

QRC

submission

Working together for a shared future



Queensland Floods Commission of Inquiry

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Summary

1. The Queensland Resources Council

The Queensland Resources Council (QRC) is a not-for-profit peak industry association representing commercial developers of Queensland's minerals and energy resources, and it works to secure an environment conducive to the long-term sustainability of minerals and energy sector industries in Queensland.

2. Structure and content of the two-stage submissions process

This is the first of two written submissions to the Inquiry from the QRC. According to the Call for Submissions, the first stage of submissions is required to focus on '*issues of flood preparedness relevant to **next summer's** wet season*'. QRC's second submission (due by 4 April 2011) will set out in further detail an analysis of the history of the events of the 2010/11 wet season and the steps leading to it (to the extent relevant to the resources industry). However, there will necessarily be some overlap between the two submissions, as it is impractical for this first submission to focus only on preparation for next summer's wet season without outlining concerns about the historic preparation and response to the last wet season.

In both submissions, the key relevant terms of reference are:

- c) all aspects of the response to the 2010/2011 flood events, particularly measures taken to inform the community and measures to protect life and private and public property, including immediate management, response and recovery resourcing, overall coordination and deployment of personnel and equipment adequacy of equipment and communications systems; and the adequacy of the community's response.*
- f) implementation of the systems operation plans for dams across the state ...and the suitability of the operational procedures relating to flood mitigation and dam safety,*
- g) all aspects of land use planning through local and regional planning systems to minimise infrastructure and property impacts from floods...;*

It is noted that there is a particular emphasis on south-east Queensland in some of the terms of reference, for example, in item f) the example given in relation to dam operation is '*and in particular the Wivenhoe and Somerset release strategy*'. However, flooding also severely affected other areas of Queensland during the 2010/11 wet season, notably central Queensland. The Inquiry's interim report in relation to preparation for the next wet season is not restricted to preparation in south-east Queensland. This submission primarily relates to the need for improved wet season preparation in areas located outside of south-east Queensland, particularly central Queensland.

3. Key concerns about preparedness for the next summer's wet season and proposed solutions

(a) Need to improve regulatory approach to water management for resource sector sites (with particular reference to the coal mining industry)

QRC represented its resources sector members in a series of representations to and meetings with State government agencies, both during and prior to the 2010/11 wet season.

Based on QRC's own experience and the experience of our members, we are concerned that, in the event of a similar or more severe wet season, current environmental authority conditions relating to water management for the mining industry fail to authorise steps which are necessary and appropriate

for flood preparation. It was due to this gap in conditions that the Queensland Department of Environment and Resource Management (DERM) required the industry to engage in an inefficient and high-risk process of requiring 'transitional environmental programs' (TEPs) prior to allowing urgent water releases. TEPs were also used for the coal seam gas (CSG) industry, although the issues are somewhat different for that industry as it is not regulated by the same conditions.

QRC acknowledges and appreciates that many officers of DERM gave up their vacations and worked hard throughout the flood crisis to assess appropriate conditions for mine water releases immediately before and during the crisis. However, this should not have been necessary if appropriate conditions and plans had been in place in advance, as had been sought by QRC and our members for a lengthy period in advance of the 2010/11 wet season.

Unless this gap is resolved in a timely way before the commencement of the next wet season, then (particularly in the worst case scenario of a more severe or sudden wet season next time), QRC would be concerned not only about the major economic impacts and disruption to international trade experienced in 2010/11, but even more importantly, about the potential implications for public health and safety, and the health and safety of resource sector employees and contractors.

These concerns could be addressed through relatively straightforward changes to existing environmental authority conditions.

The normal position under the *Environmental Protection Act 1994* (Qld) is that a holder of environmental conditions who is dissatisfied with the conditions may lodge an application for amendment, and if dissatisfied with the decision on the amendment, may then appeal. However, the position is different for the mining industry, due to the approach taken by DERM with the 'Fitzroy model water conditions', which the industry was required to accept because otherwise the State government had threatened to impose the conditions compulsorily, for example, by legislative amendment. Accordingly, it is anticipated that the process to achieve changes to mining conditions so as to allow for adequate flood preparation will be for amended 'model conditions' to be negotiated between DERM and the industry as a whole (facilitated by QRC), and if so, priority should be given to advancing this step.

(b) Need to flood-proof infrastructure and supply/distribution systems

Both road and rail were severely affected by the 2010/11 flooding and the disruption to rail had particularly serious impacts for the resources sector. In turn, this led to severe impacts on other infrastructure, such as power stations. Clearly, both reconstruction work and new corridors should not simply repeat the mistakes of the past, but should focus on avoiding similar impacts for the future. Partly, this is a matter of engineering and resources; and partly it is a question of improved planning.

However, QRC wishes to draw special attention to the enabling culture of the Department of Transport and Main Roads (TMR), whose emergency response and recovery work has emerged as a benchmark for regulatory leadership. In particular, the temporary response by TMR of initiating a 'one-stop road freight permitting shop' has won acclaim from our members as an excellent innovation and a model recommended for permanent implementation.

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This submission deals with the above issues of site water management, followed by transport infrastructure. A list of suggested solutions is then collated, followed by appendices:

- **Appendix A** - briefly outlines the role of the resources sector in the 2010/11 flood response, the significance of the sector to the economy and impacts on the sector. (Some of these issues will be addressed in further detail in our second submission, in relation to 'any other matters in the Inquiry's terms of reference'.)
- **Appendix B** – History of the 'Fitzroy model conditions'.
- **Appendix C** – Copy of the Fitzroy model conditions.
- **Appendix D** – Indexed series of correspondence, meeting notes and papers, between QRC and DERM, relating to QRC's concerns with the 'Fitzroy model conditions'.
- **Appendix E** – Provides an outline of QRC's concerns with the unsuitability of DERM's preferred 'TEP' mechanism as a way of addressing flood preparation, contrasted with more appropriate environmental authority conditions and also contrasted with the emergency directions mechanism (for more sudden disasters or where preparation has not been authorised prior to the event)
- **Appendix F** – Statistics on TEPs for the 2010/11 wet season for coal mines, metals mines and CSG
- **Appendix G** - is a glossary of abbreviations and other terms used in this submission.

Part 1 - The need to improve the regulatory approach to water management at resource sector sites (particularly for the coal mining industry)

1. The key gaps in environmental authority conditions for the mining industry and why these are of serious concern for the next wet season

During the 2010/11 wet season, QRC members who were most affected by flooding included coal mines, three metals mines, some coal seam gas operations and power stations (the latter particularly in relation to coal supply issues). The issues for coal seam gas and power stations are different from coal mines, because there is a particular problem with the 'Fitzroy model water conditions' for coal mines, which QRC submits needs to be addressed sufficiently in advance of the next wet season to allow sufficient time for flood preparation, and this is not the same for CSG or power stations. Impacts on CSG and power stations will be addressed further in QRC's second submission, due on 4 April 2011.

The relevant mines which were most affected by flooding in 2010/11 were all coal mines and these coal mines are regulated by a common set of environmental authority conditions for water management, with only relatively minor variations. These conditions were originally known as the 'Fitzroy model conditions', although in fact they have now been applied to numerous mines outside the Fitzroy River catchment. The history of the 'Fitzroy model conditions' is outlined in **Appendix B** to this submission. A copy of the 'Fitzroy model conditions' is at **Appendix C**.

These environmental authority conditions do not provide for controlled releases during periods of lesser flow for the receiving watercourses, but only in high flow.¹ The reason why the conditions allow for releases during periods of high flow is to ensure greater dilution.² However, the obvious practical difficulty with this approach is that storing large quantities of water until nearby watercourses are already in flood tends only to add to the overall flood problem and increases the risk of uncontrolled releases. Also, on average, the longer that water is stored, the greater the deterioration in water quality. QRC explained this issue to DERM in a series of correspondence and meetings during the second half of 2010 and ultimately DERM impliedly recognised that the conditions did not address this issue, by inviting mines to submit applications for 'transitional environmental programs' (TEPs) overriding their conditions.³

QRC is concerned that DERM's reliance on dilution as a measure of environmental 'acceptability' is misplaced, because:

- (a) Notwithstanding the views expressed in local media (outlined in further detail below), the chemistry of coal mining and the management of coal mine water releases does not in fact involve 'toxic contaminants' comparable to gold mining (for example), but rather, the key water quality parameters which were relevant to necessary coal mine water releases in the 2010/11 wet season have been salinity and total suspended solids (**TSS**), often at levels which would have been authorised under earlier versions of conditions, or which would be comparable to releases from other properties or to the quality of floodwaters;
- (b) In general, an approach which would be more appropriate to human safety and the protection of property would allow coal mine water releases in advance of anticipated severe rainfall events or flooding, rather than at the same time;

¹ Model condition W8, Table 4 and condition W9.

² Explanatory notes, p6 of the model conditions.

³ Email from Terry Wall, DERM, to a group-list of mines dated 6 December 2010.

- (c) The approach of waiting until receiving watercourses allow for high dilution is a particularly high-risk approach for mines located near the top of a catchment, where normally mine water quality is relatively good and where waiting for minor creeks and ephemeral watercourses to be at levels which could be described as 'flash flooding' before releasing mine water would appear to give undue weight to ecological concerns over human safety and property protection.

QRC and its coal members have also repeatedly raised concerns with DERM about other problems with the Fitzroy model conditions, including obvious drafting errors in the conditions and definitions, which hinder mines from carrying out best practice water management. **Appendix D** sets out the series of correspondence, meeting notes and papers between QRC and DERM about these issues.

2. The type of condition which would allow for flood preparation for next wet season

Conditions should authorise coal mines to release water well in advance of a forecast severe wet season. Water should be released in a staged and controlled manner, rather than in a sudden 'dump' at the peak flow for receiving watercourses. It would not be difficult to provide for the quantity of staged water releases to be authorised on a basis which is commensurate to: (a) the water quality of the mine water; and (b) the quality and downstream use of receiving waters. Given that these factors vary from mine to mine (and from receiving watercourse to watercourse), a simple mechanism would be to authorise each mine to submit a 'wet season preparation plan' based on the relevant available data for that mine and for DERM to assess and authorise each mine's plan to be implemented.

3. The process to achieve amendments in a timely way

3.1 Background

Normally, if the holder of environmental conditions has concerns about the workability of those conditions, there is a statutory process available under the EP Act to apply for amendments, and if dissatisfied with the decision, to seek internal review or appeal to a court, or both. The position of the coal mining industry in Queensland in relation to water management issues is quite different. In order to understand the reasons why the industry has been forced into a different position, it is necessary to provide an historical outline. A chronology of these events is also set out in Appendix B.

