Second Hazelwood Mine Fire Inquiry
Terms of Reference 8, 9 and 10
Closing Submissions of GDFSAE / Hazelwood Mine

SUMMARY

For the reasons set out in oral submissions and below, and on the basis of the evidence adduced before the Board, GDF SUEZ Australian Energy (**GDFSAE**) submits that the Board should make the following findings and recommendations in relation to Terms of Reference 8 -10 (rehabilitation).

PROPOSED FINDINGS

Overview

1. The system is not broken. Many of the proposals and suggestions for future action canvassed during the hearings are capable of being achieved within the existing statutory framework. However, it is clear that there is a need for co-ordinated consultation between the three Latrobe Valley coal mine operators and DEDJTR, the water authorities, local government, the community and, where necessary and appropriate, the CFA and other entities such as VicRoads, in relation to plans for the final rehabilitation of the Latrobe Valley coal mines.

Terms of Reference 8 and 9
Short, Medium and Long Term Rehabilitation

2. The plan for final rehabilitation of the Hazelwood Mine is as set out in the 2009 Approved Work Plan Variation (**Work Plan Variation**), and embodies the final rehabilitation concept plan for the Mine incorporated in the original Work Plan approved in 1996 prior to privatisation.

3. The final rehabilitation of the Hazelwood Mine involves the flooding of the Mine void to create a pit lake, and the coal batters above the future water level of the pit lake being re-profiled, to create a more gentle grade leading down to the lake. The re-profiled batters will be covered with overburden and revegetated so as to blend into the surrounding environment and support a range of future land uses (**the pit lake landform**).

4. The Work Plan Variation provides for *progressive rehabilitation* and *final rehabilitation*.

5. Progressive rehabilitation is undertaken with a view to the pit lake landform.

Under the Work Plan Variation, progressive rehabilitation is tied to the nature and sequence of the mining operations at the Hazelwood Mine.

6. The purposes of progressive rehabilitation are at least two fold:

   a. to restore the condition of land that has been disturbed by mining operations so far as is practicable, where it is no longer required for the Mine's ongoing operations; and

   b. to ensure that work necessary to be done as part of the final rehabilitation plan is done progressively (so far as is reasonably practicable given operational and practical constraints) during the life of the mine.

7. Progressive rehabilitation also has the potential to mitigate fire risk in exposed coal during the operational phase of the mine, noting that rehabilitation is only one of a number of available fire risk control measures.

8. Progressive rehabilitation involves in pit dumping of ash and overburden which serves to provide additional weight on the floor of the Mine, necessary for the achievement of stability and balance in the final landform of a pit lake.

9. To date, significant progressive rehabilitation works have been carried out at the Hazelwood Mine.

10. The Work Plan Variation contains clear targets and milestones for progressive rehabilitation, which have been met.

11. The annual reported rehabilitation expenditure with respect to the Hazelwood Mine presently does not capture all of GDFSAE's rehabilitation related expenditure, for example, cost of studies and research, costs associated with the dumping of overburden on the floor of the Mine (which has typically been treated as an operation expense) and the cost of works carried out by GDFSAE personnel and plan directly.

12. The sequence of progressive rehabilitation works is determined in line with the Work Plan Variation, and the remaining rehabilitation works at the Hazelwood Mine are to be carried out in accordance with a combination of retreat mining, dozer push and truck and shovel methods.

13. Progressive rehabilitation works undertaken within the Hazelwood Mine are reported upon in *Environmental Review Committee Reports* produced by GDFSAE each quarter under its Mining Licence, which are provided to a range of regulators, agencies, community representatives and other stakeholders that have representatives on the Mine's Environmental Review Committee.

14. Progressive rehabilitation works at the Hazelwood Mine are regularly viewed by officers from DEDJTR (and its predecessors) during their routine visits to the

Hazelwood Mine.

15. Progressive rehabilitation currently being undertaken or to be undertaken in accordance with the Work Plan Variation, which is tied to the final rehabilitation landform for the Hazelwood Mine, is the only viable sustainable, practicable and effective short and medium term option for rehabilitation.

16. A pit lake landform as contemplated in the Work Plan Variation has long been the preferred final rehabilitated land form for the Hazelwood Mine upon the cessation of mining.

17. As all the experts who gave evidence before the Board agreed a pit lake landform is the only viable option for the final rehabilitation of the Hazelwood Mine.

18. A pit lake landform is the only feasible (safe and stable), practicable and effective final rehabilitation option having regard to factors such as:

    a. fire risk mitigation (on the basis that all of the exposed coal will either be covered by overburden and topsoil, or lie beneath the water level of the lake);

    b. stability issues (arising from the levels of the M1 and M2 aquifers having been artificially lowered by the process of aquifer depressurisation during mining operations. These aquifers will be restored to a point of regional equilibrium once the base of the mine has been flooded to form a pit lake (which in turn avoids the need to engage in indefinite groundwater pumping));

    c. viability (including on the basis of the limited supply of overburden to fill the Hazelwood Mine void via any other means, and the costs of moving sufficient quantities of external material into the mine);

    d. future beneficial use of the land;

    e. consistency with the State of Victoria's proposed landform for the final rehabilitation of the Hazelwood Mine at the time of its privatisation in 1996; and

    f. the fact that current progressive rehabilitation and the rehabilitation to date has been tied to, and working towards, such final form rehabilitation.

19. In relation to progressive and final rehabilitation of the Hazelwood Mine:

    a. a one metre cover on rehabilitated slopes is sufficient to provide adequate fire mitigation and represents the best solution in relation to stability and erosion concerns;

    b. it is not necessary for rip rap to be installed around the internal perimeter of the future pit lake as an erosion protection measure; and

c. there is no need for a drain to be installed around the external pit lake perimeter (and indeed, a drain of this nature is undesirable from a stability and amenity perspective).

20. In relation to fire risk mitigation, GDFSAE has in place plans and processes in relation to progressive and final rehabilitation works, as detailed in the witness statement of James Faithful (at [158] – [161], and [201] – [204]).

21. Since the first Hazelwood Mine Fire Inquiry, GDFSAE has invested significant resources in implementing at the Hazelwood Mine the extensive affirmations of GDFSAE and relevant recommendations of the *2014 Hazelwood Mine Fire Inquiry Report*. The implementation of these affirmations and recommendations is detailed in the *October 2015 Annual Report* of the Hazelwood Mine Fire Inquiry Implementation Monitor.

22. A rigorous technical risk assessment approach is necessary to be adopted both during the life of the Mine and in respect of end land use planning. That approach requires hazard mapping, identification of risk and application of control measures to reduce risk to a tolerable or acceptable level. A principal technical risk with which one ought be concerned throughout the final rehabilitation process is stability. Stability is also risk throughout the life of a mine. At Hazelwood Mine, stability is monitored and managed by GDFSAE on a day to day basis through extensive equipment monitoring geotechnical and hydrogeological conditions. The technical data derived from this instrumentation, and the strategies deployed to manage stability, are the subject of reports to DEDJTR which are also supplied to the Technical Review Board for review.

23. In relation to the rehabilitation of the northern batters, the Hazelwood Mine and the community of the Latrobe Valley have inherited a risk created by the State, by reason of the inadequate separation distance of the open cut from the township of Morwell, and the decision of the State and VicRoads to construct a freeway on the narrow stretch of land between the open cut and the town.

24. Whilst a number of studies have been carried out by and for GDFSAE in relation to issues concerned with the final rehabilitation of the Hazelwood Mine, including with respect to mine batter and floor stability and ground (aquifer) and surface water, further research, studies and work is required in relation to the requirements for safely rehabilitating the Hazelwood Mine (and the other mines) and for developing the current conceptual plans into successful operational and closure plans. Such research, studies and work includes in relation to water quality and mine stability.

Water

25. GDFSAE has substantial water entitlements in relation to the Hazelwood Mine

under a Groundwater Licence and Water Services Agreement with Gippsland Water, which are presently not fully utilised in its mining operations. GDFSAE uses its Groundwater Licence entitlement to undertake aquifer depressurisation, an essential activity for maintaining the stability of the floor and batters of the Hazelwood Mine.

26. The most recent modelling work available suggests that it will take 7 years for the Hazelwood Mine void to fill to the point of "stability" (RL -22m) and 30 - 90 years thereafter to reach the pit lake's final level (depending on the desired final level of the lake, as further described in paragraph 105 below). This is in contrast to the 500 year fill period assumed in previous modelling reports.

27. The most likely and feasible sources of water for filling the pit lake at the Hazelwood Mine are:

    - continuing groundwater pumping at a level significantly below current entitlements under the Groundwater Licence for a period of 6 years, and discharging the water into the lake;
    - discharging the water from the Hazelwood Cooling Pond into the pit lake; and
    - redirecting rainfall runoff from within the Hazelwood Cooling Pond catchment into the base of the pit lake.

28. Recent modelling demonstrates that there will be sufficient water to fill the pit of the Hazelwood Mine using the water sources referred to above. Given that it is not currently proposed to fully draw upon the groundwater entitlements for the Hazelwood Mine under the Groundwater Licence, or to utilise the Power Station's significant water entitlements under the Water Services Agreement with Gippsland Water in order to fill the pit lake, this modelling is conservative.

Co-ordination and Engagement

29. There should be continued and improved co-operation between the three Latrobe Valley coal mines in relation to plans for the final rehabilitation of the mines.

30. There should be co-ordinated consultation between the three Latrobe Valley coal mine operators, and involving DEDJTR, the water authorities, local government, the community and, where necessary and appropriate, the CFA and other entities such as VicRoads.

31. Existing regulators such as DEDJTR, or other bodies such as Coal Resources Victoria, ought be tasked with the responsibility for co-ordinating engagement between the relevant groups.

32. GDFSAE is committed to continued consultation with the community in relation

to plans for the final rehabilitation for the Hazelwood Mine.

Term of Reference 10

Rehabilitation liability assessment and the current rehabilitation bond system

33. GDFSAE has submitted a Schedule 19 Return for 2014/2015, in which rehabilitation liability has been estimated at: $73.4M.

34. The current rehabilitation liability assessment for Hazelwood Mine reflects GDFSAE's detailed assessment of the estimated costs of rehabilitating the Mine in accordance with GDFSAE's own mining and rehabilitation methods.

35. There is no evidence before the Board which is capable of being relied upon to demonstrate that the rehabilitation liability assessments for Hazelwood Mine are not adequate.

36. The costings estimated by Jacobs and AECOM are not of assistance to the Board. Those costings are based on unsound assumptions and contain a number of limitations and errors.

37. The current rehabilitation bond for Hazelwood Mine is $15 million.

38. This bond was set during the mid-1990s, using a version of a "discounted bond" system.

39. There is no evidence before the Board to support a finding that the current bond level for the Hazelwood Mine is not adequate.

40. There is also no evidence before the Board which demonstrates that the current rehabilitation bond system, being one of the measures to provide for progressive rehabilitation by end of mine life, is not, or is not likely to be, effective for Hazelwood Mine or any of the other Latrobe Valley mines.

41. In the case of the Hazelwood Mine the risk of "default" by the operator in respect of the rehabilitation obligations is extremely low given that GDFSAE is:

    - bound by licence conditions requiring work to be undertaken in accordance with the rehabilitation plan set out in the Work Plan Variation;

    - undertaking progressive rehabilitation in accordance with that plan as required and there is no evidence to suggest that it will not continue to do so; and

    - part of a corporate structure with significant Australian and international operations.

42. There is also no evidence before the Board to suggest that the operators of the Hazelwood Mine or any of the other mines are likely to fail to fulfil their rehabilitation responsibilities.

43. In the case of Hazelwood Mine, the Work Plan Variation contains clear targets and milestones for progressive rehabilitation, which have been met.

44. The current rehabilitation bond system operates in addition to other existing measures available to the State to ensure that rehabilitation of the Hazelwood Mine is satisfactorily undertaken, including the following:

    a. under the Condition 15 of the Mining Licence for the Hazelwood Mine, compliance with the rehabilitation plan detailed in the Work Plan Variation is a condition of the Mining Licence. This condition also provides Inspectors with broad powers to direct that further rehabilitation of the Mine be undertaken;

    b. section 78(1) of the MRSD Act provides that a licensee must rehabilitate land "*in accordance with the rehabilitation plan approved by the Department Head";*

    c. section 81(1) of the MRSD Act provides that an authority holder must "*rehabilitate land in the course of doing work under the authority and must, as far as practicable, complete the rehabilitation of the land before the authority or any renewed authority ceases to apply to that land";*

    d. pursuant to s 38(1)(b)(i) of the MRSD Act, the Minister may cancel a mining licence if the licensee has not substantially complied with:

        - the Act or the Regulations;
        - any condition to which the licence or work plan is subject;

    e. pursuant to s 26(2)(a) of the MRSD Act, the Minister is empowered to impose conditions on a mining licence about the rehabilitation of the land;

    f. pursuant to s 34(1) and s 34(2)(b) of the MRSD Act, the Minister is empowered to vary licence conditions to address changing circumstances in relation to a mine, or if it is necessary for rehabilitation or for stabilisation of the land to which the licence applies;

    g. pursuant to s 40(3)(b) of the MRSD Act (and Part 2 of Schedule 15 of the MRSD Regulations), "declared mines" must also include prescribed mine stability requirements in their work plan. Each of the Latrobe Valley mines is a declared mine;

    h. pursuant to s 83(1) of the MRSD Act, the Minister may take any necessary action to rehabilitate land if the Minister is: not satisfied that the land has been rehabilitated as required by s 78 or s 78A or is satisfied that further

rehabilitation of the land is necessary. Pursuant to s 83(4) the Minister may recover as a debt due to the Crown in a court of competent jurisdiction any amount by which the cost incurred under s 83(1) exceeds the amount of the bond or bonds.

45. More regular reviews of the levels of rehabilitation bonds for the Latrobe Valley coal mines is desirable, and the Minister should avail him or herself of the power to require rehabilitation liability assessments by the mines to be audited under s 79A of the MRSD Act.

46. The Latrobe Valley coal mine operators currently provide a bank guarantee in respect of the rehabilitation bond. There should be flexibility permitted as to the mode by which financial security is provided in respect of rehabilitation bonds. Parent company guarantees should be permitted.

47. There is no basis for the introduction of a trust fund model as suggested by Counsel Assisting, and on the basis of the evidence before it, it would be unsafe for the Board to make any recommendations in this regard.

48. The current regulatory regime enables a bond to be set and reviewed, and there is no evidence which demonstrates that this system is not effective or that it does not or will not continue to provide sufficient surety to the State with respect to the very low probability risk of default by the Latrobe Valley mine operators, particularly in light of the "essential industry" status of these mines and power stations, and the strength and reputation of the GDF SUEZ, AGL and Energy Australia corporate groups.

49. Further, if an alternative mechanism were to be considered for adoption by the State, then the following principles should apply:

    a. a risk based approach should be adopted to the assessment of the likelihood of a default on the part of any of the three Latrobe Valley coal mines;

    b. the estimated costs of rehabilitation of mines ought to be based on a common method adopted by operators to estimate costs, as reviewed by an auditor. The approach might draw on the power already available to the Minister in accordance with s 79A of the MRSD Act;

    c. the process of setting the bond for each mine ought to take account of both the risk of the particular mine defaulting and the estimated cost of rehabilitating that mine, assessed from time to time;

    d. a discount to the bond amount ought to be available, based on the application of the risk based approach, and by reference to a clear set of eligibility criteria.

Assessment of likelihood of risk of default occurring

- A structured risk assessment ought to be conducted by appropriate experts in order to assess the likelihood that the State will be required to assume liability for rehabilitating each or any of the three Latrobe Valley coal mines.
- Such risk assessment ought be undertaken having regard to risk factors specifically relevant to each of the three mines (for example, size, financial strength and reputation of the ultimate parent companies would mean that there is no risk or very little risk).
- So far as is necessary, the likelihood of the risk that the State will be required to assume liability for end of mine rehabilitation ought to be assessed with respect to intervals during the remaining life of each of the mines.
- For each mine, the process of risk assessment referred to above ought involve consultation with that mine concerning the factors relevant to the conduct of the risk assessment.
- For each mine, a risk rating will then be devised.
- Only in circumstances where the level or degree of risk is material in respect of a mine is there any need to further review the bond level.
- Where the bond level is required to be re-assessed for a mine, the following steps apply.

Calculating the undiscounted amount of the bond

- A raw or "undiscounted" bond level ought be determined for the mine. To determine the "undiscounted" bond level for the mine, the method set out below ought be adopted, and regard must be had to the following key principles:

    i. **The degree of risk:** assessed as above; and

    ii. **The estimated costs of rehabilitation** of the mine in the event the State is required to assume responsibility for the works. (See below in relation to method for calculating the costs estimate).

- Both of the above must be assessed in order to devise the undiscounted bond level appropriate for the mine. This is to be done by applying risk assessment principles, having regard to the likelihood of the risk occurring, and the consequence (i.e. cost of rehabilitation) in the event the risk does occur and having regard also to the fact that these assessments are likely to change over time.

Second step: discounted bond level

- Once an undiscounted bond level is determined for the mine, that amount is able to be discounted (by up to 50%), having regard to applicable discount criteria including but not limited to:

    i. Compliance with progressive rehabilitation targets contained in the mine's approved work plan;

    ii. Demonstration that plans are in place for future progressive rehabilitation and a budget which will fund the implementation of those plans; and

    iii. Demonstration of the reputation and financial stability of the operator (through, for example, corporate group accounts, the nature and extent of operations domestically and internationally).

- In the event that the discounted bond amount applicable to the mine is larger than the current bond set for the mine, the operator shall be entitled to increase its bond payment over a period of up to 10 years, making increased payments in multiple steps, in order to ameliorate the effect of a large once off increase in the requisite bond costs.

Estimate of costs of rehabilitation of mine

- The operator is to undertake their own estimate of the cost of final rehabilitation of its mine. The estimate is to be undertaken by the mine operator having regard to:

    i. the end of planned mine life (namely, the date by which it is presently assumed the mine will cease operations, having regard to the current licence duration and approved work plans); and

    ii. the estimated cost of final rehabilitation, having regard to the current approved work plans, and taking into account studies and reports in relation to its mine relevant to rehabilitation works, and in reference to the operator's best estimate of the inputs based on its workforce and contractor engagement rates.

- The results of the operator's estimate of costs of rehabilitation is to be reviewed by an independent auditor, assisted by one or more technical experts if the auditor requests or requires such assistance (for example, expert/s with geotechnical, mine rehabilitation or other relevant experience). The auditor will:

    i. review the work performed by the operator and produce an estimate of the cost of the final rehabilitation of the mine, having regard to the end of planned mine life of the mine; and

    ii. consult with the mine operator before during and after the review, including at the stage at which a draft of the review is

produced; and supply the estimate to the operator and to the Department when the auditor reaches a final view concerning the cost estimate for the mine.

- Using the above work, the Department will then provide sufficient material to an independent expert (to be retained by the Department) to take the audited cost estimate for the final rehabilitation of the mine and use the work therein to undertake a second cost estimate. This second cost estimate will be the predicted cost of an unplanned "close tomorrow" final rehabilitation exercise, which assumes that the operator does not perform the work, but rather that a third party (engaged by the State) performs the work.
- Finally, both cost estimates referred to above (the audited estimate of costs of closure at planned end of mine life and the independently assessed cost of unplanned closure prior to end of mine life estimate), will be supplied to the mine operator and the State for the purpose of using that work as one part of the broader work required to be undertaken in relation to reviewing the rehabilitation bond level.

Method of providing financial surety

An operator ought be permitted to negotiate with the State the mode by which it will supply financial assurance for its discounted bond amount. The mode might include a bank guarantee or a parent company guarantee, the precise form of financial surety to be agreed between the operator and the State.

PROPOSED RECOMMENDATIONS

Terms of Reference 8 and 9
Short, Medium and Long Term Rehabilitation

1. Each of the Latrobe Valley mine operators, under the regulatory supervision of DEDJTR, be required to:

    a. undertake further research, studies and trials in relation to the requirements for the safe final rehabilitation of those mines in accordance with the approved rehabilitation plans;

    b. develop the current conceptual plans for final rehabilitation into detailed operational and closure plans,

    with such research, studies and trials to include, as a priority, consideration of water quality and mine stability.

Co-Ordination and Engagement

2. There should be continued and improved co-operation between each of the Latrobe Valley coal mine operators in relation to final mine rehabilitation, including by way of co-ordinated studies, and the sharing of information where relevant and practicable.

3. There should be co-ordinated consultation between the three Latrobe Valley coal mine operators and DEDJTR, the water authorities, local government, the community and, where necessary and appropriate, the CFA and other entities such as VicRoads, in relation to plans for the final rehabilitation of the Latrobe Valley coal mines. Existing regulators such as DEDJTR, or other bodies such as Coal Resources Victoria (**CRV**), ought be tasked with responsibility for co-ordinating engagement between these groups.

4. The State should develop a Strategic Action Plan to be implemented by CRV which has the following objectives:

    a. to improve and strengthen the co-ordination between State authorities and agencies having responsibility for regulating the final rehabilitation of the Latrobe Valley coal mines;

    b. to develop a community engagement model to ensure that all State agencies, local government and the Latrobe Valley coal mine operators engage with local communities as an integral component of planning for mine rehabilitation.

Term of Reference 10

Rehabilitation liability assessment and the current rehabilitation bond system

5. The State should undertake more regular reviews of the levels of the rehabilitation bonds for each of the Latrobe Valley mines, pursuant to the power within s. 79A of the MRSD Act for the Minister to require that the rehabilitation liability assessments of those mines be audited.

6. There should be flexibility permitted as to the mode by which financial security is provided in respect of rehabilitation bonds for the Latrobe Valley mines, including in order to permit parent company guarantees.

TABLE OF CONTENTS

INTRODUCTION

Structure of these submissions

1. In these submissions, GDFSAE provides further detail in relation to the questions addressed during oral submissions at the conclusion of the public hearings on TOR 8 – 10 (Rehabilitation) on 18 December 2015. GDFSAE also responds herein to the written submissions of Counsel Assisting received by the parties on 17 December 2015, and the oral submissions of Counsel Assisting delivered on 18 December 2015.

2. Twenty eight questions are dealt with in these submissions, organised under the topics set out below:

OVERVIEW

1 Is the system broken? Does it need fixing?

FINAL REHABILITATION

2 What is the plan for the final rehabilitation of the Hazelwood Mine?

3 How do we know the final rehabilitation plan will be implemented by GDFSAE?

4 Is the final rehabilitation plan to achieve a final land form of a pit lake in the mine void a feasible (safe and stable) plan for the Hazelwood Mine?

5 During progressive and / or final rehabilitation of Hazelwood Mine:

a. What depth of overburden cover is required to be given to rehabilitated slopes to mitigate fire risk?

b. Will there be a requirement for rip rap to be installed around the internal lake rim?

c. Will there be a need for a drain installed around the external lake perimeter?

6 Is further study / work required along the path to final rehabilitation?

PROGRESSIVE REHABILITATION

7 What is the purpose of progressive rehabilitation?

8 Are there progressive rehabilitation targets applicable to the Hazelwood Mine and has GDFSAE met those targets?

9 Is there any "sanction" available for a failure to meet progressive

rehabilitation targets?

RISK ASSESSMENTS

10 What risk assessment approach ought to apply to the three coal mines:

a. During their operational life?

b. When considering and performing progressive and final rehabilitation works?

WATER

11 What water entitlements does Hazelwood Mine currently have and to what extent are those entitlements used by Hazelwood Mine?

12 How long will it take to fill the mine void to create a pit lake at Hazelwood Mine?

13 What options for sources and use of water are being considered to fill the Hazelwood Mine pit void?

14 Will there be sufficient water available for the Hazelwood Mine to fill the pit lake as part of the planned final rehabilitation?

CO-ORDINATION AND ENGAGEMENT

15 Is it appropriate that there be more co-ordination between the three mines in relation to the plans for final rehabilitation?

16 Should consultation in relation to rehabilitation plans include input from others? Who should co-ordinate that consultation?

17 How does GDFSAE / Hazelwood Mine currently engage with the community in relation to plans for final rehabilitation and fire risk management?

18 What is the community's view in relation to the final rehabilitation options for the mines?

19 Are there successful examples of community consultation and enjoyment of end beneficial use of such mines?

REHABILITATION BONDS

20 What amount is set for the Hazelwood Mine rehabilitation bond and how was it devised?

21 What are the estimated costs for the final rehabilitation of the Hazelwood Mine?

22 Are there more reliable costings available?

23 What principles inform the current rehabilitation bond policy?

24 What mechanism is presently used to provide financial surety for rehabilitation bonds?

25 What method should be used to provide financial surety?

26 Should the Board recommend a new model for Rehabilitation Bonds? If so, what principles should inform the development of a policy for the setting of rehabilitation bonds?

