HAZELWOOD MINE FIRE INQUIRY REPORT 2015/2016 VOLUME IV – MINE REHABILITATION



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HAZELWOOD MINE FIRE INQUIRY REPORT 2015/2016 VOLUME IV – MINE REHABILITATION

THE HON. BERNARD TEAGUE AO – CHAIRPERSON

PROF. JOHN CATFORD – BOARD MEMBER

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Hazelwood Mine Fire Inquiry

LETTER OF TRANSMISSION

The Honourable Linda Dessau AM Governor of Victoria Government House Melbourne VIC 3004

7 April 2016

Your Excellency

In accordance with the Terms of Reference dated 26 May 2015 and subsequently updated on 5 November 2015 and 17 March 2016, we have the honour of presenting to you the fourth and final volume of the report of the 2015–16 Hazelwood Mine Fire Inquiry.

This volume addresses paragraphs 8, 9 and 10 of the Terms of Reference relating to the short, medium and long-term options to rehabilitate the Hazelwood mine, the Yallourn mine and the Loy Yang mine. It considers the adequacy and effectiveness of the current rehabilitation liability assessments and rehabilitation bond systems, having regard to the rehabilitation liability assessments that have been reported in 2015 by the mine operators, as required by the *Mineral Resources (Sustainable Development) Act 1990* (Vic), and to the outcome of the Rehabilitation Bond Review Project.

The report discusses the rehabilitation plans of the Latrobe Valley mines, the role of the government and key agencies in mine regulation and rehabilitation, viable rehabilitation options and assessment of these options, rehabilitation liability assessments, effectiveness of the rehabilitation bond system, alternative financial assurance mechanisms, other outstanding issues requiring consideration, and future coordination and collaboration.

The Board makes several recommendations, affirmations and commendations as a result of this Inquiry.

The Board would like to acknowledge Mrs Anita Roper for her invaluable contribution to the Inquiry from 26 May to 26 November 2015. Over this period, being the majority of the Inquiry, she contributed an enormous amount to all Terms of Reference, but in particular to the direction, scope and engagement of community, industry and government agencies for paragraphs 8, 9 and 10. The Inquiry benefitted from Mrs Roper's great experience of the mining industry. Regrettably, Mrs Roper was unable to continue as a Board member after 26 November 2015 due to a medical condition.

Undertaking this work has been a privilege and we would like to thank the people of the Latrobe Valley for their hospitality and generosity. We also appreciate the contribution of the community, industry and government agencies to the Inquiry's conclusions and recommendations.

Yours sincerely

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The Hon. Justice Bernard Teague AO

Jolin Catford

Prof. John Catford



Victoria Government Gazette

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Inquiries Act 2014

APPOINTMENT OF A BOARD OF INQUIRY INTO THE

HAZELWOOD COAL MINE FIRE Order in Council

The Governor in Council, on the recommendation of the Premier under section 53(1) of the **Inquiries Act 2014**, appoints:

- the Honourable Bernard George Teague AO;
- Professor John Charles Catford; and
- Mrs Anita Michele Roper

to constitute a Board of Inquiry to inquire into and report on the terms of reference specified in paragraphs 6 to 11 of this Order.

The Honourable Bernard George Teague AO is appointed as Chairperson of the Inquiry.

This Order comes into effect on the date it is published in the Government Gazette.

BACKGROUND

- 1. In early February 2014 a fire ignited which, on or about 9 February 2014, took hold in the Hazelwood Coal Mine.
- 2. The Hazelwood Coal Mine Fire impacted the Latrobe Valley communities.
- 3. In March 2014, a Board of Inquiry was established to inquire into and report on the following specified matters:
 - 1. The origin and circumstances of the fire, including how it spread into the Hazelwood Coal Mine.
 - 2. The adequacy and effectiveness of the measures taken by or on behalf of the owner, operator and licensee of the Hazelwood Coal Mine to prevent the outbreak of a fire, and to be prepared to respond to an outbreak of a fire including mitigating its spread and severity, in the Hazelwood Coal Mine, including whether the owner, operator and licensee of the Hazelwood Coal Mine, or any person or entity acting on behalf of any of them:
 - i. implemented the recommendations arising from reviews of previous events; and
 - ii. in the opinion of the Board, breached or did not comply with the requirements of (or under) any relevant statute or regulation, including any notification or directive given under such statute or regulation and any code of practice, management plan or similar scheme, developed and/or implemented due to such requirements.
 - 3. The adequacy and effectiveness of the application and administration of relevant regulatory regimes in relation to the risk of, and response to, fire at the Hazelwood Coal Mine.
 - 4. The adequacy and effectiveness of the response to the Hazelwood Coal Mine Fire by:
 - *i. the owner, operator and licensee of the Hazelwood Coal Mine;*
 - *ii. the emergency services; and*
 - *iii.* other relevant government agencies, including environmental and public health officials,