In January 2008, a coal mine owned by Ensham Resources Pty Ltd (Ensham) was flooded.⁴ The mine is located near Emerald in central Queensland. The former EPA (now part of DERM), approved a transitional environmental program (TEP), permitting Ensham to discharge 138 GL of mine-affected water into the Nogoia River. According to a report to the Premier by Professor Barry Hart, entitled *Review of the Fitzroy River Water Quality Issues* (November 2008), although the discharge did not cause any serious health effects or problems for agriculture, it did result in '*discomfort to the residents of Tieri, Blackwater, Bluff, Middlemount and Dysart, due to the poor drinking water quality*' and also he found that Stanwell power station needed to make a range of plant modifications and obtain approval of a TEP for management of its water discharges, as a result of the Ensham discharge.⁵

⁴ The 2008 floods came after many years of drought when mine sites had taken care to ensure that sufficient water was being stored to provide adequate supply. So extreme were the water supply issues that in 2006 / 2007, the industry funded, at a cost of \$300M, an additional water supply pipeline to the northern Bowen Basin from the Burdekin Dam.

⁵ Headline findings paragraph 2, Hart report.

The issues gained significant media attention over a lengthy period. The Ensham incident then became a catalyst for community groups to express broader concerns, which were quoted in the Hart report, such as:

- *'The cumulative effect of waste discharges from the large number of mines in this catchment...'* and
- *'The effect of discharges of floodwater from mines other than Ensham, particularly those in the Isaac-Connors Catchment...'*⁶

The Hart report made numerous criticisms of the former EPA throughout the report, which in summary were primarily in relation to:

- its poor assessment processes when approving the TEP for Ensham;
- its poor communication with other government agencies, downstream users and the general public;
- 'tardy' assessment of the impact of the Ensham release on riverine biota; and
- generally, a lack of scientific data for making decisions, both in terms of inadequate baseline data and environmental impact data.

The most immediate effect of the Hart report on the mining industry was the imposition of a new set of stringent water quality conditions on mines within 'the Fitzroy catchment' (a term which was used somewhat loosely), known as the 'Fitzroy model water conditions'. (The conditions are now sometimes known as the 'Bowen Basin conditions', as their application has been extended to various mines outside the Fitzroy River catchment.)

Following on from the recommendations of the Hart report, the former EPA published '*A study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin*' in April 2009. All of the operating coal mines in the Fitzroy River Basin cooperated in providing data to assist with this study.

The most significant recommendation from this study was to '*standardise environmental authority conditions relating to water discharges...across the Fitzroy River Basin*'.⁷ The report was explicit⁸ that if the industry did not agree to the changes, then they would be imposed compulsorily. A very short timeframe was set for this negotiation, with the amendments required to be in place by the end of December 2009, which meant in practice that the model conditions needed to be worked out by August to leave time for individual variations by December 2009. There were several options for imposing the conditions compulsorily, in particular, it was implied in the report and subsequently stated by EPA officers more explicitly during meetings that probably the approach would have been to rely on the power under the *Environmental Protection Act 1994* enabling amendments to be imposed compulsorily if '*the environmental authority was issued on the basis of a miscalculation of the environmental values affected or likely to be affected, by the relevant mining activity; or...the effects of the release of a quantity or quality of contaminant authorised to be released into the environment.*'⁹ Possibly, the industry could have legally challenged that basis for compulsory amendment, if that had been the only threat. However, as a fallback, the report also threatened that the Government would have been prepared to go so far as to impose amendments statutorily if necessary,¹⁰ Note that this approach of amending conditions by statute was in fact carried out recently for the CSG industry

⁶ P1 Hart Report.

⁷ P6.

⁸ Pp4 and 6.

⁹ Section 292(2)(d) Environmental Protection Act 1994.

¹⁰ P6.

under the *Natural Resources and Other Legislation Amendment Bill 2010*, so our members take the threat seriously. In the circumstances, QRC and our members were forced to conclude that there was no choice but to 'negotiate' at a peak industry level in accordance with the Government's timetable, and to accede quickly to numerous provisions which both QRC and our members considered (and stated) to be unworkable, poorly drafted and likely to lead to higher practical risks.

Ultimately, the conditions that were imposed on central Queensland coal mines during the period December 2009 to January 2010 lacked any transitional condition. Given that the new conditions operated retrospectively in relation to existing mine infrastructure, the absence of a transitional condition meant that mines would obviously be in non-compliance with the new requirements the day after they were imposed.

3.2 The process going forward

Given this history, realistically, QRC envisages that the process to achieve necessary changes to conditions to enable a more controlled approach to flood preparation, will be for negotiations to occur between DERM and the industry at a peak level, that is, facilitated by QRC. Once changes have been accepted by DERM to the 'model' conditions, there is then a statutory mechanism available for DERM and individual companies to agree those changes quickly, for example, under Section 294(a)(3) EP Act.

4. The role of emergency directions

While authorisation of adequate flood preparation by way of amendments to environmental authority conditions would have overcome the types of issues encountered during the 2010/11 wet season, it is possible that a more sudden, unexpected natural disaster could still leave mines in a position where they have not had an opportunity to release water in a controlled and staged way in advance. If so, the mines will still need to release muddy floodwater, in the same way as homes and businesses always need to do in response to a flood. QRC has previously recommended that an appropriate existing mechanism under the *Environmental Protection Act 1994*, to enable prompt and efficient release of floodwaters would be the 'emergency direction' mechanism. This has been declined by DERM (and confirmed in a letter from the Premier to the QRC), in response to the 2010/11 flood emergency, in favour of the slower and consequently more high-risk approach of transitional environmental programs.

QRC submits that this response was misconceived and requests that the Flood Inquiry consider whether the mechanism of emergency directions should be included in the full armoury of available responses to flood emergencies, for the purpose of future wet seasons (and other disasters).

In the absence of conditions authorising emergency steps, the original intention of the *EP Act* was that emergency releases would be authorised by 'emergency direction' under Section 468. 'Relevant acts' (such as discharging contaminants) are not unlawful if authorised by emergency direction, under Section 493A(2)(g). The main downside of emergency directions from the perspective of industry is that they are at the discretion of DERM which would be a problem if the conditions turn out to be miscalculated; the main downside from DERM's perspective is also that these directions are in the discretion of DERM so they would be the responsibility of DERM, which would be a problem (particularly for downstream owners) if the conditions turn out to be miscalculated. The original intention was that informal cooperation would address this concern.

In the absence of conditions which address authorised releases for the purpose of prevention and mitigation of emergencies, QRC is not suggesting that there is a single perfect mechanism to address all scenarios, but rather, different mechanisms should be considered for different individual circumstances, rather than sticking to the TEP mechanism as the sole option.

It is obvious from Section 23 of the EP Act that there was originally an intention to give priority to public safety over environmental concerns. This is the section that lists various emergency legislation as being given priority, eg, the *Disaster Management Act 2003*, the *Public Safety Preservation Act 1986* etc. In our experience, the difficulty faced by many district DERM officers, who find themselves placed 'on the spot' in considering individual safety versus environment questions, is that this section did not simply say that health and safety is to be given priority, but rather the drafting provides that this limited range of statutes prevail '*only to the extent of the conflict*'. The normal position is that statutes should be interpreted to try to avoid concluding that there is any conflict, that is, they should be interpreted as requiring full compliance with both safety and environmental requirements. It is particularly unhelpful that Section 23 fails to mention either mine safety legislation or other workplace health and safety legislation. This is why it is understandable for DERM officers to feel that their statutory duty is to give priority to protecting environmental values, unless expressly directed otherwise. DERM's operational policy and information sheet on these issues also place the onus on companies to comply with both environmental requirements and safety requirements, without the need for DERM officers to ensure that a conflict is avoided.

Nevertheless, the term 'environmental value' itself is defined so as to include human safety (in Section 9). The definition of 'environment' also includes reference to social and economic considerations (Section 8). The 'standard criteria' include human issues such as the public interest and financial considerations. We do not consider that the EP Act legally prevents priority from being given to one environmental value (such as human health and safety) over another environmental value, depending on the particular circumstances.

It is apparent that the difficulty for DERM, as a line agency, is to be able to 'make the call' to give priority in an emergency or possible impending emergency to human considerations above ecological considerations, because this is just not their particular role or function. DERM can deal itself with the cases where the impact of temporarily overriding environmental conditions is environmentally negligible. However, it would be helpful if there is a 'whole-of-government' direction for priority to be given to human considerations in the circumstances of a natural disaster, in the harder circumstances where this does cause temporary environmental impact. There should still be a reasoned justification for overriding priority to the environment in the particular circumstances, but not at the expense of acting quickly to avoid hazards.

5. The mining industry's experience with the TEP process during the 2010/11 wet season

The only mechanism offered by DERM to enable mines to release water in preparation for the 2010/11 wet season (but after this wet season was already significantly advanced) was the 'transitional environmental program' (TEP) process. This was set out in an e-mail from Terry Wall of DERM to a group-list of mines dated 6 December 2010.

These TEPs were not proposed to be assessed on the basis of the normal content requirements and assessment criteria under the *Environmental Protection Act 1994*, but rather there was an additional informal set of contents and criteria advised. Experience has shown that the TEPs which have been approved most quickly have tended to relate to mines which are able to discharge directly to major rivers, so that there is a very high dilution rate, particularly given that the flow rates in those rivers are already high.¹¹ DERM has also been reluctant to approve TEPs for mines which are for a period of

¹¹ The *pro forma* guide for preparing TEPs provided by DERM in December 2010 headed '**DRAFT TRANSITIONAL ENVIRONMENTAL PROGRAM UNDER SECTION 333 OF THE ENVIRONMENTAL PROTECTION ACT 1994**' includes model conditions requiring minimum flow rates, similar to the Fitzroy conditions themselves.

greater than 6 months, notwithstanding that the normal maximum period for a TEP that is not subject to public notification is 3 years.¹²

For mines which are located near the top of a catchment and which discharge to creeks, the practical difficulty is that waiting for high flow (in order to increase dilution) creates a risk of adding to flash flooding of the creeks. High flows in creeks may be brief but severe. In some cases, these mines have relatively good quality water.

Appendix F is a table providing statistics on both mines and CSG operations which have been addressed by TEPs for the 2010/11 wet season, together with notes on mines which are still awaiting approval of TEPs at the date of this submission. The dates of approval are also listed and it can be seen from this that, in many cases, TEPs were approved too late to take advantage of any 'window of opportunity' to release water in sufficient time. A further analysis of this issue will be included in QRC's second submission.

Apart from the issue of losing a 'window of opportunity' to release water prior to flooding, QRC had a critical concern about the increased hazard if water was required to accumulate and probably deteriorate in quality until the next period of high flow that may occur during the current wet season, at which time there would be a risk of uncontrolled release. Additionally, QRC was concerned to ensure that mines are able to recover their operations, in the same way as other businesses around Queensland.

Accordingly, QRC wrote to the Premier on 28 January 2011 seeking an emergency response, but that was declined on 4 February 2011 (included in Appendix D).

