptable, as they will result in the very localised loss of assemblages that are likely to be well represented in adjacent areas', based on a number of aspects, including that 'it unlikely that the stygofauna taxa sampled as part of the Project investigations are short range endemics'.

Note also that the lack of significant impacts to stygofauna was explained at Section 1.4.3 of **Attachment H4**, which, as previously explained in Section 3.2.1 of this document, appears not to have been taken into consideration.

4 Economic and Social Matters

4.1 Economic Matters

The Project involves the development of an open cut mine producing semi-soft coking (SSCC), a necessary element for the production of steel and energy. The Project will produce 1.6 to 10.0 Mtpa of product coal, over a mine life of 20 years, employing up to 500 persons.

Coal prices have increased generally, along with the increase in Queensland State Coal Royalties from the 1st July 2022. With coals priced as high as US\$403.50 per tonne, export revenues for the Central Queensland Coal Project for the life mine will range up to A\$60.0 billion, with State Coal Royalties ranging up as high as A\$22.0 billion and Commonwealth Taxes ranging up as high as A\$10.0 billion. Based on these figures the valuation of the Project is calculated to range up to as high as A\$20.0 billion.

The economic benefits created by the approval of the Project would be jobs, revenue, Queensland State royalties and Commonwealth taxes. All would contribute substantially to financing infrastructure for a safer Bruce Highway, hospitals, schools and service utilities, which are all necessary for a stronger economy, and a higher and safer standard of living.

Economically the Great Barrier Reef is described by the Great Barrier Reef Marine Park Authority, “as an economic powerhouse, contributing more than \$6.4 billion each year to the Australian economy and around 64,000 full-time jobs”.

While CQC does not dispute these facts, it should be known that the CQC proposal is equally if not a greater economic power house exceeding on multiple levels of the revenue generated per hectare and jobs generated per hectare. The Great Barrier Reef extending over 3,444,000 ha and contributes some \$6.4 billion per year to the economy and 64,000 full-time jobs, while the CQC proposed mining lease extends over 1,915 ha and could generate up to \$3.1 billion per year and 500 full-time jobs. It can be calculated that the Great Barrier Reef generates \$1,858 per ha, whereas the Mine could generate up to \$1,618,799 per hectare at a 871 times multiplier. Similar logic applies to jobs with a 14 times multiplier.

4.2 Need for the Project

A need for the Project has been described in great detail by a news article written by Senior Business writer for the Australian Mr Nick Evans, during Tuesday, 9th August 2022.

The article describes the need for new coal projects to be developed in Queensland to supply steel manufacturing businesses such as Tata Steel, one of India’s top steel producing companies. The article goes on to write:

“One of the world’s biggest steel makers will tell the Queensland Government a failure to develop new coking coal supplies will inevitably lead India produces to buy cheaper supplies from Russia despite sanction on Moscow. Tata Steel, which has vowed to stop trading with Russia, will use a meeting with the Palaszczuk government to say the state could double its coking coal exports to India over the next decade to meet surging demand for steel.

However failure to bring on new volumes of coal will inevitably result in other Indian steelmakers opting to buy cheaper Russian volumes, meaning Australia misses out on an extra \$4.0 Billion in

annual export revenue from one of its largest trading partner. The alternative to Australian coal is Russian coal. I know Russia is geopolitically not the best place to buy coal from, but going forward that is an option that Indian companies have, "Tata Steel chief executive TV Narendran told The Australian.

"Tomorrow I have meetings with the Queensland government to look at what we can do together with the mining industry in Australia and the steel industry in India to build a deeper relationship and to increase trade. It's about how does the government and industry work together to expand", said Mr Narendran. "Metallurgical coal is going to be operating for quite some time to come, particularly in India. I think....the conversation with the government is more about how can we plan better for growth"

The meeting comes at a sensitive time for the Queensland government, after being slammed by producers for introducing a major windfall royalty tax, prompting warnings that investment in the coal sector could be slashed. Approvals for new coal mines have also emerged as test for both state and federal governments as pressure grows to limit fossil fuel expansion in Australia".

4.3 Social Matters

The nearby townships to the Project - being St Lawrence, Ogmoo and Marlborough are in decline and badly in need of economic and population injection which the Project can bring and sustain.

A reduction in population of the St Lawrence, Ogmoo and Marlborough districts is partly due to the removal of service jobs such as rail and electricity employment which has caused a loss of population and permanent jobs in the area, causing a devastating social impact to the region.

Marlborough itself has a Recreation Club, formed to lease the showgrounds and act as an umbrella club for the show society and camp draught club. Due to reducing population, club members are down and the Recreational Club has had to rely on new members from Rockhampton district to continue the function of the Recreational Club of Marlborough. The township of St Lawrence is having similar problems.

Marlborough State Primary School now has around 20 children and numbers are falling; St Lawrence is at 7 children and falling due to population decline in the area. Marlborough teachers presently drive in and drive out, and are now having to live in Rockhampton, a 130 kilometres drive, twice a day five days a week, along the dangerous stretch of the Bruce Highway.

Essential town emergency services such as the SES are at critically low member numbers, going from 15 members to now only 4 active members.

The Marlborough Rural Fire Brigade a critical community essential service to combat the historic bush fires of the past two years, has only just managed to get a Secretary/Treasurer position filled. One volunteer person now runs the Marlborough Rural Fire Brigade covering all positions of First Officer, Secretary, Treasurer and Training Officer and has continued this role for the past two years, due to a decline in population and economic growth in the area. During an emergency call out only two or three people are able to attend to any one call out, and given the state of fuel loading on the ground today, it is expected to be a busy summer fire season covered by limited numbers.

Marlborough, St Lawrence and Ogmoo residents as well as users of the busy Bruce Highway connecting the regional cities Rockhampton and Mackay rely on both the Marlborough SES and Marlborough Rural Fire Brigade as first respondents for all road accidents. The Marlborough SES and

Marlborough Rural Fire Brigade cover a busy stretch of the Bruce Highway covering some 200 kilometres.

The Marlborough Lions Club has only seven members left, and sadly to say numbers are likely to fall. The Marlborough Hall Committee has now only five members and the Marlborough Craft Shop is run by only four ladies, providing coverage for the Marlborough Museum. The Country Women's Association closed its doors ten years ago due to the lack of population growth in the area.

The council work depot is likely to close soon as no one wishes to come out and stay in the quarters. Ambulance paramedics and teachers are presently drive in and drive out, and are now living in Rockhampton. There no longer is a permanent police officer to cover the townships of Ogmore and Marlborough.

The Central Queensland Coal Project, could generate export revenues of up to A\$60.0 billion, State Coal Royalties up to A\$22.0 billion and Commonwealth Taxes up to A\$10.0 billion, representing a huge boost to the local, regional, state and national economies.

Given the nearby townships to the Project, which are St Lawrence, Ogmore and Marlborough continue to decline and are badly in need of both economic injection and population growth this provides a compelling reason for the Minister to reconsider her proposed decision to refuse approval, as the social and economic benefits here far outweigh perceived, unproven and overstated residual environmental impacts to the Great Barrier Reef Marine Park, a World Heritage Property and a National Heritage Place.

The regional areas of St Lawrence, Ogmore and Marlborough require economic and social growth, which the Project can deliver, and the Project requires conditions to operate that the Minister can deliver, similar to the conditions previous Ministers have delivered for the operations of the 140.0Mtpa coal port Hay Point, contiguous to the Great Barrier Reef, currently owned and operated by the Queensland Government, and other mines within the GBR catchment.

4.4 Safety

The Marlborough, St Lawrence and Ogmore communities have been in the decline for the past few decades and with this goes the decrease in volunteers for social and community associations but more importantly for the volunteers that join lifesaving organisations such as State Emergency Service (SES) or Rural Fire Brigade.

Marlborough is fortunate enough to still have one paramedic position allocated to the town which essentially services the region between Yaamba and St Lawrence. Not so long ago there were two full-time paramedic positions allocated to Marlborough. Unfortunately, the stretch of highway through Marlborough is notorious for car accidents and fatalities. In the normal process of emergency calls (through '000'), the paramedic is often the 'first responder' to attend to these highway or rural road accidents along with the Marlborough SES and quite often also the Marlborough Rural Fire Brigade.

The Marlborough SES and Marlborough Rural Fire Brigade (MRFB) cover a busy stretch of the Bruce Highway covering some 200 kilometres between St Lawrence to the north and Raspberry Creek Road to the south as well as rural roads, 80km to the west. The Marlborough SES and MRFB are First Responders for Road Accident rescue with the professionals being in Rockhampton. In recent times it has been extremely difficult to have more than one Marlborough SES volunteer to attend as First

Responder due to the declining numbers. As the community families and numbers continue to dwindle it is possible that there will be no volunteers and no paramedic position in Marlborough.

The devastating situation will result in this section of road having to rely on professionals and volunteers from Rockhampton and perhaps Sarina to respond to road accidents which means in some cases the response times will exceed the time available to save lives.

The CQC Mine Project has committed to encouraging its workers to live locally and be part of the local communities to not only re-energise the communities but to increase the safety of the region for all residents and road users that travel along these roads. Not only will the increased community numbers increase the numbers of volunteers for these special associations, but CQC will encourage its workers to be a SES or RFB volunteer. CQC will also positively contribute to the road safety as the mine site will have mine rescue teams with trained nurses and paramedics also available. CQC has already engaged with the police and regional state emergency management teams in Rockhampton to discuss cooperation and work methodologies which include ideas such as both parties having common (and interchangeable) rescue equipment.

This proactive and positive safety approach by CQC is in stark contrast to some of the current projects in the region where NOT ONE family (or person) has moved into the local area to work on these projects.

The CQC Project is the only current project that can positively contribute to the safety of the region particularly the Bruce Highway and road users, where community volunteers can be the First Responders to traffic accidents such as being the first to attend to the B-double fatality that occurred on the Bruce Highway in late June 2022 between Marlborough and the CQC mine site.

4.5 Indigenous and Cultural Matters

The CQC project engaged with the traditional owners of these lands who are, the Darumbal People and Biju Krushak Kalyan Yojana People and will continue to progress the Project with both groups when the Mine is approved.

4.6 Public Submissions

The CQC Project team has carried out extensive consultation which is set out in other sections of this response document. The overwhelming response during the most recent Social Impact Assessment in October 2019 and March 2020 was *'why can't you start the project now - we need it'* and *'why can't you bring the project forward; the town will be dead by then'*. This attitude and expectation of the local communities are in stark contrast to the picture trying to be painted under this heading of Public Submissions of **Attachment A1**. Comments in relation to each paragraph are provided below.

Paragraphs 99 to 102 refer to public submissions made on the draft EIS and the AEIS which were considered in the SAR concluding in paragraph 102

'The department considers that issues raised in public submissions relevant to MNES were appropriately considered during the assessment of the proposed action.'

Since the release of the SAR, the Department has received approximately 12,000 identical campaign submissions in the form of the example shown in **Attachment G1** at paragraph 103. The matters are emotive, provide no science or technical evidence whatsoever and the submissions are flawed for the following reasons:

- The IESC advice is in part both inaccurate and misleading. Neither the department and DES have considered any of the comments, corrections and clarifications made by the proponent in its response document dated 24 December 2020 – see **Attachment H4**.
- While the Queensland DES has found the project not suitable for approval ‘as proposed’ as shown in **Attachment D** page 156 section 5.1 sixth paragraph, ‘..that the project, as proposed, is not suitable.’ However DES also provides a pathway forward for all approvals required and the draft conditions that would need to be agreed and finalised.
- Approval of the CQC Project will have an infinitesimal effect on climate change, with project emissions being 0.0055% of total global emissions.
- The CQC Project will have a positive impact on the GBR, with a decrease of sediment inputs from the project site into the downstream GBR by over 50% - this is conservatively estimated to be around 2,740 tonnes per year, which is 2.74% of the total Styx Basin.
- The northern and central sections of the GBR have seen record-high coral cover as reports by the Australian Institute of Marine Science (AIMS). The Reef is flourishing.
- CQC acknowledges that many people rely on the Reef for their livelihood and not only will the CQC project improve the environment for the reef and marine species but will provide jobs for the communities within the whole local area. The very people who are currently residing in the local area and the project workers who come into the area, will also have the GBR for their recreational use. Section 19B.3.3 Fisheries of the CQC AEIS Chapter 19B – Social and referred to as **Attachment E20: Social of the Decision not to Approve Notice** states:

“Fishing has long been a feature of the communities in the local study area. The Broad Sound, including the Styx River inlet to near Ogmore is a declared Fish Habitat Area, with management features aiming to conserve commercial, recreational and Indigenous grounds and protect key fish habitats [Department of Environment and Science (n.d).

Consultation with fishermen suggests there are approximately a dozen full-time commercial fisherman who fish the Broad Sound, including those who come from Stanage and Fish Thirsty Creek. The number of recreational fishermen was estimated to be around 200. Common species caught are Mud Crab, Barramundi and King Salmon. Fishing is accessed from various locations, including Saint Lawrence, Stanage Bay, Waverly Creek, a bush boat ramp at Charon Point and in the fishing camp near Gordon Head at Glenprairie”.

The second main dot point of Paragraph 103 of Attachment A1, states that of 73 unique letters to the former Minister for the Environment (summarised at **Attachment G2** and attached at **Attachment G3 to G81**), 11 were in support and 62 were in opposition to the proposed action. This is very misleading as G2 Number 54 (MC21-028132) records ‘for’ submissions as 1 and is then included in the total of 11 submissions in support. In actual fact, there are 45 individual responses included as **Attachment G54** which adds an additional 44 to the support submissions making a total of 55, not 11. Further comments regarding these unique letters are as follows

- The second sub-dot point is again misleading as it refers to ‘decline is a result of many years of poor commodity prices in the Rural Sector’ but fails to mention the main driving reason of ‘the reduction in Government and Private Sector Services.’
- The ‘risk the mine will become unviable before the end of its predicted operational period’ is a commercial decision of the proponent and any other potential investors. Based on the very conservative forward coal price predictions and certainly on today’s coal prices the Project is

highly viable providing significant economic benefits to the local regions, State Government through various taxes and the Commonwealth Government through the export of the coal

- The IESC report is inaccurate and very misleading. See Section 3.2 for the corrections to the IESC report.
- The ‘impact of the proposed mine will be additional to those caused by climate change, and interact to cause irreversible impacts to the reef’ is emotive, inaccurate and misleading.
- The statement ‘Concern that future generations will not be able to experience the reef as a result of impacts for the proposed mine and climate change’ is highly emotive and is so far from the truth and reality it is almost farcical – see comments regarding this further on in this section.

In paragraph 104, the reference of **Attachment G55** to the 45 letters of support is incorrect, as the correct reference is **Attachment G54**. Whilst these individual letters of support are acknowledged, the summary numbers have not been updated to show the total number of 55 support letters and not 11 as noted above.

The IESC stated ‘it has major concerns that the project presents very significant risks to nationally and internationally recognised assets with high ecological values, including the Great Barrier Reef.

CQC have no dispute with ‘internationally recognised assets with high ecological values, including the Great Barrier Reef’, as stated by IESC, however finds IESC statement of ‘has major concerns that the project presents significant risks’ lacking credibility. IESC have not provided any evidence as to what are the significant risks, and further more have not taken into account or remotely considered that CQC have demonstrated through engineering Engeny reports (**Attachment E41** Appendix 6c – Groundwater Quality Data Summary and **Attachment E76** Appendix 15b – Styx Catchment Sediment Budget) that water quality flowing past the mine site would be improved with approval of the Project, and the Project is capable of reducing sediment loads flowing from the Project site into the Great Barrier reef by approximately 50%, or some 2740 tonnes per year or a significant 49,320 tonnes over the life of the Project.

Additionally, nutrients currently flowing off the site would be significantly reduced both in the short term and long term during life of mine and post mine efforts with sediment retention structures being maintained for fifty plus years.

The IESC stated ‘it cannot envisage feasible mitigation measures, including offsets that could safeguard these irreplaceable and internationally significant ecological assets and their associated resources.

CQC have adequately demonstrated, with the construction of a protection levee surrounding the Project, in conjunction with properly installed and maintained sediment retention structures supervised and signed off by a Registered Professional Engineer of Queensland would ensure unequivocally that sediment loads would be reduced by 50% annually or 49,320 tonnes over the life of the Project, overall improving water quality and the Great Barrier Reef. A properly engineered, constructed, maintained and RPEQ signed off protection levee and sediment retention devices, approved under dam criteria regulations administered by the Department of Natural Resources and Mines are the safeguards that will protect and improve the quality of the Great Barrier Reef. It is this very fact which the IESC have dismissed why the Project should be approved not only for the economic benefits to the Australian Nation but more importantly to further protect the Great Barrier Reef.

An ABC report by the National science, environment and technology reporter Michael Slezak and the Specialist Reporting Team's Penny Timms on Thursday, 4th August 2022 reports, 'Record coral cover is being seen across much of the Great Barrier Reef'. AIMS chief executive Paul Hardisty said, "*These latest results demonstrate the reef can still recover....*"

The AIMS (Australian Institute of Marine Science) released their annual Long Term Monitoring Program (LTMP) report, published 3rd August 2022 where 87 reefs were surveyed between August 2021 and May 2022. On the Central and Northern GBR, region-wide hard coral cover reached 33% and 36%, respectively; the highest level recorded in the past 36 years of monitoring.

In 2022, the GBR continues to recover, registering the highest level of coral cover recorded in the Northern and Central regions over the past 36 years of monitoring. While recovery continued on many Southern GBR reefs, regional coral cover declined slightly due to ongoing outbreaks of crown-of-thorns starfish in the Swain reefs.

This status report for the GBR aligns very closely and validates the statements made by Prof. Peter Ridd on 6 December 2020: "*The amount of coral, while fluctuating dramatically from year to year, is about the same today as when records began in the 1980s.*"

In the article, Prof Ridd criticised the findings of a recent report by the International Union for the Conservation of Nature (IUCN) on the Great Barrier Reef, which downgraded the conservation outlook of the reef from "significant concern" to "critical", the most serious in its four-tier rating system.

He said the report was "*just a rehash of old, mostly wrong or misleading information produced by generally untrustworthy scientific institutions with an activist agenda and no commitment to quality assurance*".

Prof Ridd said it was normal for large areas of the reef to die and "*the reef is fine*". "*The coral always recovers vigorously after major mortality events,*" he said. "*Coral remains abundant on all 3000 reefs.*" (<https://www.thecourier.com.au/story/7069344/see-it-before-its-gone-a-fact-check-on-the-decline-of-our-biggest-coral-reef/>)

While we don't disagree that Climate Change is upon us, we disagree that the refusal of this Project would stop further emissions being produced. The refusal of this Project will only mean the opening of another project either here in Australia or other parts of the world to substitute the coal otherwise produced by the Project. This would be a lost opportunity by the Project employing initially 250 persons, ramping up to 500 persons, and a loss of revenues generated for the life of Project of more than \$60.0 billion. Commonwealth taxes are projected to be \$10.0 billion while State coal royalties will exceed \$22.0 Billion.

Please see comments above.

The proposed decision deals with Greenhouse Gas emissions at paragraphs [115] – [125] of the '*Proposed Decision – Att A1 – Legal considerations*'. It does not identify Greenhouse Gas emissions as a reason for refusal.

