



Hazelwood Mine Fire Inquiry

Submission Cover Sheet

Post or email your submission with this cover sheet to:

Hazelwood Mine Fire Inquiry
PO Box 24
Flinders Lane Vic 8009

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Content of submission (you can choose multiple)

- Anglesea Mine: Terms of Reference 11
- Health: Terms of Reference 6 and 7
- Mine Rehabilitation: Terms of Reference 8, 9 and 10
- Other (please state here)

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Date

10 / 8 / 15

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10 August 2015

Board of Inquiry
Hazelwood Mine Fire Inquiry
PO Box 24
Flinders Lane
VIC 8009

Dear Board of Inquiry,

AGL Energy Ltd (AGL) welcomes the opportunity to participate in the public health aspects of the Hazelwood Mine Fire Inquiry. Enclosed with this letter is our submission with respect to Terms of Reference 6 and 7 of the Hazelwood Mine Fire Inquiry.

AGL is the owner of AGL Loy Yang Pty Ltd (AGL LY), which operates the AGL Loy Yang Mine (AGL LY Mine) and AGL Loy Yang A power station (AGL LYA). AGL and its employees are proud members of the Latrobe Valley community.

AGL's core value system is critical to the way in which we operate our facilities. AGL's overarching value of 'safe and sustainable' incorporates the safety of our employees and a strong commitment to the protection of the environment and the communities in which we operate. This value is ingrained in how we conduct business and is directly relevant to the management of the environmental and public health performance of the AGL LY Mine and AGL LYA.

AGL acknowledges that regulatory frameworks should evolve over time to meet changing community expectations and to reflect new understandings of risk, informed by developments in science.

We have been, and are continuing to listen to people from across the Latrobe Valley community. On the basis of evidence given at the first Hazelwood Mine Fire Inquiry, clearly there are lessons to be learnt from the Hazelwood mine fire. We firmly believe that the electricity generation industry can continue to work to address community concerns.

If the Board requires any further information or clarification on the matters set out in the enclosed submission, please do not hesitate to contact Steve Rieniets, AGL LY General Manager at SRieniets@agl.com.au.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'DJ Jackson', is written over a light blue horizontal line.

Doug Jackson
Executive General Manager, Group Operations (Acting)



The Hazelwood Coal Mine Fire Inquiry - Submission of AGL Loy Yang Pty Ltd

Health Terms of Reference
Date: 10 August 2015



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INTRODUCTION

1. AGL Loy Yang Pty Ltd (**AGL Loy Yang**) owns and operates the Loy Yang coal mine (**AGL LY Mine**) and Loy Yang A power station (**AGL LYA**) at Traralgon South, Victoria. This submission is made to the Board of Inquiry (**Board**) in respect of paragraph 6 and 7 of the terms of reference (**ToR**) for the Hazelwood Mine Fire Inquiry:

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; and

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.
2. This submission is for the purpose of giving background information to the Board regarding how AGL Loy Yang operates the AGL LY Mine and AGL LYA. We have attempted to identify the key parts of these operations that have the potential to generate environmental and public health risks, in order to assist the Board in considering the issues raised by the ToR.
3. This submission is divided into two parts.
 - (a) Part A (Background) – this section provides background information about AGL and the AGL LY Mine and AGL LYA; and the regulatory environment within which AGL Loy Yang operates the AGL LY Mine and AGL LYA. This information provides a context to understand AGL's submission, which is set out in Part B.
 - (b) Part B (AGL's submissions) this section responds to the broader issues raised by the ToR rather than directly to the ToR. It addresses the health impacts of the Hazelwood Mine Fire on AGL personnel; provides information regarding the environmental performance of the AGL LY Mine and AGL LYA with a focus on air quality; and makes conclusions and recommendations on the basis of AGL's operational experience.

PART A – BACKGROUND

ABOUT AGL

4. AGL Energy Ltd (**AGL**) is one of Australia's leading integrated energy companies. Drawing on over 175 years of experience, AGL operates retail and merchant energy businesses, power generation assets and an upstream gas portfolio.
5. AGL has one of Australia's largest retail energy and dual fuel customer bases. The company has a diverse power generation portfolio including base, peaking and intermediate generation plants, spread across traditional thermal generation as well as renewable sources including hydro, solar, wind, landfill gas and biomass.
6. AGL Loy Yang comprises the 2,210 megawatt Loy Yang A power station (**AGL LYA**) and adjacent Loy Yang brown coal mine (**AGL LY Mine**).

7. The AGL LY Mine also provides coal to the 1050 MW Loy Yang B Power Station (**LYB**), owned by ENGIE. The AGL LY Mine therefore supplies energy source (fuel) for approximately 50% of Victoria's electricity requirements through AGL LYA and LYB.
8. AGL LY Mine's annual production of coal is approximately 30 million tonnes and AGL LYA's annual electricity production, from its 4 x 500+ megawatt turbo generators, is approximately 14,500 GWh.
9. AGL Loy Yang directly employs about 700 people with another 400 contractor employees servicing the business.
10. AGL is committed to supporting the communities in which we operate. AGL Loy Yang is a significant contributor to the regional economy and supports a range of Latrobe Valley community, cultural, sporting and service groups through its community relations program. AGL has recently made a commitment to gradually decarbonise its generation portfolio by investing in new renewable and near-zero emission coal development initiatives.

What We Stand For

11. AGL's number one priority is the safety of our employees and the local community. All AGL operations across Australia operate within this overarching principle.
12. At AGL we are very aware of our responsibility to the community and the environment as well as our customers and shareholders. "Actions, not words" sums up the way AGL does business with all its stakeholders.
13. This commitment springs from a set of wider values that work as an ethical compass guiding our people in their behaviour and decision-making processes.
14. AGL formal values system is critical to the way in which the company operates as a business. The values guide AGL in delivering strategies and ensure that we perform and deliver for our communities and stakeholders in a challenging environment. "Safe and Sustainable" is AGL's overarching value, and incorporates not only the safety of our employees but a strong commitment to the protection of our environment and the communities in which we operate.

Sustainability

15. At AGL, sustainability means thinking about the responsibilities we have to all our stakeholders – our employees, our customers, our investors, the community and the environment. In addition to our economic performance, AGL recognises that our future success and reputational standing is also shaped and measured by the social and environmental consequences, which our decisions and actions have for all our stakeholders.
16. AGL's sustainability strategy serves to identify, manage, monitor and report on the material risks that affect our ability to protect and enhance AGL's long-term value.
17. AGL's framework for ongoing public reporting provides an accurate, transparent, responsive and timely account of our performance and commitments in relation to sustainability risks and opportunities.

18. AGL has established a set of overarching environmental principles that define how we manage and measure our impact on the environment.

AGL POLICIES

AGL Greenhouse Gas Policy

19. AGL agrees that deteriorating air quality and climate change are critical issues facing the global community. Currently, fossil fuels provide 88% of Australia's electricity generation. However, with the development of new technologies such as embedded solar PV, battery storage, large-scale renewables and carbon capture and storage (**CCS**), the electricity sector is likely to undergo significant change over coming decades.
20. AGL is an integrated energy company providing reliable and affordable energy to millions of homes and businesses. AGL's assets include large emitters of greenhouse gases (**GHG**). However, AGL is also Australia's largest private owner and operator of renewable energy assets.
21. AGL is committed to responsibly engaging with all our stakeholders (customers, investors, communities, policymakers and employees) to develop a shared understanding of the best ways for Australia to reduce its GHG emissions.

(a) Climate Change Science

22. The Intergovernmental Panel on Climate Change *Fifth Assessment Report (AR5)* states:
- warming of the climate is unequivocal;
 - anthropogenic emissions are extremely likely to be the cause; and
 - risks associated with climate change are reduced substantially if warming is limited to less than 2°C above pre-industrial levels.
23. Achieving this outcome would require emission reductions of up to 70% by 2050 and complete decarbonisation of the world economy by 2100.

(b) Emission Reductions

24. AGL supports the Commonwealth Government's commitment to work towards a global agreement to limit global warming to less than 2°C above pre-industrial levels (2°C goal). Continued use of coal and gas for power generation by mid-century is likely to be dependent upon cost-effective deployment of very low emissions technology, such as CCS. Long-term policy certainty is a pre-requisite for decarbonisation to occur efficiently and affordably for consumers. Both renewable and lower-emission fossil fuel generation will form an integral part of the energy generation mix throughout the transition to a low emission global economy.

AGL Commitment

25. AGL has committed to being a transparent and constructive stakeholder in the greenhouse gas discussion. Our public policy advocacy and internal approach to GHG

mitigation will be reported in our Annual Sustainability Report. AGL specifically makes the following commitments:

- AGL will continue to provide the market with safe, reliable, affordable and sustainable energy options;
- AGL will not build, finance or acquire new conventional coal-fired power stations in Australia (i.e. without CCS);
- AGL will not extend the operating life of any of its existing coal-fired power stations;
- by 2050, AGL will close all existing coal-fired power stations in its portfolio;
- AGL will improve the greenhouse gas efficiency of our operations, and those in which we have an influence;
- AGL will continue to invest in new renewable and near-zero emission technologies;
- AGL will make available innovative and cost-effective solutions for our customers such as distributed renewable generation, battery storage, and demand management solutions;
- AGL will incorporate a forecast of future carbon pricing into all generation capital expenditure decisions; and
- AGL will continue to be an advocate for effective long-term government policy to reduce Australia’s emissions in a manner that is consistent with the long-term interests of consumers and investors.

Corporate Governance & AGL’s Approach

26. The AGL Board considers best practice corporate governance standards support sustainable performance by AGL over time. The Board is committed to using the following best practice standards of governance to underpin how AGL conducts its business:

- Principle 1: Lay solid foundations for management and oversight;
- Principle 2: Structure the board to add value;
- Principle 3: Promote ethical and responsible decision making.;
- Principle 4: Safeguard integrity and corporate reporting;
- Principle 5: Make timely and balanced disclosure;
- Principle 6: Respect the rights of shareholders;
- Principle 7: Recognise and manage risk; and
- Principle 8: Remunerate fairly and responsibly.

THE LOY YANG MINE AND POWER STATION

History

27. The State Electricity Commission of Victoria (**SECV**) commenced planning for the Loy Yang Project in 1974 and sought formal ministerial approval for commencement in

1976. The Project encompassed the establishment of a new open cut coal mine and 2 new 2,000MW power stations (AGL LYA and LYB). Only the first two units of LYB (1,000MW) were developed.
28. As a major “Greenfield” project the Victorian Government commissioned a Parliamentary Public Works Committee (PPWC) Inquiry¹. Particular consideration was given to “*The effects of the proposed project on the environment and whether these effects are acceptable having regards to the public interests*”.
 29. Throughout the investigation and planning phases of the Project, the SECV encouraged community involvement². Information and progress reports were made freely available and advice was sought from all those likely to be concerned.
 30. The SECV engaged with a wide range of stakeholders prior to, and during the development of the Loy Yang Project, which established a solid foundation for the project. The Loy Yang Project was framed to deliver significant economic benefits to the broader Victorian community, with due consideration to the impact of the Loy Yang Project on the local community.
 31. The subsequent design of the Loy Yang Project including the mine and power station developments considered a wide range of factors including location, buffers, emissions, security (fire protection and earth movements) and management of water and waste products.
 32. The design brief considered international best practice and economic, technical, environmental and social factors. While acknowledging that a project of this scale does have an impact on the environment, the Loy Yang Project was developed to minimise environmental impacts from the perspective of stack emissions, waste discharges, visual impacts, land use and noise.
 33. This philosophy of active engagement with the community and government stakeholders has been continued by respective owners since privatisation.