and in particular, the measures taken in respect of the health and well-being of the affected communities by:

SPECIAL

- *iv. informing the affected communities of the Hazelwood Coal Mine Fire and about its known effects and risks; and*
- v. responding to those effects on, and risks to, the affected communities.
- 5. Any other matter reasonably incidental to the matters specified in paragraphs 1 to 4.
- 4. That Inquiry's report was tabled in the Victorian Parliament on 2 September 2014.
- 5. Since that report was tabled, further concerns have been raised about the potential health impacts of the fire on the Latrobe Valley communities and future options for rehabilitating Victorian mines in the Latrobe Valley.

TERMS OF REFERENCE

You are required to inquire into and report on the following terms of reference:

- 6. Whether the Hazelwood Coal Mine Fire contributed to an increase in deaths, having regard to any relevant evidence for the period 2009 to 2014;
- 7. Short, medium and long term measures to improve the health of the Latrobe Valley communities having regard to any health impacts identified by the Board as being associated with the Hazelwood Coal Mine Fire;
- 8. Short, medium and long term options to rehabilitate:
 - (a) land on which work has been, is being or may lawfully be done in accordance with a Work Plan approved for the Hazelwood Mine, the Yallourn Mine, and the Loy Yang Mine; and
 - (b) land in relation to which an application for variation of the Work Plan is under consideration for the Hazelwood Mine, the Yallourn Mine, or the Loy Yang Mine;
- 9. For each rehabilitation option identified under paragraph 8:
 - (a) whether, and to what extent, the option would decrease the risk of a fire that could impact the mine and if so, the cost of the option relative to the cost of other fire prevention measures;
 - (b) whether, and to what extent, the option would affect the stability of the mine;
 - whether, and to what extent, the option would create a stable landform and minimise long term environmental degradation;
 - (d) whether, and to what extent, the option would ensure that progressive rehabilitation is carried out as required under the Mineral Resources (Sustainable Development) Act 1990;
 - (e) the estimated timeframe for implementing the option;
 - (f) the option's viability, any associated limitations and its estimated cost;
 - (g) the impact of the option on any current rehabilitation plans for each mine;
 - (h) whether, and to what extent, the option would impact the future beneficial use of land areas impacted by the mines; and
 - (i) whether the option is otherwise sustainable, practicable and effective;
- 10. Having regard to the rehabilitation liability assessments that have been or will be reported in 2015 by the operators of each of the Hazelwood Mine, the Yallourn Mine, and the Loy Yang Mine, as required by the **Mineral Resources (Sustainable Development) Act 1990**, and to the outcome of the Rehabilitation Bond Review Project:
 - (a) whether the rehabilitation liability assessments referred to above are adequate;
 - (b) whether the current rehabilitation bond system, being one of the measures to provide for progressive rehabilitation by end of mine life as required under the Mineral Resources (Sustainable Development) Act 1990, is, or is likely to be, effective for the Hazelwood Mine, the Yallourn Mine, and the Loy Yang Mine; and

- (c) any practical, sustainable, efficient and effective alternative mechanisms to ensure rehabilitation of the mines as required by the Mineral Resources (Sustainable Development) Act 1990;
- 11. Sustainable, practical and effective options that could be undertaken by the mine operator to decrease the risk of fire arising from or impacting the Anglesea Mine for the 2015/2016 summer season, noting the impending closure of the mine on 31 August 2015; and
- 12. Any other matter that is reasonably incidental to those set out in paragraphs 6 to 10.