We also note that correctly at paragraph [127] "*the judgement in Sharma was overturned by the full Court of the Federal court (Minister for the Environment V Sharma [2022] FCAFC35*"

The proposed Project is a coal project, used for the production of steel, an essential material. The proposed mine as detailed in other documents will protect the Great Barrier Reef by improving

water quality and provide steel and energy. The refusal of the Project is not a proposition but a detriment to the quality of the Great Barrier Reef.

Paragraph 105 refers to the Department of Defence submissions shown at **Attachments G73** and **G74**. Section 4.16.3.3 refers to cumulative impacts of listed threatened species and ecological communities and our reference to the 50-100km is related to 'nearest use'. The ASMTI Expansion footprint has been purchased mainly as a buffer area for its 'military operations'. CQC would also like to thank all the Department of Defence personnel it has dealt with to date as all discussions have been cooperative, constructive and open.

4.7 Impacts on Users of the Bruce Highway

CQC is surprised at these issues raised with the Bruce Highway as none of these were raised during any meetings or correspondence with the Department of Transport and Main Roads (DTMR) held in May 2017, June 2017 and 2 meetings in November 2017. The only concern raised by the DTMR was that mining was not to occur on both sides of the Bruce Highway at the same time. CQC has accepted that conditions which has resulted in all other matters to be essentially run-of-mine controls. Following the meetings in November 2017, the DTMR has accepted the stability analyses for the design of pit wall batters adjacent to the Bruce Highway. These matters raised in the SAR should be disregarded as they are not the concerns of the authorising authority, the DTMR, as they are every day run-of-mine activities. It is clear that the material provided post EIS has not been considered.

CQC considers safety concerns highlighted by DES regarding blast fly rock and fumes from the Project towards the Bruce Highway users are technical issues, where proven engineering solutions already in use and which will be adopted, together with appropriate conditions applied to an Environmental Authority will ensure the safety of road users and nearby residents. Examples of operations safely operating adjacent to busy motorways are Peak Downs Coal Mine, Norwich Park Coal Mine, Mt Coot-tha quarry and Boral Quarry, Burleigh Heads, which operates within **80 metres** of the Gold Coast M1 Motorway, one of the busiest motorways in Australia. See Figure 4-1 for Boral Quarry location, operating 80m away from Gold Coast Motorway and Figure 4-2 for Peak Downs Mine operating 100 metres away from Peak Downs Highway,



Figure 4-1: Boral Quarry, Gold Coast, 80 metres from M1 Motorway



Figure 4-2: Peak Downs Mine, 100 metres from Peak Downs Highway

The Department has considered the following concerns as outlined within documents “2016-7851 Proposed decision – **Attachment A1** – Legal considerations” and “2016-7851 MS22-000750”

Document 2016-7851 Proposed decision – **Attachment A1** – Legal considerations, the Department considers:

Paragraph 112, “Within the SAR, DES considered comments from the Department of Transport and Main Roads (DTMR, Queensland) on the proponent’s EIS, which stated that users of the Bruce Highway may be at risk from damage caused by blasting, including from flyrock and blast fumes”.

Paragraph 113, “The SAR stated that flyrock from blasting poses an unreasonable safety risk up to 1000m, depending on the nature of the blast, making the proposed 500m buffer associated with the proposed action inadequate.

The SAR also stated that non-dispersing blast plumes with high concentrations of nitrogen dioxide (NO₂) means that the proposed 500m buffer is inadequate for public safety regarding Bruce Highway”.

Paragraph 114, “The SAR concluded that Mr Christopher Loveday (Director, Technical and Assessment Services, DES Queensland) is unable to approve the proposed mine in its current form, which assumes a 500m buffer area on each side of the Bruce Highway”.

Document from DCCEE&W “MS22-000750 paragraph 5c”, considers:

Paragraph 5c, “A high risk to people travelling on the Bruce Highway due to blast plumes during mining operations with the proposed 500 metre buffer”.

During 7th May 2021, CQC provided sufficient information regarding these two issues of unreasonable safety risk caused by blast flyrock and public safety concerns regarding nitrogen dioxide blast fumes, detailed in document “2016-7851 Proposed decision – Att F1 – Response DES Assessment-Hon Sussan Ley – 20210507”, under Section 4 Impact on the Bruce Highway:

“The issues of concern for the DES appear to be mainly technical, including blast fumes, fly-rock and pit wall stability resulting from blasting and excavation. As these are all engineering issues for which there are proven engineering solutions, they should not provide a reason to reject the project.

Blast fumes can be reduced by improved stemming of blast-holes, blast detonation delays, use of low fume explosive and management processes, including avoidance of blasting during inclement weather. Fly rock can be minimised by appropriate blast patterns and powder levels, noting that opencut pit blasting is designed by computer modelling which reduce the likelihood of overblasting. Pit wall stability is addressed by pre-split blasting, backfilling after the coal is mined and by geotechnical assessment of exposed walls as mining proceeds.

All of these matters are essentially run-of-mine controls, which will be addressed in that context, but would not necessarily be expected to be included in an EIS in such detail. CQC notes that stability analyses for the design of pit wall batters adjacent to the Bruce Highway have been accepted by the Department of Transport and Main Roads who have not raised any concerns.

It is also noted that blasting near major roads occurs in many location within Queensland, a notable example being the Mount Coot-tha Quarry which operates only 350m from Western Freeway (a major arterial road in Brisbane) and only 250m from nearby residents compared with the 30 residents at Ogmoo 6.8km from CQC Project”.

Additionally coal blast and excavation mining are conducted within 100m on either side of the Peak Downs Highway, at Peak Downs Coal Mine, Central Queensland. This is further describe in document “2016-7851 Proposed decision – Att F3 – **Attachment 1** Response to DES Section 5.2-3 key thresholds” and included in this submission for review.

During 17th May 2021, CQC provided further information regarding these two issues of unreasonable safety risk caused by blast flyrock and public safety concerns regarding nitrogen dioxide blast fumes, detailed in document “2016-7851 Proposed decision – Att F3 – **Attachment 1** Response to DES Section 5.2-3 key thresholds”, detailing currently operating coal mine and quarry sites operating safely with a minimum buffer of at least 100m. These mines include Peak Downs Coal Mine, Norwich Park, Mt Cootha quarry, Upper Kedron Quarry and which are further described here.

The issues of concern for the DES appear to be mainly technical, including blast fumes, fly-rock and pit wall stability resulting from blasting and excavation. As these are all engineering issues for which there are proven engineering solutions, they should not provide a reason to reject the Project, but rather conditions can be applied to the Project through an Environmental Authority.

Blast fumes can be reduced by improved stemming of blast-holes, blast detonation delays, use of low fume explosive and management processes, including avoidance of blasting during inclement weather. Fly rock can be minimised by appropriate blast patterns and powder levels, noting that open cut pit blasting is designed by computer modelling which reduces the likelihood of overblasting. Pit wall stability is addressed by pre-split blasting, backfilling after the coal is mined and by geotechnical assessment of exposed walls as mining proceeds.

All of these matters are essentially run-of-mine controls, which will be addressed in that context, but would not necessarily be expected to be included in an EIS in such detail. We note that stability analyses for the design of pit wall batters adjacent to the Bruce Highway have been accepted by the Department of Transport and Main Roads.

Threshold matter contained within DES assessment report.

“1. The location of the proposed mining leases on either side of the state-controlled road—the Bruce Highway—has presented significant challenges to the proponent. It has led to duplication of mine pits, waste rock stockpiles and mining infrastructure areas.”

Answer: The duplication of open cuts, waste rock stockpiles and mining infrastructure are treated as a single mine site, connected by an overland conveyor, utilising common haul road and train load-out facilities. This is not seen as a significant challenge. There are numerous mines that straddle major roads such as the Peak Downs Coal Mine which produces 9.0Mtpa of coal, straddles Dysart Peak Downs Road and has operated successfully with open cut mining operations within 100m on both sides of the road since 1972. Again, mining on both sides of a road corridor is not a significant challenge. See Figure 4-2– Peak Downs Mine.

The assessment report, dated 28 April 2021 was the first time CQC were aware of “significant challenge concerns”, and has never been raised by any submitter or government agencies, leading up to final submission of amended EIS during October 2020, in particular, these concerns were not raised by the Queensland Government Department of Transport and Main Roads, the relevant authorising authority during any of the meetings or extensive correspondence.

CQC have never been given the opportunity to address “significant challenge” concerns.

“2. The risk of non-dispersing blast plumes means that a 500m setback for public safety to the Bruce Highway from blasting is inadequate. There remains a high risk to people travelling on the Bruce Highway during mining operations, and a lower risk to the 30 residents of Ogmoo 6.8km away, which is at the limit of previously observed risk from blast plumes.”

Answer: The issues of concern for the DES appear to be mainly technical, including blast fumes, fly-rock and pit wall stability resulting from blasting and excavation. As these are all engineering issues for which there are proven engineering solutions, they should not provide a reason to reject the project.

Blast fumes can be reduced by improved stemming of blast-holes, blast detonation delays, use of low fume explosive and management processes, including avoidance of blasting during inclement weather. These matters are essentially run-of-mine controls, which will be addressed in that context, but would not necessarily be expected to be included in an EIS in such detail. AEIS, Chapter 13, Section 13.8.2 - Mitigation for Blasting, details the mitigation measures that will be put in place, in particular, development of procedures in conjunction with DTMR at least 3 months prior to any blasting that may affect the Bruce Highway. There are numerous examples where blasting close to major roads has occurred safely throughout Queensland under government regulations such as Peak Downs Mine, Norwich Park Mine and Mt Coot-tha Quarry, to name only a few.

Version 2 of the EIS covered meetings with the DTMR primarily concerned with the stability of the Bruce Highway and secondary blast fumes. Blast fumes were not a problem to DTMR, as they were satisfied the 500m buffer provided sufficient mitigation measures. This was agreed between CQC and DTMR during discussion prior to finalising and issuing EIS Version 2 – December 2018.

Non-dispersing blast plumes were brought up by submitter 14, item 19, or, Doctors for the Environment Australia under general comments ‘blast plumes’. This was addressed in EIS Version 2, dated December 2018, Air Quality in section 12.8.3 with particular reference to Table 12-17, where the modelled gaseous pollutant concentration Bruce Highway Receptors were only a few percent of the NO₂ criteria level for the one hour exposure limit of 250 µg/m³, thus well within the limits of exposure that are considered safe.

On page 74 of the DES Assessment Report provided by the Delegate, there is reference to an exposure limit of a 5 minute exposure to high levels of NO₂. However, as far as CQC can find, such a standard does not exist in Australia and the closest standard to a 5 minute exposure level is a short term exposure level of 15 minutes, as per Safe Work Australia, set at 9,400 µg/m³, which is far in excess of any predicted levels.

The Delegate advised that Doctors for the Environment Australia provided a response to the Supplementary EIS, however CQC have never seen this response, nor has the Delegate raised any of these response issues with CQC until the DES Assessment Report.

Following receipt of agency comments (including DTMR) from DES on 14 June 2019, CQC in satisfaction of the condition on item 10.55 for highway stability, discussions began with DTMR on 18 June 2019, regarding details on these conditions. Blast fumes were never raised by DTMR to this date, due to 500m buffer being in place. Nor were they raised in any other submission, hence, as far as CQC were aware, with reference to blast fumes, the responses given in EIS Version 2 in response to the Doctors for the Environment submission were satisfactory.

If the response provided by CQC during December 2018 was inadequate, and the considered proper response required by the Delegate was to have the worst-case scenario addressed, i.e. model

blasting activities 100m on either side of the highway; why wasn't this request made during the time period between December 2018 and 26 February 2021, before receiving the Adequacy Approval (i.e. that the Project was suitable to proceed to the assessment stage) from DES on 12 March 2021?

The Delegate and DES have had more than sufficient time to raise blast fumes concerns since December 2018, however have only raised this issue at the end of the process, in the DES Assessment Report dated Wednesday, 28 April 2021. Importantly this was not raised as a potential problem during a phone conversation between me and the Delegate during the day prior to receiving the report on Tuesday, 27 April 2021.

CQC have never been given proper opportunity to address concerns of “blast fumes.”

Further, Section 4.8.1.2 of DES assessment report states;

“the proponent has made an undertaking not to require closing the Bruce Highway for safety reasons due to blasting. Advice provided by Resource Safety and Health Queensland indicates that blasting could be scaled down with the use of smaller shots, less explosives and different grid patterns. This would have the effect of reducing both gaseous emissions and the risk of flyrock from blasting damaging road infrastructure or posing a human safety risk.”

As mentioned in CQC commitments, CQC would develop a blast management plan. This would include working with Resource Safety and Health Queensland and Department of Resources and DTMR.

There are numerous examples throughout Queensland of where open cut mining and quarrying operations occur safely within less than 500m of major roads, such as Mt Coot-tha and Upper Kedron operations.

Current operating Mines and Quarries

Major coal mines such as Caval Ridge (11.0Mtpa) and Isaac Plains (2.4Mtpa) are located within 6.0km of the Moranbah Township with a population of over 8,500. Middlemount Coal Mine produces 3.6Mtpa of coal and is located 5.0km from Middlemount Township. Norwich Park Coal Mine produces 5.5Mtpa and located 2.7km from the township of Dysart, population 3000. All these mines operate successful overburden blasting operations, in particular blast fume management as per the regulations of Department of Resources Safety and Health Queensland. See Figure - Norwich Park Mine and Dysart Township.

Major quarry sites such as Boral Quarry, Burleigh Heads, which operates within 80 metres of the Gold Coast M1 Motorway, one of the busiest motorways in Australia, Quarrico (operates 3.0km from Moranbah), Mt Coot-tha Quarry, Brisbane (operates 350m from Western Freeway and 250m from residents of Mt Coot-tha), Keperra Quarry, Brisbane (operates 130m from Settlement Road and 300m from residence), Hanson Upper Kedron Road Quarry Site (operates 150m from O'Quinn St. and 160m from residence), all operate safely, within buffer zones less than 500m, near densely populated areas and public roads with traffic volumes greater than those at CQC and the Bruce Highway. It is worth noting the Mount Coot-tha Quarry, operates successfully and is only 5.0 kilometres from Brisbane's central business district. See Figure 4-4- Mt Coot-tha Quarry, Figure 4-5 Upper Kedron Quarry and Figure 4-6 Mt Coot-tha Quarry 5.0km from Brisbane City CBD.

Assessment Report Section 4.8.1.2 – *“Advice provided by RSHQ indicates that blasting could be scaled down with the use of smaller shots, less explosives and different grid patterns. This would*

have the effect of reducing both gaseous emissions and the risk of flyrock from blasting damaging road infrastructure or posing a human safety risk”.

CQC project will develop and operate management plans and procedures as approved by Department of Resource Safety and Health Queensland and Department of Resources and DTMR, similar to the approved operations mentioned above, mitigating concerns raised by the Delegate regarding blast fumes being a high public risk to users of the Bruce Highway. CQC has already provided the details that will be contained in the blast management plans in section 13.8.2 Mitigation for Blasting.

Blast fume concerns can be conditioned within the EA, and again CQC have not been given proper opportunity to address concerns of “blast fumes,” prior to assessment report being released.

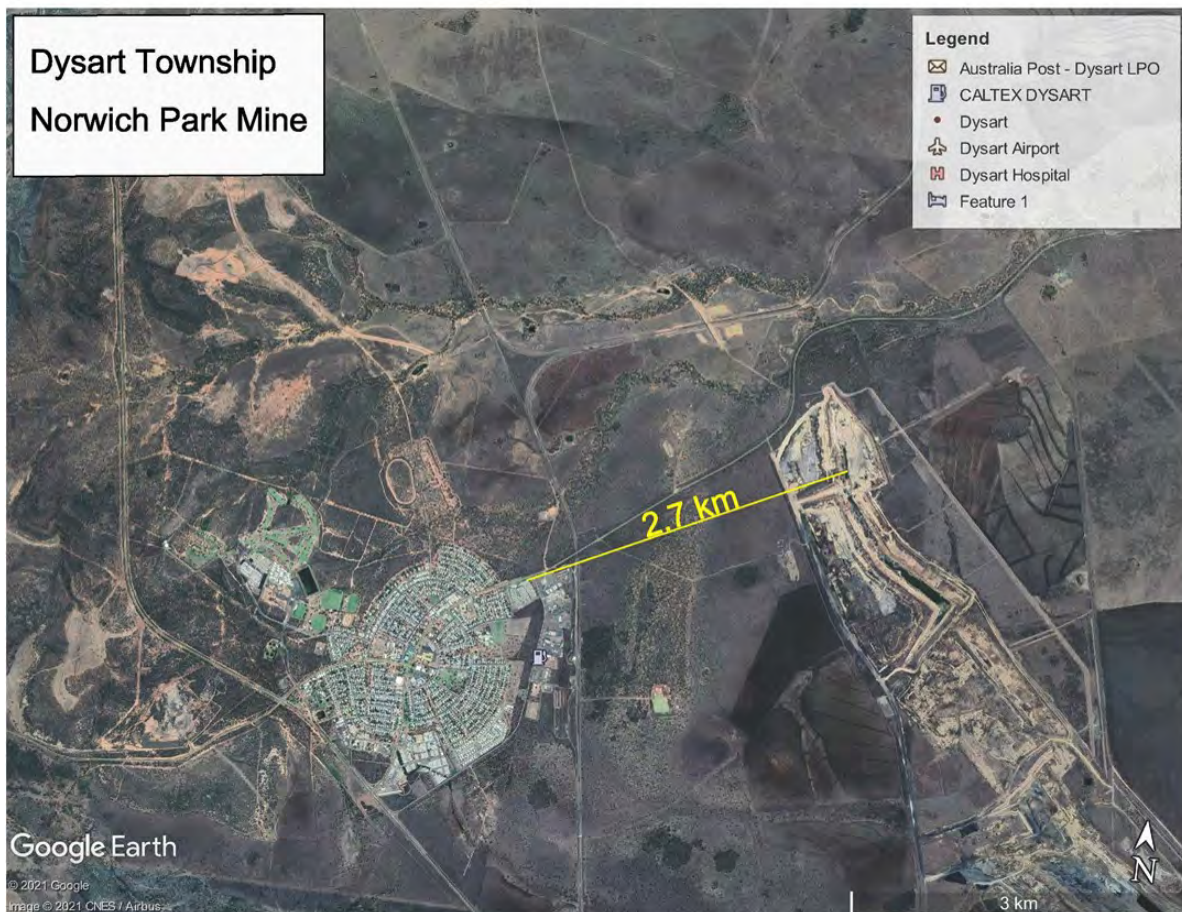


Figure 4-3: Norwich Park Mine and Dysart Township



Figure 4-4: Mt Coot-tha Quarry



Figure 4-5: Upper Kedron Quarry

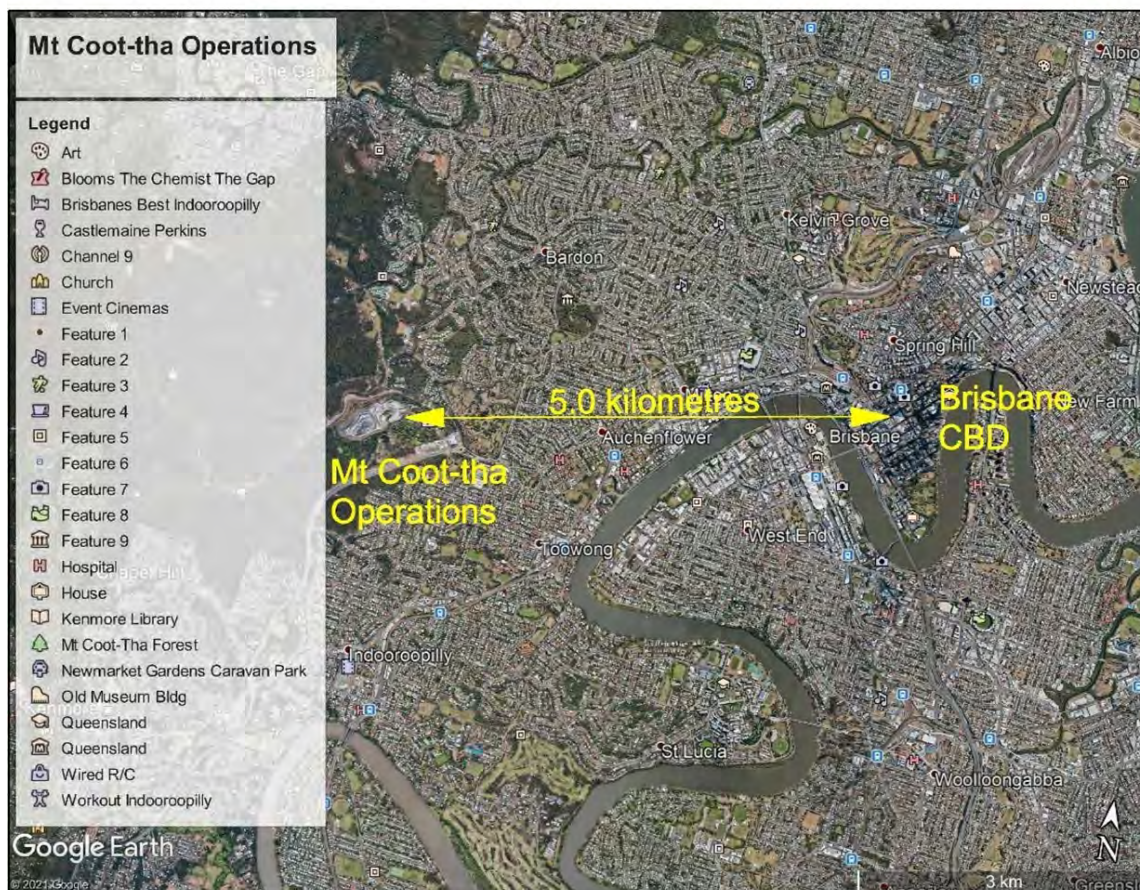


Figure 4-6: Mt Coot-tha Quarry – 5.0km from Brisbane City CBD

“3. The EIS did not provide an adequate assessment of the management of fume exposure relating to blasting or indicate likely fume management zone and blast exclusion zones, identify occupational exposure standards or health effects for NO₂, or assess the risk to motorists for the project from the worst-case scenario.”