Mine Operations

34. The AGL LY Mine is located within Mining Licence MIN 5189 (**Mining Licence**), issued under the *Mineral Resources (Sustainable Development) Act 1990* (Vic) (**MRSD Act**). MIN 5189 covers 4,561 hectares of land, and lies approximately 4 kilometres to the south-east of Traralgon in the Latrobe Valley, approximately 160 km east of Melbourne.
35. The AGL LY Mine is Australia’s largest producing open cut mine and is currently about 170 m deep, 4,000m long and up to 2,500m wide at its widest point. From the commencement of mining operations in 1982 through to 2015, approximately 758 Mt of coal and 165 Mm³ of inorganic or waste materials (overburden and interseam) have been removed from the AGL LY Mine.
36. The AGL LY Mine is operated in accordance with a Work Plan that was approved in May 1997 (which has been subject to minor variations over the operating life of the AGL LY Mine). The SECV commenced operations in 1982 with the removal of the waste

¹ SECV – Report on the proposed extension of the State Generating System – Loy Yang Project (1976) – Ref 62, Pg 8.

² SECV – Report on the proposed extension of the State Generating System – Loy Yang Project (1976) – Ref 70-77 Pg 9.

material covering the coal using bucket wheel excavators (**BWE**); BWE's are also referred to as dredgers. Coal production at the site commenced in 1984 with delivery of coal to the first unit of the Loy Yang A power station (now AGL LYA).

37. Today, the AGL LY Mine provides around 28 – 30 million tonnes of coal to 6 power station units located at the Loy Yang site, providing approximately 50% of the total coal-fired electricity generated in Victoria:
 - AGL LYA – 4 Generating Units with total generation of 2,210 MW (owned by AGL Loy Yang); and
 - LYB – 2 Generating Units with total generation of 1,050 MW (owned by ENGIE).
38. The AGL LY Mine operates on a 24 hours/day, 365 days/year basis, delivering approximately 90,000 tonnes of coal per day. Annual brown coal excavations from the mine varies according to power station demand and coal quality.
39. The primary mining operation comprises the excavation of coal by BWE. Coal is transported, using belt conveyors, to the raw coal bunker for short term storage (less than a day) then onto the crusher for sizing before delivery to the power stations.
40. The coal layers in the mine vary in thickness from 130 to 170 metres and are covered by overburden, the top layer of soil and clay, which has an average depth of nine metres. Overburden, interseam and inferior coal from the mine are separated from useful coal and are transported to an external disposal area located to the south of the AGL LY Mine (**Overburden Dump**).
41. The area disturbed by mining is approximately 2,070 ha (including 530 ha already rehabilitated). The final area of the AGL LY Mine at the date of its proposed closure will be approximately 3,000 ha, which will be rehabilitated in accordance with the approved Work Plan.

The Mining Licence and Other Related Tenements

42. The AGL LY Mine operates under its Mining Licence, which runs through to 2037. An extension of the Mining Licence may be sought to enable AGL LYA to operate through to its planned closure of 2048 in accordance with the AGL Greenhouse Policy. LYB is entitled to seek an extended coal supply beyond 2048 in accordance with the Coal Procurement Agreement (**CPA**).
43. AGL Loy Yang is also the holder of Exploration Licence - EL 4683 (**EL**), which was granted in 2005 over private land, roads and road reserves. The EL is located east of the existing Mining Licence. AGL Loy Yang has applied for a Retention Licence (**RL 2015**) over the resources contained in EL 4683, which places a hold over the EL area while the RL 2015 application is current. The RL 2015 external boundary is identical to that of EL 4683.
44. Retention licences are a relatively new form of licence in Victoria, and were introduced by amendment to the MRSD Act in February 2012. A retention licence provides for the retention of rights while licensees undertake intensive exploration, research and other non-mining activities to demonstrate the economic viability of mining an identified mineral resource (in AGL LY's case, brown coal) that may not be economically viable to mine now, but which may become so in the future.

45. RL 2015 is intended to be an intermediate licence between EL 4683, and any future mining licence that is applied for over the area.

Land Management

46. The Loy Yang Project was developed south-east of the City of Traralgon. The Loy Yang Project site was selected with regard to the location of the coal resources, and AGL LYA is sited to the south of the AGL LY Mine. A substantial buffer zone between the Loy Yang Project and Traralgon was implemented in the project design.
47. Land management of AGL Loy Yang's 4,561 hectare Mining Licence area is a major task and a rehabilitation plan ensures disturbed land is returned to productive use as soon as practicable. Post mining rehabilitation of final batters and levels occurs progressively and uses topsoil from pre-stripping, where possible. Undisturbed land not required for current operations is leased for uses such as farming, forestry, conservation or community purposes.
48. Wetland reserves developed around the works area provide a natural method of water treatment, while encouraging wildlife habitat and enhancing the landscape.
49. To maintain stability within the mine, groundwater is pumped from underlying aquifers and used to supplement water supply to the power station.
50. Water is recycled at the site, with some net discharges to the nearby Traralgon Creek. The discharges are carefully managed from both a quality and quantity perspective to assist with the balancing of consistent flows through Traralgon.

Environmental and Waste Management – Ash System And Disposal

51. Brown coal contains a small amount of inorganic material which is generally referred to as ash. Ash is a by-product of the combustion process, captured as dust from the flue gas flow prior to discharge from the chimneys and as a solid product from the boiler hearth.
52. The ash waste stream is collected within the LYA and LYB power stations and transported to ash-ponds as a dilute slurry for leaching.
53. The process involves washing out the soluble components of the ash with recycled saline water. Dual ponds are utilised to allow ash to be dried out and transferred to long-term storage areas in the overburden area.
54. Saline water from the Hazelwood and Yallourn coal mines is also disposed of via this pond. Settling lagoons are established on the ash delta to settle out and contain the ash before removal to a permanent storage site, while retaining volume in the pond for saline water. Disposal of ash currently occurs within the external overburden dump inside the Mining Licence area.
55. Ash storage and disposal is licensed by AGL Loy Yang's EPA licence 11149 (**EPA Licence**). The ash generated by the power stations is around 500,000 cubic metres per annum, which traditionally has been removed by mobile plant (excavated and loaded into a fleet of trucks) and dumped under licence into nominated areas on the external overburden dump.

56. The brackish water (decant) is recirculated through the ash system until the salinity increases to a level where it is pumped to the saline waste outfall pipeline (**SWOP**) for disposal to the ocean under Central Gippsland Region Water Corporation's (Gippsland Water) EPA Licence 74253.

Civil Infrastructure

(a) Fencing and Security

57. The AGL Loy Yang site is enclosed within a continuously fenced boundary that is appropriately signed to prohibit unauthorised access. Fencing adjacent to public access areas is generally chain wire security fencing, while other areas of the site are post and wire farm fencing. The area is extensively covered (24/7) with CCTV surveillance and mobile patrols.
58. Access to the site is controlled. Vehicle access is generally confined to a single controlled access gate on Bartons Lane. An electronic card system is used by AGL Loy Yang personnel and contractors who regularly require access to the site. All other visitors and contractors requiring access to the site must obtain authorisation from appropriate AGL Loy Yang personnel and are issued with visitor's permits at the access gate. To ensure personal safety, every person entering the site must undertake an induction appropriate to their level of site access.

(b) Roads

59. Primary road access to the AGL Loy Yang site is obtained from Bartons Lane. Bartons Lane was originally a private road constructed for the AGL Loy Yang site and was converted to a public road. In 2001/2 the easterly development of the AGL LY Mine cut the existing Hyland Highway (Gormandale Road) and deviation of this highway was required. The Hyland Highway was deviated to utilise the existing Traralgon Creek Road, Bartons Lane and an eastern extension of Barton's Lane reconnecting with the existing Hyland Highway near Flynn's Creek Road.
60. Road access within the AGL Loy Yang site is provided by a number of different classes of roads:
- permanent sealed roads are provided around the power station and mine building and facility complexes;
 - an all-weather, heavy traffic, crushed rock road is provided around the perimeter of the permanent batters;
 - permanent roads are constructed along the trunk conveyors to the outlet area, these provide one of the main access points into the various levels of the mine;
 - crushed rock roads of a semi-permanent nature are provided along the worked out benches of the mine. These roads provide access to the working faces and various infrastructure facilities; and
 - other transitory roads are used within the mine to provide access to the working faces. These roads may be on coal, clay-covered coal or a crushed rock cover, depending on the conditions and duration of use.

61. All crushed rock roads are regularly graded and repaired to maintain the standard of access and watered to minimise fugitive dust.

Water Infrastructure

62. The management of water that falls as rain on, or collects within, the AGL LY Mine presents a challenge for AGL Loy Yang. The AGL LY Mine has water supply infrastructure for fire fighting and fugitive dust management purposes, and drainage and pumping infrastructure for surface and groundwater management purposes. The AGL LY Mine manages water through surface water drainage systems, an overburden surface water runoff system and groundwater pumping systems. We set out more detail about these systems below.

(a) Fire Service Systems

63. The AGL LY Mine has large areas of raw brown coal exposed. With a moisture content of around 60%, raw in situ coal is not highly flammable, but loose dry coal is. Strategies for the management of fugitive dust, fire prevention and fire response capability is a primary consideration for the safe operation of the AGL LY Mine.
64. Potential causes of fires are sparks and embers from bush fires, maintenance processes, plant and equipment faults or vehicle exhausts. Coal may also spontaneously combust and so coal is managed so that we do not leave it stockpiled for extended periods of time and we have procedures in place to identify and manage any "hotspots" that develop, before they reach the point of combustion.
65. Fire protection of exposed coal in the operating areas is primarily provided by sprays (large scale sprinklers) and hydrants attached to a pipe reticulation system with water supply from the fire service reservoir. Spraying commences when indicated by meteorological conditions for fire or dust control.
66. The mine fire service system is designed to be inherently failsafe as the main fire water supply to the site is gravity fed through a dual pipeline system. A backup water supply is available from the high level storage dam- low quality water (**LQW**) system. The system can be activated through a combination of manual and remotely switchable valves.
67. The fire services system / drainage system is a closed loop where the surface run off water from within the mine is pumped to the Fire Services Reservoir before returning for use in the mine forming a closed system. This maximises the water usage within the fire system and minimises the requirement for make-up water.
68. Protection on plant and conveyor systems is via sprays, hydrants and hose reels.
69. Sprays are also used to keep the coal damp thus minimising dust emissions during high wind events.
70. The fire service reservoir and reticulation system capacity is based on the requirements of the *AGL Loy Yang Fire Service Design Guidelines*. The fire

service reservoir also has additional storage capacity to accommodate a significant storm event.