27 Is Hazelwood Mine required to provide a financial assurance to the EPA in respect of its landfill?

FIRE MITIGATION

28 What new fire responses have been implemented since Hazelwood Mine Fire Inquiry #1?

Witnesses in the Inquiry

3. The closing submissions of Counsel Assisting disclose an unfair tendency to elevate the utterances of the members of the Technical Review Board (**TRB**) at the expense of other available, credible evidence given by witnesses, including the experts and the mine managers.

4. Counsel Assisting described the TRB members as the "truth tellers" in this "entire sorry saga".[1] It is not doubted that Professor MacKay, Professor Galvin and Ms Unger are experts who gave their evidence honestly. However, it is hoped that Counsel Assisting did not intend by this remark to suggest that the other witnesses who assisted the Board in relation to mine rehabilitation did not equally speak with veracity and considerable expertise.

5. It is also unnecessary and inappropriate to describe matters concerning rehabilitation as a "sorry saga", particularly insofar as the mine operators are concerned.

6. It cannot be doubted that Dr Haberfield and Dr McCullough were also experts of high calibre, with considerable relevant experience whose credibility is unquestioned. Equally, Mr Faithful and the representatives of the other two mines (Messrs. Mether and Rieniets) were clearly witnesses of credit, with significant

1 Counsel Assisting Oral Closing Submissions T1122.9 – 10.

practical experience whose observations were of great assistance to the Board's inquiry. These three witnesses called on behalf of the mine operators submitted to the process of giving evidence as part of a panel on two separate occasions with each panel extending some hours. It was never suggested in evidence to any of them, that they lacked the requisite experience, or that they were being unhelpful or untruthful. It is also extraordinary that the detailed statements prepared by the three mine managers and their participation in two lengthy panel sessions barely rates a mention in Counsel Assisting Submissions. Mr Faithful's evidence in this Inquiry (which it is submitted was given honestly and in nothing but a careful and reasonable fashion), is referred to only fleetingly and was described by Counsel Assisting only as containing a number of concessions.[2] Further, Mr Faithful also gave detailed evidence, and provided a detailed witness statement, on the issue of the rehabilitation of the Hazelwood Mine in the first Hazelwood Mine Fire Inquiry. It is submitted that when considered as a whole, the treatment of the evidence by Counsel Assisting fails to acknowledge the assistance rendered by the mine manager witnesses.

7. All witnesses in this Inquiry with expertise in mines and rehabilitation clearly did their best to assist the Board with respect to its inquiries on Terms of Reference 8 - 10. In particular the Expert Panel (by dint of their work in the conclave and by their production of a Joint Report) did their best to minimise irrelevant points of distinction between their expert opinions. Each was impressive in terms of their expertise and degree of frankness. Dr Gillespie and Mr Cramer too, it is submitted, were also witnesses who made reasonable concessions and contributed helpfully to the debate in relation to TOR 10. It is also accepted that Mr Wilson generally did his best to assist the Board during his participation in two panels. However, as a fairly recent appointment to his position, Mr Wilson was sometimes limited in the light he was able to shed on the history of particular policy approaches within DEDJTR.

8. In contrast, it is submitted that there were other witnesses of the State whose evidence was less illuminating. Dr Davis (a member of the Water Panel) said in response to questions from both Counsel Assisting and representatives of the parties an extraordinary number of times that she was unable to "comment" or unwilling to "speculate."[3] Dr Davis declined to "speculate" or expressed an inability to "comment" on seventeen occasions. Her failure to answer questions reached a low point when, in response to a question (put to her by Counsel Assisting, concerning whether the Gippsland Sustainable Water Strategy[4] had been reported on by DELWP and tabled in Parliament), she indicated she would, "take that question on

2 Counsel Assisting Oral Closing Submissions T1134.17 – T1135.15.

3 Davis T205.15; 207.16; T207.25; T210.28; T211.31; T214.30; T215.12; T217.25; T219.23; T220.2; T221.23; T222.10 - 11; T222.19; T222.28 - 29; T223.20; T225.13; T231.27.

4 Exhibit 11.

notice".[5] Other witnesses on the Water Panel also rendered little assistance to the Board. Mr Rodda responded on many occasions that he could not comment[6] or that he did not know because he had not read the document or considered the issue in question. Mr Mauer was able not able to contribute a great deal either.

9. The evidence of the Water Panel was of little assistance to the Board and was deserving of criticism by Counsel Assisting. Yet this passed without mention in the submissions of Counsel Assisting.

OVERVIEW

Q1 Is the system broken? Does it need fixing?

No. The system is not broken. Many of the proposals and suggestions for future action canvassed during the hearings are capable of being achieved within the existing statutory framework. However, it is clear that there is a need for:

(a) better co-ordination between DEDJTR, the mine operators and other relevant agencies (including the water authorities, local government, the EPA and when relevant the CFA and VicRoads);

(b) a clearer statement by DEDJTR of the standards it will apply (and the timeliness with which it will do so) in relation to the manner in which the regulatory framework will be applied to the mines.

10. As the name of the Act itself suggests, at the heart of the *Mineral Resources (Sustainable Development) Act* 1990 (**MRSD Act**) is the principle of sustainable development. It is intended that the administration of the MRSD Act have regard to the principles of sustainable development (s 2A) which include:

    a. ***community wellbeing and welfare*** should be enhanced by following a path of economic development that safeguards the welfare of future generations;

    …..

    d. there should be recognition of the need to develop a ***strong, growing, diversified and internationally competitive economy*** that can enhance the capacity for ***environment protection***;

    e. measures to be adopted should be ***cost effective and flexible, not disproportionate to the issues being addressed***, including improved valuation, pricing and incentive mechanisms;

5 Davis T240.2 – 3.

6 Rodda T206.17; T207.10; T207.26; T218.22; T219.29; T220.12; T226.7 – 18 and T227.17.

f. both long and short term economic, ***environmental, social and equity considerations*** should be effectively integrated into decision-making;

g. if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation and decision-making should be guided by—

(i) a careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and

(ii) an assessment of the risk-weighted consequences of various options;

h. development should make a ***positive contribution to regional development and respect the aspirations of the community*** and of Indigenous peoples; and

i. decisions and actions should provide for ***community involvement*** in issues that affect them.

11. As can be seen from the above, the principles which underpin the MRSD Act already embody many of the matters which appear to have inspired the focus of TOR 8, 9 and 10.

12. It is submitted that the MRSD Act already contains the necessary framework for comprehensive regulation of all aspects of the mine rehabilitation and closure process. Specifically:

a. *Conditions on mining licence including rehabilitation.* The Minister already possesses the power to impose conditions on a mining licence, including conditions as set out in s 26(2) of the MRSD Act. In particular, the Minister has power to impose licence conditions about rehabilitation of the land (s 26(2)(a)) and about entering into a rehabilitation bond (s 26(2)(g)).

b. *Ability to vary conditions.* The Minister is also empowered to vary licence conditions (s 34(1)) to address changing circumstances in relation to a mine. Section 34(2)(a) provides that the Minister may act at the request of the licensee, or pursuant to s 34(2)(b) the Minister may do so if the Minister decides it is necessary for rehabilitation or for stabilisation of the land to which the licence applies.

c. *Work Plan requirements including rehabilitation plans.* It is a requirement that a work plan be lodged with the Department Head (s 40) which must include a rehabilitation plan, a community engagement plan and prescribed information (s 40(3)). Section 39 provides that work can only be carried out in accordance with the licence and an approved work plan. The Department Head has power under s 40A to approve or

refuse a work plan, or may require changes to the work plan or rehabilitation plan prior to its approval.

d. *Requirements of rehabilitation plans*. Specific provision for mine rehabilitation is made at s 79 which provides that a rehabilitation plan must take into account: any special characteristics of the land; the surrounding environment; the need to stabilise the land; the desirability or otherwise of returning agricultural land to a state that is as close as is reasonably possible to its state before the mining licence or extractive industry work authority was granted; and any potential long term degradation of the environment. Regulation 32(1)(b) and Schedule 15 of the *Mineral Resources (Sustainable Development)(Mineral Industries) Regulations 2013* (**MRSD Regulations**), prescribe information for a work plan including specification of the location and how mining work is to be carried out, requirements for an environmental management plan, content of a rehabilitation plan and content of a community engagement plan. Schedule 15, Part 1 (item 6) of the MRSD Regulations further provides that rehabilitation plans in a work plan must address concepts for the end utilisation of the site, include a proposal for the progressive rehabilitation and stabilisation of extraction areas, road cuttings and waste dumps, including revegetation species, and include proposals for the end rehabilitation of the site, including the final security of the site and the removal of plant and equipment.

e. *Mine stability requirements*. Pursuant to s 40(3)(b) of the MRSD Act (and Part 2 of Schedule 15 of the MRSD Regulations), "declared mines" must also include prescribed mine stability requirements in their work plan. Each of the Latrobe Valley mines is a declared mine.

f. *Requirement to rehabilitate*. With respect to the requirement to be able to finance rehabilitation, pursuant to s 78(1) of the MRSD Act, the holder of a mining licence must rehabilitate land in accordance with a rehabilitation plan approved by DEDJTR, and as far as practicable, complete rehabilitation before the expiry of the mining licence (s 81(1)).

g. *Reassessment of rehabilitation liability*. The Minister may require an authority holder to undertake a rehabilitation liability assessment for the purpose of determining the amount of a rehabilitation bond or reviewing the amount of an existing rehabilitation bond (s 79A(1)). The Minister can specify the manner in which that liability assessment is undertaken (s 79A(2)) and to engage an auditor to certify the accuracy of the liability assessment (s 79A(3)).

h. *Rehabilitation bonds*. Pursuant to s 80(1), a licensee must enter into a rehabilitation bond for an amount determined by the Minister. Pursuant to s 80(4), the Minister may, at any time after a rehabilitation

bond is entered into and after consultation with the authority holder, require the authority holder to enter into a further rehabilitation bond for an amount determined by the Minister if he or she is of the opinion that the amount of the bond already entered into is insufficient.

i. *Minister may rehabilitate the land*. Pursuant to s 83(1), the Minister may take any necessary action to rehabilitate land if the Minister is: not satisfied that the land has been rehabilitated as required by s 78 or s 78A or is satisfied that further rehabilitation of the land is necessary. Pursuant to s 83(4), the Minister may recover as a debt due to the Crown in a court of competent jurisdiction any amount by which the cost incurred under s 83(1) exceeds the amount of the bond or bonds.

j. *Consultation:* Section 39A of the MRSD Act specifies that licensees have a duty to consult with the community throughout the period of the licence by:

   i. sharing with the community information about any activities authorised by the licence that may affect the community; and

   ii. giving members of the community a reasonable opportunity to express their views about those activities.

k. Further, s 40(3)(d) of the MRSD Act requires mining licence holders' work plans to include a plan for consulting with the community in accordance with Schedule 15 of the MRSD Regulations and the *Community Engagement Guidelines for Mining and Mineral Exploration in Victoria*. Schedule 15 of the MRSD Regulations (Part I, Section 9) contain specific requirements for community engagement plans which include identifying any community likely to be affected by mining activities authorised by the licence and proposals for providing information to the community and receiving community feedback and considering community concerns or expectations in relation to mining activities authorised by the licence.

13. It is clear from the foregoing that there is already in place a comprehensive regulatory framework for the regulation of mine rehabilitation in Victoria and a comprehensive set of standards for community engagement. However, it emerged in the evidence that there may be a need for:

    a. greater co-ordination between the agencies with a role to play in the implementation of the regulatory framework;

    b. better co-ordination between the agencies, the mine operators, other relevant agencies (particularly water authorities, road authorities, the EPA and local government);

c. DEDJTR to clearly enunciate the standards it will apply (and the timeliness with which it will do so) in enforcing its regulatory framework;

d. clarity in respect of the manner in which and timeliness with which the operators and the community will be consulted by DEDJTR in relation to the manner of implementation of the regulatory regime.

14. It is submitted that each of these goals can be achieved within the current regulatory framework – but that DEDJTR will have to "step up" and adopt a leadership role in this regard.

15. It appears that DEDJTR has not adopted a leadership role or a proactive approach to regulatory policy with respect to mine rehabilitation in recent years. That DEDJTR has been dilatory in its regulatory role with respect to the final rehabilitation of the Latrobe Valley coal mines is demonstrated by the failure to complete the Rehabilitation Bond Review Project due to "slippage" in time frames.[7] The outcome of the review will not be known until the "other side of Christmas".[8] Suffice to say this is an unsatisfactory state of affairs and arguably a precondition to the consideration of TOR 10 has not been met (that is the completion of the review).[9] Notwithstanding the failure of DEDJTR to complete the review, GDFSAE agrees with the position put by Counsel Assisting that the Board is not precluded from considering TOR 10. However, the practical implication of DEDJTR's failure to complete the review is that the findings or recommendations in respect of TOR 10 are necessarily constrained by the fact that the review is incomplete and the materials and evidence prepared for the hearing have as a consequence been prepared in haste and in ignorance of DEDJTR's position in relation to the issue of rehabilitation bonds.

16. The Board should therefore exercise considerable caution in making recommendations concerning the principles or approaches required to inform a future reconsideration of the system. The existing statutory framework already provides a suitable framework for the regulatory response to rehabilitation of the Hazelwood Mine. Alternatively, a risk based approach is preferable.

17. The need for DEDJTR to "step up" appears to have been recognised by DEDJTR. The need for reform and improvement in the governance and performance of the Earth Resources Regulation Branch of DEDJTR is set out in the *Earth Resources Regulation 2015-2016 Action Plan* (**Action Plan**) provided to the Board by Mr Wilson during the course of his evidence.[10] The Action Plan makes numerous

7 Wilson T825.2.

8 Wilson T826.4-5.

9 Counsel Assisting Written Closing Submissions at [12], [17], [20] and [21].

10 Exhibit 37, Earth Resources Regulation Action Plan 2015-16.

commitments and provides timelines for implementation for measures directed to providing clarity and improving governance. Importantly, in the context of the evidence before the Board the Action Plan makes it plain that the regulatory work of DEDJTR will be undertaken having regard to a risk management framework[11] and with stakeholder consultation and engagement.[12]

FINAL REHABILITATION

Q2 What is the plan for the final rehabilitation of the Hazelwood Mine?

The Mine batters will be reshaped to a more gentle slope and revegetated, and the mine will be flooded to form a pit lake.

18. The Concept Master Plan appears at Figure 8 in the Faithful Statement.[13] The best visual depiction of the proposed future water level of the Hazelwood Mine (or RL -22) appears at Figure 15 of the Statement of James Faithful.[14]

19. The surrounding coal batters above the future water level of the pit lake are to be re-profiled, giving rise to a more gentle grade leading down to the lake. The re-profiled batters will be covered with overburden and revegetated so as to blend into the surrounding environment and support a range of future land uses.[15]

20. Presently the level of the mine floor is approximately RL -60. After the cessation of mining and reshaping of the batters, the initial water level of the Mine will fill to what is called the point of stability, or weight balance to the depth of RL - 22. This is the equivalent to about 38 metres or approximately one third of the depth of the Mine void. Over a period of years thereafter, it is anticipated that the lake level will rise and the current proposal is to fill it to a level of RL +8, which the current modelling suggests can be achieved after a period of approximately 30 years. Relative to the depth of the void, this means the lake will ultimately be about 68 metres deep or 50 to 60% of the depth of the Mine void.[16]

21. Counsel Assisting's Submissions at [1] accept that the overwhelming expert evidence that filling each void with water is the only viable rehabilitation option for the three mines. However, Counsel Assisting also contend that "presently there is

11 Exhibit 37, Earth Resources Regulation Action Plan 2015-16 at page 5.

12 Exhibit 37, Earth Resources Regulation Action Plan 2015-16 at page 8.

13 Faithful Statement at [118], and at Annexure 11.

14 Faithful Statement at [155].

15 Faithful Statement at [100]-[106].

16 Faithful Statement at [105].

no scientific answer about how exactly this might be done". This grossly exaggerates the complexity of the rehabilitation task. The submission also proceeds in ignorance of the history, experience and science that have established that the rehabilitation of mine voids as pit lakes is both practical and feasible. The same "eminent experts" whose evidence Counsel Assisting accepted in relation to the ultimate rehabilitation options, gave evidence that not only was the pit lake option for each of the mines feasible - it is also technically able to be accomplished. Indeed Counsel Assisting's own submissions at paragraph [245] set out the evidence as to the feasibility of the pit lake option.

22. The evidence of the experts before the Board was that technical solutions to any issues that arise can and will be found. In the words of Dr Haberfield "we are engineers and our job is to find solutions".[17] Similar confidence was expressed by remaining experts including Professor Mackay ("I am confident that we will achieve a solution")[18]; Professor Galvin ("we are well ahead of the game now to where we were six, eight years ago in identifying the problems and also remediating those that are already there")[19] and Dr McCullough ("I believe if the studies I recommend are undertaken then we will understand those standards in a timely manner").[20] Dr McCullough went on to say that he had a "glass half full view" that a lot of the information already out there can be transferred.[21] Any pessimism or uncertainty expressed by Counsel Assisting as to the likelihood of the rehabilitation task being achieved and the detail of how that might be accomplished is unfounded in light of the evidence before the Board.

23. The submissions of Counsel Assisting also canvass alternative options for the final land forms of the mines (see at [26], [28] and [29]), but ultimately accept the conclusions of the eminent experts as to the only viable rehabilitation option being to fill the voids with water. The canvassing of options and the highlighting of issues by Counsel Assisting tends to have the effect of making the solution to rehabilitation appear unnecessarily complex. The Joint Report and the evidence of each of the eminent experts who gave evidence to the Board is clear and confirms that there is only one viable rehabilitation solution.

17 Haberfield T.447.18.

18 Mackay TT451.11.

19 Galvin T443.23.

20 McCulloughT455.9.

21 McCullough T523.30.

Q3 How do we know the final rehabilitation plan will be implemented by GDFSAE?

We can be confident that the plan will be implemented because GDFSAE:

(a) is bound by licence conditions requiring work to be undertaken in accordance with the rehabilitation plan set out in the Work Plan Variation;

(b) is undertaking progressive rehabilitation in accordance with that plan as required and will continue to do so; and

(c) is part of a corporate structure with credit and credibility.

In the case of the Hazelwood Mine the risk of 'default' is extremely low.

24. The Hazelwood Mine Licence has a term of 30 years which will expire in September 2026 (although there are plans to continue mining until 2033). The mining licence contains a schedule of conditions.[22] The mine licence conditions require the rehabilitation plan to be implemented including the following conditions:

    a. a requirement that work shall be carried out in accordance with the approved Work Plan which is required to incorporate a rehabilitation plan as amended from time to time (Condition 1);

    b. Condition 15 requires that progressive rehabilitation be conducted in accordance with the rehabilitation plan;

    c. Condition 16 requires that final rehabilitation be carried out in accordance with the rehabilitation plan and any additional requirements as directed by inspector;

    d. Condition 20 of the licence echoes the requirements of MRSD Act s 80 concerning provision of a rehabilitation bond.

25. These conditions of the Mine Licence provide sufficient regulatory assurance that the rehabilitation plan will be executed.

26. The 2009 Approved Work Plan is Annexure 9 to the Statement of James Faithful. It is intended that a further Work Plan Variation Application will be submitted in 2016.[23] The Approved Work Plan at section 6.2 sets out rehabilitation goals and objectives. The ultimate rehabilitation and mine closure goal for the Hazelwood Mine is to:

22 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexures 3 and 4.

23 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [89].

"Provide a technically feasible, safe, stable and sustainable landscape that reflects the aspirations of stakeholders within the practical constraints of rehabilitation for the mine."

27. In conducting its progressive rehabilitation, GDFSAE is carrying out progressive rehabilitation which achieves at least two goals:

    a. It contributes to fire risk mitigation on the covered slopes;

    b. The method used is in line with the final plan for the Mine:

        i. the progressive rehabilitation includes reshaping and revegetating certain batters above what will be the future level of the pit lake;

        ii. during operations, there is in-pit dumping of the overburden and ash which serves to provide additional weight on the floor of the Mine, necessary for the achievement of stability and balance in the final form of the lake; and

        iii. as a part of general operations, there are ongoing geotechnical and hydrogeological studies that have been and are being commissioned by the Mine, in order to support the implementation of the approved final rehabilitation plan.

28. The Closing Submissions of Counsel Assisting (at [53]) quote Professor Galvin as to the importance of mine stability, particularly in light of the existence of key infrastructure in proximity to the mines. At times, the Submissions appear to imply that the importance of mine stability is not understood by the mine operators. The importance of ensuring mine stability is no revelation to GDFSAE. The need to ensure that the Hazelwood Mine batters are stable both during the operational phase and for the rehabilitated land form is well understood by GDFSAE. Mine stability is something that is constantly monitored by GDFSAE as an integral part of its operations[24], and there has been no explicit suggestion to the contrary by Counsel Assisting or any witness before the Board. The mines submit a six monthly stability report to the regulator, and the TRB reviews and comments on some of these reports. The TRB assisted the mines, in particular Hazelwood, in setting up these systems. Indeed, Professor Galvin noted that he is confident that they have a good survey system and that the TRB has "fairly good oversight of what is happening".[25]

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24 See in particular the Work Plan Variation at 5.4.2; Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 9 at GDFS.0001.001.0237; Haberfield T490.20 – 28.

25 Galvin T491.7 – 15; T491.24 - 30.

Q4 Is the final rehabilitation plan to achieve a final land form of a pit lake in the mine void a feasible (safe and stable) plan for the Hazelwood Mine?

Yes, the experts agree that approved final rehabilitation plan for the Mine of a pit lake is feasible and is the most well developed plan for the end of this mine.

29. The suggestion by Counsel Assisting (Submissions at [8] and at T1079.10 - 12) that unless significant changes are made to the plans for closure, the State will be "left in perpetuity with huge, dangerous, unsightly and expensive voids to look after" and that the communities of the Latrobe Valley will suffer the results is misplaced pessimistic hyperbole. There is in fact no serious disagreement among the experts that the approved final Rehabilitation Plan for the mine in the form of a pit lake is feasible and is the most well developed plan for the end of the mine. This is apparent from the following:

    a. answers to Questions 4(a) and (b) of the Joint Report. There, the six experts agreed that the mines' current rehabilitation plans generally align with Jacobs' concept of a partial backfill below the water table level.[26]

    b. the Jacobs Report: see pages 66 and 99.[27]

    c. the report of Dr Haberfield at [26] – [29] in which he concludes that the approved final rehabilitation model constitutes a feasible and appropriate model for final rehabilitation from the perspective of achieving a safe and stable land form and returning the mine to a condition which will enable future beneficial land use and which will complement the surrounding environment.[28] Further, his report concludes that there are no other feasible alternatives at [32] – [41].[29]

    d. the report of Dr McCullough at 1.1 – 1.2.2[30], noting that a dry void option should be regarded as impracticable and wholly unreasonable.

30. The suggestion raised by Professor Galvin during evidence given as part of the Expert Panel[31] that there may be an alternative feasible landform (namely to

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26 Joint Expert Report, 3 December 2015, Exhibit 18, EXP.0012.001.0001.

