QUEENSLAND FLOODS
COMMISSION OF INQUIRY

STATEMENT OF MICHAEL (MIKE) FRANCIS BIRCHLEY

I, **MICHAEL (MIKE) FRANCIS BIRCHLEY**, of c/- 400 George Street Brisbane in the State of Queensland, Assistant Director-General, Regional Service Delivery, Department of Environment and Resource Management, solemnly and sincerely affirm and declare:

Requirement from Queensland Floods Commission of Inquiry

1. I have seen a copy of a letter dated 29 August 2011 from the Commissioner, Queensland Floods Commission of Inquiry to me requiring a written statement under oath or affirmation, which is attachment **MFB-01** ("Requirement") and which details the topics my statement should cover. For the purposes of the Requirement, the Commissioner has advised that "mine", "mines" and "mining" should be taken to include coal seam gas operations.

Role

2. I am currently the Assistant Director-General, Regional Service Delivery Division within the Office of the Environmental Regulator Business Group in the Department of Environment and Resource Management (DERM). I was appointed to this position in a permanent capacity on 28 June 2011. Prior to the appointment I was acting in the position from 3 January 2011. From 1 October 2011 to 2 January 2011 I was in my then substantive role of Regional Services Director, South West Region and I reported directly to the then Assistant Director-General, Regional Service Delivery Division, Mr Damien Brown.

Item 1: A brief overview of the role and responsibilities of the Department of Environment and Resource Management (DERM) as to the regulation of mining operations in Queensland, including mining dams

3. The current laws that govern environmental management of Queensland's mining industry commenced in January 2001. Under these arrangements, the administering authority under the *Environmental Protection Act 1994* (EP Act) (which is currently DERM but before March 2009 was other departments) assumed responsibility for environmental impact assessment and administration of environmental authorities, as well as compliance, auditing and monitoring relating to the environmental management of mining.

4. The EP Act incorporates the environmental management regulation of mining activities. This legislation creates environmental impact assessment processes and heads of power for government decision-making implemented by the administering authority.

5. The EP Act and subordinate legislation governs the roles and responsibilities of DERM in the environmental regulation of mining activities in Queensland. The stated objective of the EP Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. This is referred to as ecologically sustainable development.

6. Authorities are issued with conditions that may authorise a level of environmental harm to occur whilst seeking to protect overall environmental values. Both the EP Act and environmental authorities require companies to develop and implement a range of environmental management documents to ensure that authorised activities are carried out in a manner that minimises unexpected environmental impacts.

7. Dams that form part of mining activities are regulated by DERM for two primary purposes:
   (a) to ensure dam design, construction and operation is carried out in a manner that does not threaten the community's safety or environment through collapse or failure; and
   (b) to ensure management of dam contents, including releases, does not result in adverse impacts on the environment through contamination.

8. Accordingly, dams that store hazardous wastes are regulated under environmental authorities. There are a number of conditions on environmental authorities in relation to such dams, including requirements that they be designed and constructed to stated standards, be certified in their design and construction, and be annually inspected for integrity. Dams may or may not be authorised to release in emergency events or under certain environmental conditions.

Item 2: The involvement of DERM in granting environmental authorities to operators of mines under the Environmental Protection Act 1994 (Qld)

9. The environmental approvals process is administered in accordance with the EP Act. This process may also occur in conjunction with the tenure process for mining activities under the *Mineral Resources Act 1989* and *Petroleum and Gas (Production and Safety) Act 2004* as an applicant must have applied for or currently hold a relevant resource authority prior to lodging an application for approval under the EP Act.

10. The holder of a mining tenement cannot carry out any mining activities on site unless those activities are authorised by an environmental authority for the relevant tenement. Therefore, the applicant for a mining tenement must also apply for an environmental authority. All applications for environmental authorities and mining tenements for new mining projects must be made on the approved application form and lodged with the Department of Employment, Economic Development and Innovation (DEEDI).

Environmental Impact Statement

11. Major mining and petroleum projects may undergo an environmental impact statement (EIS) assessment process as part of the considerations by DERM as to whether an environmental authority should be granted.

12. If the project is determined by the Coordinator-General to be of state or national significance then the proponent may be required to prepare an EIS under either the *State Development and Public Works Organisation Act 1971* (SDPWO Act) administered by DEEDI, or the *Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) Act (EPBC Act)* administered by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

13. If a project is not determined by the Coordinator-General to be a significant project then a proponent may be required, or may voluntarily apply, to undertake an EIS process as set out in Chapter 3 of the *EP Act*. The purpose of an environmental impact assessment is to assist the mining industry in achieving ecologically sustainable development, meet environmental management responsibilities and to encourage community comment and participation in the process. See attached "DERM Information Sheet (mining) Environmental Impact Statements" (exhibit **MFB-02-01**) for further information.

14. The "DERM Guideline (Mining), The environmental impact statement (EIS) process for level 1 mining projects" (exhibit **MFB-02-02)** provides comprehensive information to project proponents on the Chapter 3 EIS process.

15. Proponents for mining and petroleum projects may alternatively apply to DERM to voluntarily prepare an EIS where they have not made an application for a tenement and an environmental authority and therefore a formal assessment level decision has not been made. Information about the voluntary application process can be found in the "DERM Information sheet Voluntary Preparation of an EIS" (exhibit **MFB-02-03).**

16. The proponent is responsible for drafting the terms of reference (TOR) and subsequently advertising the draft terms of reference. The applicant must also make any required amendments following receipt of submissions on the draft TOR prior to the administering authority deciding on the final TOR to be used in the EIS process. The proponent is also responsible for the development and advertising of the draft EIS and making any amendments following the receipt of submissions on the draft EIS, prior to the administering authority issuing the EIS assessment report.

17. To assist a proponent to develop a TOR for their project's EIS, DERM has published a generic Terms of Reference (exhibit **MFB-02-04**) which sets out the range of matters that might need to be addressed in the EIS.

18. The EIS Assessment Report must include matters set out in section 59 of the EP Act. If the environmental management plan proposed for the project is determined to be adequate and draft Environmental Authority conditions have

been finalised and included in the Assessment Report, then the project can proceed to the public objection phase of the approval process.

Environmental Authorities

19. Under Chapter 5 (Mining activities) and Chapter 5A (Other Environmental Authorities) of the EP Act, a mining project is either a level 2 or a level 1 environmentally relevant activity depending on whether it does or does not comply with criteria in the *Environmental Protection Regulation 2008* (EP Reg). Each mining project requires an environmental authority under the EP Act.

20. DERM completes the assessment of submitted applications for all environmental authorities. Level 1 application documentation must include an Environmental Management Plan (EM Plan). The purpose of an EM Plan is to provide information to support the application for an environmental authority and propose environmental protection commitments to assist the administering authority prepare the draft environmental authority for the project and in setting specific conditions for the mining activity.

21. Applicants for environmental authorities for code compliant level 2 mining projects must include enough information (such as a description of the proposed project and the likely environmental impacts) to demonstrate that they can comply with the conditions of the relevant code of environmental compliance and operate within the criteria. A copy of the "Code of Environmental Compliance for Mining lease projects" is provided at attachment **MFB-02-05**. If, however, an applicant believes they cannot comply with the conditions but will operate within the criteria, and feel their operation will still be a level 2 mining project, they may apply to have additional conditions included in their environmental authority. The resulting environmental authority for the level 2 mining project will be non-code compliant.

Coordinator-General Report

22. Projects declared as state significant pursuant to the SDPWO Act are subject to the discretionary powers of the Coordinator–General to impose conditions on a project, specify when those conditions take effect and determine which entity is to have jurisdiction for the imposed conditions. Accordingly DERM may be required to impose conditions from the Coordinator-General's Report. The EP Act reflects the requirement for the administering authority to include 'imposed conditions' in an environmental authority. This requirement does not prevent DERM from including additional conditions within an environmental authority provided they are not inconsistent with the Coordinator-General's conditions.

Public notification

23. During the assessment period for both the EIS and conditioning of the environmental authority, public notification provisions pursuant to the EP Act may be triggered. If this is the case, stakeholders and the public have the opportunity to make a submission on an application. In deciding to grant an

environmental authority for which a valid submission has been made, the assessing officer and delegate must consider those submissions.