REPORTING DATES

You must report your findings and any recommendations to the Governor as soon as possible, and not later than:

- (a) 31 August 2015, in respect of the Anglesea mine Term of Reference in paragraph 11 of this Order, and any reasonably incidental matters;
- (b) 2 December 2015, in respect of the Health Terms of Reference, and any reasonably incidental matters; and
- (c) 15 March 2016, in respect of the Mine Terms of Reference, and any reasonably incidental matters.

CONDUCTING THE INQUIRY

- 13. You may:
 - (a) conduct your inquiry as you consider appropriate, subject to the requirements of procedural fairness, including by adopting any informal and flexible procedures to: engage with the relevant local communities; ascertain the relevant facts as directly and effectively as possible; and avoid unnecessary cost or delay;
 - (b) have regard to any research, past inquiries, reports and evaluations that may inform your inquiry and avoid unnecessary duplication;
 - (c) have regard to any documents, things or evidence received by, and any matters submitted to, the Board of Inquiry referred to in paragraph 3 as if those documents, things or evidence had been received by you, or those matters had been submitted to you, as the case may be, for the purposes of your inquiry and any report or reports under this Order;
 - (d) consult with the relevant local communities; and
 - (e) consult with and engage experts (including Australian legal practitioners) as necessary to provide relevant advice and assistance.
- 14. You must conduct your inquiry in accordance with this Order, the **Inquiries Act 2014**, and all other relevant laws.
- 15. It is anticipated that in conducting your inquiry you will, to the extent you think it appropriate, work co-operatively with, and seek not to prejudice, any ongoing response or recovery activities or investigations into the Hazelwood Coal Mine Fire.
- 16. The powers of the Board of Inquiry, at the discretion of the Chairperson may, at any time, be exercised by one or more Inquiry members.

BUDGET

17. You may incur expenses and financial obligations to be met from the Consolidated Fund up to \$3.378 million in conducting this Inquiry.

DEFINITIONS

18. In this Order:

Anglesea Mine means the land the subject of the Mines Aluminium Agreement (Agreement 6829) as in force from time to time, which was ratified by the **Mines (Aluminium Agreement) Act 1961**;

Hazelwood Coal Mine Fire means the fire that took hold in the Hazelwood Mine on or about 9 February 2014;

Hazelwood Mine means the land the subject of Mining Licence Number 5004, as in force from time to time;

Health Terms of Reference means the terms of reference in paragraphs 6 and 7 of this Order; *Loy Yang Mine* means the land the subject of Mining Licence Number 5189, as in force from time to time;

Mine Terms of Reference means the terms of reference in paragraphs 8, 9 and 10 of this Order;

Rehabilitation Bond Review Project means the current review into rehabilitation bonds and the methodology by which they are calculated, as referred to at page 1612, lines 7–8 of the transcript of the Hazelwood Mine Fire Inquiry dated 10 June 2014;

Work Plan means a work plan approved under the Mineral Resources (Sustainable Development) Act 1990 or endorsed pursuant to clause 21A of the Agreement set out in Schedule 1 to the Mines (Aluminium Agreement) Act 1961, as amended by the Amendment Agreement set out in Schedule 2 to that Act, as the case may be;

Yallourn Mine means the land the subject of Mining Licence Number 5003, as in force from time to time.

Dated 26 May 2015

Responsible Minister: THE HON DANIEL ANDREWS MP Premier

> YVETTE CARISBROOKE Clerk of the Executive Council



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Inquiries Act 2014

AMENDMENT TO THE TERMS OF REFERENCE FOR THE BOARD OF INQUIRY INTO THE HAZELWOOD COAL MINE FIRE

Order in Council

The Governor in Council under section 53 of the **Inquiries Act 2014**, amends the Order in Council dated 26 May 2015 establishing the Board of Inquiry into the Hazelwood Coal Mine Fire by:

1. For paragraphs (b) and (c) under the heading 'Reporting Dates' substitute -

- "(b) 2 December 2015, in respect of the Term of Reference in paragraph 6 of this Order, and any reasonably incidental matters; and
- (c) 29 January 2016, in respect of the Term of Reference in paragraph 7 of this Order, and any reasonably incidental matters; and"

2. After paragraph (c) under the heading 'Reporting Dates' insert -

"(d) 15 March 2016, in respect of the Mine Terms of Reference, and any reasonably incidental matters."