27 Jacobs Report: Exhibit 24A, EXP.0011.001.0001.

28 Report of Dr Chris Haberfield, 27 November 2015, Exhibit 21, GDSF.0001.002.001 at GDFS.001.002.0005 – 0006.

29 Report of Dr Chris Haberfield, 27 November 2015, Exhibit 21, GDSF.0001.002.001 at GDFS.001.002.0007 – 0009.

30 Report of Dr Clint McCullough, 30 November 2015, Exhibit 22B GDFS.0001.003.0001 at GDFS.001.003.0002.

continue to pump water from a dry void in perpetuity) was not given any serious consideration by the other experts. Dr McCullough said it was "conceivable" but "very unlikely" that any other land form would be feasible. He said that over many years he was "yet to find an options analysis that found that pumping in perpetuity … yields better outcomes".[32] Professor Mackay concurred, saying:

> *"I am a great believer that we will end up in a lake system and I am as a hydrogeologist rather against Professor Galvin in respect of pumping, not least because I do think it will have quite serious consequences in terms of subsidence, but it will also have serious consequences in terms of the water resources, and as a hydrogeologist, I don't like to waste water for the sake of it. But overall, I think there has been a demonstration that if you put in appropriate management practices in place while mining, you can actually minimise the risk of movements. … So I am confident that we will achieve a solution. What I am not confident about is that we will achieve an unmanaged solution*."[33]

31. As to the likely water quality of the pit lakes, Dr McCullough predicts that the risk looks low and there is likely to be sufficient water quality.[34] Of course water quality will need long term monitoring, but that is the case now in relation to any significant water bodies.[35]

32. While all experts agreed that there was a need for further research and studies in relation to the stability and other issues facing the rehabilitated mines,[36] there was generally a view that not only is a pit lake the only feasible option, but that any problems which present along the path to final land form can be resolved. For example, Dr Haberfield said:

> *"I am going to be a little bit arrogant here. We are engineers….. and our job is to find solutions… Yes some solutions will cost more money than others and will take longer to achieve, but I have no doubt that there is a solution for these pits. Currently the best solution that I can think of is a lowered land form with a pit lake".*[37]

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31 Galvin T443.19-31-T444.1-14

32 McCullough T446.9 – 13.

33 Mackay T450.28 – T451.15.

34 McCullough T453.11 – 14

35 Haberfield T458.20 – 31; McCullough T459.26 - 29.

36 See Joint expert report, 3 December 2015, Exhibit 18, EXP.0012.001.0001, answer to Question 5. See further the Report of Dr Clint McCullough, 30 November 2015, Exhibit 22B, GDFS.0001.003.0001 at 4.1 – 4.1.17 and GDFS.0001.003.0015 – 0018.

37 Haberfield T446.20 – 27.

33. Mr Spiers had a similar expectation in relation to the prospects of finding technical solutions for rehabilitation issues associated with the mine pits.[38]

34. In short, the expert opinion was clear and spoke with one voice: a pit lake is the only viable option for these mines. In those circumstances, it was therefore unhelpful for Counsel Assisting on the one hand to permit without criticism the tender of the Joint Report by the experts (which is unanimous in its conclusion and its answers to Questions 4(a) and (b) that pit lakes are the only feasible option for these mines), and yet on the other hand to continue to canvass alternative and opposing views, as if they were of equal value. In this context, Counsel Assisting cited a rhetorical question posed by community witnesses, Mr Langmore who asked, "if flooding the mines doesn't work, have we blown the chances of getting rehabilitation done properly?"[39]

35. It is not doubted that Mr Langmore's concerns were genuinely held. But it must be borne in mind that his qualifications are in town planning (see at T38-T39), and he is not an expert in mine closure or rehabilitation. As a result, it is not helpful to treat his concerns with the same weight as the uniform expert opinion expressed in the Joint Expert Report.

Q5 During progressive and / or final rehabilitation of Hazelwood Mine:

(a) What depth of overburden cover is required to be given to rehabilitated slopes to mitigate fire risk?

At this stage, the best evidence available confirms that 1 metre cover on rehabilitated slopes will be more than sufficient to provide adequate fire mitigation and represents the best solution in relation to stability and erosion concerns.

(b) Will there be a requirement for rip rap to be installed around the internal lake rim?

No, the experts did not agree that it is necessary for rip rap to be installed as an erosion protection measure.

Further, recent modelling undertaken for GDFSAE by GHD identifies several means of filling the pit lake within the Hazelwood Mine to its final level within a period of 30 - 90 years, with the result that the assumption made by AECOM that rip rap will need to be installed over a 500 year period is unsound.

38 Spiers at T450.3 – 8.

39 Counsel Assisting Oral Closing Submissions T1115.23 – 31.

(c) Will there be a need for a drain installed around the external lake perimeter?

No, the expert evidence is that this is not advisable.

Overburden cover on re -profiled slopes

36. This question arises by reason of an assumption made in the costings presented by the Jacobs team[40] that there would need to be 2 metres of overburden cover upon exposed batters for the purposes of fire risk mitigation. To the extent that the Jacobs' costings remain of any relevance, it is submitted that the assumption adopted in those costings concerning the requirement for 2 metres depth of overburden cover on reshaped batters is without foundation and is erroneous.

37. The present rehabilitation plan envisages that the rehabilitated batters will be re-profiled, then covered with 1 metre of cover (comprised of an overburden / clay base, then top soil and vegetation).[41] It is planned to cover the slopes with overburden / clay and topsoil down to the stability level of the water (namely RL -22 metres). Below that level, as the pit will be flooded, there is no need to cover the slopes with soil. Prior to the pit being flooded, there will nevertheless be a fire service system network which will continue to provide water coverage for those parts of the slopes during the period prior to that part of the slopes being submerged.[42]

38. The submissions of Counsel Assisting at [40] and [41] are to the effect that:

    a. no witness was able to direct the Board's attention to research which addresses the question of what depth of overburden is required to reduce to an acceptable level the risk of ignition of the coal; and

    b. Mr Faithful's evidence was that coal covered by 1 metre of overburden did not catch fire during the 2014 Hazelwood Mine Fire.

39. These submissions, whilst acknowledging Mr Faithful's evidence, nevertheless misstate the evidence before the Board in relation to the issue of depth of overburden cover required to mitigate risk of ignition. Specifically:

    a. Dr Haberfield in his evidence noted there is no research or study which supports the need to cover reshaped batters with any more than 1 metre cover of overburden.[43] Indeed, to the contrary, on the basis of the

40 See Report of Jacobs Group, Exhibit 24A, EXP.0011.001.0001 at EXP.0011.001.0105.

41 Faithful T272.24 – 30.

42 Faithful T281.21 – 31; Faithful T331.2 - 13.

43 Report of Dr Haberfield Exhibit 21, GDFS.0001.002.0017 – 0018 at [96] – [104].

enquiries Dr Haberfield made with bushfire expert, Dr Justin Leonard at the CSIRO, it is likely that less than 1 metre would suffice.[44]

b. Professor Sullivan suggested that while in the context of their high level brief, it may have been appropriate for Jacobs to work on the basis of 2 metres' cover, in his opinion it is "too early to talk about a layer thickness".[45] Professor Sullivan also noted that, in any event, there is unlikely to be a requirement for a uniform thickness across the mines, and that it would likely vary from domain to domain, and even batter to batter.[46]

c. The practical experience of those working at Hazelwood Mine over the years is that 1 metre cover has performed well and held up well to risks.[47] Indeed, there has been no problem observed in relation to stability, erosion or take up rate of vegetation.[48] Perhaps the most significant practical "experiment" (albeit an unwanted one), in respect of the fire mitigation properties of 1 metre overburden cover which has been conducted was the 2014 fire itself, during which it was observed that rehabilitated slopes did not burn.[49]

d. To the extent that the Jacobs team operated on the basis of an assumption that 2 metres' cover would be necessary, it was ultimately conceded to be no more than a conservative assumption.[50] Mr Spiers acknowledged: "we really didn't know the right answer, so we went for a conservative depth that we thought was safe to achieve the outcome and wouldn't be overly costly".[51]

40. In light of the above, it is submitted that the evidence available demonstrates that 1 metre cover is sufficient for fire mitigation. Counsel Assisting does not point to any study or research which positively supports the proposition that a greater depth of overburden is required.

41. There was a suggestion during oral closing submissions by Counsel Assisting that there may exist some other viable means of mitigating fire risk in exposed coal, that

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44 Haberfield T498.19 – 26; T499 – 500.

45 Sullivan T506.21 – 29.

46 Sullivan T507.26 – 30.

47 Faithful T273.3 – 26.

48 Faithful T329.17 - 28.

49 Faithful T329.29 – T330.10.

50 Spiers T502.16 – 31.

51 Spiers T503.4 – 8. See also Hoxley T505.9 – 29.

is, other than covering slopes with overburden.[52] It is submitted this late suggestion was grossly unfair.

42. The science behind other modes of covering coal was not traversed in these hearings at all. Counsel Assisting referred in passing to alternative methods (like shotcreting) to which some attention was directed during the first Hazelwood Mine Fire Inquiry.

43. The feasibility (including from a stability, operational and cost perspective) of any such alternative methods was hotly contested in the hearings of the First Inquiry and was not revisited in the evidence adduced before the Board during this Inquiry. Further, not one shred of lay or expert evidence in this Inquiry has been devoted to exploration of any such alternative methods. Yet it was suggested for the first time in the oral closing submissions of Counsel Assisting that the risk assessment process adopted by the mine operators is deficient: (a) because it has not involved consideration of alternative methods for covering exposed coal; and (b) has been undertaken in a myopic manner without consultation with external independent experts.[53]

44. In this context, it was suggested that it would be wrong for mine operators to continue to fail to "look outside the enterprise" when considering fire mitigation.

45. This is a complete misstatement of the evidence, suggesting that mine operators have conducted risk assessments without having regard to external expertise. First, not a single witness was asked during the Inquiry how GDFSAE now conducts its risk assessment workshops, or how it has considered the issue of covering exposed coal. It was not put to any mine operator or expert that the current method of covering exposed coal with overburden and / or clay is deficient, and no attempt was made to revive the evidence adduced during the First Inquiry concerning the novel method of concreting exposed coal on batters.

46. Second, the comments of Counsel Assisting fly in the face of the documentary evidence concerning the manner in which risk assessments are in fact conducted by GDFSAE. At Faithful Statement Confidential Annexure 4, the GDF Suez Risk Assessment and Management Plan (**RAMP**) can be found: GDFS.0001.001.0163. As is clear from its contents, a number of external consultants assisted in its development and in the conduct of workshops in which a sophisticated bowtie analysis of risk was undertaken. The external consultants whose expertise has been sought to complete the Risk Assessment Plan were Dave Clark, Mark Andrew and Russell Mills from GHD, Kathy Friday from Coffey, Shane Mynard of the CFA and

52 Counsel Assisting Oral Closing Submissions T1095.7 – 1096.7.

53 Counsel Assisting Oral Closing Submissions T1095.7 – 1096.7.

Howard Jones of Victoria Police.[54] Had Counsel Assisting intended to criticise the approach to risk assessment in this manner in closing, it was incumbent upon them to put to Mr Faithful and to the Expert Panel that the work undertaken was inadequate. This simply was not done.

Rip rap

47. This issue arises only because the AECOM costings include a line item cost of $90M (early close scenario) and $107M (end of mine close scenario) for the installation of rip rap in the pit lake of the Hazelwood Mine, with such rip rap to be replaced 9 times over a 500 year period.[55] It is submitted that this line item cost and assumption in the AECOM costings is unwarranted and wholly unsound.

48. It is no part of the current Work Plan for Hazelwood Mine to install rip rap in the pit lake,[56] and the latest modelling confirms that the fill time for the lake will be 30 to 90 years (depending on the desired depth of the lake, with the former representing the currently proposed final lake level of RL +8m, as further explained in paragraph 105 below), not 500 years.

49. AECOM did no more than assume that rip rap would be required. AECOM produced no study or research to support its assertion that rip rap would be required and would be required to be replaced 9 times in 500 years.

50. Counsel Assisting (Submissions at [62]) suggest that the experts "disagreed" about the likely need for rip rap in each pit. This misstates the evidence. Dr Haberfield and Dr McCullough pointed to significant lack of amenity attendant upon use of rip rap, and further:

    a. Dr McCullough said he had never seen rip rap used in a pit lake, it is not required in natural lakes and he would never advise it[57]; and

    b. Dr Haberfield agreed it was not necessary[58].

51. The evidence does not support a conclusion that rip rap will be required in the Hazelwood Mine - much less that it will need to be replaced 9 times over a 500 year period. It is accepted that further work may need to be undertaken in relation to studying the effect of wave action on erosion in pit lakes of this type. But there presently exists no foundation for the assumption adopted by AECOM, and they

54 GDFS.0001.001.1387; GDFS.0001.001.1542 – 1453.

55 See AECOM report regarding the Hazelwood Mine, Exhibit 41C, DEDJTR.1030.001.0001 with respect to Domain 4 at DEDJTR.1030.001.0029.

56 Faithful T337.28 – T338.12.

57 McCullough T527.27 – 528.13.

58 Haberfield T528.21 – T529.8.

themselves proffered no evidence in support of their rip rap assumption and conceded it was included on the basis of an assumption only.

Installation of a drain

52. Again, this question arises by reason only of an assumption adopted in the Jacobs' costings (on which, for the reasons noted below, no reliance can be placed). A significant line item in those costings concerns the installation of a 5 metre wide, 2 metre deep drain around the lake perimeter.[59] In evidence, Mr Hoxley suggested that the purpose of the drain would be to collect run off and that it would be an open drain.[60] This assumption made about the installation of a drain is without foundation and is erroneous:

    a. it is no part of the rehabilitation plan for the Hazelwood Mine to install a drain of this type[61]; and

    b. further, the experts agreed the installation of a drain of this type would give rise to a risk of stability problems. Dr Haberfield described it as "ill advised" because it would concentrate water, in circumstances where from a stability perspective it is preferable to permit a sheet flow.[62] Dr McCullough said he had never seen an example of a pit lake with such a drain installed; he also regarded it as ill advised.[63]

Q6 Is further study / work required along the path to final rehabilitation?

It is readily accepted by the mine operators and the experts, that further research, studies and work is required as rehabilitation progresses. Joint Report at [8]: *"There is a significant body of work that needs to be completed, reviewed and synthesised before there is adequate knowledge of the requirements for safely rehabilitating the mines, and hence, for developing the conceptual plans… into successful operational and closure plans."*

53. In his report at [30], Dr Haberfield endorsed the conceptual rehabilitation plan for the Hazelwood Mine, and expressed the following view:

> *"I consider the Approved Final Rehabilitation Model for Hazelwood to be a feasible and appropriate model for final rehabilitation (from a geotechnical perspective), further studies are required to better understand the details of*

59 Report of Jacobs Group, 16 November 2015, EXP.0011.001.0001 at EXP.0011.001.0097.

60 Hoxley T508 - 509.

61 Faithful T336.27 – 337.10.

62 Haberfield T509.29 – T510.22.

63 McCullough T510.30 – 511.4.

how this is to be achieved."

Such studies include:

a. Depth of overburden cover on exposed coal batters that is required to reduce fire risk to an acceptable level;

b. Available water sources and rate at which filling can be reasonably achieved considering interaction with other mines and water users;

c. Groundwater and surface water quality and their impact on lake water quality and how to maintain lake water quality within acceptable levels; and

d. Long term batter stability particularly for the northern batters of the mine which are adjacent to high value public infrastructure (e.g. freeway and Morwell Main Drain and the Morwell township)".[64]

54. Dr Haberfield further noted that he is:

> *"[A]ware that Hazelwood Mine is being proactive in addressing at least some of the knowledge gaps identified above by commissioning independent investigations into pit slope stability and groundwater (e.g. GHD groundwater modelling report and GHD's ongoing assessment of long term batter stability)."*

55. Dr McCullough identified a number of further studies (See Section 4 of his expert report[65]) which he recommended be undertaken in the short, medium and long term to successfully implement the Approved Final Rehabilitation model as follows:

a. **Short term priorities:**

i. Conceptual Mine Closure Plan;

ii. Water balance with climate change;

iii. Weather station installation;

iv. Final landform vision;

v. Contaminated sites;

vi. Closure objectives and developing closure criteria;

vii. Closure risk workshop; and

viii. Long term pit water quality prediction.

64 Report of Dr Haberfield, Exhibit 21, GDFS.0001.002.0001 at [30], GDFS.0001.002.0007.

65 Exhibit 22B, GDFS.0001.003.001.

b. **Medium term priorities:**

i. Fly ash geochemistry;

ii. Wildlife habitat;

iii. Geotechnical stability;

iv. Eutrophication and algal bloom;

v. Flow-through closure; and

vi. Potential impacts on the hydrology and water quality of the Morwell River.

c. **Long term priorities:**

i. Riparian vegetation; and

ii. Socioeconomic analysis of end uses.

56. The requirement for further studies in order to successfully implement the approved final rehabilitation concept plan is not a revelation and is expressly recognised by:

a. the Work Plan Variation[66] and the Morwell Mine Rehabilitation Concept Plan[67], which acknowledge that further investigations will be required to address the complex issue associated with mine-closure planning and in particular the long term stability of the mine;

b. James Faithful in his Witness Statement, in which he identified three issues which in his view proposed particular challenges with respect to the final rehabilitation of the Hazelwood Mine, namely, water supply and rate of filling, water quality within the lake, and management of the stability of the Mine floor / batters. He also referred to work and studies underway to further investigate, better understand, appropriately plan for, and proactively manage these issues.[68]

57. GDFSAE accepts that progressive rehabilitation of the Mine will involve trialling rehabilitation concepts and also building regulatory and community confidence as suggested by Ms Unger in her evidence to the Board.[69] However, GDFSAE finds the quotation of Ms Unger's evidence by Counsel Assisting at [106] that "anyone can push out a slope and throw some seed out" is both unhelpful and glib.

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66 Faithful Statement, Work Plan Variation, Annexure 9, Exhibit 13, GDFS.0001.001.0001 at 6.7.2.

67 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 9 at GDFS.0001.001.0261; Annexure 10, Morwell Mine Rehabilitation Concept Master Plan, December 1994, GDFS.0001.001.0339.0346.

68 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [165] – [168], [177] – [178], [192].

69 Unger Statement, Exhibit 28 at [5].

58. Counsel Assisting submitted (at [106]) that the rehabilitation cost estimates should "*realistically include trials and research*". GDFSAE does not disagree with this position in principle. However, it is emphasised that trials and research of matters relating to rehabilitation are already included in operational expenditure for the mine because they are of an ongoing nature.

59. To the extent that it is or has been implied in any of the submissions by Counsel Assisting that GDFSAE and the other mine operators have been somehow remiss in not factoring research and trial costs into their Schedule 19 costings, GDGSAE emphasises that any such costs are not a domain or question which the current DEDJTR rehabilitation calculator recommends be assessed. For that reason, it is likely that historically the majority of such costs have appeared in the mines' operational accounts, but have not been replicated in the Schedule 19 costings. This does not mean that the research and studies are not being done or that there is no provision in the budget for them to continue to be done. It is simply a function of the way in which the Schedule 19 costings are structured.

PROGRESSIVE REHABILITATION

Q7 What is the purpose of progressive rehabilitation?

The purposes of progressive rehabilitation are at least two fold:

(a) to restore the condition of land that has been disturbed by mining operations so far as is practicable, where it is no longer required for the mine's ongoing operations; and

(b) to ensure that work necessary to be done as part of the final rehabilitation plan is done progressively (so far as is reasonably practicable given operational and practical constraints) during the life of the mine.

Progressive rehabilitation also has the potential to mitigate fire risk in exposed coal during the operational phase of the mine, noting that rehabilitation is only one of a number of available fire risk control measures.

60. Progressive rehabilitation is of course also undertaken to satisfy condition 15 of Mining Licence 5004[70] and to satisfy the requirements of sections 78 and 81 of the MRSD Act.

61. As noted above, in certain circumstances, it is recognised that progressive rehabilitation delivers a measure of fire risk reduction by virtue of the covering areas of exposed coal.

62. However, rehabilitation is not the only means through which the risk of fire in

70 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 8.

exposed coals is managed. Other risk control measures are detailed in the Risk Assessment reports at Faithful Statement Annexures 17 and 18, and include modified vehicle exhausts, covering mine roads with gravel or clay, prohibitions on "hot works" during severe and extreme risk fire days, annual fire training for all personnel, reticulated fire service pipework (fitted with hydrants and sprays), water supply to dredgers and conveyors, availability of mobile fire fighting vehicles (30,000L tankers, fire trucks), heavy earthmoving equipment and emergency training exercises with the CFA.

63. At paragraph [101] of their submissions, Counsel Assisting suggest that, "there appears to be a general presumption by the mines that progressive rehabilitation is about, in essence, adjusting slope angles, moving overburden around and planting vegetation." This is unfair. No witness suggested that progressive rehabilitation was limited to this description. But more importantly, Counsel Assisting also appear to imply that there exists some other, better and more complete articulation of what constitutes progressive rehabilitation. However, Counsel Assisting do not themselves articulate what progressive rehabilitation is. It was certainly not put to any of the witnesses for the mine operators that progressive rehabilitation encompasses something different from that which the mines have been undertaking to date. GDFSAE takes similar exception to the comment of Ms Unger quoted (out of context) by Counsel Assisting at [106]. To the extent that Ms Unger referred to anyone being able to "push out a slope and throw some seed out", this ought not be regarded as an accurate description of the attitude adopted by GDFSAE to the task of rehabilitation at the Hazelwood Mine. It is an unfair and glib description of a task which is undertaken carefully and responsibly, having due regard to the paramount issue of stability.

64. If Counsel Assisting rather meant to suggest by comments such as these only that the costs of research and trials ought be included in the estimates for rehabilitation costings (see Counsel Assisting Submissions at T1113.26 – T1114.12), then GDFSAE says the following. It does not dispute that more research, studies and trials are likely to be required. Whether the cost of commissioning such reports has historically been included in Schedule 19 reports historically is not to the point. The bulk of such 'costings' have traditionally been treated (not unreasonably) as an operational cost.

65. To the extent that in the future any significant bodies of work are assessed as being essential and as appropriate to include in estimates of the future cost of rehabilitation, then of course there will be no difficulty in including those figures in the estimates for costs of closure.

Q8 Are there progressive rehabilitation targets applicable to the Hazelwood Mine? Has GDFSAE met those targets?

The 2009 Work Plan contains clear targets and milestones for progressive rehabilitation, which Hazelwood Mine has met. The order of progressive rehabilitation works is determined in line with the mine plan, and the remaining rehabilitation works are to be carried out in accordance with a combination of retreat mining, dozer push and truck and shovel methods.

66. Under its Work Plan Variation 2009, the Hazelwood Mine has clear progressive rehabilitation milestones, which it has met.[71]

67. Thus far progressive rehabilitation includes a significant amount of the east field northern batters.[72] GDFSAE has undertaken more than 25 hectares of batter rehabilitation works in this area since 2009. A further 14 hectares of batter rehabilitation works are planned along the Northern Batters moving westwards, in late 2015 / early 2016.[73]

68. The order of progressive rehabilitation works is determined in line with the mine plan, and rehabilitation is carried out in accordance with the principle of retreat mining.[74] As Mr Faithful said:

> "*So as areas progressively become available, whether they have been mined through or whether they have had their infrastructure relocated because it's no longer required, those areas are the areas that become available for rehabilitation".*[75]

69. GDFSAE has complied with the progressive requirements contained in the Work Plan Variation, and on the basis of the evidence provided by Ms Kylie White, Executive Director, DSDBI, to the first Hazelwood Mine Fire Inquiry, understands that DEDJTR is of the same view.[76]

70. Progressive rehabilitation works undertaken within the Mine are reported upon in Environmental Review Committee (**ERC**) Reports produced by GDFSAE every quarter under its Mining Licence. These reports are provided to a range of regulators and agencies that have representatives on the ERC, including DEDJTR, the Department of Environment, Land, Water and Planning (**DELWP**), EPA Victoria, the West Gippsland Catchment Management Authority, the Victorian

71 Faithful T283.28 – T284.6; T289.17 – 20.

72 Faithful T339.5 – 6.

73 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [125] – [127].

74 Faithful T331.29 – T332.30.

75 Faithful T332.1-10.

76 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [132].

Farmers Federation, and Latrobe City Council. The ERC meets on a quarterly basis, and meeting minutes are taken.[77]

71. Further, officers from DEDJTR and its predecessor agencies regularly view rehabilitation works, as part of their regular mine visits.[78]

72. Whilst there are powers to do so under the Mining Licence, on the basis of enquiries, it is understood that at no time since privatisation:

    a. has GDFSAE been directed by the Minister or by DEDJTR (including its predecessor agencies) to undertake further rehabilitation within the Mine; or

    b. has the Minister or DEDJTR (including its predecessor agencies) directed the Mine to undertake different, greater in size or faster rehabilitation of any areas within the mine.[79]

73. During the course of the hearings, Counsel Assisting referred to $123,000 having been spent by GDFSAE on progressive rehabilitation in 2014.[80] In this regard:

    a. for the following year in 2014/2015, GDFSAE reported in its Schedule 19 report that $570,516 had been spent on rehabilitation;[81]

    b. there is a real question as to what portion of operational works ought also be counted as progressive rehabilitation costs. Mr Faithful's evidence was that the figure of $123,000 for 2013/2014 didn't "line up" with his understanding of the full rehabilitation expense for 2014, and that Hazelwood undertakes a "large amount of in-pit dumping and if that is seen as a way of rehabilitating or serving a rehabilitation end goal, then that is potentially classed as rehabilitation as well"[82]; and

    c. further, in recent years, the overburden material that has become available from the mine's operations in the West Field has been "not suitable for use in connection with the rehabilitation of batters at the Mine. … [and] placed on the floor of the Mine in the internal overburden dump".[83] The limited supply of suitable overburden material has limited the extent to which progressive rehabilitation of mine

77 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [129].