Answer: This is not correct. This issue has been substantially covered as explained at issue number “2” and could be managed within a blast management plan. In addition, prior to the release of EIS v2 in December 2018, additional modelling was carried out and the results were detailed in section 12.6.3 Assessment of Impacts from Gaseous Blasting Emissions. Table 12-17 shows the 1hour NO₂ predicted maximum gaseous pollutant concentration levels at the receptors ranging from 5.04 to 7.43 µg/m³ compared with a criteria limit of 250 µg/m³. Again, CQC were never given proper opportunity to address concerns of “fume exposure” or “worst case scenario,” prior to assessment report being released.

Assessment Report Section 4.8.1.2 – “Advice provided by RSHQ indicates that blasting could be scaled down with the use of smaller shots, less explosives and different grid patterns. This would have the effect of reducing both gaseous emissions and the risk of flyrock from blasting damaging road infrastructure or posing a human safety risk”.

CQC have never been given proper opportunity to address concerns of “fume exposure”.

“4. In addition to blast fume concerns, the Bruce Highway may be at risk from both the potential impact of excavation works and from geo-technical damage caused by blasting. As a result, the current mine plan has no mining proposed within a buffer area until 12 years from the

commencement of construction – dependent on ongoing geotechnical studies. The proposed mining of the 500m buffer in year 12, 13 and 14 would not be approved if the geotechnical assessment indicated that there is likely to be adverse impacts to the Bruce Highway from excavation and blasting. Should mining not be appropriate within 500m on each side of the Bruce Highway the economic viability of the project could be significantly impacted. The EIS does not present an alternative economic assessment based on the project not being able to access these coal reserves.”

Answer: Where it is required by the Delegate for the EIS to present an alternative economic assessment based on the project not being able to access coal reserves within the 500m buffer, a request by the Delegate should have been made prior to 12 March 2021, rather than stating in the DES Assessment Report that an alternative economic assessment was required.

In proposing to mine with open cut mining methods within the 500m buffer zone during years 12, 13 and 14, it is important to note that if the geotechnical assessment indicated adverse impacts to the Bruce Highway, the open cut would not go ahead. CQC would select a highwall mining extraction method or similar to extract coal reserves within the 500m buffer areas. For example, highwall mining extraction (practiced widely in Bowen Basin) would not require blasting and would leave sufficient coal support pillars, maintaining the integrity and operability of the Bruce Highway.

Regardless, even if it were not possible to mine within the 500m buffer zone, the economic viability of the Project would not be significantly impacted. This buffer area is small relative to the rest of the mine footprint, and extraction of this area is not critical to the success of the Project - in fact, the financials are such that the Mine would be paid for within the first two to three years due to the low capital costs. This was articulated to the DES Delegate via a phone conversation during 27 April 2021.

If an alternative economic assessment was required by the Delegate, it should have been raised prior to 12 March 2021.

CQC have never been given proper opportunity to address concerns of “alternative economic assessment.”

In summary, the third threshold concern of ‘Impacts to State Controlled Road – Bruce Highway’, has been addressed above demonstrating there are no significant challenges. Blast fumes and fume exposure can be managed by proper blast design (blast management plans) and the project is viable without open cutting the 500m buffer, with enough coal reserves on the mining lease to the north, south east and west of 500m buffer zones to make the Project financially viable and the Project being paid for by years two to three.

The DTMR, the relevant authorising authority, provided 68 comments on the May 2018 v2 Draft version of the EIS. As a result of discussions with DTMR on 3 July 2018 and the introduction of the 500m buffer zone with the Bruce Highway, DTMR provided only 13 comments on the December 2018 v2 Final version of the EIS, all of which can be addressed by EA conditions, such as providing blast management plans to the DTMR 3 months prior to blasting. We consider that using this issue as a reason for rejecting the Project is entirely unjustified.

4.8 Marine Pollution Bulletin – Saint-Armand et al, 2022

A review of a paper published on the Marine Pollution Bulletin which quantified the impacts of the Central Queensland Coal Project to the Great Barrier Reef (Saint-Armand *et al*, 2022), and was reviewed by the Department during 22 April 2022 and later published for public consumption during June 2022, found peculiarities and assumptions which lead to conclusions not representative of the Central Queensland Coal Project. Unusual for this level of reporting, a sediment model was presented which did not take into account any field information, questioning the relevance of model results and authors intentions.

Available to the authors of the paper are all the reports, appendices and field data recorded and presented as part of the Central Queensland Coal Project EIS and AEIS, being publicly available from the Central Queensland Coal webpage (Publications & Approvals - Central Queensland Coal (cqcoal.com.au)) and the Queensland Government webpage ([Central Queensland coal project | Environment, land and water | Queensland Government \(www.qld.gov.au\)](http://Central Queensland coal project | Environment, land and water | Queensland Government (www.qld.gov.au))).

The reported model assumes run-off water is completely clear before any of the releases are modelled, which is not consistent with live conditions, considering the CQC site alone undeveloped releases over 5,037 tonnes of sediment annually, and generally the Styx catchment releases 0.7 tonnes of sediment per hectare annually into the Great Barrier Reef from natural and anthropogenic sources (Engeny, 2020).

Without live sediment conditions in the model, the reported model cannot properly predict or model interaction between existing and proposed sediment particles, loads and their behaviour before and after project inception. The model results cannot be relied upon.

This very data at project scale, required to qualify the model, is freely available on Central Queensland Coal and Queensland Government website. Moreover, regional and local data has been published in different international and recognised journals.

For instance, the sediment yield to the Great Barrier under natural conditions was estimated by Neil et al, 2002 at 7.4 Mt/year and the total sediment yield, which includes land disturbed, at 28 Mt/year, this is 3.8 times greater in comparison to natural rates. Central Queensland Coal Project, with its proposed offsets, erosion and sediment controls, is helping to decrease this 21 Mt/year sediment yield that goes into the reef.

Furthermore, in more detail, Kroon et al, 2012 estimated the anthropogenic loads that contribute to the Styx Basin as 240 kt/year of total suspended solids (TSS), 23kt/year of dissolved inorganic nitrogen (DIN), and 23 kg/year of herbicides among others. McKergow et al, 2005 estimated the Suspected Sediment Exports in the Styx River to be approximately 250 kt/year.

On the project scale, the estimated baseline sediment generation for the Project's total area is estimated at 5,037 t/year (Engeny, 2020), which is equivalent to only 0.017% of the total sediment yield to the Great Barrier Reef.

The above are only some examples of publicly available information that the authors could have relied upon to construct a proper model. Instead, the authors decided to model using unrealistic information – water containing no sediment that flows into the Great Barrier Reef assuming that the only load affecting the Great Barrier Reef and Broad Sound area is the sediment load that supposedly the Project will produce. This is misleading and considered biased. The authors did not

consider the fact that CQC Project will decrease by half the volume of sediments that are currently flowing towards the Great Barrier Reef (Engeny, 2020).

The following provides a discussion of the findings and recommendations provided by the Report.

4.8.1 Reactive Management Systems

Proactive mine management systems have been implemented in Central Queensland Coal Project, with surrounding the site with a levee to capture all mine sediment and mine affected water, along with numerous sediment traps and sediment filters.

Bartley et al, 2014 demonstrated that changes in grazing management and stocking reduction resulted in a 70% decline in sediment yields to the Great Barrier Reef. This is a case that was also studied by Pringle, 1991 which found that a decrease in sediment yield has resulted from extraction of river bed sand and gravel, and from construction of dams and weirs which lessen the size of major floods and trap much sediment which under natural conditions would have been transported to the coast. Central Queensland Coal, using the above two principles, demonstrated that it is possible to decrease the amount of sediments released into the Great Barrier Reef from the project area by half (Engeny, 2020).

Central Queensland Coal has committed to set aside offset habitat within the Mamelon property. The finalised offset areas will be destocked and no grazing will occur within the offset areas. Cattle grazing will be progressively decreased within the mining lease during the operational period and at approximately year 10, no grazing is proposed within the entirety of the two mining leases (~2,600 ha). The destocking and cessation of active grazing within the mining leases and offset areas within the Mamelon property will allow for the natural regeneration of land currently impacted by grazing activities, particularly along waterways.

This control combined with the erosion and sediment mitigation measures that the Project will implement, is expected to contribute to a reduction in mobilised sediments compared to the current agricultural land use. The estimated "worst-case" scenario of sediment generation rate for the Project is 2,297 t/year or approximately 50,000 tonnes over the life of mine, which is a reduction of approximately 50% in comparison to the baseline sediment budget. (Engeny, 2020)

Central Queensland Coal proposed water storages under average climatic conditions in conjunction with destocking of the undisturbed MLs and Mamelon offset areas will reduce the estimated baseline sediment generation rate of 5,037 t/year to approximately 2,297 t/year.

Importantly this is one of the benefits that the public is not discussing and information not taken into account by the paper's authors. A project like Central Queensland Coal is improving water quality by construction of dams and sediment retention structures to reduce by half, sediment loads that are being transported towards the Great Barrier Reef under the current conditions.

4.8.2 Downstream Effects

Firstly, it is wrongly assumed by the authors that there are no precedent for coal mines close to the ocean. Currently in Queensland, there are 78 mining leases (3 are coal) located 20km or closer to the Great Barrier Reef Marine Park of which 10 are applications and 68 are granted. Likewise, in New South Wales there are 61 coal mining leases located 20km or closer to the coastline. This proves a lack of research and knowledge by the authors, on the Australian mining lease status.

Secondly, it is important to clarify that the impact of mining in relation to other industries and land usage practice is minimal. Over the Great Barrier Reef region the major land uses comprise dry-land grazing (74%), conservation and natural environment (13%), production and plantation forestry (5%), cropping (4%; including sugarcane, 1.3%, and cereals, 0.3%), residential (0.4%), horticulture (0.2%, and mining (0.2%) (Kroon et al, 2012). The estimated baseline sediment generation for the Project's total area is estimated at 5,037 t/year which is equivalent to only 0.017% of the total sediment yield to the Great Barrier Reef. Therefore, the impacts and downstream effects of mining and, more specifically, Central Queensland Coal Project, are an improvement to water quality.

4.8.3 Cumulative Impacts

The authors stated, "The potential impacts of a sediment leakage from the mine would therefore be in addition to the numerous already disturbances". This is a case where the authors did not properly evaluate the publicly available information or decided not to mention it. Central Queensland Coal has scientifically demonstrated that even in the "worst case" scenario, the Project will decrease the sediment budget in the Great Barrier Reef by half of the baseline and current scenario. This means that this cumulative impact will be positive for the Reef even in the "worst case" scenario calculated.

It is important to note that seagrass, green turtles and in general marine life are currently suffering from sediments deposited into the Great Barrier Reef with current land use. Central Queensland Coal demonstrated that it is possible to decrease these amount of sediments released into the Great Barrier Reef from the Project area from 5,037 t/year to approximately 2,297 t/year. This small contribution will help to improve the habitat of the marine life in the area and at the Great Barrier Reef.

5 Mandatory Balancing

Paragraph 28 and 29 of the Decision to Refuse correctly identify that pursuant to s 136(1)(b) the Minister must consider environmental impact and economic and social matters.

Firstly, CQC submits that all the evidence provided but not referenced or relied upon by either the IESC or the SAR report, supports the finding that the Project does not amount to an impact pursuant to Subdivision F s527E; either as a direct consequence or as an indirect consequence, both of these criteria require that the action (the mining of coal at CQC) must be substantial cause of harm.

CQC repeats and relies on its detailed submission in Section 3 – Environmental Considerations of this document that demonstrates that there would be no impacts from the proposed release strategy on downstream waters, including in the GBR; and the AEIS demonstrates that there is a net positive benefit to the downstream receiving environment including the Great Barrier Reef Marine Park (GBRMP).

Secondly, the Minister is mandated to consider the economic and social matters. The Minister has a duty to perform a statutory balancing exercise. CQC submits that any supportable balancing exercise must necessarily have considered all material as between competing interests and objectives and then give the appropriate weight to the benefits as opposed to a perceived risk.

CQC submits that if due and proper attention is given to these submissions (Section 4 - Economic and Social Matters) then the Minister must find that the balance is for the approval of the Project. To find otherwise is inconsistent with the text, purpose and context of the Statute.

CQC submits that the importance of the benefits to people must be given its appropriate weight especially since the definition of environment under the Act supports the fact that “people and communities” are a part of the environment and so too are “the social, economic, and cultural aspects “of the people and communities, as follows:

S.528 Definitions

environment includes:

- a. ecosystems and their constituent parts, including people and communities; and
- b. natural and physical resources; and
- c. the qualities and characteristics of locations, places and areas; and
- d. heritage values of places; and
- e. the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).

6 References

- Bartley et al, 2014. 'Can changes to pasture management reduce runoff and sediment loss to the Great Barrier Reef? The results of a 10-year study in the Burdekin catchment, Australia'. *The Rangeland Journal*, 2014, 36, 67-84.
- Bartley et al, 2017. *2017 Scientific Consensus Statement – Sources of Sediment, Nutrients, Pesticides and Other Pollutants to the Great Barrier Reef*. State of Queensland, 2017.
- Engeny, 2020. 'Central Queensland Coal Project Sediment Budget Assessment'. Appendix 15b. *CQC AEIS*. October 2020.
- Kroon et al, 2012. 'River loads of suspended solids, nitrogen, phosphorous and herbicides delivered to the Great Barrier Reef lagoon'. *Marine Pollution Bulletin* 65, 167-181.
- McKergow et al, 2005. 'Sources of sediment to the Great Barrier Reef World Heritage Area'. *Marine Pollution Bulletin* 51, 200-211.
- Neil et al, 2002. 'Sediment yield and impacts from river catchments to the Great Barrier Reef lagoon'. *Mar. Freshwater Res.*, 2002, 53, 733-752.
- Pringle, 1991.' Fluvial sediment supply to the North-east Queensland coast, Australia'. *Australia Geographical Studies* 29, 114-138.
- Saint-Amand et al, 2022. 'Quantifying the environmental impact of a major coal mine project on the adjacent Great Barrier Reef ecosystems'. **Marine Pollution Bulletin** 179.

Appendix 1

Response to Paragraph 1 – 87 of Attachment A1 - Considerations relating to decision-making under Part 9 of the EPBC Act

This section provides a response to each of the points raised in **Attachment A1** – Considerations relating to decision-making under Part 9 of the EPBC Act. The points raised in **Attachment A1** are presented first, with the CQC responses to each point presented below in the shaded boxes.

Recommendation

1. The Secretary recommends that the construction and operation of an open-cut coal mine on Mining Lease 80187, a train load-out facility and associated infrastructure (**proposed action**), approximately 130 kilometres (km) north-west of Rockhampton in central Queensland, be refused approval under section 133 of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

Noted.

2. The reasons for this recommendation are set out in this report. In summary, the department considers that the proposed action will result in unacceptable impacts on the following controlling provisions:
 - a World Heritage Property (section 12 and 15A),
 - a National Heritage Place (section 15B and 15C),
 - the Great Barrier Reef Marine Park (section 24B and 24C), and
 - a water resource in relation to a coal seam gas development or large coal mining development (section 24D and 24E).

The department considers that the proposed action will not result in unacceptable impacts on the following controlling provisions:

- listed threatened species and communities (section 18 and 18A), and
- listed migratory species (section 20 and 20A).

Noted. See responses to the specifics of the reasons in below sections.

Mandatory considerations

3. Under section 136 of the EPBC Act, in deciding whether or not to approve an action and what conditions to attach to the approval, the Minister must consider the following, so far as they are not inconsistent with any other requirement of Subdivision B, Division 1 of Part 9 of the EPBC Act:
 - matters relevant to any matter protected by the controlling provisions (a **matter of national environmental significance [MNES]**); and

- economic and social matters.

Noted.

Matters relevant to any matter protected by the controlling provisions for the action [section 136(1)(a) of the EBPC Act]

4. The controlling provisions for the proposed action are:
 - a World Heritage Property (section 12 and 15A),
 - a National Heritage Place (section 15B and 15C),
 - listed threatened species and communities (section 18 and 18A),
 - listed migratory species (section 20 and 20A),
 - the Great Barrier Reef Marine Park (section 24B and 24C), and
 - a water resource in relation to a coal seam gas development or large coal mining development (section 24D and 24E).

Noted.

Background

5. The proposed action was assessed by the Queensland Government in accordance with the *Agreement between the Commonwealth and the State of Queensland relating to Environmental Assessment (Bilateral Agreement)*.

Noted.

6. Central Queensland Coal Pty Ltd (the **proponent**) published a draft Environmental Impact Statement (**EIS**) on 18 May 2018, an amended version on 20 December 2018 and the final amended Environmental Impact Statement (**AEIS**) on 8 October 2020 (**Attachments E1 to E83**).