Deciding applications

24. When making any decision under the EP Act, including whether to issue an environmental authority, the department must consider the "Standard Criteria" (**MFB-02-06**) as specified in Schedule 4 of the EP Act. Furthermore, parts 2 and 3 of the EP Reg (**MFB-02-07**) stipulate requirements for all environmental management decisions and additional regulatory considerations with respect to potential emissions from proposed activities.

Public Objections, Planning and Environment Court and Land Court

25. An entity has a right to object about an application for environmental authority, a draft environmental authority or a condition included in the draft. If a properly made objection exists following the objection period specified by the EP Act, the administering authority under the EP Act (currently DERM) is obliged to refer the application to the Land Court for an objections decision.

Item 3: The means by which DERM regulates compliance with environmental authorities granted to operators of mines

26. DERM is responsible for enforcement action in response to non-compliance and exercises its discretion to take enforcement action in accordance with its Enforcement Guidelines (**MFB-03-02**). The Enforcement Guidelines set out the considerations for implementing an enforcement response and the use of the tools provided for in the EP Act, which include environmental evaluations, environmental protection orders, direction notices, clean-up notices, cost recovery notices, emergency powers, emergency directions to release a contaminant and transitional environmental programs. Other enforcement tools include warning letters, penalty infringement notices, prosecution, restraint orders, enforcement orders and suspension of authorities or cancellation.

27. DERM's compliance approach is set by the "Compliance Strategy 2010-14" (**MFB-03-01**), which specifies the principles that guide DERM's compliance activities. These principles are that DERM will:
    (a) ensure that regulatory clients understand their obligations;
    (b) encourage voluntary compliance with those obligations;
    (c) work with the regulated community to improve performance;
    (d) monitor compliance with DERM's legislation; and
    (e) take consistent and proportionate enforcement responses where necessary.

28. DERM's Enforcement Guidelines (**MFB-03-02**) set out the principles that govern when DERM will take enforcement action and the nature of that action. The guidelines apply to decisions to commence a prosecution as well as to take other types of enforcement action such as the use of a statutory tool.

29. DERM's Annual Compliance Plan sets out the proactive compliance activities that DERM will undertake in a given year, and include strategic compliance projects that target activities or issues that have been identified as carrying a high risk to the environment or natural resources. The annual compliance plans for 2009-10 and 2010-11 are attachments **MFB-03-03** and **MFB-03-04** respectively. The Annual Compliance Plan 2011-12 is currently awaiting Ministerial approval.

30. DERM's frontline EP Act compliance officers (known as 'Environmental Officers') are located within regional offices and are part of the Regional Service Delivery Division of the department. These Environmental Officers are responsible for responding to and managing all potential breaches of Environmental Authority conditions which do not require court action to resolve. There are four regions covering Queensland including South East Region, South West Region, Central West Region and North Region (refer to map **MFB-03-05**). Each Region is headed by a Regional Services Director who reports directly to my position.

31. These officers' roles include compliance activities such as inspections and audits, issuing notices and directions to ensure compliance and reviewing monitoring data against environmental standards. These officers are also involved in regulatory environmental assessment activities such as considering proposals to change or upgrade environmental management infrastructure in order to achieve compliance with an EA and stipulating specific environmental conditions. In addition, officers provide education and advice.

32. DERM has also played a lead role in establishing the Liquefied Natural Gas (LNG) Enforcement Unit, which comprises specialist officers with expertise in groundwater management, environmental compliance and case management. Officers from DEEDI specialising in land access and gas safety also form part of this multidisciplinary unit. The unit is also supported by centralised business units involved in assessments and approvals, technical operations, policy support and development.

33. DERM has undertaken approximately 178 audits and inspections on the mining industry in the last 12 months. A further 67 were undertaken in relation to gas extraction activities.

34. The frontline staff undertaking compliance activities within the Regional Service Delivery Division are supported by centralised business units from DERM's Environment and Natural Resource Regulation Division. These business units are the Compliance and Investigations Unit and the Litigation Unit.

35. The Compliance and Investigations Unit has a number of roles in regulating mine operators' compliance with environmental authorities although it should be noted that the Unit's role extends beyond mining to include the whole range of DERM's regulatory responsibilities. Following escalation of a compliance matter from a regional office, this unit investigates serious breaches of environmental authorities, for which prosecution or other court action is the appropriate response and prepares briefs of evidence following those investigations.

36. The Unit also provides support to regional officers who regulate mines by developing procedural guides, templates and other material to support both the use of statutory tools under the *EP Act* and other compliance responses (such as the issue of penalty infringement notices). Copies of the current procedural guides, templates and other material are attached at exhibits **MFB-03-06** to **MFB-03-94**. Copies of superseded procedural guides, templates and other material that were current at some stage since 1 October 2007 are attached at exhibits **MFB-03-95** to **MFB-03-106**.

37. The Litigation Unit is responsible for prosecutions and Planning and Environment Court matters involving DERM. Its role in regulating compliance with environmental authorities granted to operators of mines is to review briefs of evidence submitted by the Compliance and Investigations Unit and provide advice on sufficiency of evidence, prospects of success and likely penalty range. The Litigation Unit also provides legal advice as required in relation to specific cases of non-compliance.

38. In addition to its on-ground compliance activities, DERM has developed administrative processes that require self assessment and statutory declarations of compliance performance by environmental authority holders, such as:
    (a) Annual Returns requiring a statement of compliance against Environmental Authority conditions; and
    (b) Plans of Operations that require auditing against residual rehabilitation liability for the purpose of determining an appropriate level of financial assurance.

39. The EP Act contains offence provisions relating to the provision of false and misleading information.

Item 4: The role of DERM in granting transitional environmental programs to operators of mines

40. Transitional environmental programs (TEPs) are specific programs that, when complied with, achieve compliance with the EP Act for an activity by reducing environmental harm, detailing the transition of the activity to an environmental standard or detailing the transition of the activity to comply with a condition of a development approval, an environmental authority or code of environmental compliance. The requirements for TEPs and the process for assessing and approving them is set out in chapter 7, part 3 of the EP Act. In the event a TEP is proposed to extend beyond a 3 year period, public notification requirements are triggered.

41. If an approved TEP authorises the holder of the TEP to do or not do something, the holder may do or not do that thing despite anything in a regulation, an environmental protection policy, an environmental authority held by the holder of the TEP, a development approval, a standard condition of a code of environmental compliance for a chapter 4 activity or an accredited environmental risk management plan.

42. Draft TEPs may be submitted voluntarily by a mine operator, or DERM may require an operator to submit a draft TEP. In either case, the draft TEP is prepared by the operator. DERM's role is to assess the draft TEP against the requirements of the EP Act and either approve the TEP, approve the TEP with conditions, or refuse to approve the TEP. Prior to making its decision, DERM may also (and as a matter of practice often does) enter into discussions with the proponent of a draft TEP and suggest amendments to the draft TEP.

43. Mine operators typically voluntarily submit TEPs to DERM when they are seeking authorisation to discharge water from the mine site in circumstances where the discharge is not authorised by the environmental authority. Many TEP applications were received by the department following the 2010/2011 wet season.

44. DERM typically requires mine operators to submit a draft TEP where DERM becomes aware that there is a non-compliance at the mine site that will require a significant amount of time and/or investment by the operator to rectify.

Assessing draft TEPs

45. Once a draft TEP is submitted to DERM there is often a discussion between the environmental officer involved in the matter and the mine operator about the contents of the draft TEP. This is an opportunity for DERM to raise any concerns with the draft document, and for the operator to take steps to address those concerns before DERM makes a decision about the draft TEP.

46. DERM has produced guidance material to assist environmental officers in assessing draft TEPs. (Exhibits **MFB-04-01** and **MFB-04-02)**

Item 5: DERM's actions in response to the Hart Report on Fitzroy River Water Quality Issues recommendations numbers 1, 2, 3, 4, 5, 10, 11, 12 and 13

47. The Hart Report on Fitzroy River Water Quality Issues is attachment **MFB-05-01**.

48. This report, completed in November 2008, contains a review of the situation regarding water quality in the Fitzroy River resulting from the discharge of 138 GL (gigalitres) of mine-affected floodwater from the Ensham Resources Pty Ltd (Ensham) coal mine located near Emerald in Central Queensland in 2008.