78 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [130].

79 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [131].

80 T136.16 - 22.

81 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 18.

82 T333.7-28.

83 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [72].

batters has been able to be undertaken, and reduced expenditure. It is estimated that GDFSAE will spent 25% of its total rehabilitation budget within the next five to seven years and the remainder towards the end of mine life.[84]

Q9 Is there any "sanction" available for a failure to meet progressive rehabilitation targets?

Yes, the ultimate sanction for a failure to meet progressive rehabilitation requirements contained within the Licence, Work Plan or MRSD Act is for the Minister to exercise the power in s 38(1)(b)(i) of the MRSD Act to cancel the Licence. A cancellation of the Mining Licence would have the effect of depriving GDFSAE of the coal necessary for it to operate the Hazelwood Power Station.

74. Under the Mining Licence for the Hazelwood Mine, and the MRSD Act, there are a number of mechanisms through which the State (through the Minister / Mine Inspectors) is empowered to take action against GDFSAE, if there was dissatisfaction with the nature or rate of the progressive rehabilitation works undertaken at the Hazelwood Mine. These mechanisms include:

    a. Condition 15 of the Mining Licence provides Inspectors with broad powers as regards mine rehabilitation, as follows:

        15. PROGRESSIVE REHABILITATION

        15.1 Progressive reclamation will be conducted as per the rehabilitation plan. In addition, any further rehabilitation work will be carried out at the direction of an Inspector.

        15.2 As and when directed by an Inspector of Mines, despite any compensation agreements between the licensee and the owner of any private land in the licence, the licensee shall undertake progressive reclamation of land on the area subject to surface disturbance.[85]

    b. Section 78(1) of the MRSD Act provides that a licensee must rehabilitate land "in accordance with the rehabilitation plan approved by the Department Head."

    c. Section 81(1) of the MRSD Act provides that an authority holder must:

        "rehabilitate land in the course of doing work under the authority and must, as far as practicable, complete the rehabilitation of the

84 Faithful T294.25 – T295.7.

85 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 8.

land before the authority or any renewed authority ceases to apply to that land."

d. Pursuant to s 38(1)(b)(B) of the MRSD Act, the Minister may cancel a mining licence if the licensee has not substantially complied with:

- the Act or the Regulations; or
- any condition to which the licence or work plan is subject.

75. In light of the broad nature of an Inspector's powers under the Mining Licence to direct that further rehabilitation be undertaken, and the consequences of any cancellation of the Mining Licence under s 38(1)(b)(B) for non-compliance with the Act, Regulations, or Licence or Work Plan conditions, it is submitted that the State's existing powers are well and truly adequate.

RISK ASSESSMENTS

Q10 What risk assessment approach ought to apply to the three coal mines:

(a) During their operational life?

(b) When considering and performing progressive and final rehabilitation works?

The experts agree that a rigorous technical risk assessment approach is necessary to be adopted both during the life of the mine and in respect of end use planning. That approach requires hazard mapping, identification of risk and application of control measures to reduce risk to a tolerable or acceptable level. A principal technical risk with which one ought be concerned throughout the final rehabilitation process is stability. Stability is also risk throughout the life of a mine, and in relation to the Hazelwood Mine, stability is monitored and managed by GDFSAE on a day to day basis through extensive equipment monitoring geotechnical and hydrogeological conditions. The technical data derived from this instrumentation, and the strategies deployed to manage stability, are the subject of reports to DEDJTR which are also supplied to the Technical Review Board by DEDJTR for review.

Method for risk assessments

76. The experts agreed that the Jacobs Report was only a strategic or high level risk assessment and that it fell well short of the standard required to properly assess the risks and controls for any of the rehabilitation options.[86] In this context, Mr Hoxley of Jacobs acknowledged that if one were undertaking a detailed risk assessment in relation to the closure options for any particular mine, one would undertake a

86 Joint Expert Report answer to Question 4(c); see also Hoxley T394.7 – 17.

"broader and more detailed set of steps". In addition, one would "typically involve the operators of that mine in the risk assessment as they would bring knowledge and information about that risk assessment".[87] This, as the evidence makes clear, was not done for the purposes of the Jacobs Report.

77. Although the language used by the experts differed slightly, it is submitted that in the end, all experts were expressing in different ways the following key concepts:

    a. There is risk inherent in large coal mines both in their operations and in the works necessary to be undertaken to effect final rehabilitation. The most significant risk is stability.

    b. The likelihood of a risk eventuating and the possible consequences if the risk eventuates differs from mine to mine, and from domain to domain within each mine. [88]

    c. A hazard mapping approach followed by a rigorous risk assessment is required to be undertaken mine by mine, domain by domain.

    d. It is not possible to eliminate risk during mining operations or from the ultimate land form / end use of a mine, but the goal is to reduce that risk to a level which is tolerable[89] (or acceptable, or as low as is reasonably practicable).[90]

    e. Once a risk is identified in any particular part of a mine (in respect of mining operations or in relation to the works leading the final rehabilitated land form), that risk level can be managed or controlled to reduce it to a residual level. Dr McCullough described this part of the process as being one of assessing the initial risk (without controls) by reference to the likelihood and consequence. Then, one applies control mechanisms, and evaluates the residual risk.[91]

    f. There are known, tried and tested solutions suitable for managing risk in the context of coal mines, both during operations and in respect of works necessary to achieve a land form after the end of the life of a mine.

78. The experts agreed that there is a need for a hazard mapping approach and a rigorous risk assessment process to apply during the operational life of these mines

87 Hoxley T393.20 – 29.

88 Dr Haberfield T485.26 – T486.12.

89 Dr Haberfield's terminology: see T478; T482.23 – 26; report at paragraph 83.

90 Professor Galvin's terminology: see T483.6 – 17.

91 McCullough T482.5 – 17.

and in respect of any rehabilitation works undertaken.[92] The experts agreed that this process ought proceed on the basis of an assessment undertaken domain by domain or even batter by batter across each specific mine.

79. Professor Galvin suggested that one would commence by "drawing a line around the mines a kilometre from the end of each mine and let's have a look at what's in there".[93] Thereafter, one would rate each of the domains of the mine by having regard to the risks posed to life and assets should there be an instability event in any particular part of any of the three mines. There are, for example, batters in each mine which are proximate to agricultural or other land which would not give rise to significant consequences in the event of a collapse.[94] In this context, it was suggested that if one were comparing the three mines, one might for example regard the northern batters of the Hazelwood Mine and the batters of the Yallourn Mine closest to the railway and the public land outside the east field extension towards Latrobe Road as posing the greatest potential risk to the public.[95]

80. The RAMP recently submitted for the Hazelwood Mine contains precisely this type of hazard mapping work, and identifies a detailed set of controls to manage the risks identified.[96] See also the Implementation Monitor's Report (in relation to recommendation 16.1 at page 91), which commends GDFSAE for its work in reviewing its Mine Fire Service Policy and Code of Practice and for having done so with the assistance of independent contractors.[97]

81. In the context of finding "solutions", Dr Haberfield suggested that we already possess knowledge concerning what the "hazard" is (namely water, which is a driver of instability in the batters). As a result, the next requisite step is to devise solutions for each part of the mine. Solutions may range from buttressing batters to moving the Morwell Main Drain.[98] To continue with stability as an example, it is clear that the mines presently pose a stability risk during operations. It is also clear that the final land form achieved in respect of the mines may also continue to pose stability problems. However, these risks are known and are capable of being monitored and anticipated by reason of the monitoring equipment routinely used by mine

92 See answer to Question 4(c) in the Joint Report, Exhibit 18.

93 Galvin T436.22 – 27.

94 Galvin T436.28 – 31.

95 Sullivan T435.23 – T436.5.

96 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Confidential Annexure 4, GDFS.0001.001.1043. See pages GDFS.0001.001.1403 – 1412; GDFS.0001.001.1405 – 1406.

97 Exhibit 32, Hazelwood Mine Fire Inquiry Implementation Monitor – Annual Report October 2015, HMFI.1010.001.0001 at HMFI.1010.001.0095 (GDFS.0001.004.0207).

98 Haberfield T440.7 – 30.

operators.[99] There is constant monitoring of stability at the mines.[100] The mines regularly submit stability reports to the regulator, and the TRB reviews and comments on some of these reports. The TRB had oversight of the mines, and in particular Hazelwood Mine, in setting up these systems and as a result Professor Galvin is confident that the Hazelwood Mine has a good survey system and that the TRB has "fairly good oversight of what is happening".[101]

Legacy issues

82. In the context of the discussion concerning hazard mapping, the question arose of the legacy issues facing Hazelwood Mine (by reason of the proximity of the freeway) and the current proposal facing the Loy Yang mine to permit road works close to its edge.

83. Professor Sullivan expressed grave concerns in relation to the current plans to put a road near the Loy Yang mine. He said what is being proposed is "unbelievable" in light of what happened at Morwell "where the freeway bypass was put between the town and the mine". He went on to say:

> *"I find it unbelievable that in this day and age we are considering doing it again next to another mine. I told the planning tribunal that it should not be placed in that position. The knowns and the unknowns are too large for a piece of infrastructure like that".*[102]

84. In similar vein, Professor Galvin said that the proximity of the freeway to the Hazelwood Mine is a legacy issue and that wouldn't be expected to come about today.[103] He said that today, when conducting a risk assessment you would have a buffer zone around these mines and it would be "quite clear that you wouldn't go put a freeway in the buffer zone or if you did, you would have to put extra engineering into the structure to tolerate what you would be expecting to happen".[104] He went on to note that everyone has accountability for managing their own risks. So, while the mine operator owns the risk, also "obviously VicRoads have to have some accountability for managing that risk".[105]

85. GDFSAE agrees with the suggestion by Counsel Assisting (at [112] – 113]) that the State Electricity Commission of Victoria's lack of action in relation to rehabilitation

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99 Mether T357.27 – T358.5.

100 Haberfield T490.20 – 28.

101 Galvin T491.7 – 15; T491.24 - 30.

102 Sullivan T464.1 – 21.

103 Galvin T495.16 – 22.

104 Galvin T495.26 – 496.6.

105 Galvin T497.10 – 13.

has left the mines with legacy issues. Further, GDFSAE agrees with Professor Galvin that the mine ought not be left to manage solely the risk created by the VicRoads' decision to locate a freeway close to the mine perimeter. GDFSAE and the community of the Latrobe Valley have inherited a risk created by State. In those circumstances, GDFSAE ought not be left alone to manage the risk it did not create or invite.

86. In this regard, GDFSAE notes the submission of David Langmore who, after referring to the extraordinary planning failure that has led to the particular risks in relation to the northern batters of the Hazelwood Mine, states that:

> *"The Victorian Government should make a generous financial contribution to the difficult task of rehabilitating the north face of the Morwell (Hazelwood) Open Cut, as a partial compensation for the irresponsible actions of a Victorian Government agency, the SECV, in providing a grossly inadequate distance separation of the open cut from the town of Morwell."*[106]

WATER

Q11 What water entitlements does Hazelwood Mine currently have and to what extent are those entitlements used by Hazelwood Mine?

GDFSAE has substantial water entitlements under a Groundwater Licence and Water Services Agreement with Gippsland Water, which are presently not fully utilised in operations. GDFSAE uses its Groundwater Licence entitlement to undertake aquifer depressurisation, an essential activity for maintaining the stability of the floor and batters of the mine.

Bulk water entitlement

87. Hazelwood Mine does not hold a bulk water entitlement. A Water Services Agreement between Hazelwood Power Corporation (**HPC**) and Gippsland Water dated 29 July 1996 provides for the supply of an additional 14GL of water per annum to the Power Station.[107] This water is not used by Hazelwood Mine.

Groundwater licence: the mine uses half its entitlement

88. HPC is the holder of Groundwater Licence 2007412, issued by the Minister responsible for the *Water Act* 1989 (Vic) (**Water Act**) on 1 September 1995

106 Submission of Langmore, Exhibit 1, HMFI.1007.001.0001 at HMFI.1007.001.0009.

107 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 7; Mauer Statement, Exhibit 9, VGSO.1030.001.0014 at [14].

(Groundwater Licence) for a period of 30 years (expiring 1 September 2025).[108] The Groundwater Licence requires an annual fee of $20,190 payable to Southern Rural Water. There are no further fees associated with access to water granted pursuant to the Groundwater Licence.[109]

89. The Groundwater licence provides a total annual volume that may be extracted from the M1 and M2 Aquifers and maximum rates of extraction per month. The total maximum annual volumes specified in the Licence range between 20,480 and 22,892ML. The Mine currently pumps approximately 30 litres a second from the M1 aquifer, and about 360 litres a second from the M2 aquifer. The Mine uses only approximately 50% of its current entitlement under the groundwater licence.[110]

What is the water used for?

90. The Mine engages in aquifer depressurisation for the purposes of maintaining the stability of the Mine's floor, operating faces and permanent batters. The Mine is entitled to pump approximately 60 – 70 litres a second from the M1 aquifer, and about 400 - 500 litres a second from the M2 aquifer for aquifer depressurisation. The majority of the water taken from the aquifers is pumped into the clean water ponds where it is further used in the Mine's dirty water system and available for fire suppression, and wash down.[111]

91. The Groundwater Licence authorises HPC to extract groundwater "for the purpose of achieving safe and stable conditions in the Hazelwood Mine". It is a condition of the Groundwater Licence that the Licensee is "only authorised to take and use groundwater for the purposes of, *and incidental to*, mining for coal and generating electrical energy".

92. At paragraph [82] of their submissions Counsel Assisting seek to inject an element of uncertainty into the viability of the rehabilitation plans for the mines by contending that the licences expire in 2025 and the purpose for which the licences have been granted may not extend to rehabilitation.

93. GDFSAE submits that the extraction of groundwater for the purpose of achieving floor and batter stability in the mine is a purpose which is incidental to the mining of coal. It is an activity which is of critical importance for the long term stability of the rehabilitated mine void. It is therefore a purpose which is entirely consistent with the purpose for which the Groundwater Licence has been issued.

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108 The Groundwater Licence is Annexure 6 to the Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at GDFS.0001.001.0080.

109 Rodda Statement, Exhibit 8A, VGSO.1028.001.0001 at [30].

110 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [75].

111 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [42], [73]-[76]; See also statement of Rodda, Exhibit 8 at [36], at [23.1] and Annexure 3.

94. During the evidence of the Water Panel, it emerged that Southern Rural Water (**SRW**) and DELWP have not given any consideration to the scope of the condition in the licence in so far as it refers to "purposes incidental thereto", or to the question whether further permission will be required for GDFSAE to use its groundwater entitlement for the final rehabilitation of the Hazelwood Mine. SRW consider that this is a matter for consideration at the licence renewal stage[112] and did not "have a view either way".[113] For its part, DELWP's representative, Ms Davis did not "have anything further to add".[114]

95. Even if further permission were required to use the groundwater entitlement during the final rehabilitation phase, it is submitted that permission is highly likely to be granted given that the extraction and storage of that water from the aquifer is integral to the success and stability of the final rehabilitation of the mine void. This is clearly a purpose incidental to mining. It is inconceivable that DEDJTR and the water authorities would decline permission to access existing water entitlements for a short period of time following the cessation of mining operations in order to secure mine stability and finalise rehabilitation of the mines.

96. The Water Act provides that on the application of the holder of a licence for renewal of the licence, the Minister must renew the licence unless there are good reasons not to do so.[115] Discussions between SRW and representatives of GDFSAE have indicated that it is likely that the Groundwater Licence will be rolled over for a further 15 years at the conclusion of its current term.[116]

97. The submissions of Counsel Assisting at paragraph [90] are critical of the failure by the affected parties to have discussed water allocation for mine closure. Counsel Assisting submit that "this reflects poorly on all concerned – government and the mines". This is unfair to the mines. First, as the evidence of Mr Faithful made clear, there has been a discussion between SRW and GDFSAE regarding the rollover of the existing Groundwater Licence. Counsel Assisting did not ask for any further detail in relation to those discussions in a supplementary witness statement, or during Mr Faithful's evidence, and put no questions to him in relation to these matters.

98. Secondly, it is somewhat galling for the mine operators to be criticised for an alleged failure to discuss these matters with government. The Work Plans for the mines have been approved by DEDJTR in circumstances where those plans make it abundantly clear that the final rehabilitation concept relies upon access to water. At

112 Rodda T193.21-26; T194.1-5.

113 Rodda T193.31.

114 Davis T194.9-10.

115 s 58(3) *Water Act* 1989 (Vic).

116 Faithful T265-266.

no stage has DEDJTR suggested that access to water required additional surety. Indeed, the approved final rehabilitation plan at the time that Hazelwood Power Partnership acquired its interest in the Hazelwood Mine (that is, the rehabilitation plan prepared during the period in which the State owned the Hazelwood Mine), included a flooded lake final rehabilitation model.[117] The more pertinent question is why have the regulators not co-ordinated their positions in relation to the issue of the availability of water for mine closure?

Q12 How long is it expected it will take to fill the mine void to create a pit lake at Hazelwood Mine?

The most recent modelling work available suggests that it will take 7 years for the pit to fill to the point of "stability" (RL - 22m) and approximately 30 years thereafter to reach the pit lake's currently proposed final level (RL +8m).

This is in contrast to the 500 year period referred to in previous modelling reports.

99. The volume of water likely to be required is in the order of 750 GL.[118]

100. The key rehabilitation concept on which the Work Plan Variation (and the attached rehabilitation plan) are based is that the Mine will be flooded to form a lake. The surrounding land areas will be re-profiled and revegetated to gradually lead down to, and integrate with, the future lake.

101. The time that it will take to fill the lake to the point of reaching weight balance is ultimately dependent upon the sources and volumes and water being drawn upon.

102. The M1 and M2 aquifer levels have been lowered via aquifer depressurisation in order to facilitate the mining operations. So as to ensure the long term stability of the rehabilitated landscape at the Hazelwood Mine, these aquifers will be allowed to gradually increase via an altered depressurisation regime, so as to meet regional equilibrium.

103. The pit, which is approximately 120 metres deep, will be allowed to fill with water creating a lake. This will initially take place by continuing aquifer depressurisation of the M1 and M2 aquifers, with the relevant water deposited into the mine floor until the weight of the water is sufficient to stabilise the mine floor (currently estimated to be RL – 22m). Recent modelling undertaken by GHD has established filling to RL-22m is likely to be achieved within approximately 7 years. [119]

117 Faithful Statement, Exhibit 13, Annexure 8, GDFS.0001.001.0113 at GDFS.0001.001.0141 and GDFS.0001.001.0148.

118 Faithful T687.9 – 10.

119 GHD Report 'Hazelwood Power Station, Hazelwood Groundwater Modelling Report', September 2015, Annexure 14 to the Faithful Statement, GDFS.0001.001.0353 at GDFS.0001.001.0407.

104. In order to maintain the stability of the batters of the Mine and prevent heave in the floor of the Mine, the M1 and M2 aquifer levels will need to be actively managed and continually monitored during the lake filling process, via an ongoing dewatering regime. After a period of time, there will be sufficient weight in the floor of the Mine from the volume of water in the pit lake (and from the internally sourced overburden that has been dumped on the floor of the Mine), to counteract hydrostatic pressures within the M1 and M2 aquifers. This stage is referred to the point at which "weight balance" is achieved.

105. The pit lake will then fill slowly over a period of several decades, reaching its maximum level over a period of approximately 30 to 90 years (the former being the approximate time to reach the currently proposed final lake level of RL + 8m, and the latter being for the lake to fill to a level approaching the full depth of the Mine void).[120]This is graphically depicted in Figure 12 of the relevant modelling report of GHD (reproduced below)[121] as 'Scenario 4', which reflects GDFSAE's current proposal for flooding the Mine, utilising the sources of water summarised in paragraph 108 below:

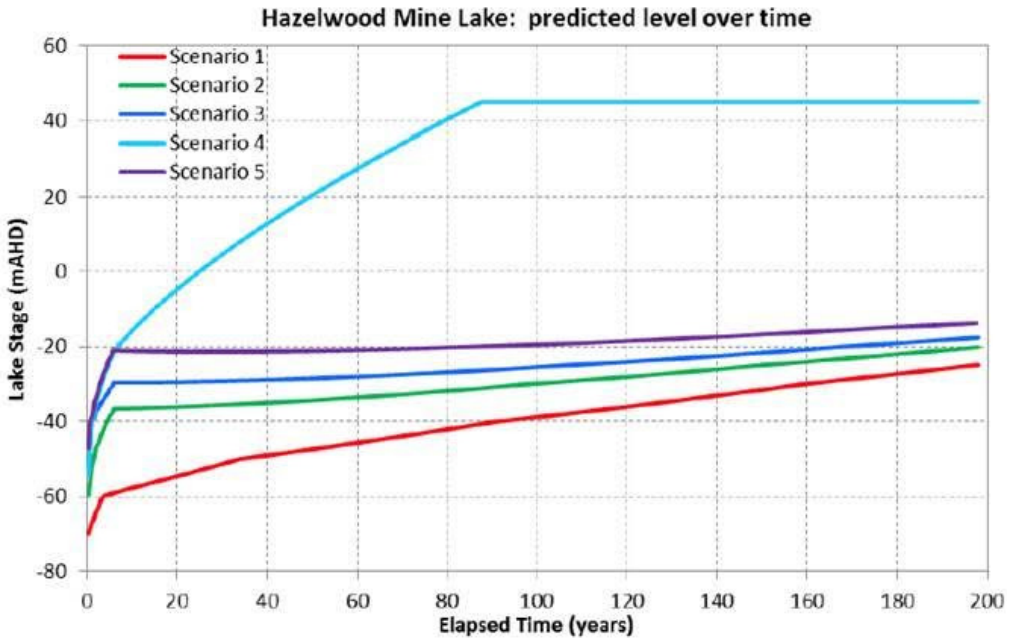

Figure 12 Post-Mine Recovery model - Pit Lake Water Level

106. Counsel Assisting have highlighted in their submissions (see Written Submissions at [43]) that on some of the modelled scenarios it would take up to 500 years for the

120 GHD Report 'Hazelwood Power Station, Hazelwood Groundwater Modelling Report', September 2015, Annexure 14 to the Faithful Statement, GDFS.0001.001.0353 at GDFS.0001.001.0407; Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [154]-[155] and [180].

121 GHD Report 'Hazelwood Power Station, Hazelwood Groundwater Modelling Report', September 2015, Annexure 14 to the Faithful Statement, GDFS.0001.001.0353 at GDFS.0001.001.0407.

Hazelwood Mine pit to fill with water. This is unnecessarily alarmist. The GHD Report makes it plain that the option which would require up to 500 years to fill the void (Scenario 1) is *not* recommended or considered a feasible rehabilitation outcome.

Q13 What options for sources and use of water are being considered to fill the Hazelwood Mine pit void?

The most likely and feasible sources of water for filling the pit lake are:

- continuing groundwater pumping at a level significantly below current entitlements under the Groundwater Licence for a period of 6 years (at various volumes), and discharging the water into the pit lake;
- discharging the water from the Hazelwood Cooling Pond into the pit lake;
- redirecting rainfall within the Hazelwood Cooling Pond catchment into the base of the pit lake.

107. The most likely and feasible sources of water for filling the pit lake to achieve the final rehabilitation of the mine are the continued depressurisation of the M1 and M2 aquifers for an initial period (at rates below current entitlements) with the extracted water discharged into the base of the mine (until the point at which weight balance is achieved, at which time depressurisation can cease in a controlled manner), combined with discharging the water within the Cooling Pond into the pit lake, and thereafter directing rainwater runoff from the Cooling Pond catchment into the pit lake.

108. The potential means of filling the pit lake which have been identified in approved rehabilitation plans, approval documents and studies to date by GDFSAE as being potentially feasible (subject to environmental impacts being further assessed, and relevant approvals being obtained), are:

    a. continuing aquifer depressurisation of the M1 and M2 aquifers at levels below current entitlements for a period of approximately 6 years, and discharging the relevant water into the base of the Mine;

    b. redirecting part of the Power Station's water entitlements (14ML/ year) into the base of the Mine, subject to a change in use being permitted by Gippsland Water; and

    c. discharging the water from the Hazelwood Cooling Pond into the base of the Mine, and subsequently redirecting rainfall runoff within the Hazelwood Cooling Pond catchment into the pit lake at the base of the Mine.