Noted.

7. On 28 April 2021, the Queensland Department of Environment and Science (**DES**) released a state assessment report (**SAR**) for the proposed action (**Attachment D**) pursuant to Part 1 of Chapter 3 of the *Environmental Protection Act 1994* (Qld). The SAR assesses the impacts of the proposed action on the MNES listed above.

Noted.

8. On 10 May 2021, the department sought clarification from DES regarding the SAR's conclusions on the assessment of MNES. On 11 May 2021, DES responded and clarified the conclusions of the SAR (**Attachment A2**).

Noted.

9. The SAR and clarification from DES dated 11 May 2021 make recommendations about the suitability of the project, having regard to the impacts of the proposed action on each relevant MNES as outlined in the following table:

EPBC Act Controlling Provision	Relevant Section of the State Assessment Report	Acceptability of Impacts
World Heritage (section 12 and 15A)	<p>Section 4.16.2 of the SAR sets out DES' conclusions on the World Heritage and National Heritage values of the Great Barrier Reef.</p> <p>DES concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the Great Barrier Reef World Heritage Area (GBRWHA) would be unacceptable.</p>	Unacceptable risks
National Heritage (section 15B and 15C)	<p>Section 4.16.2 of the SAR sets out DES' conclusions on the World Heritage and National Heritage values of the Great Barrier Reef.</p> <p>The heritage values that cause the Great Barrier Reef National Heritage Place (GBRNHP) to meet the criteria prescribed in the regulations (its national heritage values) are similar to the values which cause it to meet the world heritage criteria.</p> <p>DES concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the GBRNHP would be unacceptable.</p>	Unacceptable risks
Listed threatened species and communities (section 18 and 18A)	<p>Section 4.16.3 of the SAR sets out:</p> <ul style="list-style-type: none"> • The potential impacts of the proposed action on listed threatened species and communities. • DES' conclusions on residual significant impacts on the following listed threatened species and communities: <ul style="list-style-type: none"> - Koala (<i>Phascolarctos cinereus</i>) (combined populations of Qld, NSW and the ACT) – Vulnerable - Greater Glider (<i>Petauroides volans</i>) –Vulnerable - Squatter Pigeon (Southern) (<i>Geophaps scripta scripta</i>) – Vulnerable - Ornamental Snake (<i>Denisonia maculata</i>) – Vulnerable • A high-level summary of the proponent's proposed avoidance, mitigation and management measures to address impacts on listed threatened species and communities. • DES' recommended conditions for an approval decision under the EPBC Act. <p>The SAR concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on listed threatened species and communities would not be unacceptable.</p>	No unacceptable risks, with recommended conditions of approval

EPBC Act Controlling Provision	Relevant Section of the State Assessment Report	Acceptability of Impacts
Listed migratory species (section 20 and 20A)	<p>Section 4.16.4 of the SAR sets out:</p> <ul style="list-style-type: none"> • The potential impacts of the proposed action on listed migratory species. • DES' conclusions on residual significant impacts on listed migratory species. • A high-level summary of the proponent's proposed avoidance, mitigation and management measures to address impacts on listed migratory species. • DES' recommended conditions for an approval decision under the EPBC Act. <p>The SAR concludes that, with consideration of the proposed mitigation and management measures, and recommended conditions of approval, the impacts of the proposed action on listed migratory species would not be unacceptable.</p>	No unacceptable risks, with recommended conditions of approval
Great Barrier Reef Marine Park (GBRMP) (section 24B and 24C)	<p>Section 4.16.5 of the SAR sets out:</p> <ul style="list-style-type: none"> • The potential impacts of the proposed action of the GBRMP. • DES' conclusions on residual significant impacts on the GBRMP. <p>Section 4.16.2 of the assessment provides a high-level summary of the proponent's proposed avoidance, mitigation and management measures to address impacts on the GBRMP.</p> <p>DES concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the GBRMP would be unacceptable.</p>	Unacceptable risks
A water resource – large coal mines and CSG (section 24D and 24E)	<p>Section 4.16.6 of the SAR sets out:</p> <ul style="list-style-type: none"> • The potential impacts of the proposed action on groundwater and surface water resources. • The advices from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) provided in 2017, 2018 and 2020, and the proponent's responses to those advices. • DES' conclusions on impacts on water resources. • A high-level summary of the proponent's proposed avoidance, mitigation and management measures to address impacts on water resources. <p>DES concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on a water resource relating to large coal mines and coal seam gas would be unacceptable.</p>	Unacceptable risks

Noted. See responses to the specifics of the reasons in below sections.

10. Following publication of the SAR, the Department obtained additional information relevant to the impacts of the proposed action on MNES, as follows:
- On 7 May 2021, the proponent wrote to the former Minister for the Environment advising that it refutes the findings in the SAR in relation to the impacts of the proposed action on the GBRWHA, GBRNHP and GBRMP, and water resources relating to a coal seam gas development or large coal mining development (**Attachment F1**).
 - On 17 May 2021, the proponent wrote to the department (**Attachment F2**) providing three additional documents that provide more detail regarding the comments provided to the Minister (former) in the 7 May 2021 correspondence (**Attachment F3 to F5**).
 - On 20 May 2021, a delegate of the Minister stopped the timeframe on the statutory clock to provide DES with an opportunity to respond to the proponent's submissions on the SAR dated 7 and 17 May 2021, as stipulated under clause 20 of the Bilateral Agreement. On 1 June 2021, DES wrote to the department responding to the proponent's submissions (**Attachment F10 and F11**).
 - On 24 May 2021, the proponent met with the department to outline their reasons for refuting the findings in the SAR (see meeting notes at **Attachment F6**). At that meeting, the proponent provided two geotechnical reports and one of those (geotechnical report on 'water dam 2') had not previously been provided to the department (**Attachment F7**).
 - On 31 May 2021, the proponent wrote to the Department (**Attachment F8**) outlining in greater detail its comments on the findings in the SAR and provided digital copies of the additional information provided at the meeting on 24 May 2021 (**Attachments E77, F7, F9 and G55**).
 - On 16 June 2021, the proponent met with the Department to provide further detail on questions that were raised by the delegate in relation to the impacts of the project on MNES (see meeting notes at **Attachment F12**). At that meeting, the proponent stated that they would provide documentation to the Department that summarises the information requested and discussed at the meeting.
 - On 8 July 2021, the proponent wrote to the Department providing the summary of information discussed at the 16 June 2021 meeting (**Attachment F14**).
 - On 13 July 2021, the Department sought comment from DES (**Attachment F15**) regarding the geotechnical report on 'water dam 2' (**Attachment F7**) and whether or not the information associated with it affected their conclusions on the SAR. On 20 July 2021 DES responded to the department's request (**Attachment F16**).
 - On 13 July 2021, the proponent indicated they could provide the Department with an updated water management strategy regarding controlled and uncontrolled releases of mine affected water (**Attachment F17**). The proponent provided the Department with a 'No Release Strategy' on 23 July 2021 (**Attachment F18**).
 - On 26 July 2021, the Department sought advice from its Office of Water Science (**OWS**) in relation to the proponent's 'No Release Strategy'. The department asked whether OWS considered the document provided adequate information and mitigation measures to address the risks identified within previous IESC advice (**Attachment F19**).

- On 2 August 2021, OWS provided the Department with their advice relating to the proponent's 'No Release Strategy' (**Attachment F20**).

Noted. See responses to the specifics of the reasons in below sections.

11. The Department considers that the submissions made by the proponent in response to the SAR (as detailed above between 7 May 2021 and 8 July 2021) contain limited new information that was not provided in the AEIS. This new information, and DES' responses, were as follows:
- 'Highwall mining extraction' methods could be used when mining near the 500 m buffer associated with the Bruce Highway, where blasting would pose risks to its users.
 - DES responded to this information stating that impacts to users of the Bruce Highway are of limited relevance to the Minister's decision under the EPBC Act.
 - The Department considers however, that the impacts to users of the Bruce Highway are relevant to the Minister's considerations of economic and social matters, which are set out at paragraphs 112 to 114 and 133.
 - Further coal reserves to the east, south and north of the open cut mine would make the mine economic.
 - DES responded to this information stating that it is likely that mining of these reserves (that are located closer to the GBRWHA) would increase the risks of adverse impacts on the World Heritage Area.
 - Sufficient materials are available on site for engineered fill required for all civil structures associated with the Project. The proponent provided geotechnical reports to support this view (**Attachment F7**).
 - DES responded to the geotechnical report associated with 'turkey nest dam' stating that it is a small dam of 40 ML capacity and that highly dispersive topsoil would spread on the dam embankment batters. This is inconsistent with the statement in the submission that "no dispersive soils will be used [in construction]".
 - DES responded to the geotechnical report associated with 'water dam 2' (**Attachment F16**) and stated that it does not change the views in relation to the risk of dam failure expressed in the SAR (**Attachment D**).

The reasons that this may be considered 'limited new information' is that CQC have sought to highlight where agencies have failed to consider items within the AEIS. CQC were not seeking to specifically provide new information but rather to 1) supplement the existing information to help the agencies understand their approach, and 2) highlight areas where agencies failed to consider information within the AEIS. This is covered in more detail below. However, in response to items 11a-c above specifically:

- 'Highwall mining extraction' methods could be used when mining near the 500 m buffer associated with the Bruce Highway, where blasting would pose risks to its users
 - While the department considers that impacts to users of the Bruce Highway are relevant to the Minister's considerations of economic and social matters, considering that the decision for refusal was based on MNES that exclude these matters, and that conditions and mitigation can be used to manage these impacts, this matter is not further responded to here.

- b. 'Further coal reserves to the east, south and north of the open cut mine would make the mine economic.'
- Further mining in other locations not included in the AEIS is not further considered. Only areas identified as part of the AEIS are subject to the application and this matter is therefore not further responded to here.
- c. 'Sufficient materials are available on site for engineered fill required for all civil structures associated with the project. The proponent provided geotechnical reports to support this view (**Attachment F7**)'
- This information was provided to confirm what CQC had already previously stated, that is, that only non-dispersive, stable material would be used for structural components of the dams.
 - CQC has never proposed sodic or dispersive materials in the construction of any of the structures and is confident that there is sufficient non-sodic material on the site for all structures.
 - CQC understand there has been some confusion regarding the re-use of dispersive material as topsoil. However, this ignores the following statements in the reports (**Attachment F7**) that 'Good quality, non-dispersive, impervious material is required for the dam embankment' and that the tested soils comply with this requirement.
 - The intention of the above statement was that dispersive material would need to be removed, and would be used as growth medium, with suitable amelioration, but **WOULD NOT BE USED FOR STRUCTURAL MATERIAL**. This was also made clear in other correspondence with the agency, and it is clear that the use of ameliorated sodic growth medium was immaterial to the dam structural stability and ability to withstand seepage or failure.

12. The Department considers that the geotechnical report relating to 'water dam 2' was used to justify the material presented within the AEIS relating to engineering of the containment dams. For example, notes provided within the geotechnical drawings at **Appendix E77** state that non-dispersive materials will be used for the construction of containment dams associated with the project. This information was assessed by DES during the EIS stage of the project and used to determine the risks of dam failure occurring during the life-of-mine operations. Based on this information DES noted in the SAR (section 4.3.2.5, **Attachment D**) that the risk of dam failure of dam 1 and/or the levee have potentially significant consequences on the receiving environment, including the highly sensitive GBRWHA. The SAR also concluded that the magnitude of impact to the downstream environment from levee failure could be potentially catastrophic (page 158, **Attachment D**).

The consequence assessment of the dams in the AEIS correctly identified the potential consequence of dam failure, confirming the consequence category of the dams (including Dam 1 – High), as required by the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933 Version 5.01) (DES 2016). This is used to determine the minimum hydraulic performance requirements and design considerations needed for each dam. Structures with Significant or High consequence categories are regulated structures, requiring a detailed and rigorous design process, including design by a Registered Professional Engineer of Queensland, review and certification by an independent certifier, and approval of design plans.

The statement above is false in that determination of the consequence of a structure does not allow a determination of the risks of dam failure. Risk, as specified in various sources including

AS/NZS ISO 31000 Risk Management requires understanding of both consequence AND likelihood. Likelihood of dam break failure was identified as very low, and the intention of the above Manual is to ensure appropriate design and construction, coupled with appropriate management, is employed so that the likelihood of dam failure is suitably controlled. The AEIS also specified that a Failure Impact Assessment would be undertaken as required as outlined in the 'Guidelines for Failure Impact Assessment of Water Dams' if required, although initial design indicates that none of the dams exceed the 10m height triggering this assessment. Subsequent advice confirmed that a Failure Impact Assessment would be conducted, and the SAR provided a mechanism whereby both this study, and requirements to meet the commitments made by the proponent (suitable material, construction methods, etc.) could be conditioned and required prior to construction, which have regardless been committed to by CQC (SAR, p52).

To be clear then, the consequence of dam failure is not disputed, which has been taken into account in the design and management of the dam, and CQC have committed to not using any material that may compromise the safety of the dam wall (such as sodic materials). If the department considers that only the consequence be considered in risk assessment for dams, then ALL regulated structures in Queensland should be considered unsuitable, as their consequences are necessarily significant or high. This is clearly a ridiculous proposition, and DES does not appear to take this view based on their comments within the SAR.

CQC have committed to appropriate design, and will accept any reasonable conditions relating to the safety of the site dams.

As noted in the response to paragraph 11 above, CQC has never proposed sodic or dispersive materials in the construction of any of the structures and is confident that there is sufficient non-sodic material on the site for all structures.

13. The department considers that DES' analysis of the new information provided to the department to be accurate and therefore considers that the proponent's submissions in response to the SAR do not affect the recommendations of the SAR.

Refer above in response to paragraph 11 – note that as mentioned it is CQC's point that further information to that provided in the AEIS was not required. The further information that was provided was only to supplement the existing information to help the agencies understand CQC's approach and consisted mainly of clarifications, outlining where important elements of the project were not considered.

14. The Department considers that the only new information of significance in the geotechnical reports (**Attachment F7**) is that dispersive soil material will be stockpiled for spreading on dam embankment batters for 'turkey nest dam'. The Department notes that this material is inconsistent with the materials used for the other dams and considers that its use will likely increase the risk of dam failure or seepage throughout the life-of-mine operations.

As noted in the response to paragraph 11 above, CQC has never proposed sodic or dispersive materials in the construction of any of the structures and is confident that there is sufficient non-sodic material on the site for all structures.

15. The proponent's submissions (**Attachments E77, F1 to F5, F7, F8, F9, F14 and G55**) and DES' response are addressed below in relation to the GBWHA, GBRNHP and GBRMP, and water resources in relation to a coal seam gas development or large coal mining development.

Noted – refer to CQC responses below.

16. The Department considers that the SAR did not contain sufficient analysis of the relevant Conservation Advices and Threat Abatement Plans with respect to the listed threatened species and communities likely to be impacted by the proposed action. The department's consideration of these statutory documents is outlined in paragraphs 242 to 252 in relation to listed threatened species and communities.

Noted - considering that the decision for refusal was based on MNES that exclude these matters, and that conditions and mitigation can be used to manage these impacts, this matter is not further responded to here.

17. The Department considers that the information provided in the 'No Release Strategy' (on 23 July 2021) contained additional information relevant to the controlling provisions triggered by the action. The additional information and the response from OWS, at **Attachment F20**, are as follows:

The additional information, responses from OWS, and CQCs responses to these is provided in **Table 6-1** overleaf.

Note that the catalyst for this 'additional information' was as follows:

- CQC provided a detailed assessment of water releases, which found no impact from the water release strategy, in the AEIS
- Subsequently, the IESC drew unfounded and erroneous conclusions from this work, and provided advice on this basis, that the Project should not proceed (**Attachment F3**). It is clear that key information was not considered or simply disregarded out of hand and CQC have provided advice to this effect (see **Attachment F4**). The erroneous advice from the IESC was then reflected in the SAR. Importantly, it was clear that any releases were viewed as an impact regardless of any consideration of flows or quality.
- As such, CQC prepared the 'No Release Strategy' document (**Attachment F18**) to identify whether further reductions in water releases could be adopted (they can, are feasible, and demonstrable). This was intended to overcome the reluctance of any agency to consider the project on its merits (instead considering any discharge to have an impact).

The OWC were asked by the Environment Approvals Division to assess whether the 'No Release Strategy' document (**Attachment F18**) addressed the IESC's concerns. Specifically, the Environmental Approvals Division asked "Question 1: Does the OWS consider this document (Central Queensland Coal Project No Release Strategy), provides adequate information and mitigation measures to address the risks identified in the IESC's advice?" and the OWS document (**Attachment F20**) states that "This document, prepared at the request of the Environment Approvals Division, outlines the Office of Water Science's (OWS) technical advice on the Central Queensland Coal project's proposed mitigation measures, contained in the No Release Strategy (dated 23 July 2021)."

CQC contend that the premise of this request for advice was incorrect, as the 'No Release Strategy' document was not intended to be read as a stand alone document but should be

considered in conjunction with the original water balance modelling and Mine Site Water Management Plan. The 'no release strategy' document was not intended to address all of the concerns of the IESC (this was provided in **Attachment H4**), but rather, to demonstrate that there were numerous other options for water disposal available further to those that were provided in the AEIS.

It appears that the OWS has missed the point of the '*No Release Strategy*' document, which was to demonstrate that, notwithstanding that there would be no significant impacts to the receiving environment, there are a number of feasible and common options available to further reduce water volumes on site without the need for discharge.

Essentially however, the '*No Release Strategy*' document demonstrates that there are a number of options and mechanisms that can be utilised to decrease the requirement for controlled releases, and, if it assists the approval of the Project, then CQC would be happy to accept conditions to that effect. This was made abundantly clear in the document.