49. The Terms of Reference (ToR) for this review were to advise the Premier of Queensland on:
    (a) any short and long-term risks to human health, aquatic ecology, agriculture and industry that could result from the mine-affected floodwaters discharged from the Ensham coal mine, and how these should be managed;
    (b) the scope of the water quality and biological monitoring program to be undertaken by the EPA to assess the potential impacts of the mine-affected floodwater discharge from Ensham coal mine;
    (c) any changes that might be made to conditions of Environmental Authorities

(for mining activities) and associated statutory documents under the EP Act in order to ensure that the impacts of discharges of mine-affected waters in Central Queensland are appropriately managed and monitored; and

(d) Any other matters that might be of relevance to this issue.

50. The department is in the process of finalising a report on the implementation of both the 'Hart report' in consultation with the Fitzroy Water Quality Advisory Group. Further information relevant to water quality issues in the Fitzroy catchment can be found on the department's Fitzroy River website: http://www.fitzroyriver.qld.gov.au/

51. Action taken in response to the recommendations of Professor Hart's report that are of particular interest to the Inquiry are as follows.

Recommendation 1: ***Environmental Protection Agency (now the Department of Environment and Resource Management; DERM) to undertake a review of procedures for granting a Transitional Environmental Program***

52. The department reviewed the procedures for granting a Transitional Environmental Program and on 1 January 2009, a new Environmental Protection Regulation 2008 (Attachment **MFB-05-02)** came into effect. This defined the issues that must be considered when deciding whether to approve a Transitional Environmental Program. These include:
    (a) impacts from contaminants entering the environment including the cumulative impacts;
    (b) the order of occupancy between the person carrying out the activity and the affected person;
    (c) the capacity of the receiving environment to accept contaminants while protecting the environmental values;
    (d) risk management of the way in which contaminants are released;
    (e) the need to monitor to ensure discharges meet the terms of the program; and
    (f) the potential toxic effects of likely contaminants.

Recommendation 2: ***A process for random audits of laboratories used by mining companies for analysing trace concentrations of heavy metals***

53. The new water license conditions (Attachment **MFB-05-03**), developed by the department in concurrence with coal mining companies, are intended to improve the certainty of trace metal results reported by coal mining companies. Mining companies are now required to use analytical methods accredited by the National Association of Testing Authorities (NATA). Determinations and analysis of water quality are to be performed by an appropriately experienced and qualified operator and done in accordance with methods prescribed in the latest edition of the departments *Water Quality Sampling Manual* shown in Attachment **MFB-05-04**. Additionally, samples are to be collected from authorised monitoring locations and be representative of the water body.

Recommendation 3: ***Environmental Protection Agency to include Professor Hart's review comments in the Fitzroy water quality monitoring project and include a longer timeline for the study***

54. The department has provided funding to the Fitzroy Basin Association (FBA), to design an integrated monitoring program for the Fitzroy Basin under the project name *Fitzroy Partnership for River Health*. This partnership aims to deliver an ongoing monitoring program that assesses Fitzroy river health and provide longer timeframes for water quality studies. More details of this program are available online at http://riverhealth.org.au/ and in Attachment **MFB-05-05**.

Recommendation 4: ***Expand the Environmental Flows Assessment Program in the wet season following the major releases of 2008 to measure effects of higher salinity on fish spawning and recruitment***

55. The department expanded its Environmental Flows Assessment Program (Attachment **MFB-05-06**) in the wet season of 2008/2009 to include an assessment of the affects of higher salinity on fish spawning and recruitment.

56. Surveys were done at four sites:
    (a) Nogoa River at Glenlees, which is upstream Fairbairn Dam on 20 November 2008;
    (b) Mackenzie River at Riley's Crossing, which is downstream of the Comet River junction on 1 December 2008;
    (c) Mackenzie River at Honeycomb, which is downstream of Bingegang Weir on 26 November 2008 and 2 December 2008: and
    (d) Comet River at the Comet Weir on 1 December 2008. Freshwater flows returned water quality to normal and precluded any further surveys.

57. There were no sightings of fish spawning in the surveys performed and fish sample volumes overall were too small to form an objective view about the effects of higher salinity water. The low fish numbers could be due to many varying factors and one-off sampling results should be interpreted with caution. Information about fish trends in the Fitzroy Basin are incorporated into the ecological assessment reports for the Fitzroy Basin Water Resource Plan (WRP) 10 year review which has resulted in the current draft plan. See attachments **MFB-05-07** and **MFB-05-08**

Recommendation 5: ***Bio-security Queensland study of health of fish in weirs to be repeated and enhanced***

58. Bio-security Queensland undertook two sampling projects on fish health. Results have been presented in a report that is currently being peer reviewed. Further fish health studies will be included in future monitoring programs.

Recommendation 10: ***Develop an emergency water management plan to improve water quality in the Nogoa-Mackenzie-Fitzroy River system between storages. This plan will need to be innovative and not constrained by the current restrictive Resource Operations Plan rules.***

59. Substantial natural inflows throughout the system which occurred within two months of the release of Professor Hart's report returned water quality conditions of the Nogoa–Mackenzie–Fitzroy River system to normal.

60. The contingency plans that form part of the Drinking Water Quality Management Plans, which are Attachment **MFB-05-09,** are required under the new provisions of the *Water Supply (Safety and Reliability) Act 2008* and are intended to ensure that emergency water quality issues are addressed by drinking water providers such as Local Governments.

61. Since 2008, the installation of automatic salinity loggers by the department has increased monitoring efficiency and advanced the surveillance of water-quality conditions within the Fitzroy Basin. The department's "Procedural Guide 2.10 - Mine Industry Incidents" (**MFB-05-019**) was created to provide the essential guidance on roles, responsibilities and tactical responses for incidents in the mining industry where contaminants have been released to the environment. Additionally, Section 320C of the EP Act (which is yet to commence and commences on 5 October 2011) now stipulates community notification of any emergency situation relating to water quality management.

62. Furthermore, the Fitzroy Water Resource Plan and its subordinate Resource Operations Plan (Attachment **MFB-05-10** and **MRB-05-11**) provide for environmental flows to maintain good water quality in the river between the storages and downstream over the longer-term.

Recommendation 11: ***For the review of the Fitzroy Water Resource Plan, the department is to consider a more equitable balance between consumptive use and the environment, and to include the provision of a state owned contingency allocation.***

63. The new draft Fitzroy Basin Water Resource Plan (FB WRP) was released in December 2010. This is Attachment **MFB-05-12**. While the new draft plan aims to ensure an appropriate balance between consumptive use and the environment, it does not provide for State-owned contingency allocations from major storages. The Overview Report for the FB WRP (S1.5.5) (Attachment **MFB-05-07**) gives the reasons, which are fundamentally:
    (a) A State-owned contingency allocation would provide little or no benefit in mitigating water quality issues well downstream of any storage and would not assist with problems that may occur with water quality in un-supplemented streams. For example, it is estimated that a volume of some 90,000 ML (megalitres) from Fairbairn Dam would be required to address a serious water quality issue in the Fitzroy Barrage at Rockhampton. To successfully flush and dilute poor quality water in the barrage would necessitate releasing this total volume at rates of over 10,000 ML per day (approximately 20 days travel over 625 km);

(b) It would be very expensive to acquire a significant allocation from an existing water supply scheme, and
(c) There would be impacts on the local economy since significant quantities of water would no longer be available for consumptive use.

64. The limited benefits of state-owned contingency allocations come with high costs. The establishment of tradable water allocations however, does allow the government to acquire such contingency allocations in the future if this was considered appropriate. The alternative of the government granting itself a contingency allocation at no cost would come with significant impacts on existing water allocation holders and have an adverse impact on an established water market. With regards to new infrastructure, any contingency allocation would either come at significant cost to the project or reduce the volume available for new water supplies.

65. It is still possible for an entity to gain access to any short or long term water supplies in order to support an environmental mitigation activity through the permanent acquisition or seasonal assignment of water allocation.

66. The new draft plan (Schedule 6) will provide for the continuation of the Seasonal Baseflow and First Post Winter Flow management strategies which are intended to support good water quality. It is proposed to provide more flexibility in the infrastructure operating rules of the Fitzroy Basin Resource Operations Plan (the ROP) to allow releases from storages in emergency circumstances, as was the case in 2008 when discharges from the flooded Ensham mine created issues for downstream water supplies. The Fitzroy ROP is due for review after the approval of the new Fitzroy WRP and is planned to be finalised within 2–4 years.

