

IN THE MATTER OF**The Hazelwood Coal Mine Fire Inquiry****STATEMENT OF CHRISTOPHER JOHN ROLLAND**

Date of Document: 22 June 2015
 Filed on behalf of: Alcoa of Australia Limited
 (ACN 004 879 298)

Telephone: + 61 8 9316 5885
 Facsimile: +61 8 9316 5843

Prepared by: Lance Perry
 Corporate Solicitor
 Alcoa of Australia Limited

Attention: Lance Perry
 Corporate Solicitor
 Alcoa of Australia Limited

I, CHRISTOPHER JOHN ROLLAND, of Camp Road, Anglesea, Victoria, 3230, Mine Manager, Alcoa of Australia Limited (**Alcoa**), say as follows:

A. INTRODUCTION

1. My full name is Christopher John Rolland. My date of birth is 5 April 1954.
2. I am the Mine Manager at Alcoa based at the Anglesea Power Station, Camp Road, Anglesea, Victoria, 3230.
3. In this role I am responsible for management of the mining processes that includes: safety and environmental management for the mining department; mine planning; coal mining; crushing and stockpiling; overburden production; rehabilitation and all the peripheral issues that relate to these elements. My role also involves management of Alcoa's lease and land management. I am also responsible for engaging with relevant stakeholders and the community.
4. I hold a Bachelor of Engineering (Civil) from Deakin University.
5. My statement addresses matters 1-11 (inclusive) of the Board of Inquiry's letter dated 5 June 2015 to Lance Perry, Corporate Solicitor of Alcoa (a copy of which is annexed and marked **Annexure A**).

B. GENERAL**(1) Provide a brief history of Alcoa's operation of the Anglesea mine**

6. Alcoa was granted a lease over approximately 7500 hectares of land under the *Mines (Aluminium Agreement) Act 1961* (Vic) (**Lease**) which granted Alcoa the right to mine and explore for coal over that area. Currently, the leased area is approximately 7289 hectares with a freehold land component of approximately 144 hectares following some areas being excised from the lease in the mid 1990s.

7. A comprehensive drilling program was conducted in the 1950s and 1960s which determined reserves of approximately 120 million tonnes of coal.
8. Alcoa has mined coal on the Lease (**Mine**) for use in the Anglesea power station (**Power Station**) since February 1969. Alcoa mined coal on the Lease at an average rate over time of approximately 1.1 million tonnes per annum utilising a truck and excavator methodology.
9. The coal at the Mine is 40 million years old, making it older than the Latrobe Valley coal, with a greater heating value. The coal has comparatively less moisture (at approximately 45%), is harder, and contains less volatile organic compounds than the Latrobe Valley coals, which means it has less potential for spontaneous combustion. The Mine has an average seam thickness of 27 metres with overburden depths reaching as high as 80 metres. The Overburden to Coal Ratio (which refers to the ratio of the thickness of the overburden compared to the thickness of the coal seam) at the Mine is greater than for the mines located in the Latrobe Valley, meaning that the Mine generates comparatively more overburden. The Overburden to Coal Ratio at Anglesea confers an advantage in relation to mine rehabilitation, in that Alcoa is able to continuously backfill and rehabilitate the sections of the Mine where the coal has been mined, without the need to store large volumes of overburden.
10. Overburden material disposal is designed to be placed within the mine area behind the advancing coal face. Once the overburden storage reaches the designed height, the area is battered down when necessary, and topsoil and subsoil is replaced and the area rehabilitated to ensure minimal impact to the environment and community. This is known as a "backfill" practice and limits the Mine footprint by eliminating external overburden dumping.
11. The Power Station generated sufficient electricity to meet approximately 40% of Alcoa's Point Henry aluminium smelter's needs until the 1 August 2014. Since then, the Power Station has been supplying electricity to the National Electricity Market.
12. On 18 February 2014, Alcoa announced that the Point Henry Smelter would be closed on 1 August 2014 and the Power Station and Mine would be offered for sale.
13. On 12 May 2015, following an unsuccessful sale process, Alcoa announced that the Power Station and Mine would close on 31 August 2015.