Table 6-1. Item 17 – OWS responses

Proponent Additional Information (in 'no release strategy' document)	OWS Response Summary	CQC Response (this response document)
Water levels within Dam 1 will be reduced prior to the wet season each year to prevent uncontrolled releases of mine affected water occurring during wet years	The proponent has not provided an updated water balance or surface water management plan. The OWS also noted that the proponent indicated that a revised water management plan and water balance model would be submitted once the project received approval (page 8, Attachment F18). In the absence of these plans, the OWS noted that there was no modelling or data to support the proponent's adaptive management strategy	<p>As noted above, there was no need to prepare an updated water balance model or surface water management plan, as the 'no release strategy' document was not intended as such. The findings of the impact assessment were that there is no significant impact to downstream environments and the 'no release water strategy' document demonstrated that CQC could further reduce discharges, thus resulting in a further lessening of potential impacts to downstream environments. Stating that these plans were absent in simply false, and the nature of the assessment in the the 'no release water strategy' document was made clear, although apparently ignored by the OWS.</p> <p>Note that if the OWS was referring to lack of information related to the numerical analysis in the 'no release strategy' document, then at no time was this information requested, and at no time was it communicated to CQC that this was fundamental to assessing the document. Clarification of the methodology could have been provided on request if we were made aware, and further if the OWS is adamant that an entire updated and detailed water balance was critical to the decision we would have provided this information, although we refute that it was required, and it should be noted that we did commit to undertake a new water balance model prior to construction commencing on the site.</p> <p>To clarify the method used, CQC took the outputs from the water balance model to determine the effect of a reduction in volume in Dam 1 prior to the wet season on the overflows, using the method adopted (and accepted) in virtually all water balance models (irrigation to meet evaporative demand) demonstrating that there was adequate water demand potential to consume this water.</p>
Water releases from Dam 1 will be significantly reduced through adaptive management practices (page 3, Attachment F18). In a high rainfall event or period, controlled releases could be released into the open cut pit for dewatering rather than into Deep Creek	<p>An updated water balance was not provided and OWS cannot confirm if the reductions stated will reduce the amount of mine affected water being discharged into the receiving environment by controlled and uncontrolled releases.</p> <p>It is unclear if transferring Dam 1 water to the open cut pit would cause impacts to mining operations. This strategy could</p>	<p>See above regarding revised water balance modelling.</p> <p>As was made clear in the 'no release strategy' document, transferring Dam 1 water to the open cut pit is not the main form of water management proposed, but rather an option to be used in extreme events should it be required, as is common practice in other mines in Queensland. To be clear this is not proposed, nor required, as a routine water management measure, and was never stated to be such.</p>

Proponent Additional Information (in 'no release strategy' document)	OWS Response Summary	CQC Response (this response document)
	lead to stop work and OWS is not confident that it is an adequate mitigation approach.	Regarding the potential for impacts to mining operations leading to stop work effects, for the majority of the mine life there will be areas of the pit not being mined that would be available for this storage, and suitable demand that could be utilised in the dry season to draw down this storage.
	The methods used to dewater the open cut pit, such as the irrigation of waste rock stockpiles, could lead to increased turbidity in the receiving environment and would require ongoing mitigation.	Given that irrigation of spoil piles would be on-site rather than off-site, with irrigation within the daily evaporative potential (i.e. all water would be expected to evaporate, and irrigation would cease prior to causing any runoff), and that any runoff would be contained within the water management system, it is hard to understand how this would lead to increased turbidity or mobilisation of these metals in the receiving environment (note that aluminium, arsenic and selenium are elevated in the receiving waters (compared to default guideline values) as a result of the mineralised nature of the catchment, and how this could occur is not specified). If the 'no release strategy' document was read in context with the water management plan and water modelling reports, this would have been clear.
	The mine spoil also has elevated concentrations of aluminium, arsenic and selenium, which could be mobilised through irrigation methods applied to the spoil. It is unclear if the proponent intends to irrigate the mine spoil.	The potential for increased concentration of these elements was investigated in detail, finding no changes to receiving waters. The OWS was not requested to review this information in context with the 'no release strategy' document. Finally, we cannot understand why the OWS states that irrigation of mine spoil is unclear – this was clearly identified in the 'no release water strategy' document.
Irrigation of waste rock stockpiles would occur during the wet season where evaporative demand allows (page 4, Attachment F18).	The proponent has not provided adequate information regarding the quantity of water being used for irrigation and if this surplus water will be used to irrigate only on site.	Refer above – note that if the OWS had considered the 'no release water strategy' document in the context of the water management plan (as it should have been), then it would have been clear that it was only to be irrigated on site, and all areas fully contained within the water management system, notwithstanding that irrigation would have ceased prior to causing any runoff.
	The addition of irrigation water during any rainfall event will increase the run-off in the catchment area within the tributaries of the Styx River.	It was made abundantly clear that this would only occur where required, and that such irrigation would be undertaken within the evaporative demand on the day – i.e. causing no runoff, with irrigation occurring within the site. It was not proposed to irrigate during a rainfall event as this would not make sense (i.e. it would not be within the evaporative demand on the day). While this may increase runoff in subsequent rainfall events, the net effect would be to enhance the evaporation of water – i.e. a net water loss to the system, which was the intent. It would not result in increased water in the system (how this would possibly occur is unknown) and if read in the context of
	During wetter periods, this irrigation could lead to increased	

Proponent Additional Information (in 'no release strategy' document)	OWS Response Summary	CQC Response (this response document)
	<p>sedimentation and mobilisation of mine contaminants into the receiving environment and the GBRWHA.</p>	<p>the water management system (as it should have been), it would have been clear that this would occur within the water management system (not in external areas of the catchment). Exactly how this would result in increased mobilisation to the environment is unclear in the extreme.</p>
<p>Water evaporators could be used to quickly dispose of excess water as needed (page 5, Attachment F18).</p>	<p>The proponent has not provided any information on the method and approach for evaporating water.</p> <p>Evaporating mine affected water would result in contaminated salt by-products, which would require storage and disposal. This approach will leave a long-term legacy impact.</p> <p>The Queensland Government's Coal Seam Gas Water Management Policy states that evaporation dams, essentially, are not permitted as a water disposal option. Consequently, the use of water evaporators may not be an option to manage excess water on site.</p>	<p>Detailed information on the use of water evaporators was not provided as these were not the main form of water management proposed, but rather an option to be used in the event excess water reduction is required. The OWS should know that substantial increases in water evaporation can be achieved through the use of these systems.</p> <p>To be clear, the term 'water evaporators' is a common term used to describe mechanical water evaporators (i.e. fans), NOT water evaporation ponds (which are commonly referred to as 'water evaporation ponds'). These systems are used in a number of settings in Queensland and could achieve quite easily a reduction of 5-10ML/day during the late dry season if additional water usage were required. This would have the effect of reducing overflows or releases by the same amount.</p> <p>These systems remove water through evaporation, leaving behind the other components of the water (salts etc.). Should the dam be say 95% full, then it would increase salinity by at most 10%. Since it would be undertaken when the dam was full rather than low, salinity would be lower, and so the increase in absolute terms would be relatively low (e.g. increase from 5mS/cm to 5.5mS/cm).</p> <p>To be clear then, no evaporation dams are suggested and 'contaminated salt by-products requiring storage and disposal' would not be required. The 'no release strategy' document made clear this was an additional option that could be considered, but that the calculations in the document did not rely on this method.</p> <p>Note that the Project is not a Coal Seam Gas Project. As such, the Queensland Government's Coal Seam Gas Water Management Policy is not relevant. Regardless, the intent of that policy is to prevent dams for which the sole purpose is evaporation. As described above, that has never been the intention (stated or otherwise).</p>
<p>Water could be provided for use in cattle grazing and crop irrigation with an allowance to use a reverse</p>	<p>The use of an RO plant will require the disposal of the reject brine produce from the treatment process.</p>	<p>The response to this item is essentially identical to that for water evaporators above – i.e. an RO plant would extract a volume of water, with salts remaining within Dam 1, and avoiding any and all brine reject or evaporation ponds. The calculations in the 'no release strategy' document do not rely on the use of an RO plant for the reductions found, and CQC do not and have never intended to utilise an RO plant in a</p>

Proponent Additional Information (in 'no release strategy' document)	OWS Response Summary	CQC Response (this response document)
<p>osmosis plant (RO plant) to treat water to a level suitable for this use (page 5, Attachment F18).</p>	<p>More than half of the volume of water (56%) processed by the RO plant would become reject brine.</p> <p>The proponent has not provided any information on how the brine will be stored or disposed.</p> <p>This approach will leave a legacy of long-term management required to deal with the reject brine produced from the treatment process.</p> <p>This approach will lead to the treated water being discharged into Deep Creek and result in impacts to aquatic environments within, adjacent to and downstream of the project site.</p>	<p>manner that would reduce the water in Dam 1 to a highly salinized level (if this could even be accomplished given the volumes involved).</p> <p>The other responses can be summarised as follows:</p> <ul style="list-style-type: none"> • The efficiency stated by the OWS appears to be very low, although this is immaterial to the findings (refer above) • There will be no brine storage or disposal required and so no legacy of long-term management required • Given the above, no treated water will be discharged into the creek. Importantly, these methods give flexibility to the system providing for options to achieve stricter release conditioning, but would in any case only be used where the dam volume is high, not low (i.e. lower salinity), and the resulting concentration of salts would be minimal and well within the range already seen in the dam due to drier conditions (where these options are not required).
<p>Release of non-mine-affected water could be done from sediment dams instead of Dam 1 (page 5, Attachment F18).</p>	<p>This mitigation measure contradicts what the proponent states to be the adaptive management approach; that there will be no release of water from the mine into the receiving environment.</p>	<p>The adaptive management strategy is related to releases from Dam 1, as was made clear in the 'no release strategy' document, and the management of sediment (non mine affected water) releases would have been clear if the OWS had reviewed the document in context with the water management plan.</p> <p>Note that CQC have proposed release conditions for ALL water releases from the site, regardless of source (i.e. mine affected water and non-mine affected water). Further, this option is not required to achieve the reductions stated in the document, but instead, and similar to the water evaporators and RO options above, are included as additional options to provide flexibility should they be required. The approach is to preferentially release treated sediment basin (non-mine affected water) to Dam 1 waters, BUT ONLY in compliance with release criteria.</p> <p>To be clear, this mitigation measure DOES NOT contradict the adaptive management approach, and appears to be a result of the OWS' lack of contextual information (considering the 'no release strategy' document without the required contextual documents, including water management plan).</p>

Proponent Additional Information (in 'no release strategy' document)	OWS Response Summary	CQC Response (this response document)
Controlled releases could be limited to only very wet years, for example a 1 in 1000- year rain event (page 3, Attachment F18).	This mitigation measure contradicts what the proponent states to be the adaptive management approach and there being no impact as a result of the project	The 'no release strategy' document did not at any stage state that no releases would occur from the site. The document, as stated above, outlined feasible methods to substantially reduce water releases, and through simple strategies could reduce these so that releases only occur in very wet years. Further, CQC cannot understand why a release is automatically assumed to have an impact, regardless of any consideration of flow or water quality. It is understandable for the OWS to make this conclusion perhaps, as the important contextual documents were not considered as part of the review.
<p>Note: At the Mine Site the average annual rain fall is 997mm and the average annual evaporation rate is 2130mm. Brine can be stored in pit void where pit water is highly saline.</p>		

18. The OWS advice stated that that the mitigation measures provided within the ‘*No Release Strategy*’ will not safeguard the GBRWHA and the Broad Sound Fish Habitat Area. The OWS also stated that other high-value environments near the site (including Tooloombah Creek, Deep Creek, the Styx River estuary and two state-listed wetlands) will also not be safeguarded by the measures detailed in the strategy.

This is not surprising, as the ‘*No Release Strategy*’ document was not intended to provide the overall mitigation measures, but simply to identify that releases could be substantially reduced (eliminated for all up to very wet years). Mitigation measures to safeguard the GBRWHA and the Broad Sound Fish Habitat Area are detailed in the AEIS (e.g. Chapter 9 – Surface Water, Chapter 15 – Aquatic Ecology, Appendix A5c – Draft Water Management Plan, Appendix A10e – GDE Monitoring and Management Plan, Appendix A10f - Draft Receiving Environment Monitoring Program, etc. and subsequent information provided clarification on where this information was provided, where it was clear it had not been considered.

It should be noted that the release scenarios presented in AEIS were formulated on the basis of the impact assessments revealing that there is no expected negative impact to downstream water quality or environmental values as a result of controlled (or uncontrolled) releases from the Project. However, throughout the AEIS assessment process, it has become clear that, even though there is demonstrably no risk posed as a result of releases, the perception is that any release of water from the Project, whether it contains contaminants or not, is undesirable in close proximity to the GBRMP. As such, CQC revisited their water management strategy to explore other options for water management that could reduce the need for controlled releases (**Attachment F18**).

To reiterate, the ‘no release strategy’ document did not address all impacts and mitigation for the project, but demonstrated that water releases could be substantially reduced, such that CQC were confident that conditioning no releases up to a wet (1:1000 year) event would be feasible for the project, should it be required.

See responses to paragraph 17.

19. The OWS advice considered the mitigation measures proposed as part of the ‘*No Release Strategy*’ do not adequately address the risks identified in the IESC advice previously provided to the Department regarding the environmental impacts of the Project.

Again this is not surprising, as the ‘*No Release Strategy*’ document was not intended to provide the overall mitigation measures nor to respond to the IESC comments (refer responses to item 17).

There are serious issues with the IESC’s comments, including that they failed to consider the information provided in the AEIS. See **Attachment H4**, and this is considered at Section 3.2 of this document.

20. The Department considers that OWS have undertaken an accurate assessment of the proponent’s ‘*No Release Strategy*’. The Department considers that the strategy does not adequately address the risks identified in previous IESC advice on the Project.

See responses to paragraphs above (17 – 19). CQC refutes that the OWS assessment considered the relevant information, and instead the OWS appear to have assessed the ‘*No Release Strategy*’ Document without consideration of other important information to which it was essentially an addendum (refer responses to paragraphs 17 and 18).

21. On 8 July 2022, you received a reconsideration request from Environmental Justice Australia (EJA) acting on behalf of the Environment Council of Central Queensland Inc (ECOCEQ) (**Attachment F24**). That request sought that you reconsider, under ss 78 and 78A of the EPBC Act, the decision made by your delegate on 3 February 2017 that the proposed action is a controlled action under s 75(1) of the EPBC Act.

Noted

22. The request states that there is substantial new information about the impacts of the proposed action on the matters that are protected by Pt 3 of the EPBC Act. At a high level, it contends that the emissions of gases that will result from the proposed action will have significant effects on several protected matters, including protected matters that the delegate did not consider were controlling provisions for the action. It argues that, on this basis, you should revoke the delegate's decision under s 75(1) of the EPBC Act and substitute it with a new controlled action decision that decides that additional provisions of Part 3 are controlling provisions for the action.

Noted

23. The relevant departmental Policy Statement states that, where a reconsideration request is made and an approval decision has not yet been made as is the case here, the reconsideration request will be dealt with before the approval decision. It would be open to you to extend the statutory timeframe for an approval decision to enable the reconsideration decision to be made.

Noted

24. Dealing with the approval decision first represents a departure from the process set out in the Policy Statement. Given that the proposed decision is to refuse to approve the taking of the action on the basis that it poses unacceptable risks to several matters that are protected by the EPBC Act, the department considers that it is reasonably open to you to depart from the Policy Statement in the circumstances of this particular referral. The Policy Statement is a guidance document only.

Noted

25. The proposed decision is to refuse the taking of the action on the basis that it presents unacceptable risks to several protected matters that are controlling provisions for the action. Given this, the department considers that the further information from EJA regarding the asserted relevant impacts of the action requires no further consideration.

Noted.

26. The proponent will be provided with a copy of the reconsideration request from EJA pursuant to s 131AA and will therefore have the opportunity to make any comment on the extent to which this information should form part of your consideration.

Noted.

27. Once you make a final decision about whether to approve the action under s 133 of the EPBC Act, you will not be able to reconsider the delegate's s 75 decision (s 78(3)).

Noted.

Impacts

Great Barrier Reef World Heritage Area (section 12 and 15A), National Heritage Place (section 15B and 15C) and Marine Park (section 24B and 24C)

28. The SAR concluded that the project would result in unacceptable risks to the GBWHA, GBRNHP and GBRMP.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

29. DES based this conclusion on the following:
- a. the risk of impacts to surface water quality associated with contaminated water from controlled and uncontrolled releases or dam failure.
 - b. the impacts of sedimentation to the GBRWHA, due to groundwater drawdown and the degradation of groundwater dependent ecosystems along Tooloombah and Deep Creeks.
 - c. That, despite the proposed mitigation measures, there remains a real risk that releases would not be able to meet the water quality targets as per the Great Barrier Reef 2050 Plan.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

30. The proponent responded to DES' assessment (timeline of responses is outlined under paragraph 10). In summary, the proponent's AEIS and response to the SAR indicate that the proponent disagrees with the findings of the SAR on the basis that:
- a. The dam has been designed to withstand up to a 1:1000-year flood event.
 - b. There is a less than 1% chance of dam failure occurring within the 20-year operational period of the mine.
 - c. The dam would be constructed to Queensland Department of Natural Resources, Mines and Energy standards.
 - d. It is not fair or reasonable to single out a particular mine dam from hundreds of other existing cases and reject it on hypothetical grounds.
 - e. Sodic (dispersive) soils will not be used to construct the dam.
 - f. Modelled water quality in the receiving creeks (in terms of trace metals and other contaminants) is predicted to contain similar background levels as the water within the containment dams.
 - g. Receiving water will dilute the mine-affected water if released.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

31. DES responded to the proponent's comments, stating that:
- a. The chance of a 1:1000-year flood event occurring within the 20-year life-of-mine operations is 2% and that such a risk cannot be ignored.
 - On 29 June 2021, DES clarified that the 2% chance of a 1:1000-year flood event occurring during the life-of-mine operations was calculated by multiplying the chance of a 1:1000-year flood event occurring in any given year (0.1%) by the 20-year life-of-mine operations, which gives 2% (**Attachment F13**)
 - b. The AEIS stated (Ch. 9, table 9-16, **Attachment E9**) that the consequences of levee failure due to an extreme flooding event would be significant to humans and the environment.
 - c. The receiving environment is sensitive as it occurs only 9.7 km from the GBRWHA.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

32. The proponent provided two geotechnical reports (**Attachment F7**) to the department as additional justification that the materials they plan to use for construction of the dam do not contain dispersive soils. The department provided both reports to DES for their comment (**Attachment F15**). The DES responded (**Attachment F16**) stating that the geotechnical reports do not change their views in relation to the risk of dam failure expressed in the SAR (**Attachment D**).

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

33. The proponent stated that dispersive sediments would not be used for construction of the containment dams (**Attachment F1**). The department considers this statement is inconsistent with the geotechnical report for ‘turkey nest dam’, which states dispersive material will be stockpiled and spread on the dam embankment batters (**Attachment F7**).

The department considers that this is significant as it increases the risks of dam break or seepage of mine-affected water into the receiving environment.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

34. The department considers that the proponent has been provided an opportunity to consider and respond to all relevant additional information provided to the department since the release of the final SAR. The department notes that the additional information (**Attachments E77, F1 to F5, F7, F8, F9, F14 and G55**) did not change the DES conclusion that the project will result in unacceptable risks to the GBWHA, GBRNHP and GBRMP.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

35. The proponent provided a ‘No Release Strategy’ to the department that outlined mitigation measures to address changes to surface water quality from controlled and uncontrolled discharges of mine affected water into the receiving environment (**Attachment F18**). The OWS provided a response to the strategy (see paragraphs 17 to 20 for a summary) stating:
- a. An updated water balance was not provided and OWS cannot confirm if the reductions stated will reduce the amount of mine affected water being discharged into the receiving environment by controlled and uncontrolled releases.
 - b. The methods used to dewater the open cut pit, such as the irrigation of waste rock stockpiles, could lead to increased turbidity in the receiving environment and would require ongoing mitigation.
 - c. The mine spoil also has elevated concentrations of aluminium, arsenic and selenium, which could be mobilised through irrigation methods applied to the spoil. It is unclear if the proponent intends to irrigate the mine spoil.
 - d. The proposed adaptive management practice of irrigation occurring during wet season could lead to increased sedimentation and mobilisation of mine contaminants into the receiving environment and the GBRWHA.
 - e. The proponent’s claim that controlled releases could be limited to 1 in 100-year rain events appears to contradict the proponent’s stated adaptive management approach, and there being no impact as a result of the project.
 - f. That the mitigation measures set out in the ‘No Release Strategy’ will not safeguard the GBRWHA and the Broad Sound Fish Habitat Area.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

36. Having considered the submissions provided by the proponent, information from DES and the advice of its OWS, the department considers:
- a. A 2% risk of a 1:1000-year flood occurring within the operation period of the mine is significant.
 - b. Dam failure and the release of mine-affected water (containing trace metals and coal particulates) would result in potentially catastrophic (section 4.5.2, **Attachment D**) impacts to the GBWHA, GBRNHP and GBRMP.
 - c. The risk of this occurring, and the consequences if it were to, represent unacceptable impacts to the Great Barrier Reef.
 - d. Impacts from these processes to the GBWHA, GBRNHP and GBRMP would be significant, and unable to be adequately avoided, mitigated or offset, primarily because of the location of the project, and would be irreversible and unacceptable.