In the meantime, QRC was, of course, aware of the misinformed media pressure on the Government not to permit releases on the basis that: *'These companies are asking the Government to allow the biggest single release of toxic material in the state's history and to make it legal'*, according to Friends of the Earth spokesman Drew Hutton, as reported in the article *'Miners push to pump toxins in rivers.'*¹³ This type of reporting showed a remarkable lack of understanding of the chemistry of the actual releases. Essentially, the reasons why the releases exceed normal conditions are elevated levels of 'electrical conductivity' (EC) which is a measure for salinity and 'total suspended solids' (TSS). Background levels of TSS already tend to be very high during flood events and EC can be readily diluted by large flows. This type of misinformation should not be left unchecked as it may tend to cause the public to have undue concern that the government is approving pumping of 'poisons' into watercourses.

Apart from the inefficiency of the TEP process, QRC also has numerous other legal and practical concerns about the suitability of this process for flood preparation purposes, particularly in contrast with long-term planning for flood preparation under environmental conditions authorising tailored plans, and also contrasted with the mechanism of emergency directions to address any sudden disaster. These detailed legal and practical concerns are set out in **Appendix E**.

¹² The 'simplified version' of the TEP provided by DERM to QRC on 6 January 2011 stipulates an end date of 30 June 2011.

¹³ p16, Courier-Mail, January 22-23, 2011.

Part 2 - Need to flood-proof infrastructure and supply/distribution systems

1. Road and Rail Infrastructure

QRC at the outset commends the efforts of all stakeholders to return these vital economically critical transport links to operation.

While all Queensland Ports were reported to be at or close to normal operating capacity throughout the flood and cyclone events (except for short-term safety related shutdowns), loss of road and particularly rail infrastructure access at the outset of events was a significant short-term impedance to ongoing business as usual. Port infrastructure utilisation has therefore decreased as identified earlier in this submission as a flow-on consequence of water and transport issues.

Rail system impacts for the resources sector can be summarised as follows:

- (a) The Goonyella System - out of operation for approximately one week.
- (b) The Blackwater and Moura Systems - out for a month
- (c) The Rolleston Spur of the Blackwater System – out for over two months
- (d) The Western System (immediately east of Toowoomba) - still out, expected to return early April.

Road impacts were far more numerous, with the sector and its communities denied not only access to major highways around the state, but also many equally critical local roads.

Ultimately, roads are the first and last channel for moving personnel and equipment at local levels. QRC member companies' responses are understood to have reinforced the identification of numerous local points of road closure around the state, known to state and local authorities. For brevity, the QRC will not restate the detailed listings of roads which were provided to TMR, which can be made available should the Commission so determine. These road points remain "designed to fail" in adverse weather events if they are simply again repaired to their former state and design.

QRC offers the following observations, not in criticism of any entity, but to highlight grounds from the state's largest industry by production, on why Queensland must do things differently with its economic transport infrastructure in future.

The observations from these outages to date include:

- Our vital economic transport infrastructure, susceptible to the caprice of the weather, must be "floodproofed" in the reconstruction phase, if Queensland is to retain global customers and to attract global investment to the resources sector. Road and rail are equally important to communities.
- A global member company of QRC, operating in Queensland, part of a first world country, experienced two months of ongoing isolation of a critical site and loss of production, due to the loss of the Rolleston rail spur. Gladstone Power Station, equally dependent on this company's ability to mine and rail its product, and a mainstay in the state power grid, saw its coal supplies nearly choked off at the height of events, until alternative supply was sourced.
- The loss of the Western Line and further damage to the Warrego Highway, is bottling up the great, burgeoning Coal Seam Gas industry of the Surat Basin, also restricting the region's many communities.
- At least three coal mining members of QRC in the same region, providing hundreds of jobs in each of several communities, are experiencing either a complete or partial loss of earnings as they lose access to the Western Line's direct connection to the Port of Brisbane.

- These companies have continued to retain their workforces at the same time, forestalling any catastrophic economic consequences of widespread unemployment on those communities across the region to date. However one mine is understood to have been forced to go into 'care and maintenance' during the month of the March, pending re-opening of the Western line. This is not a sustainable situation, particularly if further weather events were to push out recovery times.
- Simultaneous impacts on movements across the Toowoomba Range road and rail crossings highlights a true weak point in the state and national transport infrastructure network
- The enabling culture of the Department of Transport & Main Roads (TMR) with the decisive focus of key officers on addressing economic transport priorities for recovery, deftly prioritising both within and across industry sectors, has emerged as a benchmark and model for regulatory leadership by Government agencies in general.
- The temporary response of a one-stop road freight permitting shop initiated by TMR in particular is a model endorsed for permanent adoption, and resourcing on a permanent basis.

Part 3 – Summary of Recommendations for Resolution of Issues

QRC seeks recommendations from the Commission of Inquiry supporting regulatory improvements in environmental authorities (Eas) consistent with the EP Act's principles of ecologically sustainable development (ESD) - which weigh the balance of environment, social and economic considerations - to avert uncontrolled environmental and economic events in the 2011-12 wet season, including:

- *Urgent review of the DERM Fitzroy model conditions applying to coal mines, and the regulatory approach taken by DERM to water management and discharge for metalliferous mines, CSG sites and power stations*
- *Questioning the appropriateness of TEPs as a disaster response instrument*
- *Overarching emergency provisions to be included in EAs for extreme weather events*
- *The full set of principles embodied in the concept of ESD, ie environment, social and economic, which are, for example, part of the Environmental Protection Act, to be used both across and within Government agencies.*
- *One-stop road freight permitting office of TMR be endorsed as an excellent innovation and a model for permanent implementation*
- *Flood proofing of economic infrastructure and supply chains in the state's reconstruction phase to give confidence to global markets of Queensland's reliability as a supplier*

Appendix A – Outline of the context – The Queensland Resources Sector

1. Queensland's Resources Sector – An Overview

The \$50 Billion per annum resources sector is integral to the Queensland economy and community, and it is in this context, and the more than \$100 Billion of additional projects already in varying stages of study and implementation, that the emergent impacts of flood-related events crippling to the sector are brought before this Inquiry.

To assist the Inquiry's understanding of just how integral the resources sector is to Queensland, the value of the sector in economic and human terms can be concisely summarised in five (5) points, as follows (2009-10 data unless otherwise indicated):

- 21% of the Queensland economy (Gross State Product) directly and indirectly
- 13% of total Queensland employment, directly and indirectly (1 in 8 jobs statewide, 1 in 4 jobs in Central Queensland)
- \$4.9 Billion paid in wages and salaries to Queensland resource industry workers
- \$17.4 Billion in goods and services purchased from Queensland businesses
- \$3.2 Billion in royalties payable to State Government (2010-11 budget).

Community Support

The sector swiftly came to the fore in the early days of the state's flood events through the decisive action of companies in support of their communities, as exemplified by:

- Anglo Coal Australia in housing the entire evacuation of Theodore at its Dawson Mine camp accommodation near Moura, and housing people with special requirements in hotels and motels in neighbouring towns.
- Rio Tinto coal mine workers in Emerald, supporting people in and around town, helping to sandbag homes and assisting people in moving, flying in 10,000 sandbags and additional rolls of black plastic when Emerald ran out of supplies, and sandbagging and sealing buildings, including the Avalon nursing home where 100 aged people live and could not be moved.
- Similar efforts by mining and gas company workers in flood affected communities in the Bowen Basin and in the western Darling Downs.
- Around \$25 million in cash donations by QRC member companies to the Premiers Flood Appeal and other local appeals.

2. The economic loss due to floods

The QRC has calculated that the economic loss associated with the anticipated fall in coal production alone is likely to be significant when compared with a business-as-usual (BAU) scenario.

Drawing on a number of information sources, including December 2010 quarter production reports, the potential production impact on Queensland coal operations can be estimated. It should be stressed that companies are still assessing the true extent of the disruption, while the wet season and cyclone season cannot safely be discounted from creating additional harm at this time.

These estimates are provided to highlight the imperative of actions and measures to return the sector back to full production, not to inform commercial decisions. For these purposes, a low (no more significant wet weather events occur) and high impact (additional wet weather event/s occur) is estimated. The percentages represent the estimated reduction in production (not exports) compared to a business as usual production scenario of 51 million tonnes per quarter:

	Low Impact	High Impact
December Qtr 2010	25%	35%
March Qtr 2011	25%	50%
June Qtr 2011	10%	20%

The following table contains QRC estimates of the lost royalties, value of production (export and domestic consumption), and Gross State Product (GSP) from 1 October 2010 to 30 June 2011 under these high and low impacts:

	Low Impact	High Impact
Lost value of production (\$m)	30million tonnes or \$5,263	53 million tonnes or \$9,456
Lost royalties (\$m)	\$450	\$900
Lost GSP (\$m)	\$4,480	\$8,048

QRC's low impact estimate translates into a loss of 30 million tonnes of coal production for 2010-11 and contrasts with official State Government estimates in the mid year budget review of 15 million tonnes. Other relevant estimates of the economic impact are as follows:

ABARES estimated loss of 15 million tonnes for the December to March period

QR National, the predominant coal freight provider in Queensland has told the market that it expects to carry 25 million fewer coal tonnes in 2010-11

Coal export data from the coal ports show that in February 2011, some 8.2 million tonnes of coal were exported compared with 12.3 million tonnes in the same month of 2010 and for the three months to February 2011, coal exports totalled 31.6 million tonnes compared with 45.7 million tonnes in the three months to February 2010.

With prices for most commodities including coal at near record levels, there is an enormous commercial incentive to get operations back to capacity as quickly as possible. Doing so will not only bolster royalty revenues but will also restore confidence in flood affected communities such as Emerald, Rockhampton, Dalby and Brisbane, which rely heavily on the injection of resource sector salaries and the ongoing demand of goods and services from resource operations.