Recommendation 12: ***Government to consider the appointment of a lead agency as a 'river health caretaker', to prepare a catchment management plan and a co-ordinated monitoring and assessment program***

67. The Department of Environment and Resource Management is the lead agency for natural resource management and the support of catchment based natural resource management groups. The department is presently supporting the development of a monitoring and assessment program for the Fitzroy Basin, the *Fitzroy Partnership for River Health*, which is being co-ordinated by the Fitzroy Basin Association.

Recommendation 13: ***Develop a set of Emergency Response Principles relevant to the mining industry to be applied in future situations similar to the "Ensham" emergency of 2008.***

68. The department developed policy principles relevant to emergency situations within the mining industry that pertain to contaminant releases to the environment. The principles were developed in consultation with key stakeholders, including members of the Fitzroy Water Quality Advisory Group, and have been incorporated into the department's "Procedural Guide 2.10 - Mine Industry Incidents" (**MFB-05-019**). State-wide training on the Guide was conducted for departmental staff in 2010 and 2011.

69. In addition, the EP Act has been amended in response to community concerns that the operators of mines and coal seam gas activities should be required to notify adjacent landholders of any chemicals spills or discharges that have the potential to impact on the landholders. Section 320C of the EP Act (which has yet to commence and which commences on 5 October 2011) requires any person operating a facility who becomes aware of an event that causes or threatens material environmental harm, to give written notice of the event, its nature and the circumstances in which it happened to persons on affected land. The Department will release a guideline explaining the new requirements and the duty to notify of environmental harm, in due course prior to 5 October 2011.

Item 6: The process by which the Final Model Water Conditions for Coal Mines in the Fitzroy Basin were drafted, relevant parties were consulted, and the terms were negotiated, finalised and amended (all relevant meeting minutes, internal and external reports, briefing notes and memoranda should be attached to the statement)

70. On 16th October 2008, the then Minister for Sustainability, Climate Change and Innovation the Hon. Andrew McNamara, announced that the then Environmental Protection Agency (EPA) would undertake a study of the cumulative impact of mining on the health of the Fitzroy River. The project plan for the Study is included at **(MFB-06-01)**.

71. Prior to that announcement, on or around 16 October 2009, the Premier, the Hon. Anna Bligh, signed a letter of reply **(MFB-06-01a)** to the then President of the Queensland Resources Council (QRC), Mr John Pegler which included the words-
"I have requested that relevant Ministers direct their departments to undertake a specific study 'Review of Water Quality Arrangements for Mines Discharging Water into the Fitzroy River System'. I have attached the terms of reference for this study."

72. The EPA was then given the task of completing the Study in keeping with the Terms of Reference. As the study required the analysis of existing mine water discharges, the EPA wrote to each coal mine operator in the Fitzroy Basin, asking the operator to submit electronic water quality results for all mine water discharges over the previous 5 years. The proforma letter used for that purpose is provided at **(MFB-06-01b)**.

73. On 11 May 2009, Cabinet considered and adopted the Department of Environment and Resource Management (DERM) report entitled, Study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin <http://www.fitzroyriver.qld.gov.au/pdf/cumulativeimpactassessment.pdf> **(MFB-06-01c)** and supported the three recommendations in the report which were for DERM to:
    (a) develop appropriate conditions in environmental authorities for mine water discharges;
    (b) develop local water quality guidelines; and

(c) develop a model for assessing cumulative impacts across the region.

74. In relation to recommendation 1 the report noted that the aim of that recommendation was to, "*standardise environmental authority conditions relating to water discharges so that consistent and appropriate conditions exist across the Fitzroy River Basin.*"

75. The report also noted that, *"The aim is to work with mining companies to achieve this by convening a small working group comprising DERM and mining company technical specialists that would consider how discharge limits are set, what limits are acceptable and what this should be based on, when discharges may occur and what monitoring should occur. This is to occur by the end of June 2009.*"

76. And that, "*The preferred option for implementing changes is via voluntary agreement with mining companies. If this is not possible, then it may be necessary to implement changes after requiring and reviewing an environmental audit or by changes to the EP Act to allow for the immediate review and amendment of coal mining authority conditions using the issues identified in this study. Changes to environmental authorities are to occur by the end of December 2009.*"

77. The Government's decision on Recommendation 1 formed the basis for DERM commencing a project to work with Fitzroy Basin mining companies to agree to and implement a set of standardised environmental authority conditions for water and wastewater management issues on coal mine sites, including:
    (a) on-mine water management,
    (b) wastewater discharges to rivers and streams, and
    (c) water quality monitoring of wastewater discharges and the rivers and streams receiving waste discharges.

78. The project proposal and work plan for the project **(MFB-06-02)** reflected the intended completion date of 31 December 2009 for the amendment of the water and wastewater conditions in environmental authorities for all coal mines in the Fitzroy Basin.

79. The deadline given by the then Minister Jones and Minister Schwarten for finalisation of the draft conditions was 30 June 2009 <http://www.cabinet.qld.gov.au/mms/StatementDisplaySingle.aspx?id=64797> (**MFB-06-02a**) and this deadline was also reflected in the project plan.

80. The attached draft briefing note (**MFB-06-03**), dated 5 June 2009, prepared for the Associate Director General Terry Wall, notes that in relation to Project 1:
    (a) DERM met with mining company and Queensland Resources Council (QRC) representatives on 28 May 2009 (preparatory notes for that meeting are provided at **MFB-06-04**); and
    (b) The project team had met that week to prepare new draft discharge conditions for distribution to mining companies, prior to a full-day workshop scheduled in Brisbane for 18 June 2009 when the conditions would be discussed in detail.

81. The draft briefing note also indicated that:
    (a) a small working group of three DERM representatives and three industry representatives would be formed at the conclusion of the workshop to refine the conditions based on DERM's mandate and industry comment; and
    (b) a final version of draft conditions would be developed by 30 June 2009 and then discussed with individual mines, site by site, for implementation by December 2009.

82. The first draft of the model conditions was developed by a team of DERM employees, including Dr Ian Ramsay – a specialist in stream water quality and ecology. These draft model conditions are provided at **MFB-06-05.**

83. On 18 June 2009, DERM's set of draft conditions was workshopped with technical representatives from coal mining companies and the QRC. The workshop was facilitated by Professor Bob Miles, formerly of the University of Central Queensland.

84. The notes from the workshop (**MFB-06-06**) indicate that it was agreed that DERM would incorporate comments from the workshop into Version 1.1 of the model conditions by close of business on 24 June 2009, and that that this new draft set of conditions would be distributed to the working group members for further refining.

85. It was also agreed that the version revised by the working group needed to go back to the wider group present at the workshop for further comment. The draft "Model Water Conditions for Coal Mines in the Fitzroy Basin" as at 30 June 2009 is provided at **MFB-06-07** and the final set of model conditions that were adopted is provided at **MFB-06-08.**

86. The package of administrative support and guidance material provided to DERM staff to use in the amendment of water conditions in environmental authorities for individual coal mines in the Fitzroy Basin included:
    (a) a flowchart outlining the process for amending environmental authorities (**MFB-06-09**);
    (b) the final set of model conditions;
    (c) a checklist for making an assessment level-decision for amending a non-standard environmental authority under the *EP Act* (**MFB-06-10**);
    (d) a proforma EA/ Development Assessment (DA) Assessment Report crafted specifically to deal with amendment of water conditions for a coal mine (**MFB-06-11**);
    (e) a proforma Coordinated Assessment Committee Report used to make recommendations on the 'assessment level' for the amendment of a coal mine environmental authority (**MFB-06-12**);
    (f) a proforma Notice of Decision – Amendment Application (**MFB-06-13**);
    (g) a checklist for Environmental Impact Statement 'triggers' for the proposed amendment (**MFB-06-14**);
    (h) A DERM document entitled, Conditions for Coal Mines in the Fitzroy Basin - Approach to Discharge Licensing (**MFB-06-15**);
    (i) A proforma letter to send to the operators of individual mines in the Fitzroy Basin (**MFB-06-16**).