A response to paragraphs 28 – 36 has been summarised in Table 6-2.

Table 6-2. Paragraphs 28 -36 – Impacts [Great Barrier Reef World Heritage Area, National Heritage Place and Marine Park] responses

Paragraph(s)	Issue	CQC Response
28 - 29	<p>The SAR concluded that the project would result in unacceptable risks to the GBWHA, GBRNHP and GBRMP.</p> <p>DES based this conclusion on the following:</p> <ul style="list-style-type: none"> a. the risk of impacts to surface water quality associated with contaminated water from controlled and uncontrolled releases or dam failure. b. the impacts of sedimentation to the GBRWHA, due to groundwater drawdown and the degradation of groundwater dependent ecosystems along Tooloombah and Deep Creeks. c. That, despite the proposed mitigation measures, there remains a real risk that releases would not be able to meet the water quality targets as per the Great Barrier Reef 2050 Plan. 	<p>This fundamentally matches the final findings of the delegate in refusing the application, which can essentially be reduced to the following key risks:</p> <ul style="list-style-type: none"> 1. the potential risks of dam and levee failure 2. the potential risks from releases from Dam 1 3. the potential risks on water resources near to the mine, being primarily an area of terrestrial GDEs and riparian vegetation. <p>Item 1 is addressed in the below sections (the potential consequences used to determine design requirements have been conflated with the potential likelihood and therefore risk).</p> <p>Item 2 is described in the below sections (modelled water quality in the receiving creeks (in terms of trace metals and other contaminants) is predicted to basically not change as a result of the proposed releases. The subsequent ‘no release strategy’ document proposes substantial reductions in releases, to attempt to satisfy the agencies’ stance that any release will result in an impact, regardless of water quality or flow). A more detailed response to this item is made in but fur</p>
30	<p>The proponent responded to DES’ assessment (timeline of responses is outlined under paragraph 10). In summary, the proponent’s AEIS and response to the SAR indicate that the proponent disagrees with the findings of the SAR on the basis that:</p> <ul style="list-style-type: none"> a. The dam has been designed to withstand up to a 1:1000-year flood event. b. There is a less than 1% chance of dam failure occurring within the 20-year operational period of the mine. c. The dam would be constructed to Queensland Department of Natural Resources, Mines and Energy standards. d. It is not fair or reasonable to single out a particular mine dam from hundreds of other existing cases and reject it on hypothetical grounds. e. Sodic (dispersive) soils will not be used to construct the dam. 	<p>CQC does not consider that these items reflect the responses provided adequately. Importantly, a key component of our responses to the SAR (and subsequent meetings and correspondence) was that the key risks identified by DES as reasons to refuse the application did not consider the information provided in the AEIS particularly in relation to dam failure, water quality impacts in receiving waters, and impacts to GDEs and riparian areas. This is provided in the proponent responses – Attachment F.</p> <p>A further response to each of these specific items follows:</p> <p>a-b. These items appear to confuse flood immunity, overflow and dam failure risk and the probability of releases (uncontrolled over the spillway vs flow controlled releases) but not resulting in dam failure.</p>

Paragraph(s)	Issue	CQC Response
	<p>f. Modelled water quality in the receiving creeks (in terms of trace metals and other contaminants) is predicted to contain similar background levels as the water within the containment dams.</p> <p>g. Receiving water will dilute the mine-affected water if released.</p>	<p>Based on the consequence assessment and the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (the Manual), the dam must be designed with a design storage allowance (DSA) equal to the 1:20 year event; an extreme storm storage (ESS) allowance of the 1:10 year 72 hour event; a spillway suitable to pass at least the 1:1000 year event (with rationale for the event size provided by the certifier) and crest levels with a flood peak level + wave run-up allowance for 1:10 year wind. This has all been incorporated into the design.</p> <p>Since the Dam 1 wall is essentially part of the flood protection levee, flood immunity for both has been considered together. According to the Manual, this requires a 1:1000 year flood immunity plus suitable freeboard, which has been incorporated into the design.</p> <p>A 1:1000 year event (0.1% probability in any year) has a probability of occurring at least once in 20 years of just under 2%. There is also a 1% chance each year of a release from the dam over the spillway (in the AEIS, and ignoring the reductions provided in the ‘no release strategy’ document), which would not be dam failure, and it is possible these two figures have been confused. Regardless, a 2% chance of an event larger than the 1:1000 year event does not translate into a 2% chance of the dam failing. CQC have adopted all required design standards for the level of risk identified, and have committed to good design practice, including materials, to manage events through the system without actual wall failure. The design allows for up to the 1:1000 year event with no flood inflows and the ability to pass without issue the 1:1000 year flow through the spillway. Events above this (event rarer) event may overtop flood levees, but would still be conveyed through the site without gross failure. Pits may fill with water, however in the event of such a catastrophic event size, stop work requirements are not considered to be an important factor to the department. Note also that the modelling showed the site to appropriately manage all water flows for the actual climate record from 1890 to the present without failure or overtopping.</p>

Paragraph(s)	Issue	CQC Response
		<p>c-e. The dam would be designed in accordance with all relevant standards, and CQC have committed to appropriate design, incorporating failure impact assessment (and of course consequence category re-assessment) of the design, along with the use of appropriate material in construction and appropriate engineering standards. All regulated structures must comply with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i>. The design fully complies with the Manual. Note that the SAR appears to accept this strategy, outlining a mechanism whereby a dam failure analysis, and requirements to meet the commitments made by the proponent (suitable material, construction methods, etc.) could be conditioned and required prior to construction, which have regardless been committed to by CQC (SAR, p52).</p> <p>f. To clarify, the findings state that modelled water quality in the receiving creeks (in terms of trace metals and other contaminants) is predicted to basically <i>not change as a result of the proposed releases</i>. The subsequent ‘no release strategy’ document proposes substantial reductions in releases, to attempt to satisfy the agencies’ stance that any release will result in an impact, regardless of water quality or flow.</p> <p>g. Contaminant levels in the dam are not high, and detailed modelling shows that there will be no change to downstream concentrations. Stating that we are merely ‘diluting’ discharges is misleading and simplistic. Every single discharge in the world into any flowing waters is diluted. That does not impact on whether it is acceptable.</p>
31	<p>31. DES responded to the proponent’s comments, stating that:</p> <p>a. The chance of a 1:1000-year flood event occurring within the 20-year life-of-mine operations is 2% and that such a risk cannot be ignored.</p> <p>- On 29 June 2021, DES clarified that the 2% chance of a 1:1000-year flood event occurring during the life-of-mine operations was calculated by multiplying the chance of a 1:1000-year flood event occurring in any given year (0.1%) by the 20-year life-of-mine operations, which gives 2% (Attachment F13)</p>	<p>As noted above, the chance of an event with a probability of 0.1% (1:1000 year event) occurring in 20 years is just under 2%. This does not mean that the dams have a risk of failure of 2%. Due to substantive engineering design and planning, the likelihood of any failure will be forced very very low, making the overall risk very very low.</p> <p>As noted above (see response to paragraph 12) the consequence cannot be considered in isolation from the likelihood, although it is used to determine design standards, which have been fully adopted. The</p>

Paragraph(s)	Issue	CQC Response
	<p>b. The AEIS stated (Ch. 9, table 9-16, Attachment E9) that the consequences of levee failure due to an extreme flooding event would be significant to humans and the environment.</p> <p>c. The receiving environment is sensitive as it occurs only 9.7 km from the GBRWHA.</p>	<p>overall risk has been stated in the AEIS, and repeated in subsequent responses to the agencies to be extremely low.</p> <p>The assessment by DES appears to have ignored likelihood in assessing risk (in which case no regulated dam in Queensland should be approved); ignored that the Queensland government’s regulations and design requirements explicitly factor in consequence, which has been used in the design; and ignored the work showing no impact to downstream waters – CQC can find no information from DES specifying why the modelling conducted by WRM Water and Environment was not acceptable.</p> <p>The consequence assessment includes the nature of the downstream environment, and therefore design has taken this into account. CQC has committed to safe and robust design and construction as required by Queensland (and National) requirements.</p>
<p>32 - 33</p>	<p>32. The proponent provided two geotechnical reports (Attachment F7) to the department as additional justification that the materials they plan to use for construction of the dam do not contain dispersive soils. The department provided both reports to DES for their comment (Attachment F15). The DES responded (Attachment F16) stating that the geotechnical reports do not change their views in relation to the risk of dam failure expressed in the SAR (Attachment D).</p> <p>33. The proponent stated that dispersive sediments would not be used for construction of the containment dams (Attachment F1). The department considers this statement is inconsistent with the geotechnical report for ‘turkey nest dam’, which states dispersive material will be stockpiled and spread on the dam embankment batters (Attachment F7).</p> <p>The department considers that this is significant as it increases the risks of dam break or seepage of mine-affected water into the receiving environment.</p>	<p>CQC understand there has been some confusion regarding this, as the geotechnical reports contained at Attachment F7 could be read to imply that dispersive materials would be used for embankment batters. However, this ignores the following statements in those reports (Attachment F7) that ‘Good quality, non-dispersive, impervious material is required for the dam embankment’ and that the tested soils comply with this requirement.</p> <p>The intention of the above statement was that dispersive material would need to be removed, and would be used as growth medium, with suitable amelioration, but WOULD NOT BE USED FOR STRUCTURAL MATERIAL. This was also made clear in other correspondence with the agency, and it is clear that the use of ameliorated sodic growth medium was immaterial to the dam structural stability and ability to withstand seepage or failure.</p> <p>To reiterate, the risks of dam break or seepage remain very very low, as appropriate for the type of structures proposed.</p>
<p>34</p>	<p>The Department considers that the proponent has been provided an opportunity to consider and respond to all relevant additional information provided to the</p>	<p>It is CQC’s contention that, notwithstanding information being provided to clarify the proposed approach, and repeated explanations of</p>

Paragraph(s)	Issue	CQC Response
	<p>department since the release of the final SAR. The Department notes that the additional information (Attachments E77, F1 to F5, F7, F8, F9, F14 and G55) did not change the DES conclusion that the project will result in unacceptable risks to the GBWHA, GBRNHP and GBRMP.</p>	<p>information clearly provided but also clearly not considered, that the agency has not appropriately considered the existing information. CQC contends that the agency has confused consequence with risk, which implies that no regulated structures should be approved in Queensland; has ignored without apparent consideration the work by experts in determining risk to downstream waters; and has instead ignored the evidence to find a fixed pre-determined outcome regardless of the science completed on the project, which was considerable.</p>
<p>35</p>	<p>The proponent provided a ‘No Release Strategy’ to the department that outlined mitigation measures to address changes to surface water quality from controlled and uncontrolled discharges of mine affected water into the receiving environment (Attachment F18). The OWS provided a response to the strategy (see paragraphs 17 to 20 for a summary) stating:</p>	<p>As noted in responses to earlier paragraphs, the ‘no release strategy’ document did not outline mitigation or management measures, but instead identified that water releases could be substantially reduced, in an effort to overcome the entrenched idea that any discharges whatsoever and regardless of the work completed constitutes an impact. The ‘no release strategy’ document also was not provided to address changes to surface water quality, as no changes were identified in the modelling conducted for the project.</p> <p>This appears to have been used as a further reason to refuse the project, as the ‘no release strategy’ document did not satisfy a requirement that it was never intended to achieve, as was clearly identified in correspondence and in the document itself.</p>
	<p>a. An updated water balance was not provided and OWS cannot confirm if the reductions stated will reduce the amount of mine affected water being discharged into the receiving environment by controlled and uncontrolled releases.</p>	<p>Responses to these items are provided in Table 6-1 above.</p>
	<p>b. The methods used to dewater the open cut pit, such as the irrigation of waste rock stockpiles, could lead to increased turbidity in the receiving environment and would require ongoing mitigation.</p>	<p>In summary, the key failure in the OWS review was that they were requested to review the ‘no release strategy’ document on its own to determine whether the IESC comments were met. However, as was clear in the document and as stated earlier in this response, the document must be read in context with the AEIS water balance and water quality modelling, and the water management plan (among other documents). This was clearly not undertaken and so erroneous conclusions about the suitability of this document were made.</p>
	<p>c. The mine spoil also has elevated concentrations of aluminium, arsenic and selenium, which could be mobilised through irrigation methods applied to the spoil. It is unclear if the proponent intends to irrigate the mine spoil.</p>	
	<p>d. The proposed adaptive management practice of irrigation occurring during wet season could lead to increased sedimentation and mobilisation of mine contaminants into the receiving environment and the GBRWHA.</p>	

Paragraph(s)	Issue	CQC Response
	<p>e. The proponent’s claim that controlled releases could be limited to 1 in 100-year rain events appears to contradict the proponent’s stated adaptive management approach, and there being no impact as a result of the project.</p>	
	<p>f. That the mitigation measures set out in the ‘No Release Strategy’ will not safeguard the GBRWHA and the Broad Sound Fish Habitat Area.</p>	
<p>36</p>	<p>Having considered the submissions provided by the proponent, information from DES and the advice of its OWS, the department considers:</p> <p>a. A 2% risk of a 1:1000-year flood occurring within the operation period of the mine is significant.</p> <p>b. Dam failure and the release of mine-affected water (containing trace metals and coal particulates) would result in potentially catastrophic (section 4.5.2, Attachment D) impacts to the GBWHA, GBRNHP and GBRMP.</p> <p>c. The risk of this occurring, and the consequences if it were to, represent unacceptable impacts to the Great Barrier Reef.</p> <p>d. Impacts from these processes to the GBWHA, GBRNHP and GBRMP would be significant, and unable to be adequately avoided, mitigated or offset, primarily because of the location of the project, and would be irreversible and unacceptable.</p>	<p>We trust that the department understands that the risk of a 1:1000 year event occurring is the same for every single project anywhere (i.e. around 2% over 20 years in every single location on the planet), and that should this be a defining feature for future approvals, then no approvals should ever be granted where regulated dams exist, as they will always have significant or high consequences, by definition.</p> <p>While consequences of regulated dams are always significant or high (by definition), the risk depends on both consequence and likelihood as should be well understood by the agency’s involved, and it is for this situation that the regulated dam guidelines (including the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i>) includes appropriate design and certification requirements, which have been and will continue to be fully adopted. Furthermore, stating that a risk represents an unacceptable impact is obviously faulty, and taken together, the reasoning appears to be that any project with a consequence should not go ahead, regardless of the likelihood.</p> <p>Finally, it appears that the agencies have not considered the nature of the waters in the dams. Should a significant volume of this water be released (which would only occur under environmental conditions that would be considered biblical), the nature of the dam waters (specified within the AEIS) and the receiving waters would mean that impacts from such a small component of the catchment would be dwarfed by those from the larger surrounding catchments – in particular freshwater and turbidity from surrounding catchments would be the most significant impacting agents in this situation. In any smaller events, the modelling shows no change and no impacts to downstream waters.</p>

37. On 22 April 2022, a peer reviewed research article published in the Marine Pollution Bulletin investigated the potential environmental impact of the proposed Central Queensland Coal project Great Barrier Reef and adjacent ecosystems (**Attachment F21**).

Noted. See response below at paragraph 41.

38. The research evaluated the dispersal potential of mine-affected waters from the proposed Central Queensland Coal project to Broad Sound and the adjacent Great Barrier Reef through the Styx River.

Noted. See response below at paragraphs 41.

39. The key research findings were:

- a. Sediments finer than 32 μm can be transported over dozens of kilometres in a few weeks by the strong tidal currents present in the Broad Sound;
- b. The proximity of this Project means that any release of sediments in nearby wetlands would reach Broad Sound, which is 44 km downstream;
- c. Up to 60% of the fine sediments from the simulations settled along the western coast of Broad Sound, where the Clairview Dugong Sanctuary exists; and
- d. The influx of sediments in these environments could impact sea grasses (which dominate the diet of green sea turtles) via smothering, burying and reduced light penetration.

Noted. See response below at paragraphs 41.

40. The research article states some assumptions were made about the discharge rates of the Styx River. In the absence of discharge measurements, it was considered that the water flow during high river discharge seasons would be sufficient to flush sediments out into the Broad Sound.

Noted. See response below at paragraphs 41.

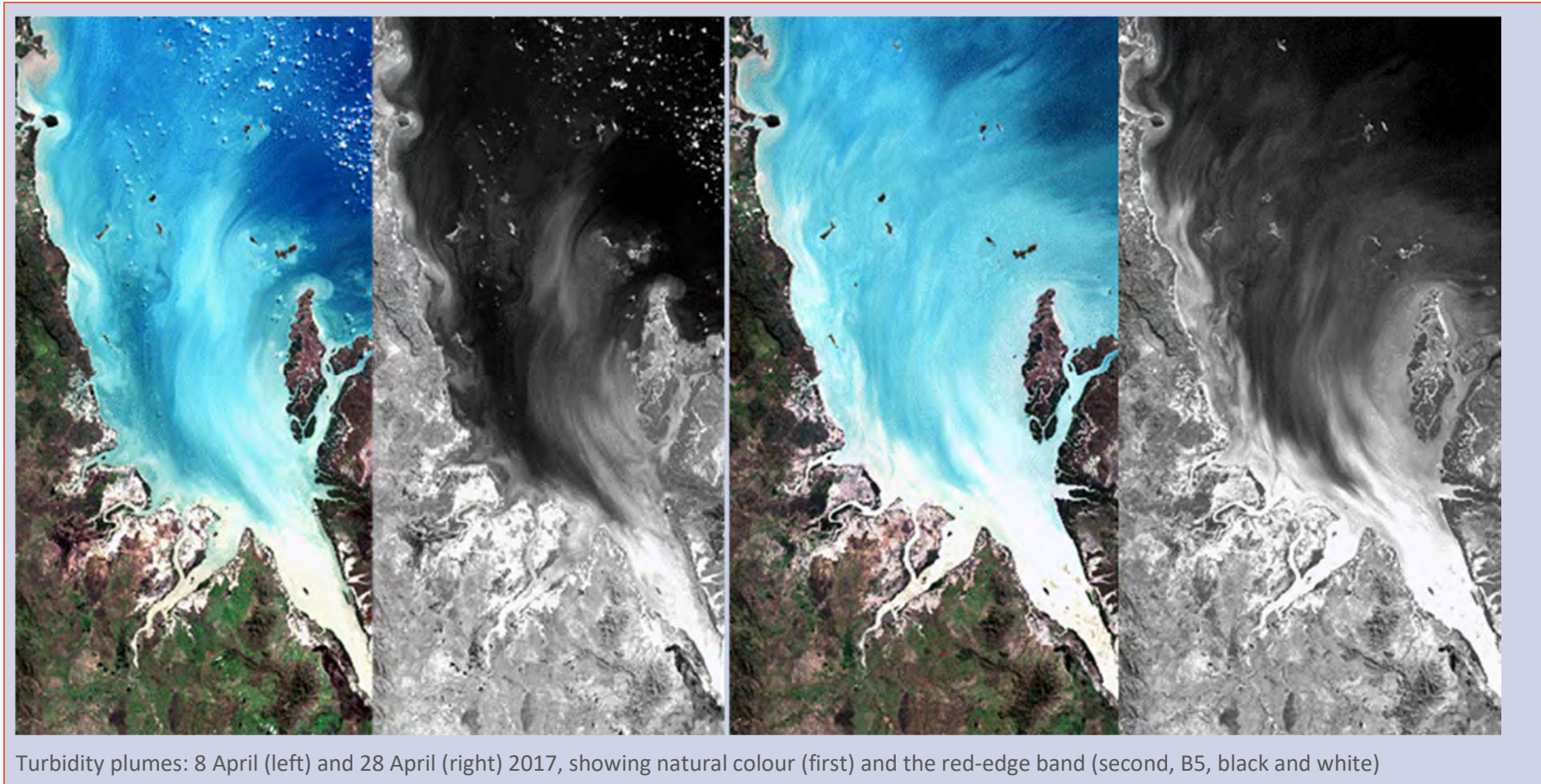
41. The department considers that, while some assumptions were made regarding the sediment modelling, there is sufficient evidence to suggest that sediments finer than 32 μm associated with mine affected water from the Central Queensland Coal mine would reach Broad Sound and cause significant damage to important sea grass habitats via processes such as smothering, burying and reduced light penetration.