Appendix B - History of the Fitzroy model water conditions

- pre-2008: Queensland coal mines and other resource company sites subject to site by site environmental authorities from the then EPA covering matters such as water management and water discharge
- early 2008: Central Queensland floods and Ensham Mine water discharge – community concern over water quality. Queensland Government commissions internal and external reviews.
- November 2008: Hart Review: Fitzroy Water Quality
- April 2009: DERM Cumulative Impacts of Mining Study
- Mid-2009: Queensland Government decides to tighten water discharge conditions via ‘model conditions’ – to be in force by end of 2009 with a commencement of 1 January 2010.
- End-2009: New tighter conditions in EAs of each Fitzroy Basin mine site. With concern that mines were effectively being asked to operate under ‘zero discharge’ conditions of the impacts is planning the building of more dams onsite with the resultant impact of more land disturbance.
After experience of 2009-10 wet season, as early as February/March 2010, QRC approached DERM and the Minister for Climate Change and Sustainability to seek a revisiting of unrealistic aspects of conditions.
- June 2010: QRC provides industry critique of the model conditions and suggestions for revision to DERM.
- Second half of 2010: QRC and industry increasingly concerned about wet season outlook and lack of response from DERM, raising concerns with senior officials and the Minister
- August 2010: Unprecedented monthly rainfall commences in Queensland – BOM records above average, very much above average and highest on record rainfall across large areas of the state, including CQ coal fields
- September 2010: Unprecedented monthly rainfall again recorded by BOM across the state
- November 2010: DERM agrees to a workshop with QRC and its member companies and on 24 November offers some minor concessions on model conditions.
Unprecedented rainfall again recorded across Queensland
- December 2010: Concessions too late to be incorporated into EAs in time for wet season. Further unprecedented monthly rainfall recorded, commencement of flood events. Only mechanism available to resource sector companies is time-limited Transitional Environmental Programs (TEPs).
- January 2011: QRC Chief Executive writes to Premier requesting addition of existing Emergency Direction powers under EP Act to DERM’s “armoury” of responses. In response, Premier declines.
- Early March 2011: 45 of 57 Queensland coal mines have or are still seeking TEPs, that is, their existing Environmental Authorities (EAs), issued by the regulator, do not enable sites to release hugely excessive volumes of water now trapped on their sites, which is inhibiting or preventing production. Similarly, 7 CSG sites and 3 metalliferous minesites are also seeking or have gained TEPs, as did a power station operating in the Darling Downs.

Final Model Water Conditions for Coal Mines in the Fitzroy Basin

Note:

Explanatory notes are in green. DELETE prior to issue of EA.

Insertions required by applicants and or the administering authority are in blue. DELETE prior to issue.

Contaminant Release

- W1** Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.
- W2** The release of contaminants to waters must only occur from the release points specified in Table 1 and depicted in Figure 1 <this would be a plan or plans locating all monitoring (water quality and flow) and release points> attached to this environmental authority.

Table 1 (Contaminant Release Points, Sources and Receiving Waters)

Release Point (RP)	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Contaminant Source and Location	Monitoring Point	Receiving waters description
RP 1	XXXX	XXXX	e.g. Stormwater Dam Spillway Overflow	Dam Spillway	Wet Creek
RP 2	XXXX	XXXX	e.g. Dam overflow pipe	Sampling Tap on pipe where the pipe enters Sandy Creek	Sandy Creek

- W3** The release of contaminants to waters must not exceed the release limits stated in Table 2 when measured at the monitoring points specified in Table 1 for each quality characteristic.

Table 2 (Contaminant Release Limits)

EXPLANATORY NOTES – Setting interim release limits for EC:

Option (c) – To negotiate a higher value for end-of-pipe EC limits, it will be necessary to have sufficient background water quality data from historical flow events, ideally above each discharge point. This data should be used to demonstrate that there is sufficient “assimilative capacity” in receiving waters to receive mine discharges of the proposed higher EC levels and maximum flows specified in condition W9. In other words, the limits should be such that the predicted in-stream water quality downstream will always remain below 1000 µS/cm EC (for example, using all historical data and assumptions of complete dilution). Consideration should also be given to the potential impact on any drinking water reservoirs immediately downstream of the discharge and the need to keep in-stream water quality below 750 µS/cm.

Option (d) – To negotiate a stepped approach to achieve Option (b) or (c) it will be necessary to predict the likely downstream receiving water EC as a result of the proposed limits for each step proposed. It will be necessary to have sufficient background water quality data from historical flow events, ideally for each discharge point. The data should be used to demonstrate that there is sufficient assimilative capacity to receive mine discharges of the proposed higher EC levels and maximum flows specified in condition W9. The limits should be such that predicted the in-stream water quality downstream is not likely to result in environmental harm from high salinity impacts. Ideally, in-stream EC s should remain below 1000 µS/cm EC (for example, using all historical data and assumptions of complete dilution). Where in-stream EC is likely to be above 1000 µS/cm then a case should be put forward as to why this is required and comments about the likelihood and potential extent of impacts. Consideration should also be given to the potential impact on any drinking water reservoirs immediately downstream of the discharge and the need to keep in-stream water quality below 750 µS/cm.

Quality Characteristic	Interim Release Limits for all mines (limits to apply from the date of issue)	Future Release Limits from XX/XX/XXXX (negotiated date) Note: These future limits will apply from a yet to be negotiated date using alternative numbers that will be derived from the information gathered by any combination of the following: (1) the results of near field monitoring, (2) any studies or investigations carried out in accordance with recommendations 2 & 3 of the Cumulative Impact Study on water quality in the Fitzroy River Basin. (3) any review of the QLD Water Quality Guidelines. (4) other relevant information Note: This information should be available by the end of 2011 if not before and when it becomes available limits will be determined for each mine site based on the environmental values to be protected and in accordance with criteria below	Monitoring frequency	Comment
Electrical conductivity (uS/cm)	<p>Hierarchy for determining limits in priority order starting with (a):</p> <p>(a) for mines that do not release contaminants to waters - no conditions are required for release authorisation, then conditions W2, to W15 inclusive, W18, W19 and W43 can be deleted.</p> <p>(b) Current limit for those mine sites not under a TEP or 1500 EC (Maximum)* which ever is lower or</p> <p>(c) a negotiated higher limit value that does not result in the contaminant release exceeding a maximum 1000 EC in the receiving waters and where the mine site demonstrates to DERM that it is unreasonable and impractical to immediately comply with the 1500 EC limit in (b) above and supported by a business case and commitment to ongoing environmental improvement on the mine site and with nominated timeframes.</p> <p><i>Note: If the current limit is lower than a limit determined as above then the current limit would initially apply.</i></p> <p>(d) for those other mines which cannot immediately achieve (b) or (c) above a stepped approach within the interim period ending 2011 to achieve (b) or (c) will be</p>	<p>Aquatic ecosystem protection (no drinking water value):</p> <p>An end-of-pipe limit to achieve in the range 0 to 1000 EC in the receiving waters. (Must have natural flow i.e. the 20th percentile flow trigger and achieve a 1:4 dilution</p> <p>OR</p> <p>for mines in the upper catchments must have natural flow i.e. the 20th percentile flow trigger.</p> <p>OR</p> <p>Drinking water protection:</p> <p>An end-of-pipe limit to achieve 0 to 750 EC in the receiving waters. (Must have natural flow, either 1:4 dilution and only release where a 20th percentile flow trigger occurs; OR for mines in the upper catchment must have a natural flow i.e. 20th percentile trigger.</p>	Daily during release (the first sample must be taken within 2 hours of commencement of release)	

	<p>required.</p> <p><i>Note: some of these mines may already be under an approved TEP and EC limits and compliance timeframes in the TEP need to be taken into account with the stepped approach.</i></p> <p>To support a stepped approach DERM will require a business case and commitment to ongoing environmental improvement on the mine site to ensure that all reasonable and practicable measures are being/will be taken to prevent and/or minimise environmental harm.</p>			
pH (pH Unit)	<p>6.5 (minimum)</p> <p>9.0 (maximum)</p>	<p>6.5 (minimum)</p> <p>9.0 (maximum)</p>	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
Turbidity (NTU)	NA*	NA*	Daily during release* (first sample within 2 hours of commencement of release)	Turbidity is required to assess ecosystems impacts and can provide instantaneous results.
Suspended Solids (mg/L)	Current Limit	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment	Daily during release* (first sample within 2 hours of commencement of release)	Suspended solids are required to measure the performance of sediment and erosion control measures.
Sulphate (SO ₄ ²⁻) (mg/L)	Current limit or 1000 (maximum) which ever is the lower	<p>250 (Maximum) (Protection of drinking water Environmental Value)</p> <p>OR</p> <p>1000 (Maximum) (Protection of irrigation environmental value)</p>	Daily during release* (first sample within 2 hours of commencement of release)	Drinking water environmental values from NHMRC 2006 guidelines OR ANZECC & ARMCANZ 2000 stock water quality guidelines.

Note: NA – not available, * local trigger values need to be developed

W4 The release of contaminants to waters from the release points must be monitored at the locations specified in Table 1 for each quality characteristics and at the frequency specified in Table 2 and Table 3.

Table 3 (Release Contaminant Trigger Investigation Levels)

Quality Characteristic	Trigger Levels (µg/L)	Comment on Trigger Level	Monitoring Frequency
Aluminium	100	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	Commencement of release and thereafter weekly during release
Arsenic	13	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Cadmium	0.2	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Chromium	1	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Copper	2	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Iron	300	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Lead	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Mercury	0.2	<i>For aquatic ecosystem protection, based on LOR for CV FIMS</i>	
Nickel	11	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Zinc	8	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Include additional contaminants as required	Include additional contaminants as required		

EXPLANATORY NOTES – Table 3 Potential Contaminants:

The quality characteristics listed below should be assessed on a site by site basis by each mine prior to finalisation of amendment applications. Based on this assessment, the quality characteristic should be either disregarded if below trigger levels; or included as priority contaminants in Table 3 if above trigger levels. Assessment should involve comparison of representative data from dams that have historically been discharged or likely to be discharged from contaminant release points in Table 1. Data may include historical results or sampling undertaken for this specific purpose. The intent here is that not all dams on site would need to be sampled but those that would make up the majority of water in dams with release points. It could also be demonstrated based on existing water quality information that the water source and relative water quality of some dam are the same, in which case such dams may not need to be sampled individually. For metals and metalloids, trigger levels apply if dissolved results exceed trigger levels. However, total (unfiltered) results for metals and metalloids can be used to disregard a characteristic for inclusion in Table 3. Terms include SMD – slightly moderately disturbed level of protection, guideline - refers ANZECC & ARMCANZ (2000), LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical methods required to achieve LOR.

Table 3 (Release Contaminant Trigger Investigation Levels) Potential Contaminants

Quality Characteristic	Trigger Levels (µg/L)	Comment on Trigger Level
Boron	370	<i>For aquatic ecosystem protection, based on SMD guideline</i>
Cobalt	90	<i>For aquatic ecosystem protection, based on low reliability guideline</i>
Manganese	1900	<i>For aquatic ecosystem protection, based on SMD guideline</i>
Molybdenum	34	<i>For aquatic ecosystem protection, based on low reliability guideline</i>
Selenium	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>
Silver	1	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>
Uranium	1	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>

Vanadium	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>
Ammonia	900	<i>For aquatic ecosystem protection, based on SMD guideline</i>
Nitrate	1100	<i>For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN</i>
Petroleum hydrocarbons (C6-C9)	20	
Petroleum hydrocarbons (C10-C36)	100	
Fluoride (total)	2000	<i>Protection of livestock and short term irrigation guideline</i>

Note:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The list of quality characteristics required to be monitored as per Table 3 will be reviewed once the results of the monitoring data is gathered for the interim period until 31 December 2011 or an earlier date if the data is, or becomes, available and if it is determined that there is no need to monitor for certain individual quality characteristics these can be removed from Table 3.
3. SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
4. LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

W5 If quality characteristics of the release exceed any of the trigger levels specified in Table 3 during a release event, the environmental authority holder must compare the down stream results in the receiving waters to the trigger values specified in Table 3 and:

1. where the trigger values are not exceeded then no action is to be taken; or
2. where the down stream results exceed the trigger values specified Table 3 for any quality characteristic, compare the results of the down stream site to the data from background monitoring sites and;
 - (a) if the result is less than the background monitoring site data, then no action is to be taken; or
 - (b) if the result is greater than the background monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:
 - (i) details of the investigations carried out; and
 - (ii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with W5 2(b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

W6 If an exceedance in accordance with condition W5 2(b)(ii) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

Contaminant Release Events

W7 The holder must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each Release Point as specified in Table 4 for any receiving water into which a release occurs.