86b As is shown in the flowchart (**MFB-06-09**), the process taken by DERM in dealing with individual mining companies in the Fitzroy Basin was that:

(a) The proforma letter (with attachments **MFB-06-08, MFB-06-09** and an amendment application form) was sent to the operator of each coal mine in the Fitzroy Basin, requesting submission of an environmental authority amendment application to DERM, in accordance with section 240 of the EP Act, by 1 September 2009;

(b) Pre-lodgement meetings were then arranged between DERM staff and representatives of each mine (where possible, each of these meeting was attended by the DERM Project Manager, DERM Regional Manager and DERM's Chief Scientist, Water Quality);

(c) During the pre-lodgement meetings, DERM offered mining companies the opportunity to submit a business case with their application, setting out if and why its new water conditions should differ from the model conditions;

(d) On receipt of completed amendment applications from mines, DERM staff prepared EIS Trigger Checklists and Assessment Level Decision recommendations for the Coordinated Assessment Committee;

(e) After DERM made its Assessment Level Decision and EIS Decision for each application, in accordance with section 246 of the EP Act, the amendment application was assessed by DERM in accordance with section 256 – 258A of the EP Act;

(f) Prior to making its final decision on the application, DERM would provide each mine operator with a final draft set of environmental authority conditions and seek feedback from mining companies;

(g) After DERM made a decision to grant the amendment application a copy of the environmental authority was given to the applicant in accordance with s258 of the EP Act; and

(h) Using the approach outlined above, environmental authorities for some 40 coal mines in the Fitzroy Basin were amended by 24 December 2009.

87. In August 2009, DERM established a new website <http://www.fitzroyriver.qld.gov.au/> as a way of sharing information about water quality in the Fitzroy Basin. This information included regular updates on progress with the DERM project to amend the water management conditions in environmental authorities for all coal mines in the Fitzroy Basin.

88. On 11 August 2009, at the request of Minister Jones then the Minister for Climate Change and Sustainability, DERM called the first meeting of the Fitzroy Water Quality Advisory Group (FWQAG) (**MFB-06-16a**) to address future management of water quality in the Fitzroy River Basin. The role established for the group was (amongst other things) to advise the Government on implementing the recommendations of the DERM report, "Study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin", including the recommendation to amend the water conditions in environmental authorities for coal mines in the Fitzroy Basin. A media release about the new group and the new web site can be found at <http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=65699> (**MFB-06-16b**)

2011 Review of Fitzroy Water Conditions

89. Condition W39 of the Model Water Conditions for Coal Mines in the Fitzroy Basin (with reference to **MFB- 06-05**) forecast an agreed process of review of the model conditions following a process of monitoring and, in particular, development of local water quality guidelines. On 3 November 2010, DERM met with QRC and industry representatives to discuss the model conditions. A copy of the correspondence and meeting record is provided at **MFB-06-17**. While some changes were made to the model conditions at this time, item 7 of the meeting record outlines the decision to undertake a review in mid 2011 once more monitoring data was available to inform it.

90. A Terms of Reference (ToR) was developed for the 2011 Fitzroy Model Water Conditions Review to provide a structured overview of the review objectives, considerations and process. A copy of the ToR is provided at **MFB-06-18** and it outlines an industry consultation process consisting of two staggered DERM internal workshops on 9/10 May and 9 June 2011 (minutes and action items provided at **MFB-06-19** and **MFB-06-20**) and two staggered DERM, QRC and Industry workshops on 31 May and 29 June 2011 (minutes and action items provided at **MFB-06-21** and **MFB-06-22**). The consultation was structured in this way to clarify focal points for the review and provide opportunities for consideration of arguments, exchange of different points of view and informed debate about outcomes.

91. As outlined in the ToR, following the industry consultation phase of the 2011 review, the working draft of the model conditions was distributed to members of the Fitzroy Water Quality Advisory Group and DERM representatives attended a meeting of the group on 7 July 2011 to present likely key changes to the model conditions and to invite comment. The only comments received through that group were from the Fitzroy Basin Association whose comments are attached at **MFB-06-23**.

92. Following final consideration of comments received, a briefing note requesting approval from the General Manager – Strategic Implementation, Coal and Coal Seam Gas was prepared requesting approval of the proposed reviewed model conditions and progression of a briefing note to the Minister to inform her of the review outcomes (refer to attachments **MFB-06-24a** to **MFB-06-24d**). The General Manager approved the changes to the model conditions on 3 August 2011.

93. In order to expedite both industry and internal understanding of the Model Condition changes ahead of the next wet season, DERM provided an industry training session on 25 August 2011, which also included a number of internal DERM attendees. A copy of that training presentation is provided at **MFB-06-25**.

Item 7: A description of the activities DERM was involved in during the 2010/2011 wet season regarding the grant of transitional environmental programs to operators of mines

94. A list of water management related TEPs granted to mines between 1 December 2010 and 23 Aug 2011 is provided as attachment **MFB-07-01**. A version of this list was published on the DERM website and updated on a weekly basis throughout 2011.

95. A total of 110 TEPs or amendment to existing TEPs were approved between 1 December 2010 and 23 August 2011.

96. The great majority of water management related TEP activity as a result of the 2010/2011 wet season related to coal mines in the Bowen Basin (92 of the 110 TEPs granted). While other mining operations such as CSG operations, metalliferous mines and coal mines in other parts of the state were affected it was on a considerably smaller scale than the Bowen Basin coal mines. As such, a detailed account of TEP activities relating to Bowen Basin coal mines is presented below.

Bowen Basin Coal Mines

97. Prior to the onset of the 2010/2011 wet season the department engaged mining companies across the Bowen Basin and carried proactive compliance inspections of 20 high risk sites identified from the 43 active coal mines in the Fitzroy Basin in an effort to establish their level of preparedness for the upcoming wet season. These inspections and associated discussions also allowed the department to assess the risk of operations discharging mine affected water outside of Environmental Authority (EA) conditions.

98. At this time, a number of mines were invited to submit Transitional Environmental Programs (TEP) to reduce the risk of non-compliant discharges and to develop a detailed release strategy that would provide the best outcome for the environment and community downstream of the mine.

99. While some companies did take the opportunity to submit an application for a TEP, the majority of companies did not submit TEPs until January 2011. The department responded by meeting with those companies who intended to submit TEPs to discuss release strategies and to expedite approvals prior to the wet season.

100. Following initial heavy rains throughout November 2010 and at the beginning of December 2010 the department formally invited mining companies to submit TEPs for immediate consideration (Attached **MFB-07-02** – Letter from D.Brown, ADG, RSD). The advice provided to mining companies clearly indicated that the department would assess all flood and weather related TEPs as quickly as possible.

101. To further expedite the TEP process, the department in consultation with the QRC developed and circulated a template of a streamlined TEP to industry for

use by mine operators. The template detailed the correct format and type of information required by the department in order to make a decision on a TEP in order to assist mining operators to progress their TEP applications in a swift and efficient manner (Attached **MFB-07-03**).

102. The department deployed significant resources to the task of processing TEP applications through the wet season and, together with the streamlined application, enabled the majority of TEPs to be processed within three to five days (the assessment period for a TEP in accordance with the *EP Act* is typically 20 business days).

103. Between 9 December 2010 and 23 August 2011, the department dealt with 109 applications for new and amended TEPs to allow discharges of mine affected water from coal mines in the Bowen Basin. On all occasions the department engaged directly with mining companies to assist them to develop conditions for discharge of water including flow triggers, end of pipe Electrical Conductivity (EC) limits, downstream EC values and monitoring requirements.

104. To assist in the development of appropriately conditioned TEPs for mine water releases, regional staff consulted extensively with the department's Environment and Resource Sciences Division in addition to experts located across the state in the field of aquatic ecosystem health and toxicology. Mining companies were also urged to engage external expert consultants to avoid assessment delays as a result of providing inadequate information.

105. Over the Christmas period staff worked for long hours, including over weekends and on public holidays, to ensure that TEPs were processed expeditiously and appropriately to ensure that any risks to the environment were properly managed and mine sites were able to take advantage of the large flows in the Fitzroy River system.

106. The department engaged extensively with mining companies in the development of TEPs for the discharge of mine affected water from Coal Mines in the Bowen Basin and the assessment of TEP applications was afforded the highest priority by all staff in an effort to expedite the approval process and avoid undue delays to flood recovery efforts at those mines.

Item 8: DERM's role, and an overview of activities undertaken between 1 October 2007 and 23 August 2011, with respect to any non-compliance with an environmental authority or transitional environmental program by an operator of a mine

107. DERM's role in relation to regulation of mining in relation to non-compliance with an Environmental Authority or TEP is described in items 1-4 of this statement

108. A list of non-compliance activities undertaken between 1 October 2007 and 23 August 2011 in relation to water management at mine sites is attached as **MFB-08-01**.