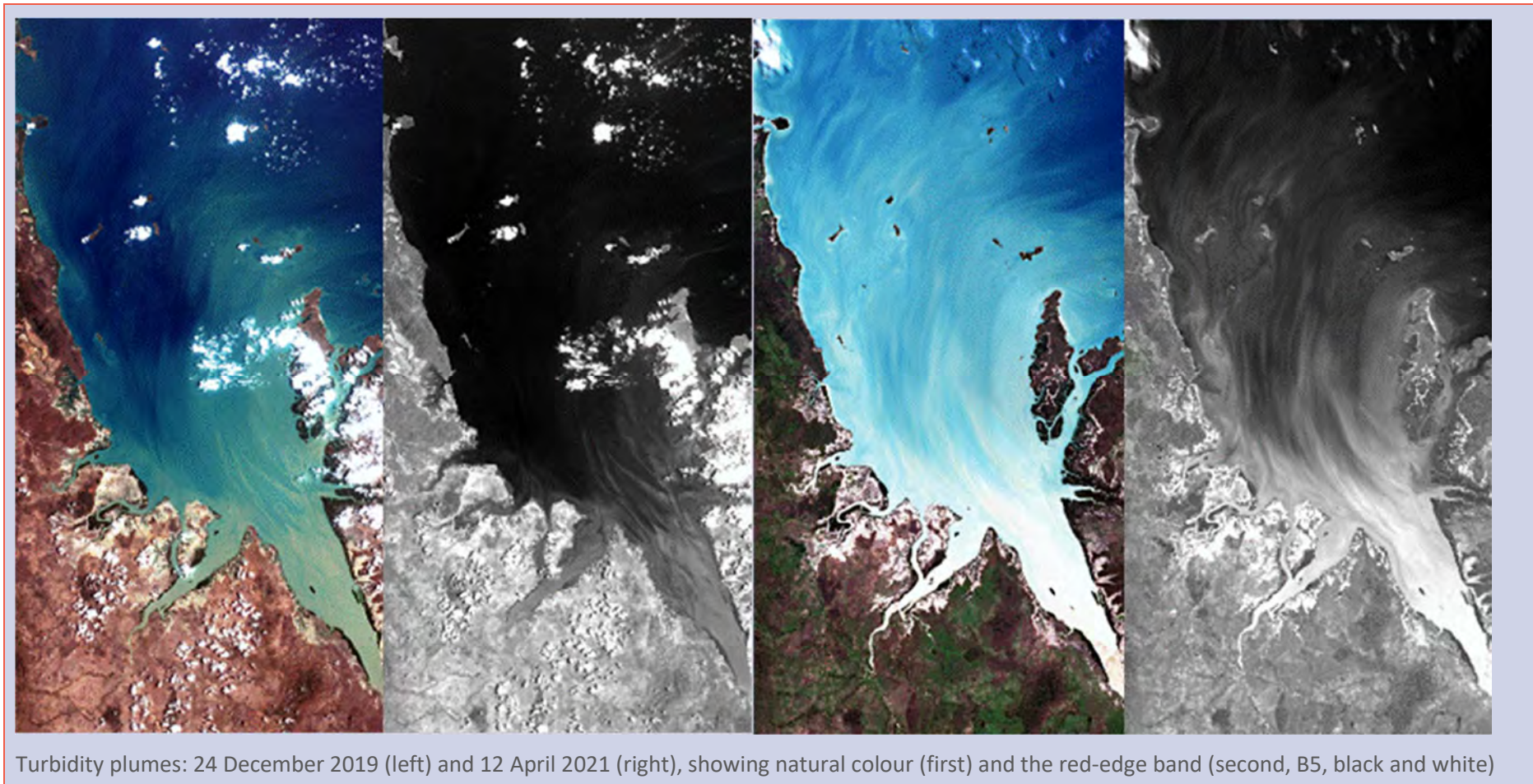
CQC has reviewed the paper discussed in the above paragraphs 37 – 41. While the department acknowledges that assumptions were made, it appears they have failed to note several very important elements of the study – in essence, while an interesting examination of potential flow patterns, the substantial issues with the paper that appear to have not been considered are:

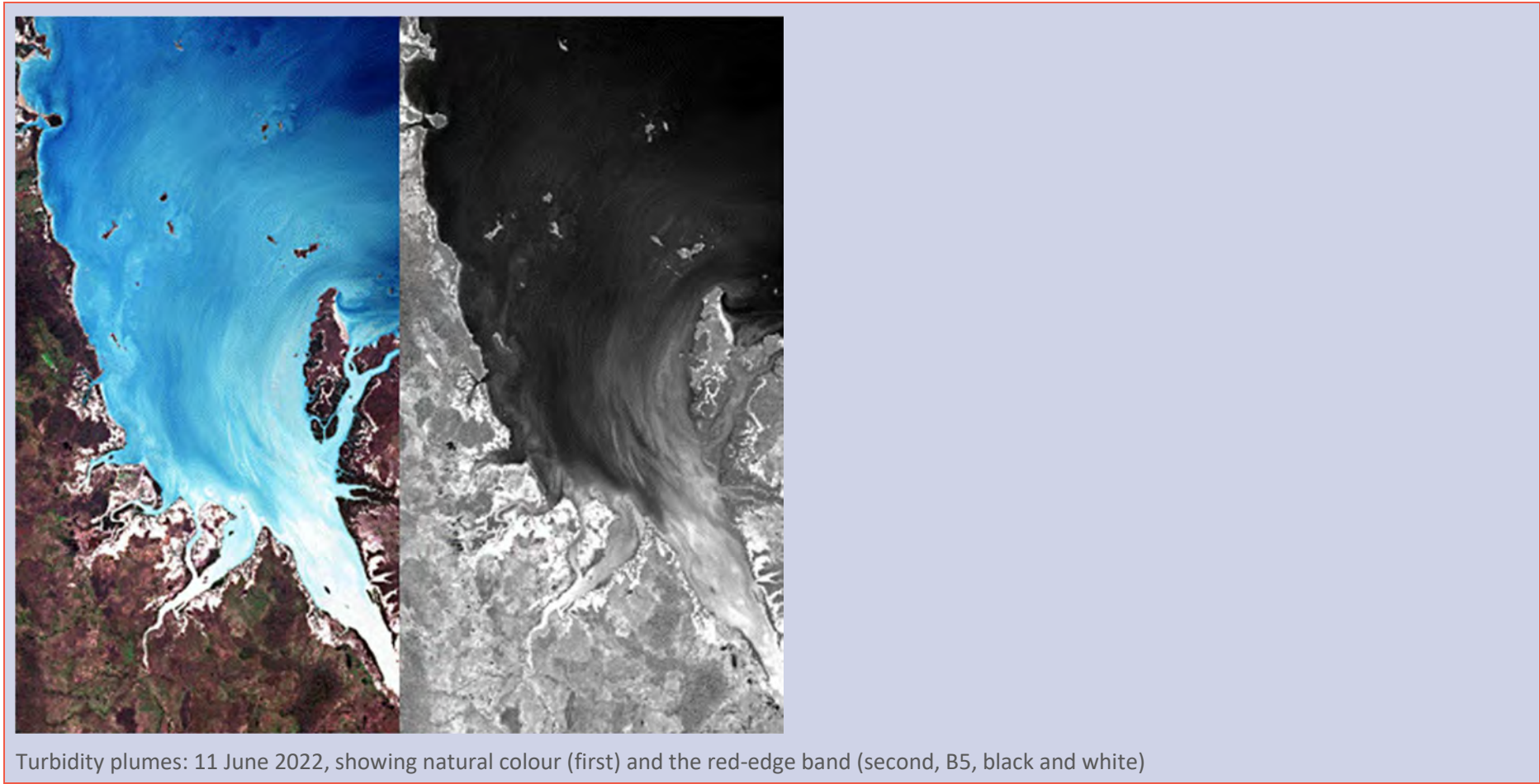
- The model has not been validated for tide or flow patterns in the inshore area the model is focused on (the validation is made over 200km away and well outside the Broad Sound bay and nearshore areas)
- The model did not validate sediment plume dynamics, most importantly ignoring the very high existing sediment loads in the region, which contain a high proportion of clays in existing runoff.
- The impacts in the paper focus on direct smothering of seagrasses from settlement of sediments and light attenuation, making the assumption that fine particles reaching seagrass areas, when released from 20km up to 40km seaward from the project (outside of the Styx River) automatically confirm that substantial impacts will occur.
- No consideration of mine inputs (i.e. the predicted reduction in sediment of 5,037 t/year for the Project under average climatic conditions - the assessment also considered non-

average, very wet, climatic conditions when sediment might be expected to mobilise more readily and found that, even under non-average wet and very wet conditions, the sediment load from the Project will be less than that of current baseline conditions) or existing sediment conditions is made, even though a simple review of available satellite imagery shows substantial sediment plumes are frequent occurrences in the Broad Sound area, extending well across the region covered by the model – refer to example satellite imagery below (Sentinel 2A imagery) – note that relatively random selections have been made, with no effort to select more turbid images.

That is, if the authors are to be believed, these major and irreversible changes must already be occurring. Since the project will reduce sediment loss from the site, the natural turbidity plumes shown below would be less rather than more intense.







Turbidity plumes: 11 June 2022, showing natural colour (first) and the red-edge band (second, B5, black and white)

42. Having considered the additional information provided by the proponent, the response from DES, the view of OWS and the peer reviewed research, the department considers that the impacts associated with the project to the GBWHA, GBRNHP and GBRMP would be unacceptable. The proximity of the proposed action to the Great Barrier Reef means the impacts on the GBWHA, GBRNHP and GBRMP are unable to be adequately avoided or mitigated. The department also considers offsets adequate to compensate for these impacts are not possible due to the pristine nature of the GBWHA, GBRNHP and GBRMP.

Using the MNES Significant Impact Guidelines 1.1 (DE 2013a) CQC demonstrated in the AEIS that there would be no impacts from the proposed release strategy on downstream waters, including in the GBR. Despite this, there is a continuing perception that releases from the site will be detrimental to the environment despite the AEIS demonstrating that there will be no negative impact on the downstream receiving environment or water quality. Despite repeated information expanding upon various points of interest to the agencies provided by CQC in many different forms and forums (meetings, responses to government material, revised strategies etc. – see material in **Attachment F**) it appears that the DCCEE approach reflects that of the IESC, which is that *“The IESC cannot envisage any feasible mitigation measures, including offsets, that could safeguard these irreplaceable and internationally significant ecological assets and their associated water resources”*. It is clear from the IESC advice that they did not read the updated information (see **Attachment H4**). Notwithstanding that the AEIS found that there was no significant impact to GBR matters (using the DCCEE significant impact guidelines), the proposition that there are no *“feasible mitigation measures, including offsets, that could safeguard...significant ecological assets and their associated water resources”* is flawed as there are a range of mitigation measures available (proven mitigation measures used at other mine sites and other operators in the GBR catchment). Contrary to the popular view propagated by the agencies, the AEIS demonstrates that there is actually a net positive benefit to the downstream receiving environment including the Great Barrier Reef Marine Park (GBRMP). The AEIS clearly demonstrates that any controlled or uncontrolled releases will not cause adverse impacts to any downstream Matters of National Environmental Significance (MNES). AEIS Chapter 16 – MNES, Section 16.3.1.1, summarises the results of the water quality impact assessment - the conclusion in the final paragraph states *‘This assessment indicates that the risks to downstream environments from high concentrations of water quality parameters contained in controlled or uncontrolled releases from the mine are low. Downstream water quality is expected to be within the range of natural variability under all release scenarios, and hence is not expected to cause adverse impacts to MNES.’*

Water resources in relation to a coal seam gas development and large coal mining development

43. The SAR concluded that the project would result in unacceptable risks to water resources in relation to a large coal mining development.

A response to paragraphs 43 – 49 has been summarised in **Table 6-3**.

44. DES based this recommendation on:
- a. the impacts of groundwater drawdown to groundwater dependent ecosystems and stygofauna communities, permanent pools along Tooloombah and Deep Creeks and stream/riparian biota, and

- b. the downstream impacts to the Great Barrier Reef resulting from sedimentation associated with riparian habitat loss along Tooloombah and Deep Creeks (discussed above).

A response to paragraphs 43 – 49 has been summarised in **Table 6-3**.

45. The proponent responded to DES' assessment (timeline of responses are outlined under paragraph 10). In summary, the proponent's responses to the SAR indicate that the proponent disagrees with the findings of the SAR on the basis that:
- a. Flows from bank storage are predicted to supply Tooloombah Creek for a period of 150 days during dry periods.
 - b. Some pools bordering Tooloombah Creek may be connected to the Styx Coal Measures (permanent highly saline groundwater source).
 - c. Groundwater modelling predicts a 1.5 m or more drawdown in the water table aquifer along 4.4 km of Tooloombah Creek, with a maximum drawdown of 4.7 m.
 - d. Groundwater drawdown along Tooloombah Creek is not likely to significantly affect bank storage due to an impermeable layer existing between the bank sediments and the Styx Coal Measures.
 - e. Bank flow storages do not return to Deep Creek and therefore it does not support permanent pools along it.
 - f. Groundwater modelling predicts 1.5 m or more drawdown in the water table aquifer along 11.5 km of Deep Creek with a maximum drawdown of 60 m at some locations.
 - g. With no mitigation measures in place, the EIS indicates it is possible that insignificant and or minor impacts could occur to three stream reaches along Tooloombah and Deep Creek:
 - Insignificant impacts are described as a 10% decline in Biocondition score against their baseline
 - Minor impacts are described as 50% decline in Biocondition score against their baseline.
 - h. Up to 83% of the impacts associated with the 165 ha of stream sections where groundwater dependent ecosystems occur would be insignificant.

A response to paragraphs 43 – 49 has been summarised in **Table 6-3**.

46. DES did not respond to the proponent's comments in relation to groundwater drawdown in its response dated 1 June 2021.

A response to paragraphs 43 – 49 has been summarised in **Table 6-3**.

47. The proponent provided a '*No Release Strategy*' to the department that attempted to mitigate the changes to surface water quality from controlled and uncontrolled discharges of mine affected water into the receiving environment (**Attachment F18**). The OWS provided a response to the strategy (see paragraphs 17 to 20 for a summary) stating:
- a. The methods used to dewater the open cut pit, such as the irrigation of waste rock stockpiles, could lead to increased turbidity in the receiving environment and would require ongoing mitigation.
 - b. In low rainfall periods, the irrigated water will allow the mine affected water to enter the groundwater environment.

A response to paragraphs 43 – 49 has been summarised in **Table 6-3**.

48. Having considered the documents provided by the proponent, DES and OWS, the department considers:
- a. A significant portion of Tooloombah and Deep Creeks will be affected by groundwater drawdown.
 - b. Groundwater drawdown will impact on 165 ha of groundwater dependent ecosystem vegetation, permanent pools and stygofauna communities associated with these systems.
 - c. Lowering of the water table is likely to affect perched aquifers, particularly along Tooloombah Creek, through depressurisation and leakage of the perched aquifer associated with groundwater drawdown.
 - d. The impacts of leakage of perched aquifers associated will result in reduced bank vegetation condition and vegetation loss, which will result in increased sedimentation into the Styx River and ultimately the GBRWHA.
 - e. Groundwater drawdown impacts will interact with those related to water quality impacts from mine-affected water (associated with controlled and uncontrolled releases of mine-affected water, or dam failure), amplifying the impact to water resources in the region.

A response to paragraphs 43 – 49 has been summarised in **Table 6-3**.

49. The department considers, as a result of the additional information provided above, that impacts associated with groundwater drawdown on Groundwater Dependent Ecosystems (GDEs) associated with the project will be significant and will result in loss of vegetation and release of sediments into the GBRWHA. The department considers that the current measures to mitigate groundwater drawdown, such as bank revegetation, are not adequate. This is because of the time lag associated with planted trees reaching maturity to provide the ecosystem service of relating to the highly erosive soils in the landscape. Having considered the additional information provided by the proponent, the department considers that the impacts associated with the project to a water resource in relation to a large coal mining development would be unacceptable.