71. AGL Loy Yang maintains fire service infrastructure associated with critical infrastructure in line AS1851-2012. This infrastructure includes the Power Station, Raw Coal Bunker, Crusher House and associated infrastructure. The application of AS1851-2012 to the mine fire service system is not practicable, however AGL Loy Yang undertakes regular maintenance and testing of in mine fire services. There currently is no Australian Standard for fire protection or routine servicing of protection systems and equipment in brown coal mines.

(b) Drainage – Surface Drainage Dewatering and Wash Down Systems

72. The surface drainage system is designed to collect and manage a 100 year average recurrence interval (ARI) rain event.
73. Within the pit, the surface water drainage system consists of a series of drainage trenches (longitudinal drains) excavated in coal and running parallel to the batters on each mining level. These are linked via culverts (cross drains), forming a T intersection with pipes laid in backfilled trenches under the roads, taking water from the upper benches to a sump on the mine floor. Water is pumped from the bottom of the mine to the fire services reservoir.
74. The drainage systems are monitored as per the requirements of the *Ground Control Management Plan (GCMP)*, which includes regular inspections as part of the geotechnical monitoring program, or as triggered by the Trigger, Action, Response Plans (**TARPs**). The surface water drainage system will be extended as the AGL LY Mine develops on the same design guidelines.

(c) Overburden Runoff System

75. Rainfall runoff and wash down water from the external overburden area is collected and treated to meet EPA Licence standards prior to discharge into Traralgon Creek. This water is treated through a three-stage settlement system. The first stage is a retention pond which enables the larger particles time to settle out. The second stage includes the application of liquid polymer to assist settlement of the suspended clay and coal particles in either one of the two flocculation ponds. The third stage provides additional settlement time before final discharge.

(d) Aquifer Depressurisation (Artesian) Collection System

76. Groundwater is pumped from the aquifers underlying the pit to maintain stability of the base levels of the mine. This water is collected separately, wherever practicable, and pumped into the power station's low quality water system for use as cooling tower make up water, reducing the use of Latrobe River water.
77. Aquifer pressures in the Traralgon and Morwell formation aquifer systems (**TFAS** and **MFAS**) have declined in response to a range of extractions associated with oil, natural gas, agriculture and mine depressurisation activities. Farmers draw on these local aquifers for stock and agricultural purposes.

78. During mining, the aquifer pressures are maintained by groundwater pumping as required to avoid floor heave. Some aquifers do not require active depressurisation as pressure is controlled by seepage to the mine drainage through outcrops in the mine floor. Mine stability risks associated with Aquifer depressurisation is managed in line with the GCMP.
79. Following the completion of mining, AGL Loy Yang's planning for closure includes maintaining mine stability while progressively ceasing aquifer pumping.

Fire Preparedness

80. AGL Loy Yang is very well prepared to combat any fire incidents and has implemented a range of strategies to ensure a high level of fire preparedness in the AGL LY Mine to ensure we are "fire ready".
81. The strategies are framed to provide an integrated approach to fire management at the site that considers fire preparedness, rapid response capability, incident control and management and post incident continuous improvement.
82. AGL Loy Yang has reinforced fire preparedness by:
- investing in new equipment and technology to combat any outbreak; and
 - developing an improved Rapid Response capability by equipping in excess of 70 vehicles with fire combatting equipment.
83. AGL Loy Yang maintains an extensive network of fixed fire suppression infrastructure, with a high degree of redundancy to ensure a high degree of preparedness. Key features of this fire suppression infrastructure network include:
- ring main feed around coal mine perimeter on all non-operating areas (900-1200mm diameter pipeline) which provides improved access to water;
 - water supply gravity fed from two locations (fire water storage dam and the high level storage dam);
 - approximately 50% water spray coverage on operational area (approximately 93kms of pipeline);
 - 2012/13 upgraded fire service pump stations (FSPS 1, 2 and 3) to boost water pressure to assets above grass level;
 - duplicated power supply to key assets;
 - Maximum Fire Service Supply rate of 6,400 Litres/second;
 - site based Emergency Crews (Fire and Rescue) stationed at the site on 24-hour, 7-day basis;
 - fires response equipped for fast and determined attack;
 - CFA and SES equivalent vehicles and training to relevant staff; and
 - Carbon Monoxide (CO) monitoring equipment.

The Coal Resource

84. The MIN 5189 tenement lies within the Gippsland Basin. This basin is notable for both its brown coal, oil and gas resources. The Latrobe Valley brown coals occur within an on-shore extension of the Gippsland Basin known as the Latrobe Valley Depression, in which up to 1,000 m of terrestrial sediments including a series of thick brown coal seams were deposited. Both during, and after deposition of the coal, the Gippsland Basin has been subject to significant regional deformation resulting in large scale folding and faulting.
85. The Latrobe Valley Group coal seams are notable for their thickness and lateral extent with individual seams commonly exceeding 100m thickness and being traceable laterally for more than 50 km. The coal seams within the Latrobe Valley Group occur, for the most part, within a sequence of sands, clays and gravels. The Latrobe Valley Group is subdivided into three stratigraphic units - the Traralgon, Morwell and Yallourn Formations.
86. Exploration bores were drilled prior to the development of the AGL LY Mine to determine coal quality, monitor groundwater and ground stability. Post the commencement of mining additional bores have been drilled to provide additional data and information.
87. The latest Joint Ore Reserves Committee (**JORC**) report completed in March 2012, for the AGL Loy Yang MIN 5189 reports coal reserves shown in Table 1. The JORC Code is the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*; the JORC Code sets out minimum standards, recommendations and guidelines for the classification and reporting of Exploration Results, Mineral Resources and Ore Reserves in Australasia.

Table 1- Coal Resources And Reserves

Resource	Inferred	Indicated	Measured	Total
	118 Mt	948 Mt	4,028 Mt	5,094 Mt
Reserve		Probable	Proven	Total
		18 Mt	1,762 Mt	1,780 Mt

1. Estimates are based on coal with less than 10% (%db) ash and a 3 m minimum seam thickness. No account of other qualities has been made in assessing coal for inclusion in the estimate.
2. Coal reserves located within MIN 5189 assume mining to the eastern boundary of MIN 5189.

88. Latrobe Valley coal is a soft brown coal. The coal seams have high moisture content (50% to 65%) and low net wet specific energy (8 to 10 MJ/kg). Energy content measured on a dry basis is generally between 24.1 and 27.6 MJ/kg (db). Ash content of the coal is generally between 0.2% and 5% (db). Significant changes in physical and chemical properties occur both laterally and vertically within the coal resource.

Coal Reactivity and Fire Risk

89. Victorian brown coals are significantly more reactive and pose greater fire risk than higher rank (black) coals in Queensland and New South Wales. While brown coals from the Latrobe Valley are similar, several important differences have been noted between the coal resources in the respective mines.
90. A consistent ranking of ignition reactivity of the major Latrobe Valley coal fields has been observed in tests ranging from low temperature self-heating and spontaneous combustion to single particle combustion and flame stability in a pulverised fuel furnace. While there is no test specifically to assess the risk of fires in open cuts, the consistent pattern observed across this wide range of oxidation and combustion conditions provides confidence that the sequence of the reactivity for fires in these coalfields would be similar to that observed in these tests.
91. Coals from the AGL LY Mine have consistently displayed a lower ignition and combustion reactivity than Hazelwood and Yallourn area coals, as determined in a range of laboratory tests and surveys of coalfield properties under both high and low temperature ignition conditions.
92. While these laboratory tests cannot be directly applied to fires in open cuts, it is reasonable to expect that for coal mine faces exposed to similar conditions, Loy Yang coals would require a stronger source of ignition to start a fire and the fire would be slower to develop and spread. One could expect that this conclusion would translate into reduced incidents of fires at the AGL LY Mine. While AGL Loy Yang takes some comfort from these findings, appropriate due care and diligence is applied to all aspects of fire mitigation and suppression.
93. This conclusion is consistent with the widely held view in the SECV from early in Loy Yang's history that Loy Yang coal was less reactive than the Yallourn and Hazelwood/Morwell coals. This was confirmed in feedback from mine operations and fire services staff in the Latrobe Valley who unanimously agreed that the frequency of combustion incidents in the mines and power stations increased in the following order:

[Lower Risk] Loy Yang ⇒ Yallourn ⇒ Hazelwood/Morwell [Higher Risk]

Power Station

94. AGL LYA has a generating capacity of 2,210 megawatts and supplies approximately one third of Victoria's power requirements.
95. AGL LYA includes four 500+ megawatt turbo generators which were brought into service between 1984 and 1988.
96. A total of 600 tonnes of pulverised coal is burnt in each boiler per hour, to convert more than one million litres of water into steam each hour.
97. Cooling water is recycled and reused continuously in the power generation process with cooling air and water vapour emitted from the top of the 114m high towers.
98. While exhaust gases are produced during the generation process, technology solutions have been developed to minimise environmental impact. Precipitators remove more than 99 percent of ash and dust from the flue gases and are amongst the most sophisticated in Australia. The cleansed exhaust gases are then fed into two 260 metre

high chimneys designed specifically to disperse the air, water and gases high into the atmosphere.

99. To ensure chimney discharge standards are maintained, AGL Loy Yang combines the use of continuous online monitoring with remote air quality measuring stations. A number of ambient air monitoring stations across the Latrobe Valley also measure air quality within the region.
100. A 7-year Instrument, Control and Monitoring System (**ICMS**) project has converted all AGL Loy Yang operating units from an analogue system to a modern digital control system. Completed in 2014, the new system provides a reliable means of controlling plant for the remaining life of the station. Key benefits include: increased reliability, greater flexibility of plant operation, improved performance and closer plant monitoring.

New Opportunities for Brown Coal

101. AGL Loy Yang is working with developers, research and academic institutions to establish new projects in the Latrobe Valley that could potentially:
- improve performance and reduce emissions from the existing power station; and
 - transform brown coal into new value added energy products.
102. Future projects will provide economic and social benefits for the region and the State of Victoria through the provision of employment, electricity generation, taxes and fees. Developments will also need to be consistent with AGL's Greenhouse Gas policy.

REGULATORY REGIME

Mineral Resources Regulatory Framework

(a) Overview

103. The MRSD Act seeks to "*encourage and facilitate exploration for minerals and foster the establishment of mining operations*" but also includes objectives aimed at ensuring that:
- mineral and stone resources are developed in ways that minimise adverse impacts on the environment and the community; and
 - the health and safety of the public is protected in relation to work being done under a licence.
104. Significantly since 2006, the MRSD Act has included the principles of sustainable development in section 2A. These objectives and principles indicate that the framework is intended to be protective of human health, public safety and the environment, and that the provisions of the statute should be interpreted in light of these objectives and principles.
105. Under the MRSD Act the key operating authorisations are the Mining Licence and the approved work plan. The Mining Licence and the approved Work Plan impose conditions on the AGL LY Mine which are protective of human health and the environment. The Mining Licence was varied in January 2015, when

the Minister for Energy and Resources introduced a condition requiring a new risk assessment plan.