Dated 4 November 2015 Responsible Minister THE HON. DANIEL ANDREWS MP Premier

> MATTHEW McBEATH Clerk of the Executive Council



Victoria Government Gazette

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Inquiries Act 2014

FURTHER AMENDMENT TO THE TERMS OF REFERENCE FOR THE BOARD OF INQUIRY INTO THE HAZELWOOD COAL MINE FIRE

Order in Council

The Governor in Council under section 53 of the **Inquiries Act 2014**, further amends the Order in Council dated 26 May 2015 establishing the Board of Inquiry into the Hazelwood Coal Mine Fire by:

- 1. For paragraph (d) under the heading 'Reporting Dates', as per the Terms of Reference amended by Order in Council of 4 November 2015 substitute
 - '(d) 8 April 2016, in respect of the Mine Terms of Reference, and any reasonably incidental matters.'
- 2. After paragraph 16 under the heading 'Conducting the Inquiry' insert -
 - '16A. The Chairperson may determine from time to time that any of the functions of the Board of Inquiry may be performed by one or more members separately. This includes, but is not limited to, the function of the Board of Inquiry reporting its findings and any recommendations to the Governor in respect of the Mine Terms of Reference, and any reasonably incidental matters.'

Dated 15 March 2016 Responsible Minister: THE HON DANIEL ANDREWS MP Premier

> ANDREW ROBINSON Clerk of the Executive Council

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GUIDE TO READING THIS REPORT

This report constitutes the Board of Inquiry's response to paragraphs 8, 9 and 10 of the 2015–16 Hazelwood Mine Fire Inquiry's Terms of Reference. Terms of Reference 8, 9 and 10 require the Board to inquire into, report on, and make any recommendations that it considers appropriate in relation to short, medium and long-term options to rehabilitate the Hazelwood mine, the Yallourn mine and the Loy Yang mine; the adequacy and effectiveness of the current rehabilitation liability assessments and rehabilitation bond system; and what alternative financial mechanisms are available to ensure that rehabilitation is carried out pursuant to the requirements of the *Mineral Resources (Sustainable Development) Act 1990* (Vic) (Mineral Resources Act). The Board is also required by Term of Reference 12 to inquire into, and report on, any other matter that is reasonably incidental to Terms of Reference 8, 9 and 10.

KEY TERMS

In this report, the term 'State' is used broadly to encompass the Victorian Government and the Victorian public service.

The term 'Mining Regulator' refers to the Earth Resources Regulation Branch of the Department of Economic Development, Jobs, Transport and Resources and its various predecessors (noting that other government departments and agencies also have responsibility for aspects of mine regulation in Victoria).

The term 'mine operators' refers to the operators of the Yallourn mine (EnergyAustralia Yallourn Pty Ltd), the Hazelwood mine (GDF Suez Australian Energy) and the Loy Yang mine (AGL Loy Yang Pty Ltd). The term 'mine operators' is also used to refer to licence holders of the Yallourn, Hazelwood and Loy Yang mines.

Term of Reference 8 does not define 'short', 'medium' or 'long-term'. The Board has therefore adopted the following time periods:

Short-term: from now until the end of mining operations.

Medium-term: from the end of mining operations to 15 years after the end of mining operations.

Long-term: the period commencing 15 years after the end of mining operations.

Other key mining terms are defined in Part 2 and the glossary of this report.

Part 1 of this report, INTRODUCTION TO THE INQUIRY, provides an overview of the Inquiry. This Part discusses how the implementation of the Board's recommendations should be monitored. It also provides a summary of the Board's observations and learnings throughout the 2015–16 Hazelwood Mine Fire Inquiry that it believes should be shared to help inform any future inquiries opened by the State.

Part 2 of this report, BACKGROUND INFORMATION, contains important background information relevant to the Board's inquiry, and a context for informing consideration of Terms of Reference 8, 9 and 10. This Part includes information about the community, landscape, geology and hydrogeology of the Latrobe Valley (the region where the Yallourn, Hazelwood and Loy Yang mines are situated); information on the Latrobe Valley's coal resource; key mining terms that are used throughout this report; a history of mining in the Latrobe Valley up until the mines were privatised in the mid-1990s; and current State, Commonwealth and international policy relevant to the long-term future of coal-fired power generation.