W8 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in Table 4 for the contaminant release point(s) specified in Table 1.

Table 4 (Contaminant Release during Flow Events)

EXPLANATORY NOTES – Table 4

Gauging station description:

The intent here is that every release point in Table 1 is associated with a gauging station that measures flow upstream of the discharge point. More than one discharge point may be associated with the same gauging station. The gauging station should be at a minimum distance from the discharge point such that water flow under trigger flow events will not significantly diminish by the time it reaches the discharge point. The location of the gauging station should ideally be such that it is not significantly affected by other upstream point source releases or times of discharge are limited to periods of “natural” flow.

Under certain circumstances it may be appropriate to have a downstream gauging station in addition to or in replace of an upstream gauging station. The location should ideally not be affected by the discharge (e.g. be measured off the main waterway). The need for this must be demonstrated on a case by case basis to show why an upstream gauging station is insufficient. This may be the case when mines are located in the upper parts of catchments or near the downstream confluence or a major waterway. Similarly, the gauging station should be at a distance from the discharge point such that water flow during triggered flow events will not significantly diminish between the discharge point and the measuring point (or the confluence with the creek being measured). For downstream flow triggers, some changes to calculation for flow triggers and maximum release flows would typically be required based on the relative sizes of the waterways involved.

Minimum Flow Trigger:

The intent for the minimum flow trigger is that the times of discharge are limited to times of natural flow events only (for ephemeral receiving waters). Ideally, the flow trigger should be chosen such that it represents, for example, a 20th percentile average daily flow (in m³/s) of a minimum ten year period. This or a similar approach should aim to eliminate discharges during “low flow” periods. The maximum discharge volume can then be calculated by dividing the upstream flow trigger by 4. The intent here is that a minimum dilution 1:4 is always maintained (20% of downstream flow). In some situations, this will not allow the mine to release sufficient quantities of water. Therefore, it is possible to propose more than one flow trigger. For example, a 40th percentile average daily flow trigger may also be used in addition to the initial 20th percentile flow trigger such that above the 40th percentile average daily flow trigger a higher release volume will be allowed during periods of higher in-stream flow (while still maintaining a 1:4 dilution ratio).

The expectation is that where flow gauging data is available, it is used to calculate flow triggers. Where gauging data is not available or is insufficient, flow triggers should be based on runoff/stream flow estimates using appropriate hydrological calculations or models and known catchment area, rainfall estimations etc.

Under certain circumstances, such as where a mine is in the upper part of the catchment, achieving a 1:4 dilution with receiving waters as described above may not allow the mine to discharge sufficient volumes. In such a case, a lower flow trigger must still be proposed but the discharge volume will also need to be linked to some downstream flow measure with sufficient dilution (ideally much greater than 1:4). The need for this must be demonstrated on a case by case basis and be supported by various flow calculations to demonstrate feasibility and show minimal environmental impacts.

Other special cases include discharges to creeks below water reservoirs or dams and these should be dealt with on a case by case basis to address the intent described above.

Receiving water description	Release Point	Gauging station description	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Minimum Flow in Receiving Water Required for a Release Event	Flow recording Frequency
Wet Creek		Gauging station 1	XXXX	XXXX	Depending on individual catchment this minimum flow trigger will be either the release comprising less than 20% of the natural flow or any natural flow in the receiving environment. The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure. Example: > or = 5 m ³ /sec	Continuous (minimum daily)

- W9** Contaminant release flow rate must not exceed 20% of receiving water flow rate.
- W10** The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in Table 1.
- W11** Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.

Notification of Release Event

- W12** The authority holder must notify the administering authority as soon as practicable (no later than 6 hours of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:
- release commencement date/time;
 - expected release cessation date/time;
 - release point/s;
 - release volume (estimated);
 - receiving water/s including the natural flow rate; and
 - any details (including available data) regarding likely impacts on the receiving water(s).

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.

- W13** The authority holder must notify the administering authority as soon as practicable, (nominally within twenty-four (24) hours after of cessation of a release) of the cessation of a release notified under Condition W12 and within 28 days provide the following information in writing:
- release cessation date/time;
 - natural flow volume in receiving water;
 - volume of water released;
 - details regarding the compliance of the release with the conditions of Agency Interest: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume);
 - all in-situ water quality monitoring results; and
 - any other matters pertinent to the water release event.

Notification of Release Event Exceedance

- W14** If the release limits defined in Table 2 are exceeded, the holder of the environmental authority must notify the administering authority within twenty-four (24) hours of receiving the results.
- W15** The authority holder must, within twenty-eight (28) days of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing:
- the reason for the release;
 - the location of the release;
 - all water quality monitoring results;
 - any general observations;
 - all calculations; and
 - any other matters pertinent to the water release event.

Monitoring of Water Storage Quality

- W16** Water storages stated in Table 5 which are associated with the release points must be monitored for the water quality characteristics specified in Table 6 at the monitoring locations and at the monitoring frequency specified in Table 5.

Table 5 (Water Storage Monitoring)

Water Storage Description	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Monitoring Location	Frequency of Monitoring
XXXX	XXXX	XXXX	To be negotiated- will depend on the individual storage structure volume. This will deal with stratification – depth profiles and be appropriate to in situ quality characteristics.	Quarterly

W17 In the event that waters storages defined in Table 5 exceed the contaminant limits defined in Table 6, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.

Table 6 (Onsite Water Storage Contaminant Limits)

Quality Characteristic	Test Value	Contaminant Limit
pH (pH unit)	Range	Greater than 4, less than 9 ²
EC (µS/cm)	Maximum	5970 ¹
Sulphate (mg/L)	Maximum	1000 ¹
Fluoride (mg/L)	Maximum	2 ¹
Aluminium (mg/L)	Maximum	5 ¹
Arsenic (mg/L)	Maximum	0.5 ¹
Cadmium (mg/L)	Maximum	0.01 ¹
Cobalt (mg/L)	Maximum	1 ¹
Copper (mg/L)	Maximum	1 ¹
Lead (mg/L)	Maximum	0.1 ¹
Nickel (mg/L)	Maximum	1 ¹
Zinc (mg/L)	Maximum	20 ¹

Note:

¹ Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.

² Page 4.2-15 of ANZECC & ARMCANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".

Note: Total measurements (unfiltered) must be taken and analysed

Receiving Environment Monitoring and Contaminant Trigger Levels

W18 The quality of the receiving waters must be monitored at the locations specified in Table 8 for each quality characteristic and at the monitoring frequency stated in Table 7.

Table 7 (Receiving Waters Contaminant Trigger Levels)

Quality Characteristic	Trigger Level	Monitoring Frequency	Comments
pH	6.5 – 8.0	Daily during the release	See Table 2 comments
Electrical Conductivity (µS/cm)	1000		
Suspended solids (mg/L)	To Be Determined. Turbidity may be required to assess ecosystems impacts and can provide instantaneous results.		
Sulphate (SO ₄ ²⁻) (mg/L)	250 (Protection of drinking water Environmental Value) OR 1000 (Protection of irrigation environmental value)		

Table 8 (Receiving Water Upstream Background Sites and Down Stream Monitoring Points)

EXPLANATORY NOTES – Selection of monitoring sites:

The intent here is that that each discharge point has both an upstream and downstream monitoring point associated with it. These monitoring points should be located as close as practicable to the release point and the distances should be defined in the footnotes in Table 8. The location of flow monitoring points should also be considered in selecting upstream monitoring points. Other considerations include accessibility, particularly during wet weather conditions.

Monitoring Points	Receiving Waters Location Description	Latitude or northing (GDA94)	Longitude or easting (GDA94)
Upstream Background Monitoring Points			
Monitoring Point XX	XXXX Creek XX metres upstream of RP XX	XXXX	XXXX
Monitoring Point XX	XXXX Creek XX metres upstream of RP XX	XXXX	XXXX
Downstream Monitoring Points			
Monitoring Point XX	XXXX Creek XX metres downstream of RP XX	XXXX	XXXX
Monitoring Point XX	XXXX Creek XX metres downstream of RP XX	XXXX	XXXX

Notes:

- The upstream monitoring point should be within Xkm the release point.
- the downstream point should not be greater than Xm from the release point.
- The data from background monitoring points must not be used where they are affected by releases from other mines.

W19 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table 7 during a release event the environmental authority holder must compare the down stream results to the upstream results in the receiving waters and:

- where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or

2. where the down stream results exceed the upstream results complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:
 - (i) details of the investigations carried out; and
 - (ii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with W19 2(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

Receiving Environment Monitoring Program (REMP)

EXPLANATORY NOTES – Designing a REMP:

The intent here is that the REMP will be designed for specific requirements of the mine's releases and the receiving environment. The monitoring within the REMP should not be the primary basis for compliance but will be essential for providing supporting information when incidents may occur or for deriving future license limits. The focus should also be on reporting against water quality objectives for relevant waterways affected by the discharge and be on a longer term basis compared to compliance reporting. The intent is that the REMP is to provide condition assessment of near-field areas, ie. local areas likely to be significantly affected by the mine's releases. To do this, it is necessary that monitoring data is collected during times of natural flow outside of times of release in addition to time of release. The REMP is likely to include monitoring sites and indicators in addition to what is presented in the tables of these conditions. The intent is that far-field areas and cumulative impacts will be monitored as part of regional monitoring described in Condition W43 and assist in providing regional condition assessment and regionally specific reference information.

W20 A REMP must be developed and implemented by XX/XX/XXXX (WITHIN 3 MONTHS OF THE DATE OF ISSUE) to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is the waters of the XX and connected waterways within XX (e.g. Xkm) downstream of the release.