109. The Work Plan Variation (at 6.7.2) and the Morwell Mine Rehabilitation Concept Plan[122] acknowledge that further investigations will be required to address the complex issue associated with mine-closure planning and in particular the long term stability of the Hazelwood Mine. As part of those further investigations for mine closure planning, GDFSAE engaged GHD in 2015 to provide a further assessment of groundwater and surface water issues associated with the final rehabilitation of the Hazelwood Mine and specifically:

    a. to predict post-mine closure aquifer depressurisation requirements from the perspective of maintaining Mine floor stability, and taking into account regional factors impacting upon aquifer levels; and

    b. to predict the rate at which the future lake within the Hazelwood Mine void would fill. In order to undertake that assessment, GHD modelled 5 scenarios.[123]

110. The results of the modelling undertaken by GHD with respect to scenarios 4 and 5 (which include groundwater pumping, rainwater recharge, groundwater seepage and access to water from the Hazelwood Pondage) indicate that the pit lake within the Mine void is capable of filling to the point at which initial weight balance is achieved, within a period of 7 years. In contrast, if limited groundwater pumping was utilised and no use was made of access to the Water Pondage (scenarios 2 and 3), it would take between 160 and 200 years for the lake to fill.[124]

111. On the basis of the GHD study, water supply is considered unlikely to be an issue with respect to the final rehabilitation model for the Hazelwood Mine. None of the scenarios modelled by GHD assumed that GDFSAE would draw on and use its full water entitlements (namely, the capacity to extract groundwater at 22,892 ML/year, and to draw upon *at all* the additional 14GL/ annum supply of water to the Power Station under the Water Services Agreement). The GHD study is properly viewed as being conservative in nature.

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122 Annexures 9 and 10 to the Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at GDFS.0001.001.0261 and GDFS.0001.001.0339.0346.

123 These ranged from scenario 1 (which involved no external sources of water other than rainfall and groundwater seepage into the mine pit void from the recovery of the M1 and M2 aquifers) to scenarios which envisaged rainwater recharge, groundwater seepage and groundwater pumping for varying lengths of time and different volumes and water from the Hazelwood Pondage (Scenarios 3 to 5).

124 GHD Report 'Hazelwood Power Station, Hazelwood Groundwater Modelling Report', September 2015, Annexure 14 to the Faithful Statement, GDFS.0001.001.0353 at GDFS.0001.001.0407.

Q14 Will there be sufficient water available for the Hazelwood Mine to fill the pit lake as part of the planned final rehabilitation?

Yes. Most recent modelling suggests there will be sufficient water to fill the pit of the Hazelwood Mine using the sources referred to above. Notably, the above proposal for filling the lake does not rely upon GDFSAE's full water entitlements under its Groundwater Licence, and does not rely at all upon GDFSAE's entitlements under its Water Services Agreement with Gippsland Water.

Insofar as the 2011 Gippsland Water Strategy document suggests that there may be insufficient water available for all three coal mines to fill their pit lakes at the same time, this comment lacks a scientific foundation and has not been developed or considered by DEDJTR or the water authorities in any way since 2011.

112. The GHD report confirms that there is likely to be sufficient water available for the Hazelwood Mine to be flooded in line with the current final rehabilitation plan. It appears that the "question mark" over the availability of sufficient water in region for all three mines arises from a comment made in the 2011 Gippsland Water Strategy document namely:

> *"Current rehabilitation plans for open cut coal mines involves flooding them to create artificial lakes. However, this is not considered to be an entirely viable option any longer because there is insufficient water to fill most of the mines."*[125]

113. At paragraph [119] of their submissions, Counsel Assisting note that Dr Davis agreed with this statement. This is one of the few matters upon which Dr Davis was prepared to offer an opinion. However, the basis upon which she agreed with the statement was not explored by Counsel Assisting in questioning of Dr Davis. Importantly, none of the representatives of the Water Authorities on the panel, including the representative of Gippsland Water, were in a position to explain the foundation for the statement in the Gippsland Water Strategy.[126] As a result, it is submitted, the Board could not possibly find that there is any scientific foundation for this mere "thought bubble" expressed in the 2011 Strategy document.

114. Action 6.8 of the Strategy provided that DPI "will review mine rehabilitation strategies, in consultation with the Department of Sustainability and Environment, the Environment Protection Authority, and companies that mine coal in the Latrobe Valley. The mine closure and restoration strategies will consider impacts on groundwater and surface water resources".

115. For DEDJTR's part, Mr Wilson's evidence was that he had made enquiries regarding work on the question raised in the Gippsland Water Strategy regarding the

125 Exhibit 11, Gippsland Water Strategy, DELWP.1005.001.0001 at page 132.

126 See for example Rodda Statement, Exhibit 8, VGSO.1028.001.0001 at [52].

availability of water to flood the mines but could not find any work plan or project plan regarding the Strategy. He agreed this suggests that "it's not been done".[127] Mr Wilson accepted that it was unsatisfactory that the issue of water availability raised in the Strategy had not been explored and progressed by the water authorities and DJETR as envisaged by Task 6.8 of the Strategy.[128]

116. Despite the fact this policy was published in 2011, the members of the Water Panel were not in a position to advise whether any steps had been taken to consider the concern expressed in the Strategy as to the availability of water for the lake rehabilitation proposals. Despite the expressions of doubt contained in the 2011 Strategy, none of the representatives for the Water Authorities had undertaken any assessment of the likely volume of water required to fill the mines at closure. In fact, the statement in the Strategy and the action item had not been brought to the attention of the mines at all.[129] No explanation for the failure to address the question of water requirements for mine closure was forthcoming.

117. Indeed, Mr Rodda could not even confirm if the 2011 Strategy remains government policy (even though he represented Southern Rural Water on the consultative committee responsible for the preparation of the Strategy).[130] For his part, Mr Mauer "understood" that the 2011 Strategy remains government policy, but confirmed that Gippsland Water was not working on any actions within the Strategy pertaining to mining.[131] Ms Davis confirmed that the Strategy remained government policy and that DELWP agreed with the statement that flooding the mines may not be an "entirely viable option".[132] However, Ms Davis, apart from helpfully noting the Strategy was "a public document", was unaware of what "explicit processes might have been used" to bring the existence of the Strategy to the attention of DEDJTR.[133]

118. But in fact:

    a. none of the water authorities had considered how much water would be required to fill partially or fully the Latrobe Valley mines;[134]

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127 Wilson T799.29-31-T800.1-3.

128 Wilson T7800.19-20.

129 Rodda T207.7-20.

130 Rodda Statement, Exhibit 8, VGSO.1028.001.001 at [57]; Strategy at page 6.

131 Mauer Statement, Exhibit 9, VGSO.1030.001.0014 at [25].

132 Davis T204.7-16.

133 Davis T205.1-2.

134 Rodda Statement, Exhibit 8, VGSO.1028.001.001 at [41]; 134; Mauer Statement, Exhibit 9, VGSO.1030.001.0014 at [15]; Davis T207.25; Rodda T207.26; Mauer T207.27-31 noting that nothing official had been calculated but that some staff may have undertaken a calculation as an 'intellectual exercise'.

b. the regional monitoring committee, to the extent that any of the representatives was able to say, had not consulted with the mines regarding the availability of water for closure;[135]

c. the water authorities had not considered the question whether the mines could use existing groundwater or bulk entitlements to fill the mine voids, this being a matter for DELWP which had not considered the issue;[136]

d. there had been no discussions between the water authorities on the volume of water required to fill the mines,[137] or the rehabilitation of the mines more generally;[138]

e. there had been no discussions between the water authorities regarding the possibility of diverting the Latrobe or Morwell rivers to assist in filling the mine voids[139] and while this might be possible it had to be evaluated.[140]

119. In short, no work has been undertaken by the water authorities in relation to the volumes of water which will be required to flood the mines. Nor has any work been performed in relation to assessing any alternative closure strategy. GDFSAE accepts that it is therefore open to the Board to find that the State ought to commission the appropriate studies in order to assess this issue on a regional basis – and that the mine operators ought properly be consulted in relation to this matter.

120. But GDFSAE does not accept (as appears to be submitted by Counsel Assisting[141]) that it was incumbent upon the mine operators to obtain a copy of the 2011 Strategy and contact the water authorities to ask why DEDJTR had approved the Work Plans which embody a pit lake option if one or more water authorities (it is unclear who is the origin of the view expressed in the 2011 Strategy document) now holds the view that there is "insufficient water to fill most of the mines".

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135 Rodda T206.11-23; T207:10-12; Davis T207:16.

136 Rodda Statement, Exhibit 8, VGSO.1028.001.001 at [36] noting that "this was a matter for the Minister and DELWP"; Davis Statement, Exhibit 71, VGSO.1008.001.0001 at [52].

137 Rodda Statement, Exhibit 8, VGSO.1028.001.001 at [42]; Outline of evidence of David Mauer, Exhibit 9, VGSO.1030.001.0014 at [15].

138 Mauer Statement, Exhibit 9, VGSO.1030.001.0014 at [18].

139 Rodda Statement, Exhibit 8, VGSO.1028.001.001 at [51]; Mauer Statement, Exhibit 9, VGSO.1030.001.0014 at [23]; Davis T208.14; Mauer T208.15; Rodda T208.16.

140 Mauer T208.20-22; Davis T208.24-26 and 28.

141 Counsel Assisting Oral Closing Submissions T1117.25 – 30; T1123.11 – 26.

CO-ORDINATION AND ENGAGEMENT

Q15 Is it appropriate that there be more co-ordination between the three mines in relation to the plans for final rehabilitation?

Yes. GDFSAE supports continued and improved co-operation between the three mines in relation to all matters, in particular in relation to plans for closure and final rehabilitation.

121. It is unsurprising that there is considerable commonality in the issues facing each of the mine operators given similarities in operations and locational, geotechnical and hydrogeological setting. Considerable benefits can be derived by the sharing of experiences and research. An understanding of the wider context of the mines is also fundamental for planning closure strategies, particularly in relation to issues such as the availability of water and community engagement.

122. An example of GDFSAE's commitment to, and participation in activities directed to improving co-ordination between the mines is its participation in Coal Mines Emergency Management Taskforce (**Taskforce**) whose membership includes the other mine operators in the Latrobe Valley. The Taskforce's Terms of Reference have been directed to supporting the improved capability and interoperability between the coal industry, government agencies and the community. As noted by Mr Lapsley, the work of the mine operators in relation to the Taskforce has been commendable and significant investments in terms of time, works and equipment have been employed by the mine operators.[142] The ultimate result of the integrated planning, response capability and information flow between the mine operators, regulators and emergency management agencies has been a marked improvement in the mitigation of fire risk at the mines.[143]

Q16 Should consultation in relation to rehabilitation plans include input from others? Who should co-ordinate that consultation?

Yes. There should be co-ordinated consultation between the three mine operators, and involving DEDJTR, the water authorities, local government and where necessary and appropriate the CFA and other entities such as Vic Roads. Rather than re-inventing the wheel, existing regulators such as DEDJTR, or other bodies such as Coal Resources Victoria, ought be tasked with the responsibility for co-ordinating engagement between the relevant groups.

142 Lapsley Statement, Exhibit 4, VGSO.1005.001.0001 at [30].

143 Lapsley Statement, Exhibit 4, VGSO.1005.001.0001 at [31]-[37].

123. GDFSAE is of course content to share its learnings with other mines.[144] Further, GDFSAE considers it is entirely appropriate that there be improvements in the co-ordination of the regulatory roles of various entities in relation to mine rehabilitation. GDFSAE supports measures that would increase the coordination and cooperation mechanisms between regulatory agencies and departments and the broader community regarding mine rehabilitation.

124. The importance of co-ordination of regulatory agencies is elevated because of the interdependence of elements required to conduct mining operations and ultimately to successfully achieve the rehabilitation outcomes. Those interdependent elements include the availability of water (regulated by the three different agencies / departments) which is closely related to, and interdependent with securing mine stability (regulated by DEDJTR). Decisions made in the process of co-ordinating mine rehabilitation must also involve participation by, and engagement with the community in relation to land use and environmental issues.

125. Ms Cameron's work (see the Jacobs Consulting Report: "Analysis of potential coordination and planning models for the Latrobe Valley brown coal mines, October 2015" Exhibit 27, EXP.0009.002.0001) identified three potential models for improved coordination of mine rehabilitation: Self Governing; Lead Agency or Established Authority. While her paper suggests that each of the three models possesses advantages and disadvantages, she identified the Lead Agency or Established Authority model as likely to be preferable if given appropriate resources.[145]

126. Professor Mackay agreed there was a place for a co-ordinating entity to improve the existing arrangements between the regulator, the water authorities, the mines, the experts and the planning agencies. However he was not prepared to speculate on the form it ought to take.[146]

127. There are already in existence a multitude of bodies that have functions that deal with performing regulatory, advisory and coordination roles in the mine closure and rehabilitation process. Those bodies include CRV (previously Clean Coal Victoria), SRW, the West Gippsland Catchment Management Authority and the *Geotechnical and Hydrogeological Engineering Research Group* (**GHERG**) which is funded in part by levies on the mines, and the TRB, which performs an advisory role to government.

128. While GDFSAE supports wider co-operation between the mine operators, government agencies and the community, GDFSAE does not see the need to

144 Faithful T288.21 – 28.

145 See at page EXP.0009.001.0055 and Burton T142 – T147.

146 MacKay T412.19 – 22.

"reinvent the wheel" or to have yet another organisation or department overseeing this process and potentially duplicating other work.

129. The principal functions of CRV already include:

    a. Strategic Planning which encompasses issues such as water use and supply;

    b. Regional Environmental Planning which involves analysis and advice on environmental issues and requirements;

    c. Planning for long term mine rehabilitation, subsidence management and protection of ground water resources;

    d. Research and Investigations; and

    e. Engaging with Industry, the Community and other key Stakeholders.[147]

130. The functions of CRV set out above are well defined and appear well placed for it adopt the role of Lead Agency or Established Authority and undertake a coordination role.

131. However, it is also the case that to date, CRV has not taken up a leadership role and has failed to fulfil its stated functions. Ms Burton was cross-examined in relation to the work that CRV had undertaken in relation to mine rehabilitation. Having been taken through the numerous studies and papers addressing the issue, Ms Burton accepted that there was "no plan" to respond to the various studies and recommendations relating to the need for a strategic coal plan. [148] She agreed that between June 2009 and 2012 all that happened was that there had been a restatement of the fact in various work plans and papers that there was a need for an overarching plan – but still, "there is no plan".[149]

132. Surprisingly, given the distinct lack of progress in relation to an overarching plan and any action towards planning for long term mine rehabilitation, including the issue of water resources, the submissions of Counsel Assisting do not seek to criticise CRV for their inertia and failure to take on a leadership role.

133. Instead, criticism is levelled at the mines for their alleged failure to progress the issue of the availability of water.[150] In the face of this regulatory stasis and a virtual abrogation of the regulators' responsibilities, attention was instead focussed on harsh and unwarranted criticism of the mines for their alleged lack of action.

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147 Wilson Further Statement, Exhibit 5C, VGSO.1033.001.0250 at [7].

148 Burton T145.19-27; T146.10-11.

149 Burton T146.17-25; T147.7-14.

150 See for example Counsel Assisting Written Closing Submissions at [121] to [122] and at [155] regarding the "residual reluctance" of the mines to take the initiative in relation to the issue of water supply.

134. It is unclear what it is contended that the mines should have done in order to motivate those whose responsibility it is to regulate the system to exercise that responsibility in a timely and considered fashion. Counsel Assisting fail to identify what they say could have been done by the mine operators, when and how.

135. Despite the lack of development of a strategic plan to date, and the failure to meet deadlines for the provision of such a plan since at least 2013/2014,[151] GDFSAE nevertheless suggests that CRV may be best placed to play a role in facilitating greater co-ordination in relation to the mine closure and rehabilitation strategies across the three mines and facilitating input from other agencies and the community. CRV already has those functions at present – it now needs to focus on performing them.

136. GDFSAE proposes the following recommendation to address the issues of co-ordination between authorities and agencies and processes for community engagement:

> ***Proposed Recommendation***
>
> *The State should develop a Strategic Action Plan to be implemented by CRV which has the following objectives:*
>
> *(a) To improve and strengthen the co-ordination between authorities and agencies having responsibility for regulating the Latrobe Valley coal mines;*
> *(b) To develop a community engagement model to ensure that all State agencies, local government and the coal mines engage with communities as an integral component of planning for mine rehabilitation.*

Q17 How does GDFSAE / Hazelwood Mine currently engage with the community in relation to plans for final rehabilitation and fire risk management?

GDFSAE already has a range of community consultation measures in place. In particular, GDFSAE conducts quarterly ERC meetings with a range of community representatives, and in 2014 and 2015, GDFSAE held three community briefings in relation to the implementation of affirmations and recommendations from the first Hazelwood Mine Fire Inquiry.

GDFSAE agrees that community consultation in relation to final rehabilitation plans is not a once off event, and that consultation with the community must be ongoing.

151 Burton T147.15-24.

137. As is noted above, the MRSD Act requires consultation with the community: s 39A, s 40(3)(d), Schedule 15 of the Regulations 2013.

138. Pages 8-1 to 8-2 and pages 102 to 115 of the Hazelwood Mine 2009 Work Plan Variation [152] address the manner in which GDFSAE will address community engagement. GDFSAE actively seeks to identify stakeholders who are directly affected by its operations or who have a more general interest that the mine can influence. Interests may be based on physical, social, historical, cultural or political aspects of the mine and include the wider community and general public who may have a general interest.

139. Dr Haberfield noted that while consultation with the community is important, success criteria may not be able to be "agreed" by reason of the reality that there are a broad range of stakeholders who may not agree.[153] Dr McCullough concurred, noting that: "There will always be either poorly informed people or people with extreme views".[154]

140. Of course, it is accepted that consultation in relation to mine closure and final rehabilitation plans is not a once off event – and for this reason consultation with the community must be ongoing:

> *"Mine closure planning is a process. It is a life of mine activity. It beings usually at the approval state and extends past the actual completion of the mining operation. It is certainly not a one-off event. It is designed to be flexible and to meet the needs of the environment, the operation and the social community as it develops. If it is fixed and definitive at any point in time it will not achieve those at closure. For example, if we put fixed criteria in place now, people who are not even born who will live with those rehabilitated mines would be being influenced by criteria that they had no say in".*[155]

141. Following the Hazelwood Mine Fire Inquiry, GDFSAE has made a concerted effort to increase the flow of information to the community and stakeholders on a broad range of issues associated with the Hazelwood Mine including progressive rehabilitation works, fire preparation measures, compliance with the affirmations and recommendations of the Inquiry and the work of the Coal Mine Emergency Management Taskforce. See the Community Briefing Slides dated 24 October 2014,

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152 Faithful Statement, Exhibit 13, Annexure 9, GDFS.0001.001.0001 at GDFS.0001.001.0277 to GDFS.0001.001.0279.

153 Haberfield T401.15 – 20.

154 McCullough T401.26 – 30.

155 Dr McCullough T402.13 – 24.

17 February 2015 and October 2015.[156] These community briefings provided the community with the opportunity to obtain information regarding amongst other matters fire risk management and progressive rehabilitation.

142. GDFSAE recognises the importance of facilitating open two-way communication to understand community attitudes and expectations. To that end GDFSAE has long established methods for delivering information and receiving community feedback including:

    a. the quarterly ERC meetings that facilitate stakeholder consultation on environmental issues related to the Hazelwood Mine. The ERC includes representatives of the community, key regulators and government agencies and groups who have an interest in GDFSAE's environmental performance. The ERC meets quarterly to review progress and set priorities for minimising environmental impacts and improving performance;

    b. regular coverage in the company magazine. Printed and electronic versions are available;

    c. media releases on key mining milestones and activities. Releases are mainly disseminated by electronic mail. Copies are provided to the media and relevant stakeholders and are placed on the website;

    d. briefings program to local politicians. Semi-structured program for local Members of Parliament or available on request;

    e. use of a project hotline for encouraging community feedback, as required when a specific project with the potential to widely impact the community occurs, a designated community hotline is created (for example the West Field hotline);

    f. signage placed at strategic locations to describe projects and advise of any key dates;

    g. updates to GDF SUEZ's Australian website. An email address and telephone number is provided via the website for people to ask questions, comment or complain about Hazelwood assets;

    h. ad hoc advice to landowners affected by project development (i.e., letters and visits);

    i. project information on display at PowerWorks and other key locations in the Latrobe Valley;

156 Exhibit 16, GDFSAE community briefing slides 24 October 2014 GDFS.0001.004.0002; 17 February 2015, GDFS.0001.004.0021; and October 2015, GDFS.0001.004.0047, see especially page 26 on rehabilitation.

j. community flyers distributed via local post offices;

k. inserts and stories into local community newsletters;

l. letters / briefings / information displays / information bulletins to key community groups and stakeholders including interest groups; and

m. speaking to community groups by request, such as Morwell Rotary, Advance Morwell, Churchill & District Community Association and Yinnar Ratepayers Association.

143. GDFSAE commits to ongoing engagement with the community to ensure that the community is informed about its operations and is able to provide feedback on their expectations and interests.

Q18 What is the community's view in relation to the final rehabilitation options for the mines?

There is no single view emanating from the community on any topic – much less on rehabilitated mines and their end uses. But GDFSAE is committed to continued consultation with the community in relation to fire risk mitigation, fire preparedness and plans for the final rehabilitation of the Hazelwood Mine.

144. A key function of any community consultation ought to be to improve the knowledge base in the community so there is a good understanding of what you can and cannot do with the landscape: "Otherwise you can get all sorts of ideas that are impracticable and that may actually not tap into the inherent creativity that may exist".[157]

145. The term "community" is very broad, and necessarily encompasses groups of people including stakeholders, residents of Morwell, employees and regulatory authorities. As the submission to the Board from Latrobe Council highlights the fact that: "the community has broad and diverse views on mine rehabilitation and it is important that these views are captured and analysed."[158]

146. In circumstances where there are broad and diverse views on mine rehabilitation, the Board is cautioned to be wary of any one group being characterised as speaking "for the community". The Latrobe community does not speak with one voice. Some members of the community are simply silent. Others may be too busy to be engaged. Still others, not the least of which are employees and contractors of the Mine actively support the Mine and its contribution to the Latrobe community. By way of example, a member of the community has expressed a clear desire to "move

157 Unger T633.27 – 634.1

158 Latrobe City Council Submission No. 2 dated 25 August 2015 at page 2.

on" from the Mine Fire and has asserted that Voices of the Valley does not speak for him.[159]

147. Consultation and efforts at community engagement by numerous parties including GDFSAE, the Council and this Inquiry's own community consultations on this topic have been characterised by low participation levels (notably, the attendance of a mere 7 community representatives during the August session on the topic of rehabilitation). There may be any number of potential explanations for the low levels of community participation. These could range from the community considering itself sufficiently informed and therefore unwilling to participate in consultation to "consultation fatigue"[160] to outright disinterest.

148. To the extent that views expressed by members of the community are known, Ms Rhodes-Ward of Latrobe City Council gave evidence regarding feedback the Council had obtained via a door to door survey through two neighbourhoods in Morwell in June and October 2015. Ms Rhodes-Ward stated that there were a number of comments made which advocated mine rehabilitation in a way that supports the ongoing health and wellbeing of the community.[161] While GDFSAE acknowledges that the surveys did contain reference to views concerning the fire of 2014, it must be noted that the Survey:

    a. was based on a mere 71 responses (which on any view is a sample of insufficient size upon which to base any reliable finding);

    b. identified that the single biggest concern of residents surveyed was traffic noise (37%); and

    c. did not record any issues associated with mine rehabilitation at all. The stated concerns regarding "mine related" issues were identified as coal dust, proximity to the mine, air quality and the fire itself and its effect on property values (19%).

149. Nonetheless, GDFSAE acknowledges the importance of engaging with the community on issues associated with the Hazelwood Mine including planned rehabilitation. GDFSAE accepts that the form of that engagement should encompass a broad range of interactions so that it is not simply one-way communication or information delivery.

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159 See letter to the editor, Latrobe Valley Express, authored by Ian Archbold, Morwell dated 26 November 2015, Exhibit 3, GDFS.0001.004.0079.

160 At T60.26 Mr Langmore agreed that the community may be reaching the stage of fatigue with the Inquiry and the consultation process (having previously described the community as "punchdrunk" from consultation) but that this did not mean they would not want to be consulted in the future. Ms Rhodes-Ward accepted that it may be true for some, but not all of the community that they were experiencing "consultation fatigue": T60.27-31-T61.1-6.