Part 3 of this report, THE ROLE OF GOVERNMENT AND KEY AGENCIES, provides an overview of the regulatory framework relevant to the rehabilitation of mines and the financial mechanisms that ensure that rehabilitation occurs. This Part outlines the complex and multilayered legislative framework that governs the establishment, operation and rehabilitation of mine sites in Victoria. It also contains information on agencies that have key roles in regulating mine rehabilitation.

Part 4 of this report, THE LATROBE VALLEY MINES, details the current features of each mine such as their location, size and scale of operation—to provide further context for considering rehabilitation options. This Part summarises the mining licence, current and future work plans and rehabilitation plans of each mine. Part 4 also includes an overview of current water licensing arrangements in the Latrobe Valley.

Part 5 of this report, VIABLE REHABILITATION OPTIONS, addresses Term of Reference 8, which asks the Board to consider short, medium and long-term rehabilitation options. It considers the aims and objectives of mine rehabilitation, and identifies potential final rehabilitated landforms for open cut mines. It then assesses these options to identify which are potentially viable for the rehabilitation of the Latrobe Valley mines. The Board commissioned a report from Jacobs Group (Australia) Pty Ltd to inform this assessment, and convened a meeting of technical experts, which resulted in the development of a joint expert report. Part 5 is further informed by the submissions and evidence of the mine operators, the State, key stakeholders, the community, and the advice of geotechnical, hydrogeological and mine rehabilitation experts.

Part 6 of this report, ASSESSMENT OF REHABILITATION OPTIONS, responds to Term of Reference 9, which asks the Board to assess the potential options against a range of criteria. This Part assesses the most viable option identified in Part 5 in relation to fire risk, stability, water quality and availability, progressive rehabilitation, timelines for implementation, costs, future land use, impacts on current rehabilitation plans, and the option's viability and associated limitations.

Part 7 of this report, REHABILITATION LIABILITY ASSESSMENTS, considers Term of Reference 10(a), which requires the Board to assess whether the mine operators' 2014–15 rehabilitation liability assessments are adequate, having regard to the outcome of the Rehabilitation Bond Review Project. The Board heard evidence from each of the mine operators and the State about the rehabilitation liability assessments submitted in 2015. The Board also heard from representatives of the State about the Rehabilitation Bond Review Project, which is incomplete.

Part 8 of this report, EFFECTIVENESS OF THE REHABILITATION BOND SYSTEM, responds to Term of Reference 10(b), which asks the Board to consider whether the current rehabilitation bond system is effective. The system's effectiveness is assessed against whether it provides security to the State should a mine operator default on its rehabilitation liability, and whether it acts as an incentive for mine operators to progressively rehabilitate mine sites. This Part outlines issues with the bond system and its implementation, and provides the Board's views on interim bond increases.

Part 9 of this report, ALTERNATIVE FINANCIAL ASSURANCE MECHANISMS, responds to Term of Reference 10(c), which requires the Board to consider any practical, sustainable, efficient and effective alternative financial assurance mechanisms that might be employed to ensure that rehabilitation is carried out pursuant to the Mineral Resources Act. The Board commissioned a report from Accent Environmental Pty Ltd about alternative mechanisms, and heard evidence from mine rehabilitation and economics experts, the State and key stakeholders.

Part 10 of this report, OUTSTANDING ISSUES REQUIRING RESOLUTION, responds to Term of Reference 12, which asks the Board to consider matters that are reasonably incidental to Terms of Reference 8, 9 and 10. In the context of the regulatory framework and its implementation, this Part discusses the adequacy of the work plans and rehabilitation plans as approved by the Mining Regulator; the consideration and action taken to verify water availability for the purpose of rehabilitation; and the adequacy of engagement with the Latrobe Valley community about rehabilitation.

Part 11 of this report, COORDINATION AND COLLABORATION, focuses on the benefits of increased collaboration and coordination of mine rehabilitation in the Latrobe Valley. This matter falls within Term of Reference 12. The Board commissioned Jacobs Group (Australia) Pty Ltd to conduct an independent review of potential coordinating mechanisms. This Part outlines the Board's views on the need for an independent coordinating body for mine rehabilitation in the Latrobe Valley, with two structures examined in greater detail—a Commissioner model and a statutory authority.

Part 12 of this report, RECOMMENDATIONS, AFFIRMATIONS AND COMMENDATIONS, summarises the Board's conclusions and presents the Board's recommendations, affirmations and commendations.