(b) Environmental Management under the Mining Licence

106. The Mining Licence manages the environmental impacts of the mine through licence conditions, which include:

- Condition 1 - requiring the formation of an Environmental Review Committee (**ERC**) which includes State government, local government and community representatives, and reporting of environmental monitoring under the Environmental Management Plan to the ERC;
- Condition 5 - drainage and discharge control;
- Condition 7 - groundwater, dewatering and monitoring;
- Condition 8 – erosion;
- Condition 9 - hydrocarbons;
- Condition 10 – dust emissions;
- Condition 11 – noise; and
- Condition 14- buffer zones and visual screening.

107. The Mining Licence regulates air quality, through the Environmental Management Plan (which forms part of the approved Work Plan) and through Condition 10 - Dust emissions which requires that:

- 10.1 - Dust control measures must be in place to minimise dust generation so that detriment is not caused to surrounding areas and residents; and
- 10.2 - Dust resulting from all operations including extraction, loading, transport and stockpiling shall be controlled to the satisfaction of an Inspector. The licensee must install any dust control measures to the satisfaction of an Inspector.

(c) Risk Management under the Mining Licence

108. The Mining Licence was amended by Lily D'Ambrosio the Minister for Energy and Resources on 22 January 2015, to include a new condition 1A. Condition 1A requires that AGL Loy Yang conduct a risk assessment and submit a risk assessment and risk management plan by 31 October 2015.

109. Condition 1A.4 requires that the Risk Assessment and Management Plan shall:

- (a) *assess the risk (likelihood and consequence) to the environment and public safety from the work done or proposed to be done under the licence, including but not limited to the prevention, mitigation and suppression of fire entering or breaking out in the licensed area;*
- (b) *review the following licensees documents in effect when preparing the Risk Assessment and Management Plan:*
 - (i) *the 'Mine Fire Service Policy and Code of Practice';*
 - (ii) *any mine emergency plan;*

- (iii) any crisis management and communication strategy;
 - (iv) any ground control plan; and
 - (v) any other relevant policy, code or plan.
- (c) detail quantifiable risk control standards to be achieved so as to protect the environment and public safety;
- (d) identify the most reasonably practicable effective actions to manage the risk(s) identified under condition 1A.4(a) as well as the requirements of condition 4.5 and condition 15 so as to protect the environment and public safety, to the standards listed under condition 1A.4(c); and
- (e) set milestones for completing the actions identified in condition 1A.4(d).
110. AGL Loy Yang has been provided with draft *Requirements for Compliance with Risk Management Conditions* by DEDJTR which provides guidance regarding the development of the risk assessment and management plan, and the associated work plan variation and compliance statements.
111. Mining licence holders lead the assessment process due to the in-depth knowledge of their particular operational circumstances which is tailored to the unique characteristics of different mines.
112. The process appropriately allows for the refinement of the risk assessment plan through consultation and approval by DEDJTR. AGL Loy Yang is currently preparing its first risk assessment and management plan, and is supportive of the move towards a risk based regulatory approach.

Work Plan

113. A work plan is the key operating document required to be approved under the MRSD Act. The plan supports the Mining Licence conditions and provides government with further detail as to the activities planned for the site, key commitments, environmental management, rehabilitation and end use concept plans.
114. AGL Loy Yang is currently working to a work plan that was first approved in 1997, since that time some five work plan variations (as set out in Table 2) have been approved. Since the last of these approved variations, in December 2007, a number of operational and legislative changes have occurred.
115. A new variation was submitted to DEDJTR in June 2015. The new work plan is a comprehensive replacement of the approved 1997 work plan and includes, amongst other things, a more detailed rehabilitation plan and a section on fire risk management.

Table 2 - Approved Variations to 1997 Work Plan

Register No	Approval Date	Nature of Work
F11,094	15 Jan 2001	To cover overburden removal by BWE and conveyor to an external dump.
F13,842	27 May 2005	Approval for ash storage

F15,018	21 Nov 2006	Blasting
F15,436	23 Apr 2007	Blasting
F16,052	31 Dec 2007	Blasting

116. Since the Hazelwood Mine Fire in 2014, AGL Loy Yang has reviewed the way it manages fire risk and is committed to identifying, controlling and monitoring all fire risks associated with the AGL LY Mine.
117. AGL Loy Yang is further developing and currently maintains a *Fire Risk Assessment and Management Plan*. The main objectives of the *AGL Fire Risk Assessment and Management Plan* are framed on a continuous improvement framework “plan, do, check” and are to:
- protect health and safety, life, property and assets;
 - minimise the risks to the integrity of the Mine and its ability to supply coal to its customers; and
 - minimise the risks from fires within MIN 5189 on the local community and local infrastructure.
118. The work plan variation also details AGL Loy Yang rehabilitation plans and closure approach.
119. The work plan variation includes the following key measures currently undertaken at the AGL LY Mine to manage dust emissions and air quality:
- maintaining a 1000 m buffer between Traralgon and the open cut crest;
 - maintaining a wet mine surface and unsealed roads;
 - minimising traffic movement during periods when weather conditions are likely to generate high dust levels;
 - placing mulch over exposed coal surfaces;
 - progressively rehabilitating exposed surfaces in the mine and overburden dump; and
 - maintaining an air quality TARP.
120. The work plan variation has been submitted and is currently under consideration by the DEDJTR. AGL Loy Yang understands that DEDJTR has referred this Work Plan Variation to the following government bodies for comment:
- Latrobe City Council;
 - Country Fire Authority;
 - Worksafe Victoria;
 - Gippsland Water;
 - Southern Rural Water;
 - Department of Environment, Land, Water and Planning; and

- Environmental Protection Authority.

Loy Yang Contractual Arrangements

121. When the AGL LY Mine, AGL LYA and LYB were developed they were all owned by the SECV. At that time the mine provided coal to both power stations and the Loy Yang A power station provided ash and saline water management and disposal services to LYB. Following privatisation, LYB was in separate ownership to the mine and the Loy Yang A power station, and consequently various contractual arrangements were put in place to ensure continuity in the provision of services to LYB.
122. AGL Loy Yang supplies coal to LYB under a CPA dated 29 March 1997. A related contract to the CPA is the Loy Yang Complex Agreement (**LYCA**) also dated 29 March 1997, which is a tripartite agreement between the State of Victoria, and the then owners of AGL LYA and LYB.
123. The LYCA deals with numerous arrangements for the current operations of the AGL LYA and LYB power stations and future development at the site.
124. An important aspect of the LYCA, is an agreement between the owners of AGL LYA and LYB to establish a trust fund for the purpose of accumulating funds to meet Mine site rehabilitation expenses. From 30 June 2023, the parties are to annually contribute 10% of the total site rehabilitation expenses until 30 June 2032. It is important to note that this rehabilitation fund is a private arrangement between the parties, separate to any government bond requirements.

Environmental Regulatory Framework

125. AGL Loy Yang understands that air quality issues are the key issues of concern to the Board. We set out below the key aspects of the environmental legislative framework as they pertain to the regulation of impacts on air from the AGL LY Mine and AGL LYA.

(a) Overview

126. The Victorian environmental legislative framework seeks to ensure that both the health of Victorians and the environment are protected from exposure to harmful levels of air pollutants. By complying with its environmental licence and the broader environmental legislative framework, AGL Loy Yang is ensuring that its operations do not have a harmful effect on human health and the environment.
127. The objective of the *National Environment Protection (Ambient Air Quality) Measure* (**NEPM AAQ**) is for ambient air quality that allows for the adequate protection of human health and well-being.
128. In setting NEPM standards a rigorous hazard assessment is undertaken which gives consideration to both epidemiological and toxicological data. This scientific data informs the objectives and standards set in the NEPM. Health protection is built into the standards along with margins of safety to ensure protection of sensitive groups. The NEPM AAQ informs the objectives of the *State Environment Protection Policy (Ambient Air Quality)* (**SEPP AAQ**) and the *State Environment Protection Policy (Air Quality Management)* (**SEPP AQM**).

129. The Victorian SEPP AAQ and SEPP AQM implement the NEPM AAQ, and define the environmental values and beneficial uses that require protection from the effects of pollution. Protected beneficial uses include human health and wellbeing, and local amenity. The SEPP seeks to protect human health by establishing acceptable and detrimental levels of air pollution.

130. Under the *Environment Protection Act 1970 (Vic)* (**EP Act**) the discharge of waste into the atmosphere must at all times be in accordance with the SEPPs and requirements in environmental licences must comply with the SEPPs.

(b) Environment Protection Act 1970 (Vic)

131. The EP Act creates a legislative framework for the protection of the environment in Victoria. Importantly the EP Act establishes the powers, duties and functions of the Environment Protection Authority (EPA), which include:

- the administration of the EP Act and its regulations;
- the declaration of state environment protection policies (**SEPPs**);
- issuing works approvals, licences, permits, and pollution abatement notices; and
- implementing National Environment Protection Measures (**NEPMs**), through the relevant SEPPs.

132. The EP Act protects the air environment in three key ways:

- discharges of wastes into the atmosphere must comply with the declared SEPP;
- creation of a pollution of atmosphere offence; and
- licensing of discharges to air from scheduled premises (including power stations such as AGL LYA).

133. Under the EP Act certain classes of scheduled premises (including power stations) must not discharge or emit waste to the environment unless they hold a licence.

(c) National Environment Protection (Ambient Air Quality) Measure

134. The NEPM AAQ, establishes national ambient air quality standards for six common air pollutants, which apply in all states and territories. Standards are established for carbon monoxide, nitrogen dioxide, sulphur dioxide, lead, ozone and airborne particles (PM₁₀ and PM_{2.5}).

135. The current goals of the NEPM AAQ in relation to particles are to:

- (a) see the maximum allowable particles limit exceeded no more than five days a year in respect of particles as PM₁₀; and
- (b) gather sufficient data to facilitate a review of the Advisory Reporting Standards for particles as PM_{2.5}.