161 Rhodes-Ward T40.16-27.

150. GDFSAE accepts, as indicated by Ms Rhodes-Ward in her evidence, that the community has an earnest desire to be part of the conversation about rehabilitation at the Mine and this does not mean that they want to be in control of the conversation, they just want to be part of the conversation.[162] This is a matter that was highlighted in the evidence of Dr McCullough when he noted that engagement with stakeholders (which includes the community more broadly) is for the purpose of seeking their concerns and feedback regarding the mine closure process – it is not to seek "agreement" as this will never be forthcoming.[163]

151. Ms Rhodes-Ward noted the desire of the community to transform the Mine into an asset that celebrates the history of the industry and also provides an asset for the future wellbeing.[164] Mr Langmore wished to see an outcome where the Mine was capable of being converted into something positive, beneficial and valuable to both the Latrobe Valley and possibly even the broader state community.[165] GDFSAE shares this vision for the rehabilitated Mine to become an asset to the Latrobe Valley like the rehabilitated mines in the Lusatian province of Germany.

152. In this context, Dr McCullough cautioned that too myopic a focus on risk and difficulties might mean we miss "opportunities". In his work, he had encountered many opportunities provided by pit lakes (namely opportunities for the community). As he went on to say:

> *"[W]e have identified very few end uses from dry voids. However, we have identified extensive uses from wet voids, i.e. pit lakes, benefits to the community, benefits to the environment, and those opportunities can trump some of those risks. Risks will always be there. It may be that they are a significant measure, but there may also be significant opportunity and if we fail to recognise the opportunity, then we may fail to recognise the best closure outcomes for the region".* [166]

153. For completeness, it is noted that contrary to the assumptions underpinning some community sentiment, the rehabilitation works themselves are unlikely to generate significant employment opportunities at the mine. Indeed, the rehabilitation works are likely to require a workforce in the order of 10 to 20 people, being professional earthmoving and mining professionals. This workforce will be mostly in house employees, or employees of contractors already engaged by GDFSAE.[167] In short, it

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162 Rhodes-Ward T44.29-31 – T45.1-3.

163 Dr McCullough T401.23 – 30.

164 Rhodes-Ward T41.7 – 18.

165 Langmore T43.16 – 22.

166 McCullough T446.14 – 22.

167 Faithful T339.23 – 340.9.

is unlikely that the rehabilitation or closure works will in the future constitute a significant source of new employment in the Latrobe Valley.

Q19 Are there successful examples of community consultation and enjoyment of end beneficial use of such mines?

Yes. The German experience is instructive and relevant. There are also Australian examples of successful pit lakes.

154. The experience gained in Germany during the ongoing rehabilitation of the lignite mines in Lusatia is instructive and in many ways comparable to the rehabilitation task in the Latrobe Valley.[168] The evidence of Dr von Bismarck was enlightening. An area (which he described as once the most industrial and dirty area of Germany) has been transformed, and the public has taken "possession" again of this once off-limits area.

155. The new landscape has been successful. It has been warmly embraced by the public and viewed as a very positive development – even celebrated with choirs and a new anthem.[169] The rehabilitation of the mines has resulted in not only a change in the landscape, but also created opportunities for adding value to the local economy in agriculture, industry, renewable energy, tourism and real estate.[170]

156. Dr von Bismarck emphasised that these major changes occurred over a 25 year period, and that the landscape now "shows a balanced mix of communities and infrastructure with agriculture, forestry and lakes that previously had been mine voids".[171]

157. There are many other examples both locally and abroad where mines have been successfully rehabilitated to which Dr McCullough referred in his evidence. Those examples include Rother Valley Park in the United Kingdom which has many features of world's best practice rehabilitation such as early planning, community involvement, strong local council involvement, a long time frame for the development, and commitment from all of the parties involved in the closure process. Rother Valley Park has now developed strong commercial outcomes through tourism-based activities.

158. The Ngalang Boodja Mine Lake Aquaculture Project and the Lake Kepwari project in the Collie Coal Basin, south-western Australia are examples of successful pit lakes of a range of age, size and water quality. The lakes have promoted wildlife and

168 von Bismarck T544; von Bismarck Statement, Exhibit 25, at [29].

169 von Bismarck T542.

170 von Bismarck T544.

171 von Bismarck T539.27 – 540.1.

recreation-based tourism by local business associations and government. Mines in the Upper Hunter Valley are also being progressively rehabilitated and planned to be pit lakes upon final closure.[172]

TERM OF REFERENCE 10: REHABILITATION BONDS

Terminology

159. The terminology used in relation to TOR 10 has been productive of confusion. It is therefore necessary to commence by considering the correct approach to the concepts in this arena.

160. There was frequent reference in the context of TOR 10 to "costings". It is important to ensure one is comparing "apples with apples". Care has to be taken when comparing the estimates of rehabilitation liability undertaken by the operators as reported in their Schedule 19 return forms with other costings prepared by consultants with a different brief.

161. The task required of the operator in completing this part of the Schedule 19 form is to estimate that operator's rehabilitation liability by reference to the planned end of life of the mine. In stark contrast, the task requested of the AECOM consultants engaged by the Department was to first assume that "the worst had already happened" (i.e. the operator of a mine had defaulted and walked away from its rehabilitation obligations), and to estimate the costs of a third party undertaking rehabilitation in full, either tomorrow ("close early") or at the end of the life of the mine.

162. It can instantly be seen that these are fundamentally different tasks, undertaken for different purposes with a different frame of reference.

163. During the evidence concerning TOR 10, there were references to "early close" of mines. This terminology is apt to confuse. There was a tendency in the evidence to assume that any early closure of the mines (i.e. where "early close" is synonymous with closure before the expiration of the mining licence) will take place in a sudden, unplanned and uncontrolled manner, and in circumstances where the operator defaults, walking away without attending to rehabilitation of the mine. This is erroneous.

164. In fact, it is much more likely that if a mine were to close prior to its current planned end of life, given the importance of the Latrobe Valley mines and associated power stations to the supply of power in this state, the closure would take

172 Dr McCullough Statement, Exhibit 22, GDFS.0001.003.0001 at GDFS.0001.003.0005 to GDFS.0001.003.0014.

place after a lengthy lead in time, with planning and supervision by the State, rather than the "walk away" worst case scenario constantly posited in the hearings.

165. Indeed, Mr Wilson agreed that an orderly mine closure process was far more likely in the event of early mine closure.[173] Mr Cramer confirmed that in a circumstance where a change in government policy leads to a change in demand and there is an early closure of a mine, nevertheless the operator may still meet all of its rehabilitation liability and as a result there would be no risk to the State.[174]

166. In so far as anything was sought to be made of the (abandoned) Commonwealth policy of 2012 concerning contracts for closure,[175] it ought be borne in mind that it appears to have been no more than a policy pursuant to which the end of life of mine might be brought forward for operators who entered into an incentive plan with the Commonwealth. It can only be properly assumed that under that programme (which was never implemented) the Commonwealth intended all rehabilitation liabilities to be met by the operator. Indeed, as the incentives were linked to the Commonwealth's then Clean Energy policies, it can only be assumed it was intended that rehabilitation obligations would be strictly observed as a condition of receiving incentives to close earlier than planned.

167. Under such a scenario (namely a Commonwealth sponsored managed early close), though the closure might be described as "early", it involves no default and no liability for the State. Rather, on one view, were such a programme ever implemented it would tend rather to provide greater not lesser security, as the Commonwealth would be a species of partner with the mine operator, planning, managing and overseeing the early closure.

168. For this reason, it is quite wrong to treat "early closure" as synonymous with "default" on the part of an operator. The misuse of this terminology tended to inflate the risk or likelihood that the State will ever be left with the responsibility for the rehabilitation of the Latrobe Valley mines.

No evidence of likelihood of risk crystallising

169. Despite all the focus in the hearings on the risk of the State shouldering an unfunded liability for rehabilitation of large coal mines, it should be carefully borne in mind that not one shred of evidence was advanced to suggest that the operators of the three mines are likely to fail to fulfil their rehabilitation responsibilities.

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173 Wilson T836.8 – 14

174 Cramer T1040.3 – 14.

175 See Exhibit 48, Securing a Clean Energy Future, Commonwealth Government Policy document 2012.

170. In so far as mine witnesses agreed with Counsel Assisting in evidence that there are "no guarantees in life"[176], this common sense recognition by Messrs Faithful, Rieniets and Mether to the effect that nothing in life is certain, ought not be mischievously elevated to some real concern that the mine operators might default on their rehabilitation responsibilities.[177]

171. It is submitted that drawing parallels with the changes in Germany is of little assistance in this context. The Latrobe Valley is unlikely to experience such a fundamental shift overnight in its political structure. However, to the extent that the analogy with the reunification of Germany is of any assistance, one might take heed of the fact that though unexpected, the closure and rehabilitation of the East German coal mines in Lusatia was planned, managed and successful. Another instance where "early closure" is not synonymous with either a lack of planning or with a poor outcome.

Q20 What amount is set for the Hazelwood Mine rehabilitation bond and how was it devised?

The current rehabilitation bond for Hazelwood Mine is set at $15 million.[178] It appears to have been devised during the mid 1990s by reliance on a version of a "discounted bond" system.

172. The $15 million bond was set by the former Department of Agriculture and Extractive Industries (**DAEM**) prior to privatisation in 1995. It is understood that the figure of $15 million was set as an "interim figure" to cover only the cost of the "end of life" rehabilitation works at the mine on the proviso that the progressive rehabilitation programmes was documented and continued at the maximum possible rate. DAEM requested further information regarding estimates of current rehabilitation liabilities and an estimate of rehabilitation costs for ongoing progressive rehabilitation.[179] The figure of $15 million was applied to all three of the Latrobe Valley coal mines at the time of their privatisation.[180]

173. Hazelwood Mine provided further information to DAEM by letters dated 9 August 1995 ($9.88M costs based on "final rehabilitation") and 10 October 1995 ($11.7M

176 Rieniets T258.2; Mether T258.10; Faithful T258.3 – 11.

177 Counsel Assisting Oral Closing Submissions T1116.10 – 19.

178 Wilson Statement, Exhibit 5A, DEDJTR.1020.001.0001 at [112].

179 Wilson Statement, Annexure 25, Exhibit 5A, DEDJTR.1020.001.0001 at DEDJTR.1020.001.0797.

180 The bond for Yallourn was subsequently reduced to $11,460,500 on review on 30 July 2004. Wilson Statement, Annexure 27, Exhibit 5A, DEDJTR.1020.001.0001.

costs based on "life of mine") for the rehabilitation of land disturbed by mining to the end of mine life.[181]

174. The rehabilitation bond remained unchanged after the further information provided by the Mine. However, it is apparent from the evidence of Mr Wilson of DEDJTR that the rehabilitation bond of $15 million was in fact a discounted figure based on DAEM's assessment of the rehabilitation liability over the life of the mine. Mr Wilson's evidence was that DAEM estimated that the total current liability of the mine was thought to be in the vicinity of $20 million, but that Hazelwood had a well-managed progressive rehabilitation program with annual expending of $1 million. On this basis, "DAEM considered the information provided by Hazelwood was reasonable and the bond remained at $15 million".[182]

175. The briefing note supplied to the Director Resources Development from the manager minerals and petroleum operations dated 4 December 1995 in relation to the setting of the Hazelwood bond supports Mr Wilson's evidence on this point. The briefing note recommended that the bond be retained at $15 million. It is clear that the bond amount in fact represented a discount on the "raw" figure of $20 million. The reasoning applied by the manager in the briefing note are instructive:

> *The total current liability for rehabilitation is thought to be in the vicinity of $20million. However, the company has a well managed progressive rehabilitation programme with annual expenditure of approximately $1million. Their aim is to have all of the progressive rehabilitation work completed by the time the mine closes.*
>
> *Bonds are usually based on an estimate of the worst case liability during the mine life. To set a bond for this site based only on the end of life costs would be a departure from this practice. However, the importance of the mine as a part of the State's power supply infrastructure means it is very unlikely to close before the scheduled end of life. It can therefore be argued that provided progressive rehabilitation is kept up, the potential liability to the State is only the cost at closure.*
>
> *RECOMMENDATION*
>
> *That we maintain the present nominated bond level of $15million to cover the end of life costs at the site.* [183]

176. It is submitted that the above passage encapsulates a risk assessment approach and a version of a bond discount method (namely an allowance was made for the fact that the mine had planned and budgeted to conduct progressive rehabilitation, a matter

181 Wilson Statement, Annexure 26, Exhibit 5A, DEDJTR.1020.001.0001 at DEDJTR.1020.001.0798.

182 Wilson Statement, Exhibit 5A, DEDJTR.1020.001.0001 at [113].

183 Briefing note dated 4 December 1995, Exhibit 35, DSDBI.0007.002.0015.

which was regarded as enabling the prediction to be made that rehabilitation liability would reduce over the ensuing years).

Q21 What are the estimated costs for end of mine rehabilitation of the Hazelwood Mine?

GDFSAE has submitted a Schedule 19 Return for 2014/2015, in which the estimated rehabilitation liability has been estimated by the operator at: $73.4M. The estimate is supported by detailed cost calculations undertaken by GDFSAE.

177. GDFSAE has submitted a Schedule 19 Return, in which the estimated rehabilitation liability has been estimated at: $73.4M.[184] Those costings are set out in a detailed suite of spreadsheets.[185]

178. The task set for the operator when completing a Schedule 19 report (in section 5.2 thereof – see Annexure 18 at GDFS.0001.001.1226 - 1227) is to estimate "what is the current estimated rehabilitation liability for the site", and the form calls only for the operator to set out "any methods and assumptions used in calculation". As is noted in the GDFSAE answer to this section in the Schedule 19 form, the costings are prepared on the basis of estimated costs of progressive and final rehabilitation. The detailed calculations on which this estimate was based (see Faithful Confidential Annexure 5) clearly demonstrate that the exercise was treated seriously and was the subject of a robust set of calculations. The calculations descend to a level of detail which includes analysis of volume of topsoil required per batter, decommissioning plant, sealing bores etc.

179. It is notable that Mr Faithful was barely cross examined on these calculations. The only matters put to him were as follows:

    a. Mr Faithful accepted that the GDFSAE calculations were based on the mine operator's estimated cost for performing rehabilitation tasks into the future plus a contingency, rather than adopting a probabilistic model.[186] He explained that GDFSAE has applied a contingency to the calculations of between 10% - 20%.[187]

    b. Mr Faithful accepted that while the costings may include an allowance for some of the future studies and work to be commissioned, it will be necessary to work through the proposed additional works (set out in

184 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Annexure 18 and [205] – [209].

185 Faithful Statement, Exhibit 13, GDFS.0001.001.0001, Confidential Annexure 5.

186 Faithful T692.26 – T693.19.

187 Faithful T693.23 – 29; T697.22 – 28.

Section 4 of Dr McCullough's report) and that the costings do not yet include an allowance for performance of all those studies.[188]

c. the GDFSAE costings presently assume that water will be available for the purpose of filling the pit lake on the same basis as is presently permitted (namely a groundwater licence at a rate of $20,000 - $30,000 for approximately 22GL per year).[189]

180. Other than the above matters, Mr Faithful was not tackled on the GDFSAE costings. It is submitted that in those circumstances, the costings cannot be simply dismissed, as the submissions of Counsel Assisting tend to do so. It is submitted that Mr Faithful is correct when he describes the operator's costings as accurately reflecting the cost of rehabilitating the site in accordance with GDFSAE's own mining and rehabilitation methods – which, after all, is the task required of the operator when filing its Schedule 19 report.[190]

Q22 Are there more reliable costings available?

No. The alternative costings proffered via Jacobs and AECOM during the evidence are based on unsound assumptions and ultimately will not assist the Board.

181. Before proceeding to a more detailed analysis of the costings presented in evidence, it is worth noting that the focus in the hearing's consideration of TOR 10 on cost estimates tended to distract from the central question: what is likelihood that the State will be required to bear any liability for rehabilitation of the three coal mines in the Latrobe Valley? For reasons developed in detail below, the likelihood of this risk crystallising is very low.

182. It is accepted that the exercise of attempting to estimate the costs of end of life of mine rehabilitation may provide some assistance on the question of the "cost" to the State in the event the very low probability risk of it being required to shoulder the cost ultimately crystallises. But care must be taken not to conflate the predicted cost (if the risk of an operator defaulting crystallises) with the likelihood of the risk ever coming to pass. GDFSAE submits the likelihood of that risk is very low. For completeness, it is noted that it was no part of AECOM's work to assess the likelihood of the "close tomorrow" scenario occurring.[191]

Jacobs' costings

183. Counsel Assisting has properly not sought to rely on the costings provided by Jacobs in the context of the debate concerning TOR 10. The authors of the Jacobs report

188 Faithful T694.2 – T695.22.

189 Faithful T695.23 – T696.28.

190 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [214] – [227].

191 Chadwick T962.28 – 31; Bowden T963.23 – 27.

themselves said that their cost estimates were prepared "only for the purpose of comparing the potential viable options. Costs estimated are not final closure costs for each mine. These are not final costs as Jacobs' scope did not extending [sic] to a detailed examination of current and future progressive rehabilitation plans".[192] A further difficulty with the Jacobs' report is that the costings were prepared with "target accuracy range" of plus or minus 50%.[193]

184. As a result, it is submitted (in accordance with the approach ultimately adopted by Counsel Assisting) that the Jacobs' costings can be ignored for the purposes of the analysis of TOR 10.

AECOM Costings

185. It is submitted that the AECOM costings are unreliable. The estimates were derived in the absence of sufficient meaningful consultation with the mines, which has contributed to erroneous assumptions being relied upon. The principal flaws in the AECOM approach are as follows:

    a. the use of the probabilistic model is skewed towards deriving high values;[194]

    b. the AECOM costings do not disclose the basis upon which the "plus risk costs" uplift was applied (which in GDFSAE's case is between 21% and 40% of the base costs) and that component of the costings cannot be justified;

    c. the AECOM costings are unsound by reason of a number of incorrect assumptions adopted concerning the method for final rehabilitation. Those unsound assumptions are set out below;

    d. the adoption by AECOM of a 15% "mark up" for management and procurement fees is too high and leads to a perverse result; and

    e. the assumption that there will be a 100 year post execution monitoring period which will attract a further 3% management mark up.

<u>Lack of consultation</u>

186. By their own admission, the AECOM team conducted a desk top review of the costings for the Hazelwood Mine, without having conducted a site visit.

187. A significant aspect of the difficulty with the AECOM costings arises as the result of a lack of meaningful consultation with the mines.[195] AECOM was engaged in April

192 EXP.0011.001.0014; see also the limitations expressed at EXP.0011.001.0103.

193 EXP.0011.001.0149.

194 Bowden T963.10 – 19.

195 Counsel Assisting Written Closing Submissions at [181] and Counsel Assisting Oral Closing Submissions T1137.20 – T1138.4.

2015, but the mines were not presented with the data being prepared by AECOM for consideration until mid October 2015. The mines were then given an unreasonably short turn-around time to review, comment and provide other information.[196]

188. Mr Faithful attempted to convey to Mr Chadwick of AECOM a number of concerns he had about the assumptions on the basis of which the AECOM draft costings had been undertaken: see Exhibit 33, which sets out Mr Faithful's attempts to engage with Mr Chadwick, and the list of concerns later forwarded to Mr Pendrigh by letter.[197] Though Mr Chadwick responded to some of Mr Faithful's queries, he did not in fact alter anything in the costings as a result of the issues raised with him.[198] It transpired that Mr Faithful's efforts to debate with Mr Chadwick the assumptions in the costings which he regarded as erroneous fell on deaf ears. At the time Mr Faithful was seeking an opportunity to meet, unknown to him the AECOM report had in fact been finalised, adopting the approach preferred by AECOM.[199]

Probabilistic model

189. AECOM used a probabilistic model and a Monte Carlo simulation to derive their costings. It is submitted that the explanation provided by Dr Bowden of the manner in which the model produced the values set out in the AECOM report did little to engender confidence in the accuracy of the range of costings supplied. The results which have been churned out by the model are in many respects perverse. This is discussed in more detail below.

190. Dr Bowden agreed that the probabilistic model is skewed towards deriving high values.[200] While the model may be established and useful in some areas, it is submitted that it was exposed as being largely artificial and unhelpful in this context. It is submitted that the Board cannot have confidence in the results of the probabilistic model as applied by AECOM as providing an accurate guide to likely rehabilitation costs.

Risk costs

191. The Summary of Closure costs supplied by AECOM (Exhibit 41C DEDJTR.1030.001.001 at DEDJTR.1030.001.0018) provides the following results. The unshaded portion is as it appears in the AECOM report, the shaded rows and columns have been added to provide commentary:

196 Chadwick Statement, Exhibit 41A, at [12] – [22]; Chadwick T957 – T961.

197 See also Faithful T766.28 – T768.21; T772.23 – 29.

198 Chadwick T959 – 961.

199 Chadwick T906.8 – 11.

200 Bowden T963.10 – 19.

Confidence level reported by AECOM	P50	P80	P95	Risk cost component	Comment
Early closure liability	$218M	$251M	$294M		
Early closure liability PLUS RISK	$264M	$305M	$357M	The PLUS RISK component for each confidence level represents an increase of P50: $46M P80: $54M P95: $63M Thus, each of the figures provided on a PLUS RISK basis represents an increase of 21% on the liability alone figure.	That is, because $264M - $21M8 is $46M, and $46M is 21% of $218
End of mine liability costs	$176M	$204M	$241M		
End of mine liability costs PLUS RISK	$243M	$286M	$332M	The PLUS RISK cost component for each confidence level represents an increase of: P50$67M P80: $82M P95: $91M Thus, each of the figures provided on a PLUS risk basis represents an increase of 38%, 40% and 37% respectively on the liability alone figure.	Arithmetic approached on the same basis as above for early closure scenario.

192. Nowhere in the AECOM report is it explained how the "plus risk cost" figures were derived. In evidence, Mr Chadwick frankly conceded that this work is not set out in the report.[201] Dr Bowden asserted that the above arithmetical analysis (namely the one set out in our chart above) of the "plus risk costs" was not "the right way to go".[202] He said the risk cost component was "an output from the model".[203] He

201 Chadwick T941.18 – 19; T964.28 – 31; Chadwick T967.22 – 24; Chadwick T969.31 – 970.1.

202 Bowden T965.12 – 15.

203 Bowden T965.28.

supplied a long explanation concerning the risk assessment conducted in order to estimate the "plus risk costs".[204] But ultimately it transpired that the risk assessment on which the ascertainment of "risk costs" had been ascertained had been conducted by an "expert panel" comprised of none other than members of the AECOM team, Mr Chadwick and Mr Byrne.[205]

193. When asked what risk assessment method was used, Dr Bowden said "we didn't use a model. We provided opinions about the likelihood and the consequence for each of those risks".[206] The AECOM panel was unable to explain why, even though the risk profile for each event and each mine was different, the early close "plus risk costs" were precisely 21% for each of the confidence models for the Hazelwood Mine.[207]

194. GDFSAE agrees with the criticisms by Counsel Assisting of the approach adopted by AECOM to risk costs and the failure of AECOM to disclose the methodology or results in relation to this important component of the AECOM costings: see Counsel Assisting Written Closing Submissions at [194] – [195] and [204][208].

195. In circumstances where the "key risks" set out in section 4.6 of the report are events as diverse as "seepage of acid mine drainage" and "coal fire", it is difficult to understand how the seven "key risks" enumerated manage to give rise to weighting of 21% on all "early close costs", and a weighting of between 37% and 40% on the end of mine life costs.