109. The list has been compiled from data held in multiple offices across the state and some of the data also comes from Environmental Protection Agency records prior to the amalgamation with the Department of Natural Resources and Water to form the Department of Environment and Resource Management.

110. Additionally, the water management non-compliance actions had to be manually identified and extracted from the greater pool of non-compliance actions that have occurred as these figures have not previously been reported on a separate basis.

111. Given the difficulties in obtaining the data and the short timeframe imposed by the Commission, it is possible that the records may include some inaccuracies and may be incomplete in some areas. However, this is the best and most accurate data the department can provide in the timeframe allowed.

Item 9: How DERM gathers information about the effect of releases of water from mines (including from dams at a mine site)

112. Conditions placed on the relevant EAs require the holder to monitor water quality both upstream and downstream from their operations. All releases of mine-affected water are monitored against certain water quality parameters and discharge triggers and the data must be collected and provided to the department within specified time periods listed on the EA.

113. In addition DERM gathers data on the status of the receiving environment prior to any release occurring. The baseline or receiving environment data assists in determining if there are impacts from a release. This is achieved through various means including:
   (a) Baseline studies which are required as part of the application to gain approval (such as Environmental Impacts Statement / environmental management plans);
   (b) Routine monitoring in accordance with the requirements of the Environmental Authority to establish the un-impacted condition of the receiving environment prior to any release taking place so that an assessment of the level of impact arising from a release can be made; and
   (c) DERM also conducts pre wet season inspections on high risk mine sites to establish the baseline conditions at and surrounding the mine prior to any release.

114. Mines are required under conditions of the applicable EA to monitor the receiving environment surrounding a mine site at all times (even when releases are not occurring) to develop a baseline dataset of environmental values in the area. This data is used to design conditions for other mines in the basin and to increase understanding of the regional environment and the broader impact of mine sites, specifically in relation to aquatic ecosystems.

115. Mine operators are required to provide notification of incidents, such as releases which are outside the limits in their Environmental Authority, to DERM

as required by the conditions of their Environmental Authority and the notification requirements of the EP Act.

116. On notification of a non-compliant release DERM undertakes a site inspection as soon as possible after being notified. Where access is restricted, DERM has at times utilised helicopters to access site releases.

117. As part of the inspection DERM will undertake sampling and monitoring of the release and the receiving environment to establish the level of impact.

118. The conditions of the environmental authority may require the mine operator to conduct investigations in the event of a contaminated water release from the mine in accordance with the ANZECC (2000) methodology to establish the potential for environmental harm.

119. Conditions placed on TEPs require the holder to monitor all releases of mine affected water for those characteristics nominated by the EA but with additional requirements to monitor the receiving environment, and to a greater extent, to ensure environmental harm does not result from the releases. TEPs issued across the 2010/2011 wet season were conditioned to require monitoring downstream of mine sites and to cease any active release if water quality parameters were reached. This ensured the cumulative impact of a number of simultaneous releases was taken into consideration.

120. The department undertakes regular monitoring of streams as part of an ongoing monitoring program. This monitoring program includes a network of gauging stations that monitor real time flow in all major and some minor watercourses across the Bowen Basin along with water quality at a number of critical sites.

121. This monitoring was augmented during the 2010-11 wet season by manual sampling undertaken in a number of key areas throughout the Condamine and Fitzroy river systems. This enabled the department to independently monitor water quality, develop an additional dataset of water quality to use when making decisions about mine water releases and to more appropriately measure the impacts of such releases.

122. In some of the more recent environmental authorities issued in North Queensland, mining companies are being required through conditions in their environmental authority to install gauging stations to both identify flow regimes and also to assist in assessing impacts of any release

Item 10: DERM's role as to the assessment, regulation and communication of the effect of releases of water from mines (including from dams at a mine site)

123. Section 320 of the *EP Act* requires that releases that cause or threaten to cause environmental harm that have not been authorised through an environmental authority or transitional environmental program must be notified to DERM as soon as reasonably practicable. An amendment act was recently passed to

additionally require this notification to be provided the occupier of the relevant land.

124. Further, DERM has a general practice of including, as a conditions of environmental authority, a requirement that any releases which are not in accordance with environmental authority conditions must be notified to DERM as soon as reasonably practicable or no later than a specified time period (e.g. 24 hours after becoming aware of the release). Specifically notification is generally required of:
   (a) any release of contaminants to waters;
   (b) any event where environmental harm (excluding environmental nuisance) has been caused or may be caused;
   (c) any non-compliance with any condition of this environmental authority other than in relation to a release of contaminants;
   (d) when the level of the contents of any regulated dam reaches the mandatory reporting level; or
   (e) when a regulated dam will not have available storage to meet the design storage allowance on the 1 November of any year.

125. DERM officers may also attend certain incidents in the field and conduct an investigation in to the event. DERM's investigations may result in enforcement action being taken against the company which will be in accordance with DERM's Enforcement Guidelines.

126. As part of incident notification procedures, if a community within a Local Government area may potentially be impacted by the incident, it is common practice for DERM response staff to contact the responsible Local Government. Recommendations will be made to the Local Government and plans may be developed in-liaison with relevant Local Government personnel.

127. For CSG activities, impact to Local Government drinking water supplies are regulated by the *Water Supply (Safety and Reliability) Act 2008*. Where there is the potential for contaminants to adversely affect public drinking water supplies, for both surface and groundwater situations, the Office of the Water Supply Regulator, DERM and relevant water authorities and users will be contacted. Responsibilities of relevant stakeholders are as follows:
   (a) Office of the Water Supply Regulator, in conjunction with Queensland Health, may provide; public health advice and direction, interpretation of laboratory results and advice on safe levels of contaminants:
   (b) Water supply authorities are responsible for water impoundments, water treatment and supply; and
   (c) Stakeholders within the likely affected downstream areas are to be notified of the incident and precautionary actions.

128. In the event that an incident occurs or affects a landholder's property, DERM staff will make contact with the landholder. Contact will also be made if an incident has not impacted, but threatens to impact a landholder.

129. DERM Incident management personnel maintain an emergency contact listing with up to date details of Local Government contacts, as well as key contacts across the Department to assist with incident response.

130. DERM also provides and facilitates ongoing communication activities relating to mine discharges and river system water quality through websites, media and various key groups such as the Fitzroy Water Quality Advisory Group.

Item 11: DERM's role, and an overview of activities undertaken between 1 October 2010 and 23August 2011, with respect to the effect of releases of water from mines (including from dams at a mine site) on:

131. Much of DERM's role and activities in relation to the effect of releases of water from mines has been covered in previous items. A few issues specific to each sub heading are included for completeness.

a. drinking water quality downstream

132. The EP Act and the subordinate *Environmental Protection (Water) Policy 2009* (EPP Water) provides for drinking water values for Queensland waters. Accordingly, the protection of these values must be demonstrated prior to any authority being granted authorising a contaminant release to surface waters. Conditions of the environmental authority will provide quality limits and environmental monitoring to ensure that discharge quality is sufficient to protect drinking water values.

133. During the 10/11 wet season, DERM staff liaised with Queensland Health on a regular basis to ensure that any authorised or un-authorised discharges from mine sites were managed to ensure the protection of drinking water quality.

134. TEPs issued during or as a result of the 10/11 wet season also considered the effects of any mine site release on drinking water and were conditioned to ensure that the discharge was managed in such a way as to ensure the protection of drinking water supplies.

135. Where a discharge from a coal seam gas activity is deemed to have a material impact on a raw drinking water supply source, an approved coal seam gas recycled water management plan under the *Water Supply (Safety and Reliability) Act 2008* will also be required to prove that the treatment process, and supporting management arrangements, will consistently deliver water of the quality required to protect public health in drinking water supplies. Alternatively an Exclusion Decision under the *Water Supply (Safety and Reliability) Act 2008* may be required. In administering the *Water Supply (Safety and Reliability) Act* 2008, DERM liaises with Queensland Health to ensure that public health is not at risk as a result of the discharge.

b. the downstream environment and ecology (as far as, and including, the Great Barrier Reef Marine Park)

136. The department's water monitoring activities have been detailed in previous items and, as such, will not be repeated here.