136. The NEPM AAQ currently requires participating jurisdictions to undertake:

- (a) monitoring procedures and reporting in respect of carbon monoxide, nitrogen dioxide, photochemical oxidants (as ozone), sulphur dioxide, lead and particles as PM₁₀; and
- (b) monitoring and reporting for particles as PM_{2.5} from one monitoring location in each participating jurisdiction.
137. On 29 April 2014, National Environment Protection Council (**NEPC**) member Ministers signalled their intention to vary the NEPM AAQ for particles reflecting the latest scientific understanding on health risks arising from particle pollution.
138. In July 2014 the NEPC released an impact statement and draft variation. A period of public consultation followed and submissions were invited. The closing date for submissions was 10 October 2014. The next steps to be completed are the preparation of a summary of submissions and consideration of responses which will inform the development of a final proposal to vary the NEPM AAQ in relation to the standards for particles.
139. The draft variation to the NEPM AAQ proposes requiring States and Territories to:
- establish monitoring and assessment of particles as PM_{2.5} and PM₁₀;
 - achieve the specified national environment protection standards for particles within a 10 year period; and
 - evaluate and report population weighted exposure to particles as PM_{2.5} for regions with populations greater than 1 million.
140. The draft variation to the NEPM AAQ proposes the following more stringent numerical values for PM standards:
- a maximum concentration of 40-50µg/m³ for particles as PM₁₀ for the 24 hour mean (only to be exceeded 5 days a year);
 - a maximum concentration of 20 µg/m³ for the annual mean (no exceedances allowable);
 - a maximum concentration of 25 µg/m³ for the 24 hour mean (only to be exceeded 5 days a year); and
 - a maximum concentration of 8 µg/m³ for the annual mean (no exceedances allowable).
141. On 15 July 2015 the State and Federal Environment Ministers met and committed to finalising a *National Clean Air Agreement* before the end of 2015. The proposed *National Clean Air Agreement's* initial work plan includes actions to address issues such as reviewing and strengthening air quality monitoring and reporting standards, targeted measures to reduce emissions from key sources of air pollution, improving access to air quality information for communities and fostering partnerships with industry.
142. The finalisation of the NEPM AAQ and the strengthening of particle reporting standards in the NEPM is one of the initial priority actions under the *National Clean Air Agreement*. Given the publically available information, we expect that the variation to the NEPM AAQ will be finalised in 2016. Based on available data about the Latrobe Valley regional airshed, AGL Loy Yang expects

that under normal circumstances and in the absence of events such as bushfires, the regional air quality will meet the proposed new standards.

(d) State Environment Protection Policies for Ambient Air Quality and Air Quality Management

143. In Victoria the requirements of the NEPM AAQ are adopted in the SEPP AAQ. The SEPP AAQ operates in conjunction with the SEPP AQM, which sets the requirements for management of sources of pollution such that the air quality objectives of SEPP AAQ are met.
144. The SEPP AAQ sets broader air quality objectives and goals for the whole of Victoria by adopting the NEPM AAQ's monitoring and reporting standards. This means that the SEPP AAQ adopts the standards, goals, monitoring and reporting requirements of the NEPM AAQ in relation to carbon monoxide (CO), nitrogen dioxide (NO₂), photochemical oxidants (as ozone), sulphur dioxide (SO₂), lead and particles as PM₁₀. The SEPP AAQ standards do not apply to individual sources but rather to regional air quality. These standards apply at sites that are generally representative of the exposure of the general population rather than at peak sites.
145. The SEPP AQM operates with a large scope and addresses:
- (a) ambient (or regional) air quality;
 - (b) management of emitter sources (such as coal burning power stations); and
 - (c) local air quality impacts.
146. The SEPP AQM provides for the general management of air quality by requiring the EPA to undertake ambient air quality monitoring in accordance with the SEPP AAQ, the undertaking of air pollution research, and the development of an emergency abatement plan.
147. The SEPP AQM establishes the Latrobe Valley Air Control Region, which includes the Latrobe Shire area and the AGL LY Mine. The SEPP AQM empowers the EPA to introduce air quality management measures, develop air quality improvement plans and to establish and operate an air quality forecasting and reporting system for each Air Quality Control Region.
148. The general requirements for generators managing emissions include:
- the assessment, monitoring, control, reduction or prohibition of emissions for air quality management purposes; and
 - managing their activities and emissions in accordance with the SEPP, pursuing continuous improvement in their environmental practices and environmental performance, and applying best practice to the management of their emissions.
149. The SEPP AQM identifies the beneficial uses of the air environment which are to be protected, and defines four classes of air quality indicators which must be managed to ensure that the beneficial uses are protected. In summary these four classes of indicators are:

- Class 1 Indicators – common or widely distributed air pollutants which are established as indicators under the SEPP AAQ;
 - Class 2 Indicators – hazardous substances;
 - Class 3 Indicators – extremely hazardous substances; and
 - Unclassified Indicators – indicators of local amenity and aesthetic enjoyment, namely odour and total suspended particles (nuisance dust).
150. For all of the specified indicators, emissions must be reduced by the application of best practice. The SEPP (AQM) defines best practice as:
- "the best combination of eco-efficient techniques, methods, processes or technology used in an industry sector or activity that demonstrably minimises the environmental impact of a generator of emissions in that industry sector or activity"*
151. There is also a *Protocol for Environmental Management for Mining and Extractive Industries (PEM)* under the SEPP AQM, which is primarily used to require an air quality assessment for new and expanded mining projects, but can also be used to guide best practice for ongoing operations. Best practice (as required under the SEPP AQM) is the main guiding principle for controlling air emissions and meeting the requirements of the PEM. For particular hazardous pollutants emissions must be controlled to the maximum extent achievable (**MEA**).
152. The PEM sets assessment criteria to evaluate the impact of residual emissions after application of control procedures, best practice and MEA to ensure that the beneficial uses specified in the SEPP AQM are protected. It sets the following criteria for particulate matter:
- PM₁₀ 60 µg/m³ for a 24 hour average; and
 - PM_{2.5} 36 µg/m³ for a 24 hour average.
153. AGL Loy Yang's dust monitoring is compared to the PEM standards.
- (e) EPA Discharge Licence**
154. AGL Loy Yang holds the EPA licence for scheduled activity categories A05 Landfills, C01 Extractive Industry and K01 Power Stations.
155. The EPA Licence specifies limits on the allowable discharges to the air and water environment, along with environmental monitoring and reporting requirements.
156. The conditions relating to air quality include:
- LI_G5 implementing a monitoring program that enables AGL Loy Yang and the EPA to determine compliance with the licence;
 - LI_G5.2 implementing a program to assess the effect of discharges to air on the ability of the Latrobe Valley Air Quality Control Region to comply with Schedule 2 of the State environment protection policy (Ambient Air Quality);

- LI_A4 Nuisance airborne particles must not be discharged beyond the boundaries of the premises;
 - LI _DA4 Discharge of waste to air must be in accordance with the 'Discharge to Air' Table (which sets maximum discharge rates for particles, carbon monoxide, chlorine compounds, fluorine compounds, oxides of nitrogen, sulphur dioxide, sulphur trioxide);
 - LI_DA1.3.3 The concentration of particles discharged from discharge points 1 to 4 must not exceed 0.24 grams per normal cubic metre (based on 3 minute averages at 12% CO₂) for more than a total of 88 hours each year (aggregate total for all discharge points);
 - LI DA1.5 The annual frequency distribution of the mass discharge rate of sulphur dioxide from each of discharge points 1 to 4 must not exceed (a) a 90th percentile mass rate of 50,000 grams per minute and (b) a 50th percentile mass rate of 30,000 grams per minute; and
 - LI_DA2.1 Visible emissions to air other than steam must not be discharged from the premises, except in accordance with condition LI_DA1.
157. AGL Loy Yang is required to immediately notify the EPA of non-compliance with any condition of the EPA Licence. AGL Loy Yang must also submit an annual performance statement to the EPA for the previous financial year by 30 September each year, which reports on compliance with the EPA Licence conditions.
158. AGL LYA was granted accredited licensee status in June 1998 in recognition of the site's capability and commitment to achieve a high level of environmental performance and the capacity to maintain and improve this performance.

Latrobe Planning Scheme

159. The Latrobe Planning Scheme (**Scheme**) includes the majority of the Mining Licence area in a Special Use Zone 1 'Brown Coal' (Clause 37.01). The purposes of the Special Use Zone relate specifically to the mining of brown coal and associated uses and electricity generation, as well as *"to provide for interim and non-urban uses which protect brown coal resources and to discourage the use or development of land incompatible with future brown coal mining and industry"*. The Special Use Zone 1 provides planning permit exemptions for extractive industry and mining use and development if specific conditions are met.
160. The Scheme makes provision for buffers around open cut coal mines located near urban settlements. The buffer is imposed through the Environmental Significance Overlay (Clause 42.01) – Schedule 1 'Urban Buffer' (**ESO1**) which applies to land in the Mining Licence boundary and exploration licence area, as well as the land generally between the Mining Licence area and the Traralgon Township boundary (broadly to the north of the mine crest, between the mine and the township for a distance of 1km). The ESO1 seeks to ensure that development in the area provides *"mutual protection of urban amenity and coal resource development and the continued social and economic productive use of land"*.
161. The Latrobe City Council recently proposed Amendment C87 – Traralgon Growth Areas Review to the Scheme. Amendment C87 proposed changes to the Scheme that would allow the township boundary of Traralgon to push further south, closer to the Mine. AGL Loy Yang was invited to comment on the proposed amendment and subsequently

objected to the proposed amendment to the Scheme. A Planning Panel was appointed to consider Amendment C87. The Planning Panel concluded that a southerly extension of the town boundary should not be supported and that the one kilometre buffer between Traralgon and the AGL LY Mine should be retained and potentially increased to 2km, largely on the basis of geotechnical issues. In our view an increase in this buffer would be beneficial as a land use strategy to minimise any potential environmental and health impacts to residential and urban areas.

Occupational Health and Safety Regime

162. In Victoria the current safety legislation applicable to the mine is the *Occupational Health and Safety Act 2004 (OH&S Act)* and the *Occupational Health and Safety Regulations 2007 (OH&S Regulations)*.
163. Part 5.3 of the OH&S Regulations contains regulations which apply in relation to mine safety. The legislation is applicable to all work under the control of the AGL LY Mine which may include work off the mine site.
164. WorkSafe Victoria is the regulator responsible for enforcing compliance with the OH&S Act and OH&S Regulations. WorkSafe Victoria has assigned a specific Inspector to deal with any safety issues that arise in relation to the mine.
165. The OH&S Act and OH&S Regulations contain the safety framework within which AGL Loy Yang manages the site, employees and any other persons required to work at or access the mine. The legislation prescribes particular duties with which AGL Loy Yang management, its employees and contractors operating at the site must comply.
166. Section 22(1) of the OH&S Act requires AGL Loy Yang to, so far as is reasonably practicable:
 - monitor the health of its employees; and
 - monitor conditions at any workplace under its management and control.
167. OH&S Regulation 5.3.14 requires a mine operator to arrange for ongoing health surveillance of employees in particular circumstances.
168. Consistent with these obligations, as part of the AGL Loy Yang site health program, AGL Loy Yang has carried out health surveillance of employees working at the mine, including personal and static dust monitoring for occupational exposure to coal dust and respirable silica, personal noise monitoring, audiometric testing and respiratory spirometry as part of the AGL Loy Yang site health program.
169. AGL Loy Yang's *Health and Safety Management System* is externally audited against the Australian Standard for Safety Management Systems AS 4801. The AGL LY Mine and AGL LYA are currently accredited to AS 4801 and the safety management system regularly undergoes external surveillance and re-accreditation audits by an external certification body.
170. AGL Loy Yang provides a range of programs to promote the physical, social and emotional well-being of employees. The site health program involves providing healthy activities and initiatives to improve the health of AGL Loy Yang employees. Activities include free health assessments (including weight, blood pressure, cholesterol, blood sugar and fitness level assessment), delivery of mental health sessions, flu

vaccinations, exercise sessions, breast and prostate cancer awareness sessions and delivery of general good health sessions. AGL Loy Yang employees also have access to an on-site gymnasium.