W21 The REMP must address (but not necessarily be limited to) the following:

- a) Description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality); and
- b) Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy 1997); and
- c) Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed; and
- d) Water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the REMP.
- e) Monitoring for any potential adverse environmental impacts caused by the release;
- f) Monitoring of stream flow and hydrology;
- g) Monitoring of toxicants should consider the indicators specified in Table 3 to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ 2000 guidelines for slightly to moderately disturbed ecosystems;
- h) Monitoring of physical chemical parameters as a minimum those specified in Table 2 (in addition to dissolved oxygen saturation and temperature);
- i) Monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas methodology) and metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.1 *Guidance on Sampling of Bottom Sediments*) for permanent, semi-permanent water holes and water storages;

- j) The locations of monitoring points (including the locations specified in Table 8 which are background and downstream impacted sites for each release point);
- k) The frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within 2 years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines 2006*. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
- l) Specify sampling and analysis methods and quality assurance and control;
- m) Any historical datasets to be relied upon;
- n) Description of the statistical basis on which conclusions are drawn, and
- o) Any spatial and temporal controls to exclude potential confounding factors.

W22 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions W20 must be prepared and submitted in writing to the administering authority by 1 October 2011. This should include an assessment of background water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values.

Water Reuse

W23 Water contaminated by mining activity may be piped or trucked or transferred by some other means that does not contravene the conditions of this authority during periods of dry weather for the purpose of supplying stock water to properties directly adjoining properties owned by the environmental authority holder or a third party and subject to compliance with the quality release limits specified in Table 9.

Table 9 (Stock Water Release Limits)

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	5000

W24 Water contaminated by mining activity may be piped or trucked or transferred by some other means that does not contravene the conditions of this authority during periods of dry weather for the purpose of supplying irrigation water to properties directly adjoining properties owned by the environmental authority holder or a third party and subject to compliance with quality release limits in Table 10.

Table 10 (Irrigation Water Release Limits)

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	Site specific value to be determined in accordance with ANZECC & ARMCANZ (2000) Irrigation Guidelines

W25 Water contaminated by mining activity may be piped or trucked off the mining lease for the purpose of supplying water to a third party for purpose of construction and/or road maintenance in accordance with the conditions of this environmental authority.

W26 Water contaminated by mining activity may be piped or trucked for the purpose of supplying water to <name adjoining mine> in accordance with the conditions of this environmental authority. The volume, pH and electrical conductivity of water transferred to {name adjoining mine} must be monitored and recorded.

W27 If the responsibility of water contaminated by mining activities (the water) is given or transferred to another person in accordance with conditions **W23, W24, W25 or W26:**

- a) the responsibility of the water must only be given or transferred in accordance with a written agreement (the third party agreement); and

- b) include in the third party agreement a commitment from the person utilising the water to use water in such a way as to prevent environmental harm or public health incidences and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the *Environmental Protection Act 1994*, environmental sustainability of the water disposal and protection of environmental values of waters.

Water General

W28 All determinations of water quality must be:

- a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;
- b) made in accordance with methods prescribed in the latest edition of the Environment Protection Agency Water Quality Sampling Manual;

Note: Condition W28 requires the Water Quality Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.

- c) collected from the monitoring locations identified within this environmental authority, within XX hour of each other where possible; and
- d) carried out on representative samples.
- e) **laboratory testing must be undertaken using a laboratory accredited (e.g. NATA) for the method of analysis being used.**

W29 The release of contaminants directly or indirectly to waters:

- a) must not produce any visible discolouration of receiving waters; nor
- b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

Annual Water Monitoring Reporting

W30 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return:

- a) the date on which the sample was taken;
- b) the time at which the sample was taken;
- c) the monitoring point at which the sample was taken;
- d) the measured or estimated daily quantity of the contaminants released from all release points;
- e) the release flow rate at the time of sampling for each release point;
- f) the results of all monitoring and details of any exceedences with the conditions of this environmental authority; and
- g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

Temporary Interference with waterways

W31 Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Water *Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities*.

Water Management Plan

W32 A Water Management Plan must be developed and implemented by **XX/XX/XXXX (WITHIN 3 MONTHS OF THE DATE OF ISSUE)** that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.

W33 The Water Management Plan must be developed in accordance with DERM Guideline for Preparing a Water Management Plan 2009 **(to be developed by 1 October)** or any updates that become available from time to time and must include at least the following components:

- a) Contaminant Source Study;
- b) Site Water Balance and Model;
- c) Water Management System;
- d) Saline Drainage Prevention and Management Measures;
- e) Acid Rock Drainage Prevention and Management Measures (if applicable);
- f) Emergency and Contingency Planning;
- g) Monitoring and Review.

W34 Each year the holder of the environmental authority must undertake a review of the Water Management Plan prior to the wet season (i.e. by 1 November) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

W35 A copy of the Water Management Plan and/or a review of the Water Management Plan must be provided to the administering authority on request.

Saline Drainage

W36 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.

Acid Rock Drainage

W37 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid rock drainage.

Stormwater and Water sediment controls

W38 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of storm water.

W39 The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.

W40 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

All Dams

EXPLANATORY NOTES – Dam conditions:

Note: Conditions W41 and W42 to be removed if already conditioned in the authority.

W41 The hazard category of each dam must be determined by a suitably qualified and experienced person at least once in each two year period.

W42 Dams having a hazard category determined to be significant or high, must be specifically authorised by an environmental authority.

Fitzroy River Basin Study

W43 The administering authority and the holder of this environmental authority both acknowledge that the conditions for release of contaminants to the XX River in this environmental authority have been calculated without the benefit of the findings of projects proposed to be undertaken as per recommendations 2 and 3 of the *Study of cumulative impacts on water quality of mining activities in the Fitzroy River Basin* (April 2009). The administering authority may, based on the information provided in the study report when it becomes available, all relevant information available at the time and the regulatory framework applicable at that time, consult with the holder of this environmental authority about the conditions in the environmental authority concerning the treatment and disposal of waste water.

The aim of the consultation shall be the meaningful review of the contaminant release limits imposed in this authority having regard to:

- a) the study results;
- b) near field monitoring results;
- c) QLD Water Quality Guidelines; and
- d) best practice environmental management.

If this review leads to a change in the requirements on this environmental authority holder, this shall be advanced by way of an authority amendment or a Transitional Environmental Program and as is necessary or desirable.

Definitions:

"20th percentile flow" means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), i.e. not dry weather days.

"acid rock drainage" means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture as a result of mining activity.

"administering authority" means the Department of Environment and Resource Management or its successor.

"appropriately qualified person" means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

"dam" means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. However; a dam does *not* mean a fabricated or manufactured tank or container designed to a recognised standard, *nor* does a dam mean a land-based structure where that structure is designed to an Australian Standard. In case there is any doubt, a levee (dyke or bund) is a dam, but (for example) a bund designed for spill containment to AS1940 is *not* a dam.

"environmental authority" means an environmental authority granted in relation to an environmentally relevant activity under the *Environmental Protection Act 1994*.

"environmental authority holder" means the holder of this environmental authority.

"flowable substance" means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

"hazard" in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

"hazard category" means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 2.0, 2009) published by the Environmental Protection Agency on its website.

"natural flow" means the flow of water through waters caused by nature.

"receiving environment" means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

"receiving waters" means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

"saline drainage" The movement of waters, contaminated with salt(s), as a result of the mining activity.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, and groundwater and any part thereof.

Appendix D – Key documents relevant to the issues raised in this submission about the Fitzroy model water conditions and relevant to DERM’s TEP approach for the 2010/11 wet season

INDEX

Date	Document description	Comments (if applicable) and references in submission
April 2009	Extract from ‘ <i>A study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin</i> ’ (published by the former EPA) – page 6	Available at http://www.fitzroyriver.qld.gov.au/pdf/cumulativeimpactassessment.pdf Page 6 of the report is referenced on p7 of this submission.
28 May 2009	Minutes of meeting between DERM and industry representatives.	Sets out the fast timetable for the Fitzroy model water conditions, imposed by DERM, referenced on p7 of the submission.
11 June 2010	E.mail from Frances Hayter (QRC) to Dean Ellwood (DERM).	This correspondence requested a meeting that same month to review the Fitzroy conditions. This was the first of a series of QRC requests for review of the conditions to prepare for the 2010/11 wet season. The requested meeting was not held until 3 November 2010.
2 November 2010	QRC’s proposed agenda item and attached paper entitled ‘ <i>Discussion notes on the demarcation line between mine worked water and other water (eg, overland flow) for the Fitzroy model water conditions</i> ’ for the meeting with DERM on 3 March.	This agenda and attached paper outline many of the ‘ <i>other problems with the Fitzroy model conditions, including obvious drafting errors in the conditions and definitions</i> ’ referenced on p6 of the submission
3 November 2010	Minutes of the meeting between DERM and industry representatives.	The section of the minutes most relevant to this submission is section b) on pp2-3, noting the concerns raised by industry representatives about ‘large volumes of good quality water being required to be retained at mines’, because the conditions prevented mines from releasing water during the ‘window of opportunity’ before the wet season.
24 November 2010	Letter from Anne Lenz, (DERM) to Frances Hayter (QRC).	Relevantly, this letter states on page 2 that ‘ <i>as a matter of principle there cannot be releases where there is no flow in a river</i> ’. (The submission discusses DERM’s reliance on dilution as a measure of environmental ‘acceptability’ at page 5.)
6 December 2010	Letter from Frances Hayter (QRC) to Anne Lenz (DERM).	Detailed significant industry concerns with the DERM letter of 24 November 2010.

6 December 2010	E.mail from Terry Wall (DERM) to group-list of mines.	This e.mail is referred to on page 5 of the submission (see footnote 3) and page 10. The e.mail invites mines in Central West Queensland to submit 'transitional environmental programs' (TEPs) to override conditions.
23 December 2010	Letter from John Bradley (DERM) to Michael Roche (QRC).	
6 January 2011	Letter from Debbie Best (DERM) to Michael Roche (QRC).	
	Letter from Terry Wall (DERM) to Michael Roche (QRC).	
21 January 2011	Letter from John Bradley (DERM) to Michael Roche (QRC).	
28 January 2011	Letter from Michael Roche (QRC) to the Honourable Anna Bligh MP, Premier and Minister of the Arts.	This letter is referred to on page 10 of the submission. The letter requests the considered use of the emergency directions power (in s468 <i>Environmental Protection Act 1994</i>) to authorise water releases in preparation for the threat of cyclones
4 February 2011	Letter from the Honourable Anna Bligh MP, Premier and Minister of the Arts, to Michael Roche (QRC).	The Premier declines the request for the use of the emergency power, referenced on p10 of this submission.

Appendix E - Comparison of TEP mechanism with other mechanisms under the EP Act for the purpose of addressing emergency issues

1. What are transitional environmental programs (TEPs)?

In summary, a transitional environmental program (TEP) is a document which, when approved by DERM, sets out a series of actions over a timetable, which will, at the end of the TEP ensure that the activity is in compliance with the relevant environmental conditions or other applicable environmental standards, while in the meantime those specified conditions or standards are overridden temporarily.¹ Normally, a TEP may be approved for up to 3 years, without the need for public notification.² However, for mines dealing with the current severe wet season, DERM has indicated that it will only approve TEPs up to 6 months.