(2) Attach an up-to-date map of the mine indicating the "freehold land", the "leased area" and the "purchased land" as those terms are defined in Schedule 2 of the *Mines (Aluminium Agreement) Act 1961 (Vic)*

14. Annexed and marked **Annexure B** is a map of the Mine indicating the "freehold land", the "leased area" and the "purchased land" as those terms are defined in Schedule 2 of the *Mines (Aluminium Agreement) Act 1961 (Vic)*. The map provided was prepared by the Crown Survey Approval Office of Surveyor-General Victoria on 24 February 2011 and was lodged in the Central Plan Office on 5 August 2011 pursuant to the *Mines (Aluminium Agreement) Act 1961 (Vic)*

15. Alcoa has a minimal fire event history at the Mine, which is outlined in paragraphs 23 to 37.

(3) Attach an up-to-date aerial photograph of the Mine

16. Annexed and marked **Annexure C** is an aerial photograph dated 2 January 2015 of the Mine.

(4) Describe Alcoa's role in relation to the Anglesea Heath with particular reference to fire mitigation

17. The area known as the Anglesea Heath forms approximately 7079 hectares of land within the Lease. An additional approximately 124 hectares of freehold land owned by Alcoa forms part of the Anglesea Heath.
18. The Victorian Government's Department of Environment, Land, Water and Planning (**DELWP**) and Parks Victoria are the authorities primarily responsible for the management of fire risk at the Anglesea Heath. Alcoa is involved in the management of the Anglesea Heath under the Anglesea Heath management Agreement it has with Parks Victoria. However, the management of fire risk in the Anglesea Heath is the responsibility of DELWP and other agencies and Alcoa plays no role in the management of this risk.
19. DELWP and Parks Victoria's fire management role includes reducing the risk of fire through the management of strategic fire breaks, fuel reduction burns as well as responding to bush fire.
20. Alcoa has continued to be a stakeholder for consultation, providing feedback and input into the DELWP's fire management and prevention strategy, predominantly from an ecological perspective.
21. Alcoa has provided consent for DELWP to conduct fire prevention works within the Lease.
22. When necessary, Alcoa has provided access to the Anglesea Heath for fire prevention activities, including fuel reduction burns, and water supply.

(5) Describe any fires that have started in the mine or have impacted the mine from outside the mine

23. During the life of the Mine, there have been three broad types of fire events at the Mine:
- a. mobile equipment fires (none of which have impacted the coal);
 - b. coal fires associated with spontaneous combustion; and
 - c. coal fires started by ember attack due to the Ash Wednesday fires in 1983.

24. Mobile equipment fires have mainly occurred on the Mine excavators and have been due to issues such as hydraulic oil igniting after coming into contact with hot engine parts following hydraulic hose failure and accumulated coal dust in the engine bay being ignited by hot engine parts. All of these events have been extinguished by either the auto-fire suppression foam units, the manual fire suppression units, hand held fire extinguishers fitted to all Mine equipment or by use of the Mine water cart.
25. Alcoa considers spontaneous coal combustion to have three stages.
26. The progressive stages are described as "steamy coal", "blue smoke/odour coal", and "open/visible flame coal".
27. Heat haze visible from steamy coal and any associated odour are conditions that indicate the early presence of developing risk of spontaneous combustion.
28. Alcoa uses visible heat haze from steamy coal and associated odour as triggers to reduce the possibility of the coal heating up to an extent that it leads to a blue smoke/odour or open/visible flame event. Where steamy coal or blue smoke are encountered a team will quickly mobilise to the area and take steps necessary to address the issue. Usually this will involve excavating or otherwise removing the impacted material and applying fire suppression to it.
29. Fire prevention continues to be an important consideration in our operations. We take this very seriously, and are proud that in 50 years of operation we have not had any significant fire events. To the best of my knowledge, over 46 years of coal mining at the Mine, there have only been three occasions, a date in 1999 (to date I have been unable to locate a record that confirms the precise date of this event), 7 February 2003 and 8 May 2014 (Flame Events), where the coal has heated through spontaneous combustion to an extent where open/visible flames were observed.
30. Spontaneous combustion is a naturally occurring event that needs to be carefully managed. Alcoa has procedures in place to prevent Blue Smoke Events from occurring, using the detection of the earliest stage of heat haze to reduce such a possibility.
31. The Flame Events in 1999 and 2014 were the result of cracked coal in a failed section of the coal wedge, located between "block 1" and "block 2".
32. The Flame Events in 1999 and 2014 were isolated to a small section of the cracked coal and were deep seated at the base and did not spread to other sections of the coal seam, including directly above the flame area.
33. The Flame Event in 2003 was small and was found at the base of a coal bench.
34. All of the Flame Events were extinguished using Alcoa resources and conventional earthmoving equipment used in the normal mining operation, being eliminated within hours following discovery.