171. AGL Loy Yang also provides an independent and confidential counselling service available to employees and their immediate families that is designed to help with work-related or personal issues that may affect job performance and overall well-being.

PART B – AGL'S SUBMISSION IN RESPECT OF TOR 6 AND 7

HEALTH IMPACTS OF THE HAZELWOOD MINE FIRE

AGL Personnel Assisted GDF SUEZ (Hazelwood) in Fire Response

172. As soon as AGL Loy Yang was aware that a serious fire incident was underway at the Hazelwood mine, AGL LY Mine management contacted Hazelwood to offer support in the form of people, plant and resources.

173. Two experienced engineers were mobilised to operate as part of the response team under the direction of Hazelwood response coordinators. The engineers assisted in the fire mitigation efforts and directly participated at the Hazelwood site for approximately 3 weeks, and the roles undertaken included:

- assisting with the establishment of additional Fire Suppression equipment;
- developing and implementing strategies to protect critical dewatering infrastructure; and
- implementing additional dewatering and fire suppression networks.

174. As part of the support, AGL provided a wide range of Fire Suppression assets, including sprays, valves, pipes and fittings to Hazelwood to assist with the fire response, the source of the supply included the:

- provision of standby fire service equipment and spare inventory holdings held by AGL;
- disassembly and delivery of supplementary fire service equipment; and
- coordination of fire service assets from third party suppliers.

175. AGL Loy Yang management regularly checked in on the two fire service engineers assisting in the fire response. After the event both employees were allowed additional time off and undertook comprehensive medicals by local physicians. To date there have been no adverse effects on their health due to their direct exposure to the fires.

AGL Personnel Operating at Loy Yang Experienced Adverse Air Quality

176. As part of the Latrobe Valley community the Loy Yang site also experienced adverse air quality. As a result AGL:

- made dust masks available to all employees and contractors;
- conducted regular CO monitoring in and around the AGL LY Mine;

- allowed AGL Loy Yang employees time to attend to personal matters as a result of the fire;
- allowed AGL employees to participate as CFA volunteers in the response; and
- leave was available to staff if they believed that their health and safety was at risk due to air quality.

COMPLIANCE WITH THE REGULATORY REGIME

AGL Loy Yang Strong Compliance Record

177. AGL Loy Yang has a very strong compliance record across the operation. Our focus has driven many process innovations, and internal goals that go beyond the parameters set in our environmental licence.
178. Some notable points include:
- dust targets have historically been set at less than 25% of the EPA licence limits. With the current investment in precipitator refurbishment we have been able to reduce emissions further to just 14% of the EPA licence limit;
 - we have never breached the discharge to air requirements as specified in condition DA1 of the EPA licence;
 - we installed a Continuous Emissions Monitoring System (**CEMS**) system to monitor emissions on a real time basis rather than just one off testing each year. This also enables operators to monitor emissions and react accordingly;
 - we have extended annual National Association of Testing Authorities (**NATA**) accredited Sulphur Trioxide, Fluorine and Chlorine compound monitoring to include the measurement of any heavy metal emissions and undertake coal analysis to validate the testing. All results are well below the EPA licence limits;
 - additional tools have been developed by AGL Loy Yang, such as Sulphur prediction tools that take the fuel source and convert it to an emissions prediction. This allows emissions to be managed to prevent breaches; and
 - AGL Loy Yang maintains ongoing membership of the Latrobe Valley Air Monitoring Network (**LVAMN**), at a cost in excess of \$35,000 per year. This supports the EPA in measuring the impact of the local emitters on the ambient air quality within the region.
179. These measures have resulted in a greater understanding of the impacts that our operations have on the environment, and any impacts can then be more appropriately controlled and mitigated.
180. AGL Loy Yang also has a good record in relation to compliance with current OH&S regulations. There have been 5 Improvement Notices issued to the mine over the past two years, all have been complied with by the due date.
181. AGL Loy Yang is proactive in maintaining good relationships with all regulators.

(a) Accredited Environmental Licence

182. AGL Loy Yang holds an accredited environmental licence in recognition of the high level of environmental performance and ongoing capacity to maintain and improve this performance.

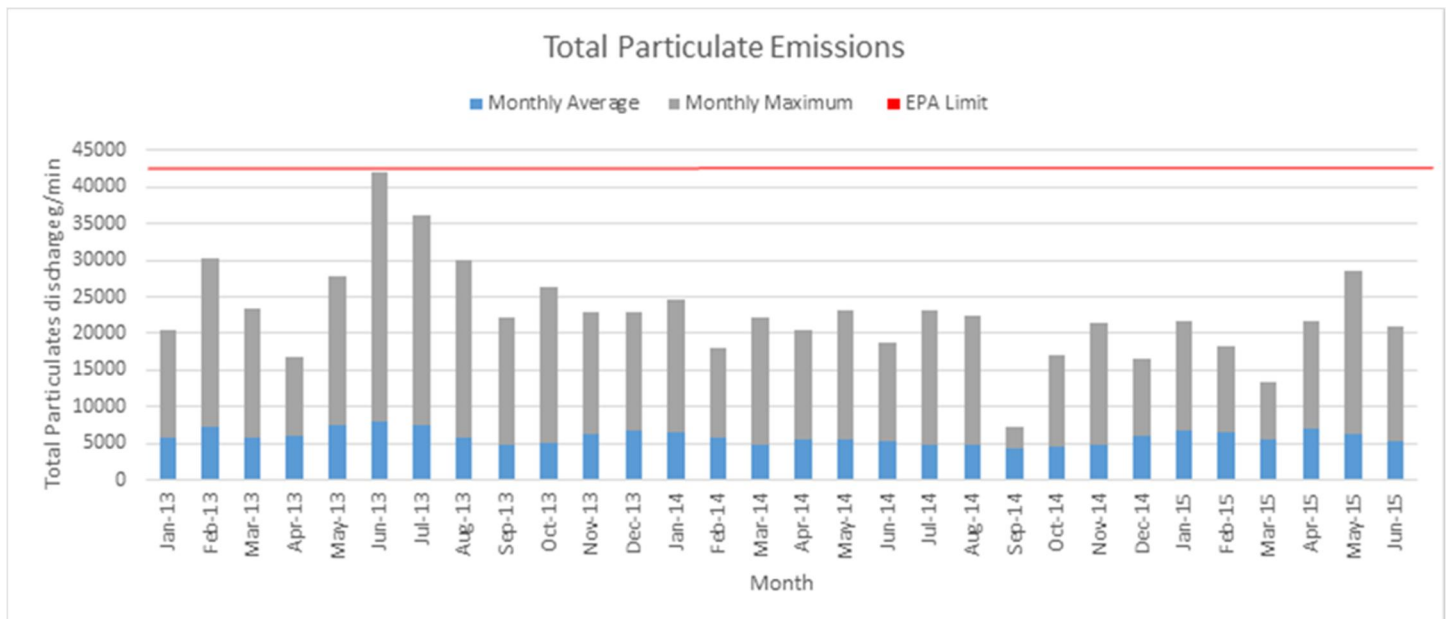
183. AGL Loy Yang was first granted accredited licensee status in June 1998. AGL Loy Yang continues to maintain accreditation through its excellent ongoing environmental performance record, Environmental Management System, Environment Improvement Plan process and commitment to engagement with its local community and stakeholders.

(b) Management of Emissions from the Loy Yang Power Station

184. As an example, of our strong history of compliance with air discharge limits, our internal dust targets have historically been set at 25% of the limits specified in the EPA Licence. For the 2014/15 financial year we operated at 14% of the specified limit. This is due to significant spend on the precipitators which reflects the serious attitude taken to not only meeting the licence expectations, but reducing discharges as far as practical. Since 2011 the licence discharge rate has been reduced from 22% (2011 calendar year) to 14% (2014/15 financial year), with a total precipitator maintenance spend of \$29.6M over the period.

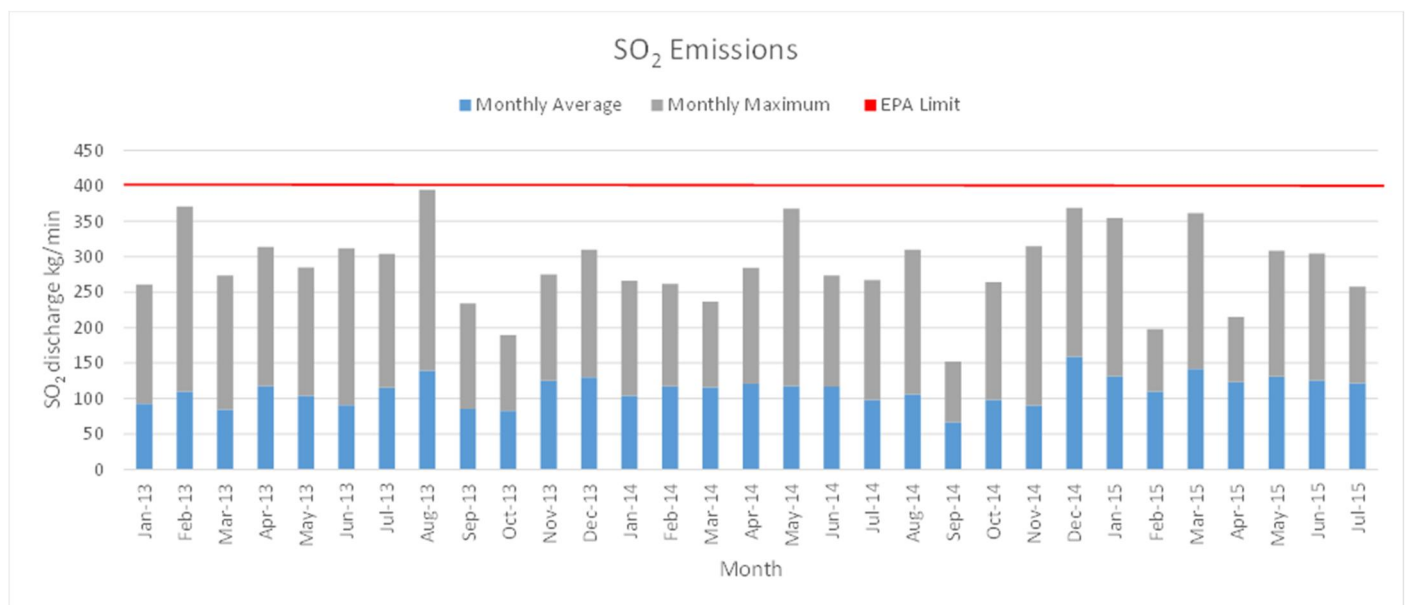
185. The graph below in **Figure 1 -Total Particulate Emissions** illustrates AGL LYA's monthly average of particulate emissions and monthly maximum results as monitored through CEMS. The graph shows that over the last three years this monthly average has consistently been at a level below 25% of the discharge limit in the EPA Licence. AGL LYA achieved an average of 14% of the discharge licence limit over the 2014/2015 financial year. The monthly maximum results are also generally well below the EPA Licence limit and it should be noted that the instances where the maximum levels are reached are events of short duration, measured over a matter of minutes.