Unsound assumptions

196. The AECOM report is based on a number of flawed assumptions which have significantly affected the manner in which the cost estimates have been performed. Those flawed assumptions include:

    a. End of mine life: AECOM was instructed to assume relevant end of mine date was the expiration date of the mine licence (namely 2026), despite the reality that the Work Plans for the Hazelwood Mine contemplate a 2033 date.[209]

    b. Time to fill pit lake:

        i. Stability level: AECOM adopted the assumption that stability level would be reached in 21 or 28 years (based making an assumption about the necessary volume to fill the void). The AECOM team accepted that

204 Bowden T935.21 – T941.6.

205 Bowden T941.12.

206 Bowden T968.3 – 9.

207 Byrne T968.10 – 28.

208 See also at T1140.2 – 16; T1141.6 – 7.

209 Exhibit 33 and Faithful T769.21 - 27; Byrne T974.5 – 17.

this assumption had been relied upon in the absence of the modelling work by GHD which suggests the fill time will be 7 years to reach the point of stability.[210]

ii. Final level: AECOM assumed that it will take 500 years to fill the lake to its final level of RL +8m. In fact the recent GHD modelling report[211] discussed in paragraph 105 above confirms that the fill time is likely to be in the order of decades, namely between approximately 30 and 90 years, depending on the final lake depth.

c. Water source and need to purchase: AECOM injected into the "risk costs" an assumption that GDFSAE might be required to purchase water to fill the lake at a cost of $6M to $8M, despite the fact that the Mine's current entitlement costs only a licence fee in the order of only $20,000 - $30,000 a year.[212] Again, the report does not disclose how this risk profile was ascertained.[213] Much attention was given in evidence to the soundness of the assumption by mine operators that their current entitlements might be "rolled over". However, no explanation was supplied by AECOM as to how they estimated the likelihood of this assumption not being borne out – much less how they were able to estimate the fees for water purchased on the open market.

d. Installation of rip rap: AECOM assumed that the works required will include a need to install rip rap in the pit lake, and that there will be a need to replace that rip rap 9 times over a 500 year period, at a cost of $90M on the early close scenario and $107M on the end of mine case.[214] Mr Byrne agreed this assumption was not based on any particular study and was an assumption made in the absence of information "that it is not needed".[215] For the reasons set out at paragraphs (47 to 51) it is submitted that it cannot be safely assumed that this work will in fact be required at all.

e. Failure of rehabilitated slopes: AECOM assumed that 15% of vegetation will not take on the rehabilitated slopes, giving rise to a need to replace or revegetate. Mr Byrne asserted this was based on "industry practice and our experience", but was unable to point to any research or data in support of that approach and conceded it was not the result of any robust science.[216]

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210 T974.18 – T976.3.

211 Report 'Hazelwood Power Station, Hazelwood Groundwater Modelling Report', September 2015, Annexure 14 to the Faithful Statement, GDFS.0001.001.0353 at GDFS.0001.001.0407.

212 Faithful T770.29 – T771.5

213 Chadwick T976.14 – T977.2.

214 Faithful T769.28 – 770.23. Faithful T772.7 – 13.

215 Byrne T981.14 – 17.

216 Byrne T978.1 – 12; T979.3 – 5.

Management costs '15% 'uplift'

197. AECOM's use of 15% of total project costs as the appropriate rate for management costs gives rise to a $41M cost for the early close model and $48M for the end of mine scenario. The report also discloses that this is the single largest "line item" or cost centre in the AECOM estimate.

198. It is submitted that in circumstances where the operator estimates the costs of rehabilitation at $73.4M, the figure of $41M generated by AECOM for management costs ought ring alarm bells. Mr Byrne disagreed with this proposition.[217] But it is submitted that the notion that a mark up of 50% on the operator's estimate of what it will cost to undertake final rehabilitation does not survive any "reality check".

199. It is of note that in 2008, the consultants GHD (who have significant experience with the mines in the Valley) suggested that an estimate of even $6 - $7M (based in that instance on a 10% of project costs approach) for management costs was unreasonable.[218]

Monitoring post execution for 100 years plus a further 3% management fee

200. AECOM assumed a period of post execution monitoring for 100 years, and estimated those costs (plus a further 3% management cost on top of the direct execution costs) at $38M for the early close scenario and $60M for end of mine.[219]

201. First, there is no sound basis for assuming a 100 year liability to monitor the pit lake. Second, the figures derived are so high that of themselves they ought to have raised concerns about the robustness of this model. They simply "do not make sense" and call into question the assistance that can be derived from this report.

Summary of the differences between the GDFSAE costings and the AECOM costings

Source	Significant assumptions and exclusions	Model and method used	Estimated total rehabilitation cost end of life of mine
Hazelwood Schedule 19 form for 2014/ 2015: Faithful Annexure 18 and the calculations in Confidential Annexure 5.	End of mining operations 2033 Based on works set out in the approved Work Plan 2009 supplemented by consultants reports	GDFSAE's estimates of cost for the operator to undertake progressive and final rehabilitation plus contingency of 10% - 20%	$73.4M

217 Byrne T970.16 – T970.14.

218 Faithful T772.14 – 22.

219 Byrne T983.19 – T984.22.

Source	Significant assumptions and exclusions	Model and method used	Estimated total rehabilitation cost end of life of mine
	Time to fill void: Approximately 7 years to reach stability at RL – 22m, then between approximately 30 and 90 years to fill (to the current intended final depth of RL +8m, or to fill to a level approaching the full depth of the Mine void, respectively). Sufficient water sources available based on current use and entitlement to ground water		
AECOM Report for Hazelwood Mine[220]	Two scenarios considered: (a) End of Mine Closure, 2026 (AECOM was instructed to adopt end date of mine licence) 2033 (b) Early close tomorrow (i.e. the 'walk away' scenario). Assumed 21 – 28 years to fill the void to stability level and 500 years to fill to final level Engineering, procurement and management costs set at 15%[221] of total execution costs Assumed post execution monitoring and management for 100 years + 3% management fees Risk costs include allowance of $6M - $8M for purchase of water on the open market Rip rap replaced 9 times over 500 years at cost of $90M	<u>Method:</u> Desk top review No mine visit and only limited input sought from mine during Oct 2015 <u>Model</u> Probabilistic costing model using Monte Carlo simulation Figures provided at three levels of confidence: • P50 Optimistic • P80 Conservative but realistic • P95 Very conservative Plus Risk Cost: method and outcome for risk assessment not disclosed in report, but stated in evidence	Early close liability costs: • P50 $218M • P80 $251M • P95 $294M Early close liability PLUS RISK costs: • P50$264M • P80 $305M • P95$357M End of mine life liability costs: • P50: $176 • P80: $204 • P95: $241 End of mine life liability PLUS RISK costs • P50: $ 243 • P80 $286 • P95: $332

220 Exhibit 41C.

221 Said to come from industry practice and experience: Byrne T930.24 – 28.

Source	Significant assumptions and exclusions	Model and method used	Estimated total rehabilitation cost end of life of mine
	(early close) or $107M (end of mine close)	to be the result of application of 'professional judgment'. Rates: Bond calculator + "URS judgment and experience"	

Reality check

202. It is instructive to submit the AECOM cost estimates to four reality checks (see discussion during GDFSAE Oral Closing Submissions at T1207 – T1210):

a. the biggest cost centre in the AECOM costings is the management costs. Management costs (including demobilisation and mobilisation) were estimated by AECOM to be $41M for Early Close, and $48M for End of Mine. In addition, monitoring and management costs for a period of 100 years after the execution phase were estimated at $38M for Early Close and $60M for End of Mine. These figures alone ought cause circumspection. In relation to a project which the operator estimates will cost it $73M, how can it be that management fees for a third party will be in excess of $100M? It is submitted this alone is sufficient to call the AECOM figures into question.;

b. the "plus risk costs" are estimated by AECOM at between 21% and 40% of the base costs. For example, the entire cost of rehabilitation is estimated by the operator to be $73M. Yet for its P95 figures, AECOM estimates a "plus risk costs" component of $91M. Again, this perverse outcome alone is sufficient to raise real concerns about the AECOM approach.;

c. a further reality check is supplied by conducting a simple experiment, if one subtracts two of the more contentious line items in the costings, an interesting result is derived. If one takes the AECOM costings for the End of Mine liability costs as an example, and undertakes the simple exercise of subtracting two of the most controversial costs from the AECOM figures, ironically it transpires that GDFSAE's costings are almost identical:

i. take the P95 cost estimate supplied by AECOM of $241M (for End of Mine) and subtract $107M (the AECOM estimated cost of End of Mine installation of rip rap). This comes to $134M;

ii. if one then takes the reduced figure of $134M, and from that subtracts $60M (namely the End of Mine 100 years execution and monitoring costs), one is left with $74M.; and

iii. this is very close to the GDFSAE estimate of $73.4M. It is accepted that the AECOM panel eschewed this rough "arithmetical approach". But it is submitted that it does provide an interesting touchstone against which to submit the AECOM figures to a reality check.

203. In light of the above, it is submitted (contrary to the conclusion urged by Counsel Assisting Written Closing Submissions at [205] – [206]) that the AECOM costings do not provide the best evidence in relation to cost estimates. It is submitted that the reliance on unsound assumptions and the use of an opaque method for adding "risk costs" render the costings from AECOM unreliable.

204. GDFSAE submits that a far more reliable approach lies in assessing the operator's cost estimates, as adjusted by any review conducted under a s 79A style mechanism. This approach is discussed in more detail below.

Use of the s 79A mechanism

205. GDFSAE agrees with Counsel Assisting (at Written Closing Submissions paragraphs [172] – [175] and [251] and Oral Closing Submissions at T1145 – T1146) that the mechanism available in s 79A of the MRSD Act appears apt to resolve some of the concerns in relation to the large variations between the various attempts to cost End of Mine (or final) rehabilitation costs. Below, GDFSAE sets out a proposed recommendation which embodies the s 79A mechanism as part of the approach to obtaining greater clarity about cost estimates.

Q23 What principles inform the current rehabilitation bond policy?

There is a tension between what is said or assumed to be the purpose of the current system and the bond arrangements that are in place for the Latrobe Valley mines. The current bond system is often characterised by DEDJTR as constituting a 100% financial assurance system. But it is also the case that the bond levels for the Latrobe Valley mines are not presently set at the rate of the Schedule 19 estimated costs of rehabilitation submitted by the mine operators.

206. Mr Wilson described the current rehabilitation bond system as embodying a "worst case scenario" approach rather than a risk assessment based approach.[222] He said:

> "*from the State's perspective it is asking the question 'what is the State's exposure in the case of any particular mine?' And when you look at that exposure, that walk away scenario, that's the exposure that the State then looks at. I should explain I think that's the current setting. Of course, there's been considerable debate as to whether that should be the current setting, but that's the current setting*".[223]

207. When asked whether the Department has a current view about the policy that should underpin the setting of a rehabilitation bond, Mr Wilson frankly replied: "no, it doesn't have a current view as to where it should go".[224] However, Mr Wilson also accepted that an Action Plan very recently published by the Earth Resources Regulation 2015 – 2016[225] does in fact suggest that risk assessment principles will inform any new rehabilitation bond policy adopted.[226] Later, Mr Wilson also accepted that in general a bond should reflect successful progressive rehabilitation, "so you would expect there would be a sort of an element of reward coming through there".[227]

208. It is submitted that despite the absence of a clear statement of the policy underpinning the rehabilitation bond system in current Department publications, for the reasons set out above (at paragraphs 172 to 176), the Department has long regarded a risk based assessment as relevant and appropriate. Since the mid 1990s, the Department has regarded it as appropriate to have regard to both the likelihood of closure, and the future plans of the mine for progressive rehabilitation (as an indicator of likelihood that the rehabilitation liability will be reduced over time).

Q24 What mechanism is presently used to provide financial surety for rehabilitation bonds?

Presently, the mines provide a bank guarantee, for which the mine operators pay a credit fee.

222 Wilson T829.29 – 30.

223 Wilson T815.12 – 21.

224 Wilson T829.28 – 29; T831.16 – 18.

225 Exhibit 37, Earth Resources Regulation Action Plan 2015-16.

226 Wilson T830.11 – 28.

227 Wilson T828 25.

209. The use of the bank guarantee model comes at a cost.[228] As was noted on the final day of hearings:

    a. the cost of maintaining the guarantee for GDFSAE is presently locked in at $102,000 a year, which is an historically beneficial rate; and

    b. in the future, there will be a need to negotiate the fee for the provision of the guarantee with the banks and the finance team instructs, this is likely to be 2.5% to 5% of the total cost.[229]

210. As has been noted by consultants KPMG, the use of bank guarantees may not be "financially efficient", as bank guarantees are costly and limit the operator's borrowing capacity. Further, the financial assurance may tie up capital: KPMG "Options for Financial Assurance for Rehabilitation of Mine and Quarry Sites in Victoria" June 2011.[230] See also the Accent Environmental Report at page 7.[231]

211. Dr Gillespie described the use of bank guarantees to secure bonds as economically inefficient, by reason of the fact that it causes money used to finance the credit costs of bank guarantees to be tied up that could be used for progressive rehabilitation.[232]

Q25 What method should be used to provide financial surety?

There should be flexibility permitted as to the mode by which financial security is provided in respect of rehabilitation bonds. For example, a bank guarantee or a parent company guarantee ought be permitted.

212. GDFSAE submits that greater flexibility is desirable and that consideration ought be given to permitting other modes of security to be put up in respect of a bond, including a parent company guarantee.

213. However, there is no need for a "one size fits all" approach. It may be that ultimately the approach adopted to each of the three coal mines is different, or different from time to time.

214. GDFSAE submits there is not sufficient evidence to support the establishment of a pooled trust fund system applying to the three Latrobe Valley mines: cf Counsel Assisting Written Closing Submissions at [232] – [239] and T1147.5 - 23. No sound

228 See Rieniets at [40]; Gillespie at [35].

229 Oral Submission by counsel for GDFSAE T1064 – 1066.

230 KPMG report Exhibit 5A DEDJTR.1007.001.0228 at DEDJTR.1007.001.0230 and DEDJTR.1007.001.0232.

231 Exhibit 44, EXP.0010.001.0001.

232 Gillespie Report, Exhibit 45, AGL.0001.006.0001 at [35]-[36]. See also the KPMG report, Exhibit 5A, DEDJTR.1007.001.0228 at DEDJTR.1007.001.0230 and DEDJTR.1007.001.0232.

basis exists for the adoption of a trust fund model based on the Loy Yang Complex Agreement approach, extending to all three mines. There has been no analysis in the Victorian context of the appropriateness or desirability of a trust fund model in circumstances where this would force the operators of the three coal mines into a form of socialised cross subsidy of each other's operations. The more cautious submission of Counsel Assisting (at Written Closing Submissions paragraph [240], where the Board is cautioned against change "for change's sake") ought be preferred.

215. Counsel Assisting did not explore this model in evidence with mine operator witnesses. Nor was the model canvassed in any detail with the experts. In so far as the trust fund option was briefly discussed by KPMG in their 2011 report, it is of note that the report concluded that this model would "create a cross subsidy for the operator that defaults" and that it would add a "layer of complexity" compared with the current system: DEDJTR.1007.001.0243. The 10 principles stated by KPMG in their report attracted significant support in the hearings; it is of note that principle 6 thereof is: "The system should avoid cross subsidies"[233] – which is precisely what a trust fund model would do.

216. It is also of note that the Accent Environmental report described the trust fund model as attracting an opportunity cost, by reason of the fact that, "the funds or financial instruments held in trust cannot be put to alternative use".[234]

217. In light of the above, it is submitted that there is simply no foundation in the evidence before this Board which would justify the extension of the voluntary Loy Yang Complex Agreement model (a compact between parties which use and benefit from the working of the Loy Yang mine) to a compulsory arrangement between unrelated corporate entities (Energy Australia, AGL and GDFSAE) operating their own mines and power stations. Further, to establish such a model would require those entities to subsidise and insure one another, a model which received no support from KPMG and which was not the subject of any analysis in the evidence before this Inquiry. In this context, GDFSAE agrees with the submissions of counsel for Energy Australia Yallourn that to recommend establishment of such a model is premature.[235]

218. Before such an extraordinary departure from the arrangements for the operators of these mines were recommended, one would expect a far more detailed examination in the evidence of the advantages and disadvantages of the pooled trust fund model. For example, one might have expected an examination of the risk of "moral hazard" connected with a system which forces unrelated corporate entities to subsidise one another.

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233 KPMG Report, Exhibit 5A, DEDJTR.1007.001.0228 at DEDJTR.1007.001.0234.

234 Report of Accent Environmental, Exhibit 44, EXP.0010.001.0001 at EXP.0010.001.0032.

235 Energy Australia Submission T1258.7 – T1259.7.

219. It is submitted it is far too premature and no evidence base exists sufficient to justify recommendation of this model.

Q26 Should the Board recommend a new model for rehabilitation bonds? If so, what principles should inform the development of a policy for the setting of rehabilitation bonds?

The current system is not broken and does not need fixing. The current regulatory regime enables a bond to be set and reviewed, and there is no evidence which demonstrates that this process does not or will not continue to provide sufficient surety to the State with respect to the very low probability risk of default by the Latrobe Valley mine operators, especially in light of the "essential industry" status of these mines and power stations, and the strength and reputation of the GDF SUEZ, AGL and Energy Australia corporate groups.

GDFSAE's primary submission is that there is no evidence before the Board to support a finding that the current bond level for the Hazelwood Mine is inadequate. A more detailed evidence based risk assessment process would be required to establish that a change in the current bond levels for the Latrobe Valley Mines is necessary to effectively manage the risk of default in rehabilitation obligations by those operators, and to "land on" any particular model as being appropriate in determining a revised bond level.

However, in the event the Board does not accept the primary submission of GDFSAE, if a new system were to be considered, then a robust risk assessment approach ought be applied to setting and reviewing bonds and such assessment ought not be applied in a one size fits all manner. The requisite risk assessment must be conducted on a case by case basis, having regard to the size, financial strength and reputation of the mine operator and their ultimate parent companies.

Further, any new system ought also include a capacity for operators to access a bond discount model, based on satisfaction of criteria including:

a. the degree of financial stability of the operator (together with its parent entities);

b. the operator's track record in relation to progressive rehabilitation of the mine; and

c. whether there is demand for mine's "product".

220. GDFSAE take strong issue with the submission of Counsel Assisting (at [6]), which puts the cart before the horse in asserting that the present bonds are "manifestly inadequate."[236] It is submitted that this assertion cannot be made without having

236 See also Counsel Assisting Oral Closing Submissions T1078.16 – 17.

first assessed the likelihood of default by the operators of the three Latrobe Valley mines, and then considering that likelihood in light of the likely cost of final rehabilitation.

221. GDFSAE submits that the current system presently enables a bond to be set and reviewed. There is no evidence which demonstrates that this process does not presently provide sufficient surety to the State with respect to the very low probability risk of default by coal mine operators.

222. In the alternative, should the Board form the view that there is a case for reviewing the present system, then it is submitted that a robust risk assessment approach ought be applied to setting and reviewing bonds and such assessment ought not be applied in a one size fits all manner. GDFSAE disagrees with the proposition put by Counsel Assisting to the effect that a risk based assessment gives rise to benefits "flowing to mines" and not to the regulator: T1148.12 – 15. It is clear from a consideration of the 10 guiding principles enunciated in the 2011 KPMG report, that a properly designed bond system ought to balance a number of policy goals, including embodying a recognition of past good behaviour and encouragement of future good behaviour. It is difficult to see how a well-designed system which achieves this goal fails to deliver any benefit to the regulator.

Primary position of GDFSAE

223. GDFSAE's primary position is that there is insufficient evidence before the Board for it to conclude that the current system is not adequate, or to enable any particular alternative model to be recommended for adoption.

224. DEDJTR has been reviewing and considering rehabilitation bond policy for 13 years without reaching a concluded position as to whether the system should be changed.[237] In those circumstances, it is difficult to understand how it can be suggested that this Board ought form a view in relation to a matter as complex as the principles which ought underpin new bond regime after a mere two days of evidence.

225. There is no evidence before the Board which suggests that the adoption of a new system for rehabilitation bonds is essential, let alone urgent, in order to adequately protect the State's interests. It was common in the proceedings for it to be asserted that the bond system is inadequate (see for example, Counsel Assisting's Submissions at [6]). On closer inspection, it seems this really ought be read as a statement that <u>if</u> an operator defaults then $11M or $15M as a bond might then be regarded as "inadequate", because no rigorous analysis at all has been applied to the assessment of the risk that any particular operator will in fact default.

226. As to GDFSAE's primary position that the current system is working, Mr Mether and Mr Faithful expressed the view that a mine with an approved work plan,

237 Wilson T812; T829.1 - 5.

adhering to that plan and doing progressive rehabilitation need not put up a bond.[238] In this respect, GDFSAE disagrees with the evidence of Mr Rieniets.[239]

Alternative submission: review current system by reference to risk assessment principles

227. In the alternative, if the Board is minded to recommend that the current system be reviewed, then GDFSAE submits that the Board may be in a position to recommend that any review of the rehabilitation bond system by the State ought involve the application of robust risk assessment principles in order to ensure that any new system meets its intended goals and is consistent with economic efficiency.

228. If the Board is attracted to this view, then GDFSAE submits that the next step ought be a fulsome review by the State of the bond system, in accordance with an underlying policy that a risk assessment approach ought be preferred. To this end, GDFSAE sets out below a possible form of recommendation for such a proposal.

229. While some of the work commissioned by DEDJTR does not appear to have moved the debate forward a great deal, the papers prepared by KPMG in 2011 *Options for Financial Assurance for Rehabilitation of Mine and Quarry Sites in Victoria*[240] and the GHD paper *Review of Rehabilitation Bond Calculator Use for Brown Coal Mines Loy Yang example 2008*[241] provide the greatest assistance and insights in this area.

230. It is accepted that the 10 principles devised by KPMG appear to provide a reasonable guide to developing or refining the policy applicable to setting rehabilitation bonds.[242] In this context it is of note that:

    a. the authors of the both the KPMG and the GHD reports regard the risk of default by the large coal mine operators as low;[243]

    b. KPMG agree that the system should be 'based on risk management principles': KPMG Principle 5.

Risk assessment

231. The material presented to the Board in respect of TOR 10 tended to conflate estimated costs of rehabilitation with the likelihood of the risk that the State might

238 T743.13 – T744.25.

239 Exhibit 12C, Second Supplementary Statement of Mr Rieniets, AGL.0001.005.0001 at [55].

240 Exhibit 5A, DEDJTR.1007.001.0228.

241 Annexure 30 to Exhibit 5A, DEDJTR.1020.001.0878.

242 T745.12 – 31; DEDJTR.1007.001.0234.

243 See in particular principles 1 and 5 as set out in the KPMG Report, DEDJTR.1007.001.0230 at DEDJTR.1007.001.0233; DEDJTR.1007.001.0234; and DEDJTR.1007.001.0253 at point B.2; and see the GHD 2008 report, DEDJTR.1020.001.0877 at pages DEDJTR.1020.001.0880; DEDJTR.1020.001.0896; and DEDJTR.1020.001.0881.

ultimately being required to bear the responsibility for that task being crystallised.[244] The two are separate things, and the application of proper risk assessment principles makes it clear that the risk of the operators of the coal mines defaulting on their rehabilitation responsibilities is in fact very low. Dr Gillespie said that most of the focus in the evidence had been on the consequence, namely the size of the rehabilitation costs.[245] He summarised the issue as follows:

> "*So, if you have a very, very low probability of a default as in very low probability of a mine operator walking away and leaving the government with the cost, then the 'risk' which is the product of consequence and likelihood becomes very, very low.*"[246]

232. A risk assessment approach to the question is not only better placed to ensure that any rehabilitation bond policy achieves its goals, but is more economically efficient.[247] As Dr Gillespie opined, the current rehabilitation bond system assumes 100% probability of default for all operators, despite the fact that historically there has only been a small percentage of bond call ins.[248] In Dr Gillespie's opinion, coal mines do not pose a high risk.[249] See also the example undertaken by Dr Gillespie with respect to AGL Loy Yang at [77] - [88].

233. The risk of default is in fact a low probability event and the correct application of risk assessment materials demonstrates that there are many links in the risk chain before the State will be obliged to assume responsibility for rehabilitation works. Dr Gillespie said that it would be important to consider the "chain of risk" that a specific consequence might occur, noting that even if a mine closes early, it is only if there was no capacity to recover costs of rehabilitation that the State would assume that liability.[250] In a similar vein, Mr Rieniets said the current mine provides 50% of the State's power generation "so under any plausible scenario closing that mine down in the next 10 years is very, very low probability".[251]

234. Dr Gillespie said that a risk assessment approach would assess the risk of default on a case by case basis, by having regard to features some of which are common to the mines and others which are specific to each mine. Among the relevant factors, he

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244 Mr Pendrigh agreed that all AECOM was asked to do was conduct an estimate of costs, not set the rate of bonds: Pendrigh T837.15 – 21; T838.11 – 24.