35. Alcoa notes that the location where the Flame Events in 1999 and 2014 occurred in the coal wedge between block 1 and block 2 is now mostly encased in a volume of overburden and consequently the risk of future fire emanating from this area is effectively eliminated.
36. On 16 February 1983 (**Ash Wednesday**), airborne embers landed at the Mine and led to a fire on the exposed coal surface of the Mine.
37. Ash Wednesday is the only occasion in the history of the Mine where an ember attack has led to fire on the exposed coal surface of the Mine.

(6) In particular, describe the impact on the mine of the "Ash Wednesday" bush-fire in February 1983

38. I commenced work at the Mine after Ash Wednesday, although I discussed the events of that day with a number of Alcoa personnel who were present at the Mine at that time. The following paragraphs reflect my understanding of the events of Ash Wednesday based on those discussions.
39. The Ash Wednesday fire front approached the Mine from the north-west.
40. Alcoa parked Mine equipment in what was seen to be a safe location near the Power Station cooling tower and car park areas.
41. Alcoa evacuated its Mine personnel to the Power Station or, where it was safe to do so, allowed its personnel to go home.
42. The fire on Ash Wednesday caused the coal surface of the Mine to come under significant ember attack.
43. Several spot fires ignited in various locations on the coal surface of the Mine but none of the coal batters were subjected to fire outbreaks
44. After the main fire front had passed, Alcoa's personnel that were evacuated to the Power Station returned to the Mine and quickly extinguished all of the small fires on the exposed coal surface of the Mine. At this stage of mining, there were approximately 30 hectares of exposed coal being impacted by significant ember attack from the Ash Wednesday fires and resulted in only small outbreaks on the coal surface.
45. During Ash Wednesday, the Mine served as a fire break for a large part of the Anglesea township because of the buffer distance provided by the Mine, making it difficult for the fire to spot across that distance.

C. CURRENT MANAGEMENT OF RISK

(7) What policies, procedures and practices does Alcoa currently have in place to decrease the risk of fire arising from the Anglesea Mine?