137. The effects of releases of water from mine sites are assessed prior to the grant of environmental authorities or transitional environmental programs. In applying to receive approval to discharge to a surface water, applicants must prepare information to support the application which identifies the environmental values, water quality objectives and management intent (that is, the goals to be achieved in terms of meeting water quality objectives and protecting environmental values) of the surface water. This framework is provided in the EPP Water. Applications must be able to demonstrate that the management intent for the receiving water will be met despite the discharge occurring. The application must also be accompanied by a detailed impact assessment, including water quality modelling to demonstrate the nature and extent of impacts to surface waters.

138. All applications for environmental authorities and TEPs submitted for the approval of discharge to surface waters must be assessed by DERM against the requirements of the EP Act which includes the EPP Water, including an impact assessment to ensure that environmental values of any surface water will be protected. In conducting these regulatory assessments, DERM has developed a number of decision support tools including the guideline "Protecting Environmental Values from CSG Water Discharged to Surface Waters" (2010, **MFB-11-01**), Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing (June 2010, **MFB-11-02**) and the Operational Policy "Waste water discharge to Queensland Waters" (2007, **MFB-11-03**) and associated procedural information (**MFB-11-04** and **MFB-11-05**). DERM has also prepared an "*Interim Decision Support Matrix Release of water produced in association with Coal Seam Gas activities to surface waterways*" (2010, **MFB-11-06**) which informs assessments and resultant authority conditions

139. The approach used by the department throughout the 2010-2011 wet season aimed to be consistent with state/national water quality guidelines e.g. The Queensland Water Quality Guidelines (2006), ANZECC/ARMCANZ Guidelines for Fresh and Marine Water Quality 2000, the Australian Drinking Water Quality Guidelines and the October 2010 released Draft for Consultation – Establishing Environmental Values, Water Quality Guidelines and Water Quality Objectives for Fitzroy Basin Waters. .

140. Strict controls and limitations are placed on authorities as conditions such as limits upon the volumes discharged, timing of discharge and required dilution and mixing zones for discharges. Conditions also include comprehensive contaminant monitoring programs for discharge quality which is supplemented by detailed receiving environment monitoring programs.

141. Releases of water from a dam at a mine site can be authorised by the conditions of an EA or via specific permission under a TEP. Regardless of the

statutory instrument, for releases of water from a dam at a mine site to be authorised, the assessment procedure described above would apply.

c. quality of water used for agricultural purposes

142. The use of waters for agricultural purposes is considered an environmental value under the EPP Water, and as such impacts on this value must be assessed as per the framework described above.

Item 12: Details of any of the following that DERM is aware of occurring during the period 1 October 2010 and 23 August 2011 related to the discharge of water from any mine site:

143. A table identifying known non-compliance issues over the period in question that had the potential to impact on an environmental value is provided as attachment **MFB-12-01**. Again, due to the time constraints placed on the department by the Commission there is a possibility of inaccuracies or omissions but it is the best available data that could be supplied by the department in the time frame allowed.

144. It should be noted that although a non-compliance issue may have had the potential to impact adversely on an environmental value this does not necessarily mean that this occurred. For completeness, all issues that had the potential to impact on an environmental value have been included in the table.

145. Further information specific to the currently elevated salinity levels in the Fitzroy river system and relevant to items 12a to 12e are supplied in the following paragraphs.

146. The department has observed that salinity (measured by Electrical Conductivity) in all water courses in the Fitzroy basin has increased following the 2010/2011 wet season. The high rainfall resulted in extensive recharge to the groundwater in the Fitzroy basin which increased contribution of groundwater to base flows in streams high in the catchment. At times, the salinity of this water is quite high (in excess of the EC 2500 micro Siemens per centimetre (uS/cm)). As a consequence, salinity in base flows in the larger streams of the Fitzroy catchment is higher than has been experienced in recent years when there was little or no groundwater contribution to stream flow.

147. The department does not believe that discharges from mine sites as a result of the 10/11 wet season have contributed significantly to the currently elevated electrical conductivity of the Fitzroy river system. Discharges from mine sites have been closely monitored in accordance with conditions set on both EAs and TEPs to ensure water quality downstream of mines remains within acceptable limits.

a. adverse effect on drinking water quality

148. This rising salinity is currently causing some minor issues in drinking water supplies in the lower Mackenzie and Fitzroy Rivers. The electrical conductivity (EC) in the Fitzroy Barrage, which supplies drinking water to Rockhampton and the Bedford Weir, which supplies drinking water to Tieri, Middlemount, Blackwater, and Bluff has risen to levels above 600uS/cm. At these levels part of the population are able to detect taste difference to the water normally supplied from these storages.

b. adverse effect on any plant or animal species

149. There is no evidence to suggest that any plant or animal species has been adversely impacted by the increased salinity in waterways across the Fitzroy river system.

c. adverse effect on any industry or agriculture

150. Whilst there have not been major impacts on electricity generation there has been some minor inconvenience and increased costs on electricity generation at the Stanwell power station. An increase in salinity in the raw water supply results in fewer cycles for cooling water. Consequently, to achieve the same levels of electricity generation increased volumes of cooling water sourced from the Fitzroy River are required.

151. The department has been informed that Stanwell Corporation have been able to handle the increase in salinity in their raw water through a temporary amendment to their Development Approval (DA). The amendment allows Stanwell to use larger volume of below down water at the same time not exceeding their current water quality discharge limits.

d. adverse effect on the environment

152. There is no evidence that rising EC in stream flow in the Fitzroy river system or mine water discharges across the state as a result of the 10/11 wet season have had any adverse impact on the environment. The department has investigated a number of breaches of conditions of both EA's and TEP's and has concluded that in the majority of cases there is no evidence that environmental harm has resulted from any non compliant release. There is still one investigation ongoing in the North West of the state and the department is currently reviewing the brief of evidence.

e. adverse effect on public health

153. Where salinity has risen in drinking water supplies in the lower Mackenzie and Fitzroy Barrage, there is some concern in particular for those people who are on low sodium diets and kidney dialysis in Tieri, Middlemount, Blackwater, Bluff and Rockhampton. Bio-medical services of the Central Queensland Health Service District have also reported that adjustments have had to be made to

dialysis and other equipment as a result of the associated increase in hardness of water.

154. As mentioned earlier in this statement, the department believes that the major cause of this increase in salinity and hardness is the increasing contribution of groundwater to stream flows rather than the effects of mine discharges.

Item 13: DERM's role and activities regarding the flood preparedness of mines in Queensland:

a. generally

155. As a regulator DERM's compliance activities are designed to strategically review the performance of individual regulated entities in a risk based way.

156. DERM's compliance approach is discussed previously, but it is useful here to reiterate activities undertaken around wet season cycles that are aimed at ensuring mine water management is undertaken by registered entities in as effective a way as possible.

157. DERM has and is undertaking pre wet season compliance programs to evaluate water management preparedness ahead of the coming wet season. This primarily involves evaluating past season performance, measures taken following and preparedness ahead of the next wet season in terms of having available dam storage capacity to meet the minimum design storage allowance on the 1 November of any year.

158. EAs include requirements for companies to prepare Water Management Plans that outline the overall mine water management strategy for their site. The EAs require an annual review of these plans to ensure learnings from past wet season performance are incorporated into forward plans and preparations for future wet seasons.

159. EAs also include dam structural design, construction and operation requirements relating to mine sites that are commensurate with flood risks given their locations, including:

(a) certified hazard assessment required for all dams;
(b) must be designed to prevent floodwaters from entering the dam, wall failure and overtopping up to and including a specified flood event based on AEP;
(c) certified design plans, high risk dams reviewed by DERM technical experts;
(d) having a marked "mandatory reporting level" above which DERM must be notified immediately, and actions put in place to prevent or minimise environmental harm
(e) ensuring the dam is inspected at least annually by a suitably qualified and experienced person and provide the report to DERM;
(f) undertaking reviews annually about the effectiveness of the dam during the preceding wet season and modifying the water management system accordingly
(g) monitoring of water quality within the dam prior to the wet season; and

(h) maintaining a register of dams and relevant information.

b. specific activities undertaken in advance of the 2010/2011 wet season

160. In late 2010, information from the Bureau of Meteorology indicated that there was a 70-80% chance that the 2010/2011 wet season in Queensland might exceed median rainfall values. In response the department developed and implemented summer season preparedness and response plans for mining areas likely to be impacted by the wet season (Attachments **MFB-13-01, MFB-13-02**). This plan included a series of targeted mine-site inspections. The purpose of the plans was to:
(a) identify all regulated water storage facilities that were at risk of unauthorised discharge;
(b) outlined the approach adopted to prepare for the wet season; and
(c) outline emergency response arrangements to incidents.