245 Gillespie T1027.5 – 7.

246 Gillespie T1027.9 – 13.

247 Gillespie Report, Exhibit 45 at [16].

248 Gillespie Report, Exhibit 45 at [53].

249 Gillespie Report, Exhibit 45 at [64] – [65], [68].

250 Gillespie Report, Exhibit 45 at [57] – [58].

251 Rieniets T722.25 – 29.

said, would be the nature of the operator (its size, ownership, assets etc).[252] In a similar vein, Ms Unger noted that where you lave large global corporations, it is less likely that the risk to the State will crystallise "because there is reputational issues as well and also a body of oversight. There are other resources that can be drawn in when a particular site is needing to do the work".[253]

235. Dr Gillespie confirmed that risk management principles when applied by a regulator to determine the likelihood of default needs to be done on an individual assessment of each operator to identify potential risks.[254] Mr Cramer agreed that the likelihood of default needs to be assessed on a site specific basis.[255] Mr Cramer and Dr Gillespie agree that the following criteria are relevant to assessing the likelihood of an operator walking away and defaulting:

    a. the past conduct of the operator of the mine;

    b. the operator's track record in relation to progressive rehabilitation;

    c. whether the product or service the operator of the mine is delivering has demand; and

    d. the degree of financial stability of the operator.[256]

236. Dr Gillespie said that the bond should really reflect the year by year expected value of the liability to be borne by the government. Thus, if one is undertaking a risk based approach, then the calculation of the annual bond takes placed based not on an estimate of the liability of the entire operation but the liability for the particular year.[257] Dr Gillespie concluded:

> *"My principle is that one should assess the costs and the benefits of the bond and one should include both parts of a risk assessment not just the consequence part."*[258]

237. It is also accepted by GDFSAE that more regular reviews of the level of bonds would be useful, and that there is a case for a process drawing on the powers also set out in s 79A of the MRSD Act to enable the operator's estimates of rehabilitation liability to be audited.

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252 Gillespie Report, Exhibit 45 at [54] – [56].

253 Unger T631.20 – 24.

254 Gillespie T1028.29 – T1029.3

255 Cramer T1031.8 – 13.

256 Cramer and Gillespie at T1032 – T1034.

257 Gillespie T1043.8 – 29.

258 Gillespie T1059.5 – 8.

Discount bond system

238. GDFSAE submits that if the bond system is to be reviewed, then the system ought make provision for a discount, available to operators who satisfy certain criteria. In this regard, it is of note the 10 principles enunciated by KPMG include the following:

    a. the system should reward past good behaviour (Principle 3);

    b. the system should also encourage future good behaviour and discourage future bad behaviour (Principle 4).[259]

239. Dr Gillespie proposed that a bond discount system if adopted ought to be based on the outcome of risk assessments which would involve the consideration of factors relevant to mine operator: see Dr Gillespie Report, Exhibit 45 at [67] – [68]. He saw no reason why there should be a ceiling on the discount available on bonds via such a system.[260]

240. It was agreed that some mode of recognition, reward or encouragement for progressive rehabilitation may be desirable. However, Mr Cramer suggested that the bond mechanism does not provide a strong administrative tool to encourage progressive rehabilitation.[261] He suggested that it is probably necessary to obtain greater regulatory pressure, in other words the carrot may not work well by itself and a stick may be needed as well.[262]

241. It is submitted that a bond system which permits eligibility for a discount to be accessed by reference to clear eligibility criteria including adherence to progressive rehabilitation targets is likely to provide precisely the right kind of "carrot and stick" mechanism to achieve the dual goals of: (a) ameliorating risk of liability to the State in a manner which properly recognises the real level of risk; and (b) encouraging progressive rehabilitation.

Proposed Recommendation in relation to rehabilitation bond system

242. In the event the Board does not accept the primary position of GDFSAE that an additional rehabilitation bond is unnecessary, GDFSAE proposes that the Board consider the following principles and recommendation for a review of the rehabilitation bond system applicable to the three Latrobe Valley mines.

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259 KPMG Report, DEDJTR.1007.001.0234.

260 Gillespie Report, Exhibit 45 at [74] – [74].

261 Cramer T1025.26 – T1026.7

262 Cramer T1026.10 – 13.

The rehabilitation bond system ought to be reviewed in line with the following principles:

a. a risk based approach should be adopted to the assessment of the likelihood of a default on the part of any of the three Latrobe Valley coal mines;
b. the estimated costs of rehabilitation of mines ought to be based on a common method adopted by operators to estimate costs, as reviewed by an auditor. The approach here might draw on the power already available to the Minister in accordance with s 79A of the MRSD Act;
c. the process of setting the bond for each mine ought to take account of both the risk of the particular mine defaulting and the estimated cost of rehabilitating that mine, assessed from time to time; and
d. a discount to the bond amount ought to be available, based on the application of the risk based approach, and by reference to a clear set of eligibility criteria.

Assessment of likelihood of risk of default occurring

- A structured risk assessment ought to be conducted by appropriate experts in order to assess the likelihood that the State will be required to assume liability for rehabilitating each or any of the three Latrobe Valley coal mines.
- Such risk assessment ought be undertaken having regard to risk factors specifically relevant to each of the three mines (for example, size, financial strength and reputation of the ultimate parent companies would mean that there is no risk or very little risk).
- So far as is necessary, the likelihood of the risk that the State will be required to assume liability for end of mine rehabilitation ought to be assessed with respect to intervals during the remaining life of each of the mines.
- For each mine, the process of risk assessment referred to above ought involve consultation with that mine concerning the factors relevant to the conduct of the risk assessment.
- For each mine, a risk rating will then be devised.
- Only in circumstances where the level of risk is material and assessed as being in excess of the current bond is there any need to further review the bond level.
- Where the bond level is required to be re-assessed, the following steps apply

Calculating the undiscounted amount of the bond

- A raw or "undiscounted" bond level ought be determined for the mine. To determine the "undiscounted" bond level for the mine, the method set out below ought be adopted, and regard must be had to the following key principles:

(i) **The degree of risk:** assessed as above; and

(ii) **The estimated costs of rehabilitation** of that mine in the event the State is required to assume responsibility for the works. (See below in relation to method for calculating the costs estimate).

- Both of the above must be assessed in order to devise the undiscounted bond level appropriate for the mine. This is to be done by applying risk assessment principles, having regard to the likelihood of the risk occurring, and the consequence (i.e. the cost of rehabilitation) in the event the risk does occur and having regard also to the fact that these assessments are likely to change over time.

Second step: discounted bond level

- Once an undiscounted bond level is determined for the mine, that amount is able to be discounted (by up to 50%), having regard to applicable discount criteria including but not limited to:

(i) Compliance with progressive rehabilitation targets contained in the mine's approved work plan;

(ii) Demonstration that plans are in place for future progressive rehabilitation and a budget which will fund the implementation of those plans;

(iii) Demonstration of the reputation and financial stability of the operator (through, for example, corporate group accounts, the nature and extent of operations domestically and internationally).

- In the event that the discounted bond amount applicable to the mine is larger than the current bond set for the mine, the operator shall be entitled to increase its bond payment over a period of up to 10 years, making increased payments in multiple steps, in order to ameliorate the effect of a large once off increase in the requisite bond costs.

<u>Estimate of costs of rehabilitation of mine</u>

- The operator is to undertake their own estimate of the cost of final rehabilitation of its mine. The estimate is to be undertaken by each mine operator having regard to:

(i) the end of planned mine life (namely, the date by which it is presently assumed the mine will cease operations, having regard to the current licence duration and approved work plans);

(ii) the estimated cost of final rehabilitation, having regard to the current approved work plans, and taking into account studies and reports in relation to its mine relevant to rehabilitation works, and in reference to the operator's best estimate of the inputs based on its workforce and contractor engagement rates.

- The results of the operator's estimate of costs of rehabilitation is to be reviewed by an independent auditor, assisted by one or more technical experts if the auditor requests or requires such assistance (for example, expert/s with geotechnical, mine rehabilitation or other relevant experience). The auditor will:

(i) review the work performed by the operator and produce an estimate of the cost of the final rehabilitation of the mine, having regard to the end of planned mine life of the mine;
(ii) consult with the mine operator before during and after the review, including at the stage at which a draft of the review is produced; and
(iii) supply the estimate to the operator and to the Department when the auditor reaches a final view concerning the cost estimate for the mine.

- Using the above work, the Department will then provide sufficient material to an independent expert (to be retained by the Department) to take the audited cost estimate for the final rehabilitation of the mine and use the work therein to undertake a second cost estimate. This second cost estimate will be the predicted cost of an unplanned "close tomorrow" final rehabilitation exercise, which assumes that the operator does not perform the work, but rather that a third party (engaged by the State) performs the work.
- Finally, both cost estimates referred to above (the audited estimate of costs of closure at planned end of mine life and the independently assessed cost of unplanned closure prior to end of mine life estimate), will be supplied to the mine operator and the State for the purpose of using that work as one part of the broader work required to be undertaken in relation to reviewing the rehabilitation bond rates.

<u>Method of providing financial surety</u>

- An operator ought be permitted to negotiate with the State the mode by which it will supply financial assurance for its discounted bond amount. The mode might include a bank guarantee or a parent company guarantee, the precise form of financial surety to be agreed between the operator and the State.

Q27 Is Hazelwood Mine required to provide a financial assurance to the EPA in respect of its landfill?

Yes, it is plain that a financial assurance is required in respect of the Hazelwood landfills, but the assurance level has never been set or implemented by the EPA.

What does the EPA landfill scheme cover?

243. The financial assurance scheme under s 21(1)(b) of the *Environment Protection Act* 1970 (Vic) (**EP Act**) is directed to providing financial assurance in the event that a clean up of a landfill is required by the Authority.[263] A financial assurance is not required for "extractive industry and mining" or for power stations. However, a financial assurance is required for landfills, excluding premises with solely land discharges or deposits used only for the discharge or deposit of mining wastes.[264]

244. In circumstances where the Hazelwood Mine contains a number of landfills which receive waste, including waste other than mining waste (ash and asbestos), prima facie it appears likely that a landfill assurance is enlivened under the EPA's scheme.

Has Hazelwood Mine provided a financial assurance to the EPA?

245. No, the Hazelwood Mine has not done so. But this arises in the context where over many years, the mine operator has sought information concerning the quantum and mode of the assurance required to be paid, and the EPA has been unable or unwilling to confirm the nature of the requirement.

Why has Hazelwood Mine not provided a financial assurance to the EPA?

246. In opening submissions with respect to TOR 10, Counsel Assisting contended that there was a "concerted campaign" by the mine operators to avoid making the financial assurances required by the EPA scheme.[265]

247. There is no evidentiary basis for this assertion, and it is simply wrong. The correct position is that the EPA has been requested to state its position in relation to the issue of financial assurances over the course of over a decade. If there has been a concerted campaign by the mines, it has been one directed to obtaining a position from the EPA on the question of the form and quantum of the financial assurance required by the mines.

248. GDFSAE has not been seeking to operate outside the law, but has in fact been making proposals to the EPA as to how it can comply with the financial assurance requirement.[266] The sequence of events is as follows.

249. A licence condition was initially imposed on the operators requiring them to provide a proposal for a financial assurance soon after the commencement of s 67B of the EP Act on 1 October 2000 (Condition G6 (LI_G6) of the licence for Hazelwood).[267]

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263 Webb Statement, VGSO.1022.001.0001 at VGSO.1022.001.0002 at [11]-[14].

264 Schedule 1 to the *Scheduled Premises, Regulations AO5 (Landfills).*

265 Counsel Assisting Oral Closing Submissions at T671.13 – 18.

266 Webb T903.26-31 – T904.4.

267 Webb Statement, Exhibit 39A, VGSO.1022.001.0001 at VGSO.1022.001.004 at [22].

250. In September 2002, the EPA received a joint submission from the operators of the three Latrobe Valley Power Stations stating that they did not consider it appropriate that they be required to give financial assurances[268] stating that their landfills should not be covered by the same conditions as a commercial landfill, and that a financial assurance duplicated the rehabilitation bond held by the Department of Natural Resources and Environment (DNRE), the mining regulator at the time.

251. It was not until July 2005 (almost three years later), that the EPA formally responded to the joint submission on behalf of the operators and informed them that its decision was that a financial assurance was required.[269]

252. From 2010 onwards, the EPA was engaged in a process of licence reform regarding all licensed sites. During that reform process, the EPA has not actively sought financial assurances from the mine operators.[270] As Mr Webb stated in evidence the EPA had: "consciously chosen not to actively seek financial assurance since the commencement of the review process in 2010. Again, reading through the evidence provided, we maintain a position from 2002 through to 2010 that they were applicable, however we failed to enforce them."[271] The EPA apparently formed the view, having considered factors such as risk of environmental harm, financial viability and compliance history that the landfills associated with the mines were moderate risk and accordingly were not prioritised for action.[272]

253. On 19 October 2012, GDFSAE provided a proposal to the EPA in relation to the financial assurance that it ought be required to provide, and proposed that a parent company guarantee would be the appropriate mechanism for financial assurance if one was required. GDFSAE also made submissions to the EPA as to the quantum of the financial assurance that was required.[273]

254. On 14 August 2013 (almost a year later), the EPA wrote to GDFSAE and responded to its inquiries as to the status its proposals regarding financial assurance. The response given by the EPA was that:

    i. a risk based process for determining which sites require a financial assurance and guidelines had been prepared to support the process;

    ii. an engagement strategy to roll out the guidelines is 'not far off'; and

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268 Webb Statement, Annexure 6, Exhibit 39A, VGSO.1022.001.0001 at VGSO.1022.001.004 at [22].

269 Webb Statement, Exhibit 39A, VGSO.1022.001.0001 at VGSO.1022.001.004 at [22] and Annexure 7.

270 Webb Statement, Exhibit 39A, VGSO.1022.001.0001 at VGSO.1022.001.004 at [22] (as amended in evidence).

271 Webb T903.20 – 25.

272 Webb Statement, Exhibit 39A, VGSO.1022.001.0001 at VGSO.1022.001.0004 – 0005 at [24].

273 Webb Statement, Annexure 14A, Exhibit 39B.

iii. legal advice about parent company guarantees was with the solicitors.

The email concludes (presciently): "Hope this helps. I'd say the ball is squarely in the Authority's court."[274]

255. The ball has remained "squarely in the Authority's court" and no further advice has been provided to GDFSAE by the EPA.

256. In the meantime, the annual performance statements for EPA Licence EM30856 filed by GDFSAE between 2012 and 2015 have each frankly reported that the licensee has not complied with Licence Condition G6 to maintain a financial assurance "calculated in accordance with the EPA method". The annual performance statements have identified that an application has been made to the EPA in relation to the financial assurance required and that the EPA has yet to determine the issue.[275]

257. The EPA Inspection Report regarding a site inspection undertaken by EPA Victoria on 29 May 2015 notes at item 2.9 of the observations within the report notes that the licensee had raised the correspondence to the EPA regarding the financial assurance condition and this had not been acknowledged by the EPA and the reported non-compliance with this licence condition.

258. On 25 August 2015, GDFSAE again reported non-compliance with the financial assurance condition and noted once again that the EPA is reviewing the system.'[276]

259. It is clear from the above, and Mr Webb accepted, that GDFSAE has not been seeking to operate outside the law as suggested by Counsel Assisting, but in fact has been making proposals to the EPA in an attempt to regularise its position in relation to the landfill financial assurance regime.[277] In the face of those attempts the EPA has remained inactive and unwilling to commit to a position. There is no basis in light of this evidence for any adverse comment or finding in relation to GDFSAE.

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274 Exhibit 40, Email from David Guy (EPA) to David Addis (GDFSAE) dated 14 August 2013, GDFS.0001.004.0080.

275 See for example GDFS.0001.004.0081 at GDFS.0001.004.0087 being the Annual Performance Statement to the EPA in relation to Licence 46436, part of Exhibit 40, GDFS.001.004.0081 at GDFS.001.004.0087; Webb T904.5 – 9.

276 Exhibit 40, EPA Inspection Report 80009510 dated 5 June 2015, GDFS.0001.004.0099 at GDFS.001.004.0100; Webb T905.12 – 19.

277 Webb T903.26 – 31-904.1 – 3.

FIRE MITIGATION

Q28 What new fire responses have been implemented since Hazelwood Mine Fire Inquiry #1?

Since the first Hazelwood Mine Fire Inquiry, GDFSAE has invested significant resources in implementing the extensive affirmations of GDFSAE, and relevant recommendations of the *2014 Hazelwood Mine Fire Inquiry Report*.

260. Since the time of the first Hazelwood Mine Fire Inquiry, GDFSAE has invested significant resources in implementing the extensive affirmations of GDFSAE, and relevant recommendations of the *2014 Hazelwood Mine Fire Inquiry Report*. Key achievements in this regard include:

    a. reviewing and updating Hazelwood's fire related plans and policies in order to provide for:

        i. pre-established emergency command structures on Extreme Fire Danger days;

        ii. more personnel and contractors rostered on for dedicated fire protection duties on Severe and Extreme Fire Danger Days; and

        iii. systems for progressively wetting down operating and worked out areas of the Mine on Severe and Extreme Fire Danger days to reduce fire risk;

    b. delivering enhanced training to Hazelwood's emergency command personnel, including onsite emergency simulation exercises, with the involvement of external emergency services agencies;

    c. improved communication networks with the CFA and other emergency service agencies;

    d. increasing the reliability of power supply to the mine via a range of engineering works including the duplication of certain electrical lines, installation of additional switching capacity, and the replacement of wooden poles;

    e. upgrading signage within the mine to assist in orientating external emergency services agencies;

    f. installing two portable trailer-mounted Forward Looking Infra-red Radar (**FLIR**) cameras within the Mine to help identify any hot-spots; and

    g. completing a further 10 hectares of mine rehabilitation works on the

mine's Northern Batters.[278]

261. GDFSAE's progress was acknowledged by the Implementation Monitor, Mr Neil Comrie, in his 2015 Annual report to Parliament, which noted that:

> *"I'm pleased to report that GDF SUEZ has completed most of their implementation actions and those remaining are progressing in a satisfactory manner. The IM acknowledges the high level of cooperation received from GDF SUEZ in undertaking its responsibilities. All requests from the IM were met promptly and efficiently."*[279] [Emphasis added]

262. Emergency Management Commissioner Mr Lapsley has also commended the work of the Latrobe Valley Taskforce and the work of GDFSAE in that context.[280]

263. The effectiveness of Hazelwood's revised fire and emergency policies and procedures was demonstrated on 6 October 2015, when Hazelwood faced a day of unseasonably high fire danger. Leading up to that day, Hazelwood personnel had been working with CFA District operations to monitor and suppress a hotspot which had been identified within the Mine, as part of routine operations. The forecast for high temperatures, coupled with a cool change involving high winds, triggered a precautionary management process in and around the mine, including in the hot spot area, pursuant to an internal designation of Extreme Fire Danger. Ongoing wetting down of the area, coupled with mobilisation of appropriate fire suppression equipment and additional resources, including a manned Emergency Command Centre, ensured that the day passed without incident.[281]

OTHER MATTERS: COMMONWEALTH EPBC ACT

264. For the first time in closing submissions, counsel for Environment Victoria Inc. sought to raise a point which it was (fairly) conceded had not been put to any witness. The point was described as "a legal point". GDFSAE reserves its right to provide further submission in response to this point, following service of the written submissions of Environment Victoria on this point.

265. The legal point raised by Environment Victoria relates to s 24D of the *Commonwealth Environment Protection and Biodiversity Conservation Act* 1999 (**EPBC Act**) which Environment Victoria submitted, "might have a role to play".[282]

278 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [231] – [233].

279 Exhibit 32, Hazelwood Mine Fire Inquiry Implementation Monitor – Annual Report October 2015, HMFI.1010.001.0001 at 0010.

280 Lapsley Statement, Exhibit 4, VGSO.1005.001.000 at [30]; Lapsley T76.15 - 20.

281 Faithful Statement, Exhibit 13, GDFS.0001.001.0001 at [234] – [236].

282 Environment Victoria Oral Closing Submissions T1177.2.

Counsel for Environment Victoria submitted that s 24D:

> *"makes it an offence to undertake an action if the action is part of a large coal mining development and will have a significant impact on water resources. …. [I]t is an offence under that Act to take actions unless the action has been approved by the Minister for the Environment, and in our submission, for reasons which I will develop in writing, it seems to us likely that that provision would apply to the filling of the mines if the pit lake option were adopted because it would fall within the definition of the Act and the pit lake filling will have a significant impact on water resources, so that regime may well become relevant."*

266. It is unsatisfactory and unfair for such a legal point relating to a matter which canvassed extensively at the hearing (the filling of the pit lakes) to be raised in closing submissions, having not been put to a single witness or canvassed in the hearings at all. This has deprived the parties (and the Board) of the opportunity to explore the point and obtain evidence in relation to it.

267. To the extent that GDFSAE is able at this stage to make submissions on this point (without the benefit of the written submissions of Environment Victoria) it is submitted that the s 24D does not apply to the function of filling these lakes for the reasons discussed below.

Commencement date

268. Section 24D commenced operation on 22 June 2013, and had no equivalent in earlier versions of the EPBC Act. The water entitlements and rehabilitation plans for the Latrobe Valley coal mines approved prior to June 2013 have therefore not been assessed, and could not have been expected to be assessed as against the requirements introduced by s 24D of the EPBC Act.

State laws have concurrent operation

269. Section 10 of the EPBC Act provides that the Act is not intended to exclude or limit the concurrent operation of any law of a State or Territory, except so far as the contrary intention appears. No relevant "contrary intention" can be discerned in the EPBC Act. That is, there is nothing in the EPBC Act which discloses an intention to oust the operation of the states' statutory regimes regarding the allocation of water and requirements in relation to mine rehabilitation. As a result, it must be assumed that the Commonwealth intended Victoria's water allocation regime to continue to operate unaffected. Thus, the entitlement to use groundwater pursuant to a licence granted by State law is to be assumed to continue unaffected.

Commonwealth provisions not enlivened

270. There are a number of Constitutional "triggers" which enliven the operation of s 24D. The flooding of a mine void does not appear to satisfy any of the relevant

triggers. The EPBC Act is limited in its operation to specific actions taken by constitutional corporations and Commonwealth agencies; actions taken for the purpose of international trade or commerce (ss 24D(2) and 24E(2) and actions taken in a Commonwealth area or territory (ss 24D(3) and 24E(3)). It appears unlikely that any of these heads of power apply to the flooding of a mine pit as part of execution of a rehabilitation plan. That is, the flooding of the pit cannot be seen as being undertaken for the purpose of trade or commerce (as might be the case for mining activities themselves). Thus, it appears that the EPBC Act provisions relating to impact on water resources are not applicable to the flooding of the mine void.

No "significant impact"

271. Further, for s 24D to be enlivened, the proposed action (in this case, the filling of the pit voids with groundwater) must be assessed as having, or being likely to have a *significant impact* on a water resource. As is apparent from the flow chart contained within the *Significant Impact Guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources*, December 2013 published by the (then) Department of the Environment it is only where the proposed action involves mining for coal or the extraction of coal seam gas that the "water trigger" applies.[283] It is plain from the self-assessment flow chart that it is the extraction of coal or coal seam gas that triggers the application of s 24D. The flooding of these mine voids will necessarily occur after the cessation of extraction activities and is for an entirely different purpose, namely rehabilitation of the mines and creation of the end of mine landform.

272. Further, even if the proposed action of filling the pit with groundwater was considered to be a relevant action for the purpose of the EPBC Act, it would need to be demonstrated that the proposed action was likely to impact on the hydrological characteristics or water quality of the water resource. In this case, what is proposed is that the depressurising of the aquifers continue for a limited period of time following cessation of mining in order to maintain floor stability (with such dewatering having already been undertaken at the Mine for decades in accordance with groundwater licence entitlements and for the purpose of mine stability), and that the extracted water be fed back into the void to assist in the filing of the pit lake. In short, an intervention (depressurising of the aquifers) which has been undertaken for many years will in fact cease. It is difficult to see how this can trigger the "significant impact" criterion.

273. Therefore it is highly improbable that any impact, let alone a significant impact within the meaning of the EPBC Act, on the hydrological characteristics or quality of the water resource could be demonstrated at this late stage of the Mining operations, in any event.

283 *Significant Impact Guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources* at page 6.

EPBC Act requires a referral

274. Further, even if the filling of the pit voids with groundwater were found to be an "action" which is likely to have a significant impact on a water resource thereby triggering one of the sub-sections of s 24D, this is not a disqualifying event. The obligation which then arises is that a referral to the Commonwealth Minister for the Environment is required. This would in turn require the proposed "action" to be assessed for approval under the EPBC Act.

275. Such a referral does not inevitably entail the result that the filling of the pits would be regarded as an unacceptable outcome under the EPBC Act. That is particularly the case when one considers that the use of the water in this manner is essential to ensuring a successful and stable rehabilitation outcome for the mines.

Conclusion

276. For the foregoing reasons, it is concluded that this issue belatedly raised by Environment Victoria is without basis and need not trouble the Board in its deliberations regarding TOR 8 to 10.

Rachel Doyle

Marita Foley

15 January 2016