46. Alcoa has the following policies, procedures and practices in place to decrease the risk of fire arising from the Mine:
- a. Alcoa conducts pre-start checks on all Mine equipment to ensure their mechanical integrity, inclusive of housekeeping state and readiness of fire suppression systems which are interlocked with the Mine equipment ignition;
 - b. Alcoa minimises exposed coal surfaces. Alcoa's overburden backfilling strategy described earlier ensures minimal coal exposure and eliminates most of the old coal faces. This differs to the Latrobe Valley mines due to the different Overburden to Coal Ratio;
 - c. Alcoa documents procedures for the management of hot coal and coal fires. The procedures employed and followed are contained in the "Mine Coal Fires and Hot Coal Procedure Standard Work Instruction" annexed and marked as **Annexure D**. In regards to procedures decreasing the risk of fire arising from the Anglesea Mine the procedures specifically address the management of hot coal, coal fires and machinery fires;
 - d. Alcoa has an Anglesea Emergency Plan (**the Emergency Plan**) which is a site wide plan that includes bushfire and coal mine fire procedures. The Emergency Plan is marked and annexed as **Annexure E**. The Emergency Plan, amongst other things, has a separate section dealing with "coal fire". The section describes in detail coal fire behaviour and coal fire hazards. Furthermore it outlines procedures that are undertaken by Alcoa in order to prevent the risk of coal fire, including daily inspection tours of the mine for the purposes of observing potential hotspots, covering final coal batters at the earliest practicable time and the Mine water cart be left full at all times. The Emergency Plan is prepared in accordance with regulation 5.3.34 of the *Occupational Health and Safety Regulations (2007) Vic*;
 - e. Alcoa plans and conducts activities that have the potential to generate fire risk, such as mechanical maintenance and hot works, on overburden surfaces, where possible, in order to minimise the risk of fire. Alcoa has procedures in relation to hot works on coal surfaces to minimise the risk of fire from this type of work;
 - f. Alcoa ensures that equipment is regularly maintained and cleaned (such as exhausts, engine components) in order to minimise faults that may increase the chance of fire. Alcoa's policy and practice is to undertake regular preventative maintenance on all Mine mobile equipment;
 - g. Alcoa has a daily checklist identifying any signs of spontaneous coal combustion. The checklist is undertaken as part of the Mine Hazard Checklist, which includes observation for hot coal issues;
 - h. Alcoa has a non-smoking policy that prohibits smoking within the Mine area;

- i. Alcoa has a vegetation management practice in place which includes activities such as slashing vegetation beneath HV power lines and all vegetation within 50 metres of the northern diversion channel.
- j. Alcoa has a trained and experienced emergency response team. The employees that are part of this team are experienced operators and long time employees at the Mine. The team is trained internally and externally, for example onsite exercises have been conducted with the Country Fire Authority Victoria (CFA).

(8) What policies, procedures and practices does Alcoa currently have in place to decrease the risk of fire impacting the Anglesea mine from an external source such as a bushfire?

47. Alcoa has the following policies, procedures and practices in place to decrease the risk of fire impacting the Anglesea Mine from an external source such as a bushfire:
- a. Alcoa's Emergency Plan, amongst other things, has a separate section dealing with "bushfire". The section describes in detail bushfire behaviour and bushfire hazards. Furthermore it outlines procedures that are undertaken by Alcoa in order to prevent the risk of bush fire reaching the Mine and Power Station, including calling in personnel if equipment needs to be moved off coal surfaces if possible, a call in roster for night shift in the event of a total fire ban;
 - b. Alcoa minimises exposed coal surfaces including implementing overburden backfilling strategy described earlier, which ensures minimal coal exposure, especially the elimination of most old coal faces. This is different to the Latrobe Valley mines due to the overburden to coal ratio. Alcoa receives early warning from the CFA in the event of a bushfire;
 - c. Alcoa has direct radio contact with the local CFA from the Control Room at the Power Station;
 - d. Alcoa has the ability to water down coal surfaces;
 - e. Alcoa implements compliance procedures in the event of a total fire ban being declared; and
 - f. Fire breaks are slashed on an annual basis, especially around the northern diversion channel.

(9) What policies, procedures and practices does Alcoa currently have in place to mitigate the effect of fire arising from the Anglesea mine?