From the perspective of industry, the key advantage of a TEP is that it provides transitional protection from prosecution for non-compliance with an EA condition (or other environmental standard), for the period of the TEP, provided that it is fully implemented.

2. Unsuitability of TEPs to address flood preparation

The key difficulties with using TEPs as a mechanism either to address flood preparation or as an emergency response to a disaster are:

- 2.1 The statutory purpose of a TEP should be to ensure that the program of works specified would bring the business into compliance with the normal conditions at the end, whereas it is unrealistic to expect that a 6 months TEP for a flooded mine would be capable of making any difference to what would happen if a similar event occurs next wet season. In the unlikely event that capital works could even be carried out on a flooded mine during that short period, the fundamental issue remains that the conditions do not provide for releases of water to mitigate risk prior to periods of high flow, rather than during the periods of high flow.
- 2.2 Content requirements for a TEP require an analysis of the receiving environment and the impacts. In the case of relatively new mines, this data may be available, but generally it would not be readily to hand in the case of older mines. If a snap decision needs to be made to mitigate an impending risk, there is not time to undertake a couple of years of data collection first.
- 2.3 TEPs require time to assess. There is also the risk of refusal. DERM has a wide discretion to refuse draft TEPs. One of the points made by the Hart report into the Ensham incident was that the discretion is not in accordance with a set of sufficiently detailed and relevant statutory criteria.
- 2.4 The protection of the TEP is lost if there is any non-compliance at all, however minor, meaning that the company then becomes liable not only for the breach of the TEP but also for the underlying conditions that were otherwise overridden by the TEP.
- 2.5 It is difficult to amend a TEP once approved, because DERM does not have power to approve an amendment if this would lead to an increase in environmental harm.³ For example, there is a reasonable argument that any extension of timeframe constitutes an increase in the underlying environmental harm, in that the harm continues for longer.

¹ Sections 330 and 331 EP Act.

² Section 335 EP Act.

³ Section 344 EP Act.

2.6 In the past, DERM has sometimes reported on, or otherwise used TEPs as if they were evidence of poor environmental performance by a company (for example, even if the situation was actually caused by DERM imposing a set of new requirements without a transitional period, as has occurred with the Fitzroy conditions). An example was that, when the Fitzroy model conditions were imposed on mines without a transitional condition, if mines obtained approval of TEPs to cover the transition, DERM imposed a penalty on the mine's financial assurance.

▪

3. Emergency directions

- It is submitted that the appropriate mechanism for flood preparation for the next wet season will be environmental authority conditions. However, for a sudden or unforeseen disaster, the appropriate emergency response would be an emergency direction, not a TEP.

▪

The relevant provision is as follows:

'468 Authorised person may direct emergency release of contaminant

*(1) An authorised person may give a written direction (an **emergency direction**) to a person to release a contaminant into the environment if the authorised person is satisfied—*

*(a) it is necessary and reasonable to release the contaminant because of an emergency; and
(b) there is no other practicable alternative to the release.*

(2) The authorised person may impose reasonable conditions on the direction.'

Originally (in 1994), the intention was that this would be the appropriate mechanism for dealing with natural disasters and similar emergencies. However, as the Act has expanded, it has 'fallen through the cracks', that the provisions dealing with contraventions of conditions do not expressly refer to an exemption for authorisation by emergency direction. Notwithstanding this drafting gap, we consider that sufficient authorisation would reasonably be implied by Section 493A, which provides for 'relevant acts' to be not unlawful if they are covered by an emergency direction. It would logically follow that they are not unlawful whether or not they involve a contravention of condition in passing. However, if there is any concern about this, it could be covered by an agreement to amend conditions which acknowledges the overriding nature of the emergency direction.

The key advantages of an emergency direction are:

- There are no detailed content requirements relying on data which might not exist;
- There is no artificial presumption that, if the same emergency arose again, the same set of steps would not have to be taken which would otherwise be unauthorised under the Act.

The key disadvantages are:

- It can only be issued 'because of an emergency', probably not to prevent or mitigate a possible or likely emergency;
- It is not controlled by the company, so if the conditions are impractical or miscalculated, there is not much that can be done about this within the timeframe, unless there is good informal consultation about the drafting in advance.

4. Analysis of some issues under the EP Act apparently giving priority to ecological considerations over human considerations

Section 23 of the EP Act provides:

'23 Relationship with other Acts

- (1) This Act is in addition to, and does not limit, any other Act.
- (2) If this Act conflicts with an Act as follows, that Act prevails, but only to the extent of the conflict—
- *Ambulance Service Act 1991*
 - *Disaster Management Act 2003*
 - *Exotic Diseases in Animals Act 1981*
 - *Fire and Rescue Service Act 1990*
 - *Public Safety Preservation Act 1986*, part 3
 - *Radiation Safety Act 1999*
 - *Transport Operations (Marine Pollution) Act 1995.*

It is clear from this section that there was a general intention to give priority to health and safety issues, particularly in emergency situations. The twin difficulties with achieving this intention are:

- (a) That the list is limited and in particular does not include mine safety legislation or general workplace health and safety legislation.
- (b) This list of safety Acts only prevails to the extent of a conflict with the EP Act. There may be many situations when a human safety issue conflicts with an ecological issue in practical terms, but that does not mean that the conflict is spelled out in the Act. The general principle of statutory interpretation is that, if there is argued to be any inconsistency between statutes, the courts will try to read both statutes together so that it is necessary to comply with both, rather than to give priority to one over the other.⁴
- (c) The section only refers to conflict with an 'Act', not with instruments issued under the Act, such as directions and notices.

Consequently, the various correspondence from DERM to QRC inviting TEPs has been careful to restrict this to situations where the environmental impacts would be 'acceptable' (particularly in the context of overall dilution). The situation is more difficult for DERM where ecological impacts may not be negligible, but where there are obvious human considerations which should be relevant from a whole-of-government perspective.

While these situations would be more difficult for DERM as a line agency with a function focussing on environmental protection, we do not consider that the EP Act prevents priority from being given to human considerations, particularly taking into account the references to human issues in the definitions of 'environmental values' and 'environment'. The 'standard criteria' for various types of decisions, defined in Schedule 4, also includes some human items, such as 'the public interest' and 'financial implications'.

Interestingly, DERM has just updated and re-issued its operational policy on '*Ensuring orders/notices/directions do not result in unsafe conditions or a breach of other legislation*',⁵ and its information sheet, '*Workplace health and safety in relation to the Environmental Protection Act 1994*'.⁶ Both are dated 17 September 2010 and approved by Jon Womersley. As might be expected, these documents place the onus on the person receiving directions, notices or orders from DERM to ensure compliance with both the DERM requirement and also any health and safety requirements, rather than requiring DERM to ensure that its notices, directions and orders do not infringe health and safety requirements in the first place, for example, the information sheet says:

⁴ Eg: *NSW Aboriginal Land Council v Minister Administering the Crown Lands Act (2007) 157 LGERA 18.*

⁵ http://www.derm.qld.gov.au/services_resources/item_details.php?item_id=201209. Our recollection is that the original version of this document was issued after an incident some years ago when a man died trying to comply with environmental requirements on a boat, but we no longer have a record of the details.

⁶ http://www.derm.qld.gov.au/services_resources/item_details.php?item_id=200608.

'It is critical that, when complying with any verbal direction from DERM officers, the person or persons receiving the verbal direction do not contravene other legislation. In particular, the person or persons receiving the verbal direction should ensure that they maintain safe work practices and do not place themselves, their employees, or any other persons at any risk whilst carrying out the direction.'

There are also lengthy legal disclaimers. Presumably, the idea is that if there would be a direct conflict in complying with both the environmental requirement and the health and safety requirement, the company should go out of business.

However, the policy does at least contain the somewhat helpful statement:

'Other issues to consider

Some people who receive an order, notice or direction from DERM, particularly if the circumstances involve some imminent and potentially serious impact on the environment, may perceive they are at risk of enforcement action which could result in them acting hastily with sole focus on the environmental issues and without due care for safety.

It is critical that all our interactions with the recipients of orders, notices and directions emphasise that safety of people comes before protecting the environment; i.e. no actions should be commenced to protect the environment before the persons taking that action have determined that their methods will be safe.'

Similarly, the information sheet includes the statement:

'DERM believes that ensuring the safety of people comes before protecting the environment, even when there may be serious environmental impacts.'

It may be worth drawing attention to these statements in future correspondence with DERM.

However, in summary, the former EPA component of DERM, as a line agency, is focussed on minimising environmental impacts and not recognising that this may in some emergency preparation scenarios directly conflict with best practice risk minimisation for health and safety purposes, which DERM sees as the problem of the companies, rather than its own delegates. The EP Act does not prevent human considerations from being given priority, but we do not consider it likely that DERM would take this initiative itself, without a 'whole-of-government' decision in this regard.

Update for QRC – TEPs Authorising Discharge of Mine Affected Water

Current at 1pm, 9 Mar 2011

DERM has approved 58 applications for TEPs for mines since 1 December 2010. These include 42 new applications and 16 amendments to existing TEPs

A further 8 applications are currently under assessment and DERM has been notified by companies that one is critical to mining operations. Two are applications (or amendment applications) from mines with an existing TEP, six are applications from coal mines without an existing TEP.

Three CSG operations have had TEPs approved since 1 December 2010, and a further four are currently undergoing assessment.