Figure 1



186. The graph below in **Figure 2- SO2 Emissions** illustrates the monthly average and monthly maximum results of sulphur dioxide emissions as monitored through CEMS. The graph shows that over the last three years this monthly average has consistently been at a level below 40% of the EPA Licence limit. The monthly maximum results are generally also well below the EPA Licence limit. Again it should be noted that the instances where the maximum levels are reached are events of short duration, measured over a matter of minutes. AGL LYA has well developed alarm systems and operational procedures to ensure that actions are taken to reduce production (“offloading”) and hence emissions to ensure licence conditions are met.

Figure 2



187. AGL LYA has never breached the discharge to air requirements as specified in condition DA1 of the EPA Licence. The CEMS was installed in 2007 to monitor emissions on a real time basis rather than just one off testing each year. Parameters covered by the system include Particulates, Carbon Monoxide, Sulphur Dioxide and Oxides of Nitrogen. This allows the operators to view emissions and react according to supporting procedures. All parameters measured are alarmed with early warnings built into the system to allow an appropriate reaction time to avoid breaches. All instruments associated with the CEMS system undergo regular compliance and correlation testing by external NATA accredited agencies.

188. The CEMS system comprises a number of instruments which collectively measure the environmental performance of AGL LYA, its key components include:

- instruments are installed on each of the eight flues, two per Unit, at a sampling gallery 40 metres above ground level. In flue 1 of each Unit a PROCAL PULSI 250LR is fitted, which measures H₂O, CO₂, CO, NO and SO₂. In flue 2 of each Unit a PROCAL PULSI 230LR is fitted, which measures H₂O, CO₂ and CO. Each flue is also equipped with a DURAG D-R-290 opacity monitor for measuring particulate matter (dust). Spare instruments are kept on hand at all times to ensure minimal down time in case of a failure;

- the PROCAL detectors use infrared radiation to pass through the sample gas and it is reflected by a retro reflector. The signal corresponds to the concentration of gas contained in the sample stream. The DURAG opacity monitors use a double pass system of passing light across the flue and measuring the light attenuation due to dust. The dust particles will scatter the light, resulting in less light being returned to the instrument. All information is sent to both the ICMS system and the CEMS computers in the Chemical laboratory where it is converted to a mass rate, taking into account the velocity of the flue which is continuously measured, for comparison to the licence limits; and
- the data is collected by software packages which have evolved over time and all data is retained. This data is then used for internal reporting as well as evidence of compliance with the environmental licence.

189. The current goal for the CEMS system is to continue to manage emissions within the environmental licence limits. As a result of sulphur levels rising within the coal seam, there is an increasing focus on active management to maintain performance within the licence parameters. An *AGL Loy Yang Power Station Air Emissions Procedure* has been developed, detailing how to manage each licence parameter during poor quality coal events and setting up the framework for responding to operational alarms associated with air discharges. An example of measures included in the procedure included are set out below:

- sulphur EPA Licence limit is 400kg/min on a 30 min average;
- early warning alarm when any Unit hits 80kg/min on a 3 min average to the Unit of concern;
- secondary alarm when any Unit hits 100kg/min on a 3 min average to the Unit of concern;
- mass rate high alarm when Station total hits 320kg/min on a 3 min average and notification to Shift Manager, Environmental Manager and Senior Management. Generation is reduced to maintain levels of 320kg/min or below;
- mass rate very high alarm when Station total hits 360kg/min on a 3 min average and further notification to Shift Manager, Environmental Manager and Senior Management. Rapid generation reductions and supplementary firing to return levels to 320kg/min or below; and
- mass rate extremely high alarm when Station total hits 400kg/min on a 3 min average and further notification to Shift Manager, Environmental Manager and Senior Management. Unit/s to be shut down if trends persist for more than 10 min.

190. The CEMS system is aimed directly at AGL Loy Yang meeting its environmental obligations. It is a tool which allows AGL Loy Yang to evaluate its environmental performance at any moment in time, by capturing real time data. This in turn provides AGL Loy Yang the opportunity to respond in an appropriate and flexible way to work within the boundaries of the environmental licence.

191. AGL Loy Yang has taken a proactive strategy to managing its emissions, and initiates generation reductions upon reaching 80% of the EPA Licence limits in many cases. These actions are also taken according to data captured on a 3

minute basis, whereas the guidance documents stipulate compliance must be achieved on a 30 minute basis. These measures demonstrate that AGL Loy Yang goes beyond compliance and prioritises meeting and exceeding its environmental requirements.

192. There are some parameters such as Sulphur Trioxide, Fluorine compounds and Chlorine compounds which are not measured continuously. These are measured annually by a stack test which is undertaken by physically accessing sampling ports in the flue and extracting gas samples for analysis by a NATA accredited agency. In recent years AGL Loy Yang has commissioned further analysis to be completed at the same time to measure any heavy metal emissions. All results have returned levels well below those allowable. To support this every six months coal analysis is completed to determine the heavy metal composition of the fuel source during that period.
193. Additional tools have been developed by AGL Loy Yang, such as Sulphur prediction tools that take the fuel source and convert it to an emissions prediction. The sulphur prediction tool is an example of an AGL Loy Yang innovation which responds to the changing sulphur content anticipated in the coal resource in the coming years. The tool takes the raw data from the mine geological model, specifying constituents identified through the bore data analysis, and expected dig rates to convert the sulphur levels within the coal into predicted sulphur emissions from the stacks. This allows emissions to be managed to prevent breaches, and allows AGL Loy Yang advance notice of up to 12 weeks regarding the potential need to take action to manage sulphur levels. This may involve concentrating on ensuring plant availability is optimal for blending coal, changing the AGL LY Mine plan if required, or raising the profile of the issue so that all relevant personnel are informed and timely reaction to issues is achieved. It also allows AGL Loy Yang to manage our intermediate sulphur percentiles through analysing performance against these requirements in advance.

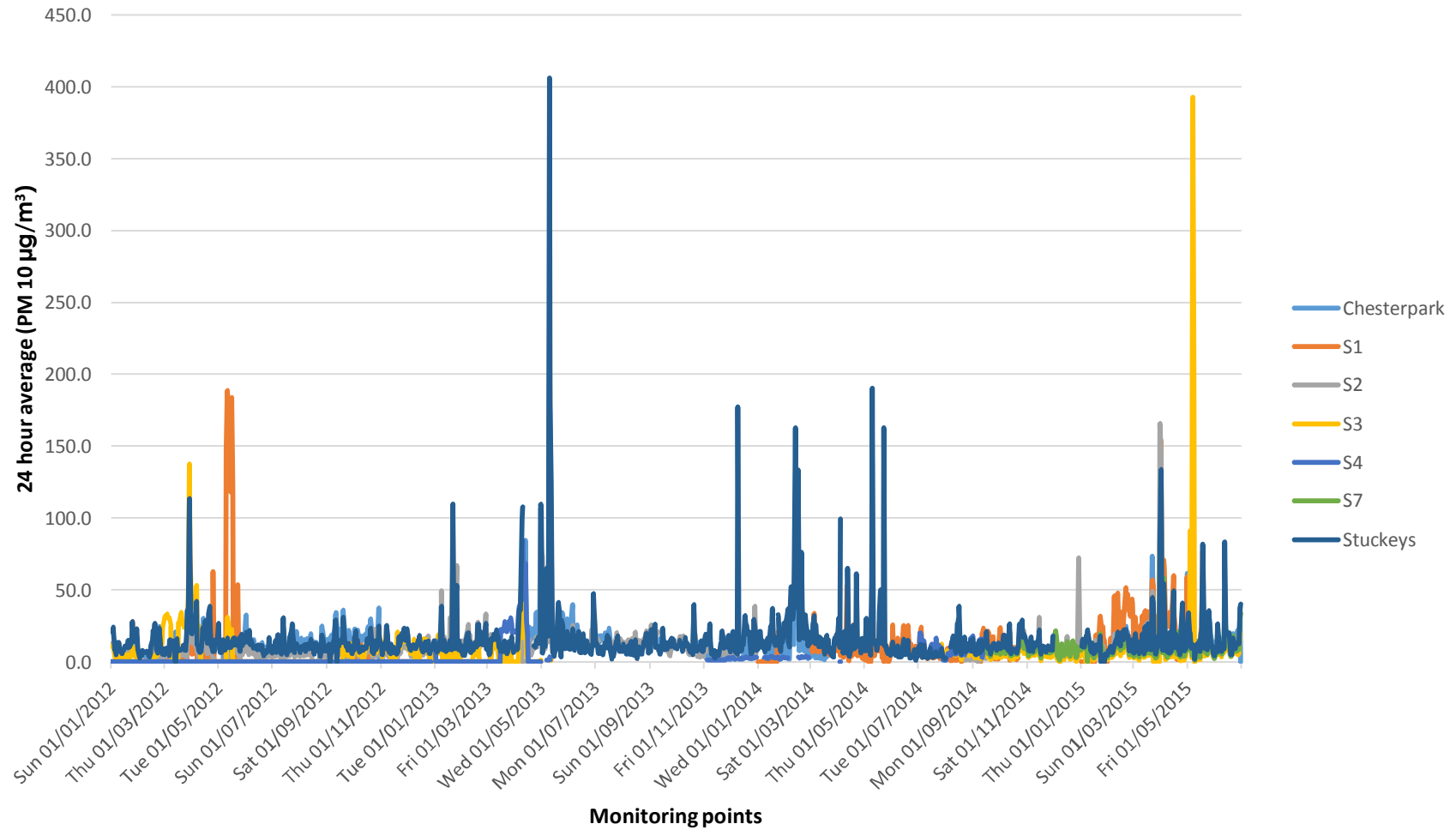
(c) Management of Dust Emissions from the Loy Yang Mine

194. AGL Loy Yang has also adopted a continuous monitoring system in relation to the management of dust emissions from the Loy Yang Mine. The management of nuisance dust is generally recognised as an issue for management of air quality around coal mines. Accordingly, the AGL Loy Yang dust monitoring program for the mine is primarily focussed on measuring Total Suspended Particulates (**TSP**) which is a measure of nuisance dust.
195. Dust deposition monitoring using dust deposition gauges is undertaken at six locations surrounding the AGL LY Mine and Overburden Dump and at two locations outside the site boundary targeting nearby off-site sensitive receptors such as residences. Results of the insoluble dust fraction collected in the deposition gauges is compared with the 4g/m²/month (no more than 2g/m²/month above background) as a monthly average as specified in the PEM. These results are reported quarterly at the ERC.
196. Continuous monitoring (using DustTrak Laser Photometers) of ambient airborne particulate matter (PM₁₀) is undertaken at four locations surrounding the mine and overburden dump and at one residential property. These DustTraks send an alert to members of the AGL Loy Yang Infrastructure, Civil

and Environmental team when readings reach a pre-determined level (based on the TSP limit specified in the SEPP and PEM).