161. Prior to this, since the 2008/2009 summer season, the department had been working closely with mining companies to improve on-site water management systems and reduce the impacts of releasing mine affected water.

162. Specific activities to assist with preparedness in advance of the 2010/2011 wet season included the development and implementation of consistent and appropriate discharge conditions for coal mines as recommended by the *'Study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin'* report. The agreed conditions were developed in accordance with the department, the QRC and technical experts from Fitzroy Basin coal mines and have been discussed in detail in item 6 of this statement.

163. Mines that identified they could not move immediately to the new standards were provided opportunities to include transitional conditions until such time they could comply. Where companies felt the existing conditions were not appropriate to manage site water, they were invited to apply for TEP's and/or amend conditions at their request.

164. Numerous inspections were undertaken by departmental officers across the state during 2010 leading up to the 2010/2011 wet season. The inspections focused of higher risk sites and had an emphasis on water management. Risk assessments for various sites are contained in the summer season preparedness and response plans mentioned earlier.

165. Mine operators are required under the conditions of the EA to conduct an annual inspection of all hazardous storages at each mine site prior to each wet season. The inspections focus on structural integrity and capacity requirements. These reports for mine sites were reviewed by DERM to ensure that any remedial measures recommended in the report were implemented.

166. During 2010 DERM monitored meteorological observations and forecasts both prior to and during the 20101/2011 wet season to adjust operational planning and resource allocation appropriately to minimise the risk of contaminated water releases from mines and maintained constant contact with the key mine sites.

166a. DERM developed a '*CSG Discharge Response Plan*' in December 2010 (**MFB-13-03**) which aimed to ensure a professional, consistent and timely initial response by DERM to major CSG discharge events from CSG project sites in DERM's South West and Central West Regions by setting out roles and responsibilities within DERM when responding to a major CSG discharge event.

c. specific activities planned to occur in advance of the 2011/2012 wet season

167. All regions throughout the state have planned a series of pro-active inspections for mine sites identified as higher risk of inundation or unauthorised release of mine affected water. These inspections will focus on establishing whether the mine in question is able to operate within the conditions of its Environmental Authority and/or Transitional Environmental Program and will obviously be focussed on water management. Where non-compliance was previously identified, the operators of the mine were required to implement, or commit to implement, actions to bring the site into compliance and these will also be reviewed as part of the inspection program.

168. DERM is currently engaging with mine operators from a number of mine sites on a range of works designed to minimise the risk of contaminated water releases in the 2011/2012 wet season. DERM will also act on any water management issues arising from the compliance inspection program that is currently being undertaken.

169. DERM are currently undertaking the annual review of the Mine Discharge Response Plans in preparation for the 2011/12 wet season. Regional staff are also ensuring equipment and staff are available to respond in the event of a mine discharge.

170. Mine operators are required to conduct an annual inspection of all hazardous storages at each mine site prior to the wet season. The inspections focus on structural integrity and capacity requirements. These reports will be reviewed by DERM as required to ensure that any remedial measures recommended in the report will be implemented.

171. DERM will monitor meteorological observations and forecasts both prior to and during the upcoming wet season to adjust operational planning and resource allocation appropriately to minimise the risk of contaminated water releases from mine sites in North Region and maintain constant contact with the key large mine sites.

172. As the coal mines in the Bowen Basin were some of the most severely impacted in the 10/11 wet season, the department's Central West Region have developed a *Central West Region – Coal Mine Water Inspections Project Outline* (Attached **MFB-13-15**). The aim of the program is to establish the current water management status of Central West coal mines (particularly those in the Fitzroy river system) leading into the 2011/2012 wet season and identify those mines that may be of high risk in relation to potential uncontrolled discharges of mine affected water. Officers will use a guide *Proactive Compliance Inspection –*

Standard Operating Procedure (Attachment **MFB-13-16**) developed specifically for the inspection program to ensure information is targeted and collected in a useable format.

173. A total of 30 coal mines will be inspected as part of this program. The program will focus on overall site water management particularly, storage capacity, water quality, water management plans and systems in place (including contingencies), proposed or planned infrastructure upgrades to improve water management systems including treatment and identification of any potential non-compliances with EA conditions.

174. The criteria for determining which sites have been included in the program for the 2011/12 wet season include:
(a) coal mines that required a TEP during the 2010/2011 wet season; and
(b) coal mines that had non-compliances with environmental approvals during the 2010/2011 wet season; or
(c) coal mines that have been identified as high risk by the departmental Project Manager due to on-going water management issues.

175. The program is scheduled to commence on 6 September 2011 and is due for completion prior to the end of this wet season. A final report will be developed summarising the outcomes, findings and actions taken as a result of the program.

176. In addition to the pro-active inspection programs being implemented across the state, the department, in consultation with the Queensland Resources Council and other interested stakeholders has completed a review of the *Fitzroy Model Water Conditions*. More detailed information on this has been provided at item 6 of this statement.

177. Since the 2010/2011 wet season, regional officers have been liaising with industry and encouraging mines with outstanding concerns in relation to water management and compliance with EA conditions to proactively apply for a TEP. The department has reiterated that the TEP's must detail the actions being undertaken by the mine operator to identify water management issues and improve site infrastructure to enable compliance with their environmental approvals and EP Act.

178. Written correspondence to all CSG companies drafted requiring wet season planning including a status report of all dams and stormwater ponds and an emergency or contingency strategy or plan which includes procedures for:
(a) situation responses including protocols for water level management;
(b) the identification of potentially impacted stakeholders and communication methodologies;
(c) investigation, monitoring and reporting of releases;
(d) post release impact assessment and remediation;
(e) staff training and awareness of contingency plans;
(f) notification procedures for the department and local government; and
(g) identification of the minimum amount of information that will be provided as part of notification in the event of a release.

Item 14: The interaction during floods or times when mines are releasing water arising out of or related to floods between DERM and:

a. operators of mines

179. Examples and a detailed description of interaction between the department and mine operators have been provided as part of the responses to other items in this statement. As such, they will not be repeated for this item.

180. During the wet season DERM maintain close contact with key mine sites to continually assess and reassess the potential for any discharge and to ensure all authorised and un-authorised discharges were being managed wherever possible to minimise the potential for unacceptable impacts on the environment and downstream water users.

b. downstream landholders

181. During discharge events DERM maintains contact with potentially impacted downstream landholders and where necessary other potentially affected stakeholders (for example traditional owners and local authorities) to advise of the release.

182. When negotiating TEPs that may impact on downstream landholders, DERM ensures these potentially affected landholders and downstream water users are contacted as part of the process by either DERM or the mining operator.

183. Where any incidents, un-authorised releases or release of contaminants occur that may impact on downstream water users, DERM ensures all potentially affected parties are contacted and made aware of the situation and the measures being taken to control the issue.

184. The broader community is kept informed of mine discharges and other related issues through various media and key stakeholder groups as required.

c. emergency management personnel at both the State and local level

185. DERM staff liaise with emergency management personnel as required where an event or incident has occurred that has resulted in the activation of local or state disaster management arrangements.

d. other government agencies including the Department of Employment, Economic Development and Innovation, the Great Barrier Reef Marine Park Authority and the Queensland Parks and Wildlife Service.

186. DERM notifies and liaises with other key government agencies as circumstances require. For example, Queensland Health is notified in circumstances where drinking water or public health may be impacted, DEEDI is notified where there may be impacts to livestock and issues relating to abandoned mines, and QPW would be notified where there may be impacts on protected areas.

187. During discharge events DERM maintains contact with these government agencies to provide advice on the release so that any appropriate management measures can be implemented if required.

188. Extensive liaison and consultation has occurred with DEEDI on the impacts of the 2010/2011 wet season on coal mines and the effects that stored water may be having on operational capacity.

I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867*.

Signed [redacted]

Michael Francis Birchley

Taken and declared before me, at Brisbane this 5th day of September 2011

[redacted]

Solicitor/~~Barrister/Justice of the Peace/Commissioner for Declarations~~