Mine TEPs approved since 1 December 2010

Mine	Issue date	End date	Purpose
Rolleston	28 Oct 2010 (amended 1 Feb 2011)	30 June 2011	Water Management: TEP allows mine-affected water to be released to avoid the potential for uncontrolled release during the wet season. Authorised release is outside current EA conditions. TEP amended to extend timeframe to allow continuation of release.
	23 Feb 11	29 Aug 2011	Water Management: TEP allows for the release of mine-affected water from an additional discharge point into Meteor Creek, via Sandy Creek.
Ensham	10 Dec 2010 (amended 5 Jan 2011) (Amended 11 Feb 2011)	30 Jun 2011	Water Management: TEP allows for the release of approximately 15,000 megalitres, at about 250 megalitres per day, to dewater open cut mine pits on site. TEP amendment allows an increase EC limits, revised receiving water flow rate, and modified discharge locations. The revised TEP conditions require continued meeting of dilution (50:1) in the receiving water.
Poitrel	15 Dec 2010 (amended on 19 Jan 2011) (Amended on 11 Feb 2011)	30 Jun 2011	Water Management: TEP authorises release of water when the receiving water flow rate is lower than current EA requirements, provided there is significant flow in downstream waters of the Isaacs River. Water quality is within EA limits. The amendment authorises the release of water with elevated EC to no flow in New Chum Creek. The 11 February amendment allows for the release of water with elevated EC into New Chum Creek with downstream monitoring and flow triggers in the Isaac River.
Isaac Plains	18 Dec 2010 (amended on 17 Jan 2011)	30 Jun 2011	Water Management: TEP allows the release of water from the operational mining pit. Good quality water being discharged and this will be monitored closely to ensure quality is maintained downstream. Authorises the release of water from an additional release point and allows for releases into no flow in the Isaac River.
South Walker	18 Dec 2010 (amended 20 Jan 2011) (amended 9 Feb 2011) (amended 15 Feb 2011)	30 Jun 2011	Water Management: TEP allows the release of excess water, stored on site as a result of recent rain. The water to be released contains elevated electrical conductivity. The TEP will ensure water is only released during time of high flow in receiving waters to ensure adequate dilution is achieved. Amendment allows for discharge of up to 2500uS/cm to Walker Creek during low flow. This latest amended TEP allows for the release of water with elevated electrical conductivity to Walker Creek with an amended downstream EC trigger of 1000uS/cm in Bee Creek The amendment of 15 Feb allows for the release of water with elevated EC levels from Bee Creek into Sandy Creek. These releases will be consistent with the amended TEP issued on 9 February for releases into Walker Creek.

Mine	Issue date	End date	Purpose
	27 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of excess water with elevated EC to Sandy Ck with a reduction in the receiving water flow rate. Downstream monitoring is required.
Cook	24 Dec 2010	30 Jun 2011	Water Management: TEP authorises the release of water with Electrical Conductivity and Turbidity limits above those authorised in the current EA. Downstream monitoring is required with downstream water quality triggers.
Callide	24 Dec 2010	30 Jun 2011	Water Management: TEP authorises the release of water with Electrical Conductivity limits above those authorised by the current EA, provided there is adequate flow in the receiving waters to dilute levels to near background immediately downstream of the release. Downstream monitoring is required with downstream water quality triggers.
	11 Feb 2011	29 Jul 2011	TEP authorises discharge of mine affected water from Lake Gasteen discharge location into Callide Creek at low or no flow conditions. EC limits vary depending on receiving water flow rates.
	25 Feb 2011	15 Jun 2011	Water Management: TEP authorises the release of mine affected water, with higher EC levels, into Oaky Creek from an authorised discharge location. Allows releases to no flow.
Moranbah North	24 Dec 2010	30 Jun 2011	Water Management: Electrical Conductivity authorises the release of water with Electrical Conductivity limits above those authorised by the current EA, provided there is adequate flow in the receiving water of the Isaac River. Downstream monitoring is required with downstream water quality triggers.
	24 Dec 2010 (amendment of TEP approved August 2010)	30 Jun 2011	
Minerva	24 Dec 2010	30 Jun 2011	Water Management: TEP authorises the release of water when the receiving water flow rate is lower than current EA requirements. Water quality is higher than EA limits for conductivity. Downstream monitoring is required with downstream water quality triggers.
	(amended 10 Feb 2011)		Amended TEP authorises the release of water with elevated EC levels into Sandhurst Creek with downstream monitoring and flow triggers.
	(Amended 24 Feb 11)		Amended TEP on 24 February allows for changes to the downstream flow monitoring control point from the department's Duck Ponds gauge to the Comet Weir gauge. Allows for water discharge to continue at a lower rate when the flow in the Comet River falls below 5 cumecs
Kestral	24 Dec 2010	30 Jun 2011	Water Management: TEP authorises the release of water when the receiving water flow rate is lower than current EA requirements. Water quality is higher than EA limits for conductivity. Downstream monitoring is required with downstream water quality triggers.
Carborough Downs	24 Dec 2010	30 Jun 2011	Water Management: TEP authorises the release of water when the receiving water flow rate is lower than current EA requirements, with increased dilution of releases. Water quality is higher than EA limits for conductivity. Downstream monitoring is required with downstream water quality triggers.
Burton	13 Jan 2011	31 May 2011	Water Management: TEP authorises the discharge of mine affected water of higher electrical conductivity, though a maximum downstream conductivity will be achieved through only discharging at a minimum flow in the receiving waters.
	8 Feb 2011	30 June 2011	Water Management: TEP authorises the release of water with higher electrical conductivity from the northern part of the operation (Void) to receiving waters including the Isaac River. Downstream monitoring is required with downstream water quality triggers.

Mine	Issue date	End date	Purpose
Peak Downs	13 Jan 2011 (Amended on 1 Mar 2011)	30 Jun 2011	Water Management: TEP authorises a discharge at a higher electrical conductivity and a lower minimum flow in receiving waters, though it also contains maximum limits for electrical conductivity in receiving waters that flows will have to be controlled to meet these limits. Amendment allows for releases Ripstone Creek and requires a flow trigger in the Isaac River during releases to the creek.
Dawson South	13 Jan 2011	30 Jun 2011	Water Management: TEP authorises a discharge at a higher electrical conductivity (EC). Downstream monitoring is required.
Lake Lindsay	14 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of water with elevated EC and with reduced flow in receiving waters.
German Creek – Oak Park	14 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of water with elevated EC and a reduction in the receiving water flow rate. Downstream monitoring is required. Referred to as “Oak Park” TEP
Goonyella Riverside	19 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of water with elevated EC and a reduction in the receiving water flow rate. Downstream monitoring required.
German Creek	20 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of water with elevated EC and a reduction in the receiving water flow rate. Downstream monitoring required. Referred to as “German Creek” TEP
Saraji	27 Jan 2011 (Amended 18 Feb 2011)	30 Jun 2011	Water Management: TEP authorises the release of excess water with elevated EC to Phillips Ck and Hughes Ck with a reduction in the receiving water flow rate. Downstream monitoring is required. Amended TEP authorises releases with elevated EC levels that are dependent on downstream flow triggers. Downstream monitoring required.
Millenium	28 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of excess water with elevated EC to New Chum Ck with a reduction in the receiving water flow rate. Downstream monitoring is required.
Hail Creek	29 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of mine affected water through additional discharge points and reduced flow in receiving waters.
Lake Vermont	29 Jan 2011	30 Jun 2011	Water Management: TEP authorises the release of mine affected water to Carfax Gully with no natural flow and a reduction in flow in the Issac River.
Newlands	23 Dec 2011 (amended on 28 Jan 2011)	30 Jun 2011	Water Management: TEP authorises the release of excess water with elevated EC and a reduction in the receiving water flow rate. Downstream monitoring is required. Amendment authorised new discharge points and reduced flow in receiving waters. Also increased downstream monitoring requirements.
Sonoma	7 Jan 2011 (Amended 24 Feb 11)	1 Jun 2011	Water Management: TEP authorises the release of excess water with elevated EC. Downstream monitoring is required. TEP amendment of 24 February authorises the release of water with elevated EC.
Kogan Creek	11 Jan 2011	29 Apr 2011	Water Management: TEP authorises the release of mine affected water (above existing TSS licence limits) to enable access to coal reserves to ensure coal supply to Kogan Creek Power Station.
Texas Silver	24 Jan 2011	30 Apr 2011	Water Management: TEP authorises the release from stormwater water pond to enable completion of construction and lining of dam.
Western Creek Coal	1 Feb 2011		Water Management. TEP authorises discharge of captured flood water from extraction pit at a higher electrical conductivity. (1500 us/cm as opposed to background + 15% of offsite gully) Monitoring required along discharge path and downstream.

Mine	Issue date	End date	Purpose
Baralaba	8-Feb-11	29 Jul 2011	Water Management: TEP authorises the release of mine affected water to the Dawson River from an inundated mine pit. Water quality is in accordance with Baralaba's Environmental Authority (EA).
Yarrabee	10 Feb 2011	30 Jun 2011	Water Management: TEP authorises the release of water with elevated electrical conductivity to 12 Mile Creek. Monitoring of receiving waters is also required in the Mackenzie River.
Red Mountain Joint Venture	11 Feb 2011	31 July 2011	Water Management: TEP authorises the release of water with elevated EC levels into New Chum Creek. Downstream flow triggers and dilution is required.
Jellinbah	11 Feb 2011	30 July 2011	Water Management: TEP authorises release of mine affected water with elevated EC to Blackwater Creek
Norwich Park	11 Feb 2011	30 July 2011	Water Management: TEP allows the release of mine affected water with elevated EC.
Boonal J/V	14 Feb 2011	30 June 2011	Water Management: TEP authorises the release of water from the Boonal loadout facility to Bullock Creek.
Thalanga Copper Mine	18 Feb 2011	Jan 2014	Water Management: TEP authorises releases from east evaporation pond whilst the company undertakes studies and site changes to remove contamination and reduce catchment size.
Dawson	18 Feb 2011	30 June 2011	Water Management: TEP authorises the release of up to 75ML/day with elevated EC into Kianga Creek at low and no flow conditions.
Blackwater	18 Feb 2011	1 July 2011	Water Management: TEP authorises the release of water with elevated EC to New Deep Creek with low flow in receiving water.
Mt Rawdon	18 Feb 2011	30 November 2011	Water Management:: TEP authorises dams below the waste rock dump and the tailings dam to overflow rather than returning the water into the tailings storage facility
Gregory/Crinum	28 Feb 2011	30 Jun 2011	Allows for releases to low flow in Crinum Creek with downstream monitoring in Crinum Creek.

CSG TEPs approved since 1 December 2010

Operation	Issue date	End date	Purpose
Spring Gully	28 Dec 2010	25 Feb 2011	Water Management: NO discharges yet required. Discharge of RO brine if MRL reached or an engineering concern identified but only if 1:100 dilution, a base flow in creek equal to minor flood and mixing zone limits achieved.
Moranbah Gas Project (MGP)	4 Feb 2011	31 Mar 2011	Water Management: Discharge of CSG water to Isaac River only if dams 1, 2, 5 or 10 at MGP exceed target fill heights (
Daandine	18 Jan 2011	28 Feb 2011	Water Management: Discharge of RO permeate to flood flows – Wilkie Ck

Appendix G - Glossary of terms

<i>BOM</i>	<i>Bureau of Meteorology</i>
<i>CSG</i>	<i>coal seam gas</i>
<i>EAs</i>	<i>Environmental Authorities</i>
<i>EC</i>	<i>Electrical Conductivity</i>
<i>EP Act</i>	<i>Environmental Protection Act 1994</i>
<i>EPA</i>	<i>Environment Protection Agency (former)</i>
<i>DERM</i>	<i>Department of Environment and Resource Management</i>
<i>QRC</i>	<i>Queensland Resources Council</i>
<i>TEPs</i>	<i>Transitional Environmental Programs</i>
<i>TMR</i>	<i>Department of Transport and Main Roads</i>
<i>TSS</i>	<i>Total Suspended Solids</i>