48. In addition to the policies procedures and practices outlined in paragraph 46, Alcoa has the following in place to mitigate the effect of fire arising from the Mine:
- a. Alcoa ensures that adequate equipment is available, including a 60,000 litre water cart. Other equipment that can be used for fire fighting purposes includes excavators and dozers;

- b. Mitigation strategies include a requirement for a Hot Work Permit to be obtained from a supervisor or manager if any hot work is proposed in any outdoor area. Hot work includes activities like cutting, welding grinding, which give rise to heat and generate sparks. The Hot Work Permit will require the operator to take steps to manage the fire from the hot work including the area being wetted down, fire suppression being available and post hot work checks being conducted;
- c. Alcoa ensure that manual fire extinguishers are mounted on all equipment. Additionally, all Mine equipment is fitted with auto and manual fire suppression foam units;
- d. Alcoa has trained and experienced emergency response team trained in fire fighting. The training is conducted by a qualified training provider at both onsite and offsite training facilities;
- e. Alcoa is able to receive external support from CFA, if required, in conjunction with the procedures detailed in the Emergency Plan;
- f. Alcoa has a large number of personnel (in addition to the emergency response team) that are trained in the use of equipment to be employed in containing any coal fires; and
- g. Sprays to water down the emergency coal stockpile.

(10) What policies, procedures and practices does Alcoa currently have in place to mitigate the effect of fire impacting the Anglesea Mine from an external source such as a bushfire?

49. In addition to the policies, procedures and practices outlined in paragraph 48, Alcoa has the following in place to mitigate the effect of fire impacting the Mine from an external source such as a bushfire:
- a. Based on risk, proactive ember patrol by the emergency response team members in the event that a fire is within proximity of the Mine, including post ember attack after the fire front passes;
 - b. As mentioned above at paragraph 46.d the Emergency Plan includes a section on bush fire procedures;
 - c. Co-operation with DELWP and others co-ordinating the fire fighting activity;
 - d. Alcoa ensures that adequate equipment is available, including a water cart if required;
 - e. Manual fire extinguishers mounted on all equipment. All mine equipment is fitted with auto and manual fire suppression foam units; and
 - f. Alcoa is able to receive external support from CFA, if required, in conjunction with the procedures detailed in the Emergency Plan.

(11) Detail any risk assessments that have been conducted by Alcoa into the mining hazard of mine fire as required by regulation 5.3.7 of the Occupational Health and Safety Regulation 2007 (Vic)

50. In response to the Hazelwood Mine Fire and ensuing inquiry, Alcoa proactively undertook an internal risk assessment in December 2014 prior to a risk assessment process being developed and directed by authorities.
51. The process for the December 2014 risk assessment can be summarised as follows:
- a. Identify potential causes of coal fires at the Mine, quantify the risk associated with each, and identify any actions or countermeasures to appropriately manage these risks;
 - b. Identify risks in accordance with AS/NZS 4360:2004 Risk Management;
 - c. Identify key elements and event types that could initiate a coal mine fire; and
 - d. Use the defined processes, identify each element assessed for specific causes, existing controls, consequences against the likelihood of potential risk, and determine additional controls.
52. The results of the risk assessment can be summarised as follows:
- a. The risk assessment identified eight potential sources of risk of coal fire ignition;
 - b. The risk assessment did not identify any high risks for a mine fire, a number of medium risks were identified;
 - c. Image and reputation risk was generally rated as a medium risk, reflective of the heightened sensitivity to this issue following the Hazelwood Mine fire;
 - d. A number of medium risks were highlighted associated with potential self-ignition of the coal, with three scenarios considered including steamy coal, blue smoke/odour coal, and open/visible coal fire;
 - e. The steamy coal medium risks are driven by frequency, with the actual impact of any steamy coal event being negligible;
 - f. As a steamy coal event would precede a blue smoke/odour or visible fire event (medium risks) it does however highlight the need to ensure controls are robust at this level;
 - g. All other risks identified in the risk assessment were rated low; and
 - h. Fire and emergency management plans were found to be in place. However, a number of follow up actions and improvements were noted as listed in the risk treatment plans. Key to this was ensuring the Site Work Instruction – Management of Hot Coal and Coal Fires is robust, well communicated, and effective in its implementation.

Dated: 22 June 2015



.....
Christopher John Rolland