Table 6-3. Paragraphs 43 -49 – Impacts (Water resources in relation to a coal seam gas development and large coal mining development) responses

Paragraph(s)	Issue	CQC Response
43	The SAR concluded that the project would result in unacceptable risks to water resources in relation to a large coal mining development	See detail further below.
44	DES based this recommendation on: a. the impacts of groundwater drawdown to groundwater dependent ecosystems and stygofauna communities, permanent pools along Tooloombah and Deep Creeks and stream/riparian biota, and b. the downstream impacts to the Great Barrier Reef resulting from sedimentation associated with riparian habitat loss along Tooloombah and Deep Creeks (discussed above).	
45	The proponent responded to DES' assessment (timeline of responses are outlined under paragraph 10). In summary, the proponent's responses to the SAR indicate that the proponent disagrees with the findings of the SAR on the basis that: a. Flows from bank storage are predicted to supply Tooloombah Creek for a period of 150 days during dry periods. b. Some pools bordering Tooloombah Creek may be connected to the Styx Coal Measures (permanent groundwater source). c. Groundwater modelling predicts a 1.5 m or more drawdown in the water table aquifer along 4.4 km of Tooloombah Creek, with a maximum drawdown of 4.7 m. d. Groundwater drawdown along Tooloombah Creek is not likely to significantly affect bank storage due to an impermeable layer existing between the bank sediments and the Styx Coal Measures. e. Bank flow storages do not return to Deep Creek and therefore it does not support permanent pools along it. f. Groundwater modelling predicts 1.5 m or more drawdown in the water table aquifer along 11.5 km of Deep Creek with a maximum drawdown of 60 m at some locations.	It is unfortunate that these are the takeaway items from our response, as in fact the basis of our disagreement is due to a disregard of key hydrogeological understandings of the system. While the statements to the left are more or less true, some of these are provided out of context, as follows: <ul style="list-style-type: none"> • Flows from bank storage have been shown to be the primary form of return flow (i.e. baseflow) to the creek systems, with the 150 days being a measure of the length of flow return from this system following storm recharge (the primary form of recharge to these systems). In fact, for flow within the creeks, continued flow due to 'baseflow' is entirely due to this bank storage system. Stating that 150 days is a basis for disagreement is disingenuous. • Some pools may be connected to the underlying Styx Coal Measures, however the rate of inflow is slow (and highly saline), and does not impact the number of flow days (this is influenced by bank storage). This linkage is limited to a very small number of pools in the very lower reaches • For drawdown to have an effect on flow in creeks, the groundwater level must be at or above the base of the creek, and thereafter (due to the project) be drawn down. The groundwater table is below the level of the creeks and so

Paragraph(s)	Issue	CQC Response
	<p>g. With no mitigation measures in place, the EIS indicates it is possible that insignificant and or minor impacts could occur to three stream reaches along Tooloombah and Deep Creek:</p> <ul style="list-style-type: none"> - Insignificant impacts are described as a 10% decline in Biocondition score against their baseline - Minor impacts are described as 50% decline in Biocondition score against their baseline. <p>h. Up to 83% of the impacts associated with the 165 ha of stream sections where groundwater dependent ecosystems occur would be insignificant.</p>	<p>drawdown will have no appreciable effect. For Deep Creek, recharge from storms is lost into the banks (permeable material) and so no bank storage return occurs. When drawn down, any Styx Coal Measures water would still not influence the creek (i.e. no change). The work predicts some reduction in pool permanence for a small number of pools in the lower reaches, but not widespread drying out.</p> <ul style="list-style-type: none"> • The AEIS did indicate the stated minor and insignificant impacts. However, the finding was that the bulk would be insignificant (NOT up to 83%, implying as low as 0% insignificant), with only small areas of possible minor impact (note there seemed to be some confusion in the DES SAR, with statements that minor impacts would occur to the full 165ha in some areas (e.g. p39, 62, 106, 150 and others). The work was also highly conservative, and mitigation measures were also highly conservative, which ensured: <ul style="list-style-type: none"> - NO loss of riparian vegetation, as has been suggested elsewhere in the Decision to Refuse document, through active monitoring and replacement planting prior to any vegetation failure occurring. This will act to maintain bank stability, unless the agencies are of the opinion that bank stabilisation cannot occur within central Queensland coastal areas - ALL of the identified area was offset, to remove any doubt that any net impact to terrestrial GDEs would occur, given the highly emotive nature of such systems. This had the unfortunate effect of convincing DES that the assessment was (we assume) biased or faulty (p155, 'That the proponent has appropriately concluded that an offset is required for the potential loss of 165ha of terrestrial GDE vegetation, supports my concerns.'). <p>We note in the DES SAR the repeated claim (from DAWE) that the groundwater model had underestimated the impacts (e.g. p110, 126),</p>

Paragraph(s)	Issue	CQC Response
		<p>regardless that the peer review concluded the model to be suitable. Importantly, it appears this is based on DAWE's contention that, despite it finding that 'it had an increased level of confidence in the ability of the groundwater model to predict the likely direct and indirect impacts on MNES within, adjacent to and downstream of the project site. DAWE also acknowledged that the groundwater model had been peer-reviewed and that the peer reviewer concluded the model was generally suitable and did not identify any fundamental flaws which were likely to significantly affect model predictions.', that nevertheless 'it considers the IESC to be the most appropriate source of advice with respect to the groundwater model and the associated technical analysis of the potential water-related impacts of the proposed action on MNES'.</p> <p>In other words, the groundwater model, the peer review and the associated findings were completely disregarded in favour of the IESC advice, which was found to have employed insufficient reasoning in its findings.</p>
46	DES did not respond to the proponent's comments in relation to groundwater drawdown in its response dated 1 June 2021.	Despite a detailed response on this matter, it appears the no response was made by DES, implying the matters were not considered. Given that the assessment oversimplified the impacts and appears to have ignored our valid concerns in favour of DAWE and the IESC's advice without due consideration of the actual science and work completed.
47	<p>The proponent provided a 'No Release Strategy' to the department that attempted to mitigate the changes to surface water quality from controlled and uncontrolled discharges of mine affected water into the receiving environment (Attachment F18). The OWS provided a response to the strategy (see paragraphs 17 to 20 for a summary) stating:</p> <ol style="list-style-type: none"> a. The methods used to dewater the open cut pit, such as the irrigation of waste rock stockpiles, could lead to increased turbidity in the receiving environment and would require ongoing mitigation. b. In low rainfall periods, the irrigated water will allow the mine affected water to enter the groundwater environment. 	<p>Refer to our response to paragraphs 17 to 20. In response to these specific elements, no increased turbidity or increased deep drainage to groundwater (allowing 'mine affected water to enter the groundwater environment') would occur due to irrigation, as (as stated in our response to paragraphs 17 – 20):</p> <ul style="list-style-type: none"> • irrigation would occur only on areas within the water management system (i.e. contained within the system, not resulting in any discharges of turbid water. • irrigation was specified as to within the evaporative demand – this avoids over irrigating, and as such the approach would be for NO runoff and NO increased deep drainage from irrigation.

Paragraph(s)	Issue	CQC Response
		<p>In summary, the key failure in the OWS review was that they were requested to review the 'no release strategy' document on its own to determine whether the IESC comments were met. However, as was clear in the document and as stated earlier in this response, the document must be read in context with the AEIS water balance and water quality modelling, and the water management plan (among other documents). This was clearly not undertaken and so erroneous conclusions about the suitability of this document were made.</p>
48	<p>Having considered the documents provided by the proponent, DES and OWS, the department considers:</p> <ol style="list-style-type: none"> a. A significant portion of Tooloombah and Deep Creeks will be affected by groundwater drawdown. b. Groundwater drawdown will impact on 165 ha of groundwater dependent ecosystem vegetation, permanent pools and stygofauna communities associated with these systems. c. Lowering of the water table is likely to affect perched aquifers, particularly along Tooloombah Creek, through depressurisation and leakage of the perched aquifer associated with groundwater drawdown. d. The impacts of leakage of perched aquifers associated will result in reduced bank vegetation condition and vegetation loss, which will result in increased sedimentation into the Styx River and ultimately the GBRWHA. e. Groundwater drawdown impacts will interact with those related to water quality impacts from mine-affected water (associated with controlled and uncontrolled releases of mine-affected water, or dam failure), amplifying the impact to water resources in the region. 	<p>These have been responded to in numerous locations, both in CQC's responses included in the attachments to the proposed decision documentation, and within this response document. As a summary:</p> <ol style="list-style-type: none"> a. The work showed that drawdown would not affect the creeks (the water table was naturally below the creek base, among other things) b. The impact to 165ha of GDEs (and to the permanent pools) was found to be mostly insignificant at worst (the assessment was conservative). In relation to stygofauna, as stated in Appendix 10a of the AEIS, 'Overall, impacts on stygofauna are considered to be acceptable, as they will result in the localised loss of assemblages that are likely to be well represented in adjacent areas', based on a number of aspects, including that 'it unlikely that the stygofauna taxa sampled as part of the Project investigations are short range endemics' (see Attachment H4, p30).
49	<p>The department considers, as a result of the additional information provided above, that impacts associated with groundwater drawdown on Groundwater Dependent Ecosystems (GDEs) associated with the project will be significant and will result in loss of vegetation and release of sediments into the GBRWHA. The department considers that the current measures to mitigate groundwater drawdown, such as bank revegetation, are not adequate. This is because of the time lag associated with planted trees reaching maturity to provide the ecosystem service of relating to the highly erosive soils in the landscape. Having</p>	<p>They key issues with this statement have been addressed above, but in summary:</p> <ul style="list-style-type: none"> • the work conducted that appears to not have been considered properly (or not considered at all) shows impacts to not be significant, and to result in NO net loss of vegetation in GDE areas, with no release of sediments into the GBRWHA

Paragraph(s)	Issue	CQC Response
	<p>considered the additional information provided by the proponent, the department considers that the impacts associated with the project to a water resource in relation to a large coal mining development would be unacceptable.</p>	<ul style="list-style-type: none"> the time lag issue assumes that no mitigation would occur until after complete loss of vegetation, which is completely false, and from the statement it appears the department considers that both monitoring of riparian vegetation health and bank stabilisation is not possible in central coastal Queensland catchments Finally, the department DID NOT CONSIDER ALL OF THE RELEVANT INFORMATION, including the proponent’s response relating to this specific matter, and failed to assess some of the information relying instead on advice from the IESC to, CQC contends, an unreasonable degree given the flaws outlined in that assessment.

Listed threatened species and communities

CQC has made responses and submissions in relation to these items in the past, included within the department's documentation. However, since the department's decision of refusal was not based on these provisions (listed threatened species and communities (section 18 and 18A), and listed migratory species (section 20 and 20A), responses to these items are not provided herein. For continuity, the items have still been included below.

50. The department considers that additional analysis of the relevant Conservation Advices and Threat Abatement Plans to that contained in the SAR is required to determine how the listed threatened species and communities are likely to be impacted by the proposed action. The department's consideration of these statutory documents is as follows.

Koala (*Phascolarctos cinereus*) (combined populations of Qld, NSW and the ACT) – Endangered

51. The SAR concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the Koala are not unacceptable.
52. On 12 February 2022, the Koala was listed as Endangered. Section 158A of the EPBC Act provides that listing events that occur after a controlled action decision is made must be disregarded in the making of further approval decisions. It follows that you must disregard the uplisting of the Koala for the purposes of this decision.
53. On 12 February 2022, a new Conservation Advice for the Koala came into effect. You must have regard to this new Conservation Advice in making your proposed decision. A copy of the new Conservation Advice is at **Attachment J9**. The Conservation Advice states that the threats impacting the Koala are:
- a. Loss of climatically suitable habitat;
 - b. Increased intensity/frequency of drought;
 - c. Increased intensity/frequency of heatwaves;
 - d. Increased intensity/frequency of bushfire;
 - e. Declining nutritional value of foliage;
 - f. Clearing and degradation of Koala habitat;
 - g. Encounter mortality with vehicles and dogs; and
 - h. Koala retrovirus (KoRV) and Chlamydia (*Chlamydia pecorum*).
54. The Conservation Advice also identifies the following conservation and recovery actions:
- a. Build and share knowledge;
 - b. Strong community engagement and partnerships;
 - c. Increase habitat protection;
 - d. Koala conservation is integrated into policy, and statutory and land-use plans;
 - e. Strategic habitat restoration; and
 - f. Active metapopulation management.
55. On 8 April 2022, a new Recovery Plan for the Koala came into effect. You must have regard to this new Recovery Plan in making your proposed decision. A copy of the new Recovery Plan is at **Attachment J10**. The new Recovery Plan states that the threats impacting the Koala are:
- a. Impacts to individuals and habitat caused by climate change impacts;

- b. Land use change associated with land clearing;
 - c. Natural systems modification associated with forestry operations;
 - d. Altered fire regimes;
 - e. Increased encounters with vehicles and dogs;
 - f. Disease prevalence such as KoRV and Chlamydia; and
 - g. Reductions in genetic diversity.
56. The supporting and on-ground strategies identified within the Koala Recovery Plan are the same as those in paragraph 55 above.
57. There are no Threat Abatement Plans relevant to the Koala.
58. The SAR gives particular consideration to an appropriate combination of avoidance and mitigation measures for the management of species potentially impacted by the proposed action (section 4.16.3 of the SAR at **Attachment D**).
59. The department considers that, should the proposed action be approved, conditions could be attached to such an approval that require the proponent to undertake mitigation measures and provide environmental offsets in accordance with the approved Conservation Advice for the Koala.
60. Having had regard to the approved Conservation Advice and Recovery Plan for the Koala, the department considers that if the proposed action were approved subject to appropriate conditions to avoid, mitigate and repair impacts of the proposed action, it would not have an unacceptable impact on the Koala.

Greater Glider (*Petauroides volans*) – Endangered

61. The SAR concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the Greater Glider are not unacceptable.
62. On 5 July 2022, the Greater Glider was listed as Endangered. Section 158A of the EPBC Act provides that listing events that occur after a controlled action decision is made must be disregarded in the making of further approval decisions. It follows that you must disregard the uplisting of the Greater Glider for the purposes of this decision.
63. On 5 July 2022, a new Conservation Advice for the Greater Glider came into effect. You must have regard to this new Conservation Advice in making your proposed decision. A copy of the new Conservation Advice is at **Attachment J11**. The Conservation Advice states that the key threats impacting the Greater Glider are:
- a. Frequent and intense bushfires;
 - b. Inappropriate prescribed burning;
 - c. Climate change;
 - d. Land clearing; and
 - e. Timber harvesting.
64. The Conservation advice also identifies (but is not limited to) the following conservation and recovery actions:
- a. Increase the population size as well as extent, quality and connectivity of habitat required to maintain the population within the next three generations;
 - b. Identify important fire refuge areas;

- c. Re-assess and revise current prescriptions used for prescribed burning to ensure the frequency and severity of fires in Greater Glider habitat are minimised;
 - d. Protect and maintain sufficient areas of suitable habitat;
 - e. Restore habitat connectivity;
 - f. Protect all habitat likely to be climate change refuges; and
 - g. Undertake habitat restoration to improve micro-climate conditions in areas at high risk of extreme temperatures and drought.
65. There are no Recovery Plans or Threat Abatement Plans relevant to the Greater Glider.
66. The SAR gives particular consideration to an appropriate combination of avoidance and mitigation measures for the management of species potentially impacted by the proposed action, including the Greater Glider (section 4.16.3 of the SAR at **Attachment D**).
67. The department considers that, should the proposed action be approved, conditions could be attached to such an approval that require the proponent to undertake mitigation measures and provide environmental offsets in accordance with the approved Conservation Advice for the Greater Glider.
68. Having had regard to the approved Conservation Advice for the Greater Glider, the department considers that if the proposed action were approved subject to appropriate conditions to avoid, mitigate and repair impacts of the proposed action, it would not have an unacceptable impact on the Greater Glider.

Squatter Pigeon (Southern) (*Geophaps scripta scripta*) – Vulnerable

69. The SAR concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the Squatter Pigeon (southern) are not unacceptable.
70. The key threatening processes identified in the approved Conservation Advice for the Squatter Pigeon (southern) are ongoing vegetation clearance/fragmentation, overgrazing of habitat by livestock and feral herbivores such as rabbits, introduction of weeds, inappropriate fire regimes, thickening of understorey vegetation, predation by feral cats and foxes, trampling of nests by livestock and illegal shooting.
71. Key actions recommended in the approved Conservation Advice for the Squatter Pigeon (southern) include identifying sub-populations of high conservation priority, protecting and rehabilitating areas of vegetation that support important sub-populations, protecting sub-populations through the development of covenants, developing stock management plans for key sites, developing management plans to control feral herbivores, raising awareness of the Squatter Pigeon (southern) within the local community, particularly among land managers.
72. The following Threat Abatement Plans are relevant to the Squatter Pigeon (southern):
- Threat abatement plan for predation by feral cats
 - Threat abatement plan for competition and land degradation by rabbits
 - Threat abatement plan for predation by the European red fox
73. There are no Recovery Plans relevant to the Squatter Pigeon (southern).
74. The SAR gives particular consideration to an appropriate combination of avoidance and mitigation measures for the management of species potentially impacted by the proposed action, including the Squatter Pigeon (section 4.16.3 of the SAR at **Attachment D**).

75. The department considers that, should the proposed action be approved, conditions could be attached to such an approval that require the proponent to undertake mitigation measures and provide environmental offsets in accordance with the approved Conservation Advice for, and Threat Abatement Plans relevant to, the Squatter Pigeon (southern).
76. Having had regard to the approved Conservation Advice for the Squatter Pigeon (southern) and having considered the relevant Threat Abatement Plans, the department considers that, if the proposed action were approved subject to appropriate conditions to avoid, mitigate and repair impacts of the proposed action, it would not have an unacceptable impact on the Squatter Pigeon (southern).

Ornamental Snake (*Denisonia maculata*) – Vulnerable

77. The SAR concludes that, with consideration of the proposed mitigation and management measures, environmental offsets and recommended conditions of approval, the impacts of the proposed action on the Ornamental Snake are not unacceptable.
78. The key threatening processes identified in the approved Conservation Advice for the Ornamental Snake are large scale clearing and habitat degradation, destruction of wetland habitat by feral pigs, the destruction of frog habitat and direct competition for their main food source.
79. Key actions recommended in the approved Conservation Advice for the Ornamental Snake include conducting further research into the population size, distribution and ecological requirements, identifying populations of high conservation concern, minimising adverse impacts from land use at known sites, controlling introduced pests such as feral pigs, raising awareness of the Ornamental Snake and other reptiles of the Brigalow Belt.
80. There are no Recovery Plans or Threat Abatement Plans relevant to the Ornamental Snake.
81. The SAR gives particular consideration to an appropriate combination of avoidance and mitigation measures for the management of species potentially impacted by the proposed action (section 4.16.3 of the SAR at **Attachment D**).
82. The department considers that, should the proposed action be approved, conditions could be attached to such an approval that require the proponent to undertake mitigation measures and provide environmental offsets in accordance with the approved Conservation Advice for the Ornamental Snake.
83. Having had regard to the approved Conservation Advice for the Ornamental Snake, the department considers that if the proposed action were approved subject to appropriate conditions to avoid, mitigate and repair impacts of the proposed action, it would not have an unacceptable impact on the Ornamental Snake.

Conclusion on acceptability of impacts on MNES

Refer to comments following paragraph 87 below.

84. Having considered the AEIS, SAR and additional information provided to the department relevant to the impacts of the proposed action on MNES, the department agrees with DES' assessment of the likely impacts of the proposed action on the relevant MNES. In particular, the department agrees with DES' conclusion that the proposed action:
- presents significant risks due to its location, particularly its proximity to important environmental values, including the Great Barrier Reef, Broad Sound Fish Habitat Area,

Tooloombah and Deep creeks, the Styx Estuary and associated groundwater resources and groundwater-dependent ecosystems;

- presents risks that cannot be adequately managed or avoided, due primarily to the location of the project but also in part to the lack of effective mitigation measures proposed in the EIS (note that DES is referring to the AEIS in this instance, Ch. 9, table 9-16, **Attachment E77**); and
 - is not suitable to proceed.
85. Based on this assessment, the department considers the proposed action will have unacceptable impacts on the GBWHA, GBRNHP and GBRMP, and on water resources relating to a coal seam gas development or large coal mining development.
86. Having considered the AEIS and SAR, as well as the relevant Conservation Advice and Threat Abatement Plans, the department agrees with DES' assessment that the proposed action is unlikely to result in unacceptable impacts on listed threatened species and communities and listed migratory species, if appropriate conditions of approval to avoid, mitigate and repair impacts were attached to an approval.
87. Given the conclusion above regarding the unacceptable impacts of the proposed action on other controlling provisions, the department has not outlined the conditions of approval that it considers would be required to recommend approval of the proposed action for the purposes of sections 18, 18A, 20 and 20A of the EPBC Act.

These have been addressed in the above sections. However, in summary:

- Paragraph 84 essentially states that the project is not suitable to proceed due to its location and risks that cannot be adequately managed or avoided (note the link provided is incorrect – this shows the consequence category assessment, not any indication of actual risk). This ignores valuable information, partly by not assessment the scientific merits of the information, partly by overreliance on faulty assessment advice, and partly on a failure to consider information in the way it was communicated, intended and required, leading to a pattern of ignoring of important information out of hand, including simplistic risk analysis that adopted only the consequence component without considering the likelihood.
- Paragraph 85 makes the conclusion of unacceptable impacts based on the above flaws, most notably the failure to adequately assess all of the provided information
- No comment is provided on paragraphs 86 or 87 as these are not relevant to the refusal of the project.