197. Month long monitoring of selected airborne contaminants (including total suspended particulate matter), using high volume air samplers is also undertaken annually.
198. The graph in **Figure 3** below, shows dust monitoring results over the last three years at strategic locations around the mine and two off-site locations (neighbouring land holders). It gives a snapshot of TSP levels recorded as a 24 hour average PM_{10} $\mu g/m^3$ from the continuous monitoring over a three year period. It generally shows consistently low results that meet internal AGL Loy Yang targets. The elevated dust levels identified in the graph are typically due to fires in the region (unplanned wildfire and fuel reduction burns). The dust from fire events significantly affects the monitoring and gives rise to sharp elevations in the results. Other influences on fugitive dust include agricultural activities on surrounding lands, movement of mine equipment and/or agricultural equipment, and weather patterns. This graph should be viewed as providing a general illustration of dust monitoring results, noting that the data has some limitations due to changes in equipment, changes in monitoring locations, and also some equipment technical issues that have arisen over the last three years.

Figure 3 - Mine Dust Monitoring



199. The *AGL Loy Yang Operational Controls for Dust Suppression Procedure* has been developed to ensure fugitive dust emissions are managed effectively. Operational controls and procedures to minimise the impact of fugitive dust include:
- Online monitoring of weather conditions and weather alert system; utilising online weather website www.willyweather.com.au for forecasts 48 hours prior to an elevated risk period. Alerts are provide to all relevant personnel so that planning and allocation of resources can be undertaken.
 - The Operational Controls for dust Suppression Procedure TARP sets thresholds for the Alert or Trigger and relevant actions for key staff, which may include:
 - wetting of the mine surface prior to the forecast weather event;
 - minimising traffic movement during periods when weather conditions are likely to facilitate high concentrated deposition rates;
 - placement of paper mulch over exposed coal surfaces; and
 - progressive rehabilitation of exposed surfaces in the AGL LY Mine and Overburden Dump.

200. There were two verified complaints of fugitive dust from the mine during FY15. These occurred on the 31st of August 2014 and 20th of November 2014. Both events were associated with exceptional weather conditions and were reported to the EPA.

201. Since that time AGL Loy Yang has now included community members from the Flynn Land Care Group on Weather Alerts as well as undertaken site visits with interested parties showing the proactive approach to dust management undertaken by AGL Loy Yang.

202. DEDJTR and EPA undertook an audit of AGL Loy Yang's dust management programme in March 2015.

(d) AGL Loy Yang's Participation in Regional Air Monitoring –LVAMN

203. AGL Loy Yang is a contributing member and participant in the LVAMN. The LVAMN owns and operates air monitoring stations in order to collect information on the air quality in the Latrobe Valley. Ongoing funding for the operation and maintenance of the equipment is through local industry membership contributions.

204. AGL Loy Yang maintains ongoing membership of the LVAMN, at a cost in excess of \$35,000 per year. This supports the EPA in measuring the impact of the local emitters on the ambient air quality within the region.

205. The current membership of the LVAMN includes AGL Loy Yang - LYA, Australian Paper, Ecogen Energy, Energy Australia – Yallourn, Energy Brix Australia, GDF SUEZ Australian Energy – Hazelwood, GDF SUEZ Australian Energy - LYB and Mecrus.

206. The air monitoring program implemented by LVAMN is used to promote an understanding of the air quality in the Latrobe Valley, as well as enabling the members of the LVAMN to meet their individual EPA licence obligations. The LVAMN charter includes the purposes of the LVAMN are to:
- own, operate and maintain (or effect the operation and maintenance of) the Air Monitoring Assets on an ongoing basis;
 - collect information, including test results and data, on the air quality in the Latrobe Valley, such information to be produced by the operation of the Air Monitoring Assets;
 - disseminate the information to the Latrobe Valley community and the members;
 - promote an increased understanding of the air quality of the Latrobe Valley; and
 - provide the members of the Association with ongoing and unfettered access to all air quality information, including test results and data, produced by the Air Monitoring Assets to enable members to, among other things, comply with their respective obligations at law.
207. The LVAMN operates air monitoring stations at Jeeralang Hill and Rosedale South, both of these monitoring stations are classified as "background" monitoring stations as per the *Australian Standard for methods for sampling and analysis of ambient air – Guide to siting of air monitoring equipment* (AS3580.1.1-2008). The LVAMN also reports on information collected at the EPA station at Traralgon, this urban station is a performance monitoring station for the purposes of the SEPP AAQ.
208. The parameters measured at each monitoring station are:
- Rosedale South: Nitrogen Oxides, Sulphur Dioxide, Ozone, Local Visual Distance, Dry Bulb Temperature, Wet Bulb Temperature, Wind Speed, Wind Direction, Global Solar radiation, Ultra-Violet Radiation and Inhalable Particles (HiVolPM₁₀ size selective inlet method);
 - Jeeralang Hill: Ozone, Sulphur Dioxide, Wind Speed, Wind Direction and Inhalable Particles (HiVolPM₁₀ size selective inlet method); and
 - Traralgon: Nitrogen Oxides, Sulphur Dioxide, Ozone, Local Visual Distance, Dry Bulb Temperature, Wind Speed, Wind Direction and Inhalable Particles (TEOM continuous PM₁₀ method).
209. AGL Loy Yang's Environmental Licence condition G5.2 states that it:
- "must implement a program to assess the effect of your discharges to air on the ability of the Latrobe Valley Air Quality Control Region to comply with Schedule 2 of the State Environment Protection Polity (Ambient Air Quality)".*
210. Other LVAMN participants within the Latrobe Valley Air Quality Control Region have a similar licence condition.
211. The EPA publication *Licence Management* (No. 1322.6) sets out in detail how compliance can be achieved with condition G5.2, and the LVAMN follows the process of modelling and risk assessments set out in that publication. The compliance requirements are as follows:

To show compliance with this condition, as a minimum:

- *You must have a current program in place that sets out the steps you take to gather information about your emissions to air so that you, EPA and the local community can use the information to understand the impact of your site on the local air environment. You must also be able to show that the program is carried out. You may develop your own program or contribute to a joint program with other industries in the Latrobe Valley.*

Additional things to consider:

- *SEPP (AQM) clause 18 requires that generators of emissions apply best practice to the management of their emissions. Clauses 16, 21 and 28 specify EPA to require a generator of emissions to:*
 - *model the transport and dispersion of emissions*
 - *measure and report on the level of its emissions in the local air environment*
 - *undertake a risk assessment to gain a better understanding of the impact of emissions from its activity on the beneficial uses of the environment.*
- *SEPP (AAQ) sets ambient air quality objectives to protect beneficial uses including human health and the environment. These objectives are set for common air pollutants, mostly products of combustion.*

While licence-holders may choose how they conduct their assessments, the following guidance is provided:

- *waste discharges to air are modelled to predict the ground-level concentrations of each pollutant, taking into account other sources and background concentrations. These predicted levels can then be compared with the ambient air quality objectives.*
- *where predicted levels are significant, monitoring is used to assess the actual ground-level concentrations and validate the modelling predictions.*
- *where modelling predictions or actual monitoring results are above air quality objectives, a risk assessment will be carried out to understand the impact. This risk assessment combines modelling and monitoring results with an assessment of population exposure and sensitivity.*
- *EPA may use the findings of a risk assessment to determine whether a generator of emissions complies with policy. Best-practice management would also need to be demonstrated.*
- *the modelling, monitoring and risk assessments can all be done as a joint project between generators of emissions in the region, provided individual site effects are assessed.*
- *while monitoring is usually continuous, modelling and risk assessments are typically done or reviewed every few years.*

212. The most recent publically available annual summary report published by the LVAMN relates to July to December 2012.³ *LVAMN Report No:DAT6806* reported on results from Jeeralang Hill and Rosedale South and in summary:
- the SEPP objectives for Nitrogen Dioxide, particulate matter, local visual distance and ozone were met and not exceeded; and
 - the SEPP AAQ one hour average concentration Environmental Quality Objective for sulphur dioxide was exceeded at Jeeralang Hill on one occasion only during the reporting period on 24 November 2012.
213. The monthly reports have continued to be released on the website and AGL Loy Yang has continued to review and monitor those reports.
214. AGL Loy Yang reviews the LVAMN monitoring and modelling results to assess the effect of its emissions on regional air quality and to determine whether there have been any changes to the air quality of the region. To date these comprehensive assessments have confirmed that emissions from AGL Loy Yang have not impacted on SEPP air quality objectives. The results of the LVAMN ambient monitoring are published on the website in the form of daily summaries and annual reports. This ensures the flow of information to the community in an open and transparent manner on a daily basis. The modelling and risk assessment work conducted by the LVAMN is available to members, and to the EPA upon request.

(e) EPA Regional Ambient Air Monitoring

215. Studies by the EPA from prior to and post the Hazelwood Mine Fire have also confirmed that the ambient air quality results for the Latrobe Valley are generally below the parameters in the NEPM AAQ and SEPP AAQ for air pollutants and particulate matter.

(ii) Air monitoring at Morwell East (February 2012- May 2013)

The EPA report on air monitoring results from February 2012 to May 2013 at Morwell East and Traralgon in the Latrobe Valley,⁴ showed that levels of most air pollutants measured at both sites were comparable or below the air quality objectives or standards set by national and state environment protection policies.

The key findings from the monitoring were:

- levels of sulphur dioxide and nitrogen dioxide measured at both Morwell East and Traralgon were well below the ambient air quality objectives or standards;
- measured and estimated small particles (PM₁₀ and PM_{2.5}) levels were generally below ambient air quality objective or reporting standard except for four to seven days of the 15 months of air monitoring;
- the high levels of small particles (PM₁₀ and PM_{2.5}) at both sites were mainly due to significant smoke impacts from a local bushfire in January 2013 and planned burning in May 2013 rather than an ongoing air quality problem.

³ The website at <http://lvamninc.com.au/annual.html> provides daily monitoring to the public

⁴ <http://www.epa.vic.gov.au/our-work/publications/publication/2013/september/1547>

(iii) EPA Hazelwood Recovery Program air quality assessment – Morwell and surrounds (February 2014 to May 2015)

The aim of the Hazelwood recovery air quality assessment was to determine whether there have been any ongoing changes to air quality in the Latrobe Valley as a result of the Hazelwood mine fire. In the course of this assessment the EPA compared air monitoring and sampling data collected during the Recovery Phase (mid- February to 7 April 2014) with the data collected during the Response Phase (8 April 2014 to 21 May 2015).

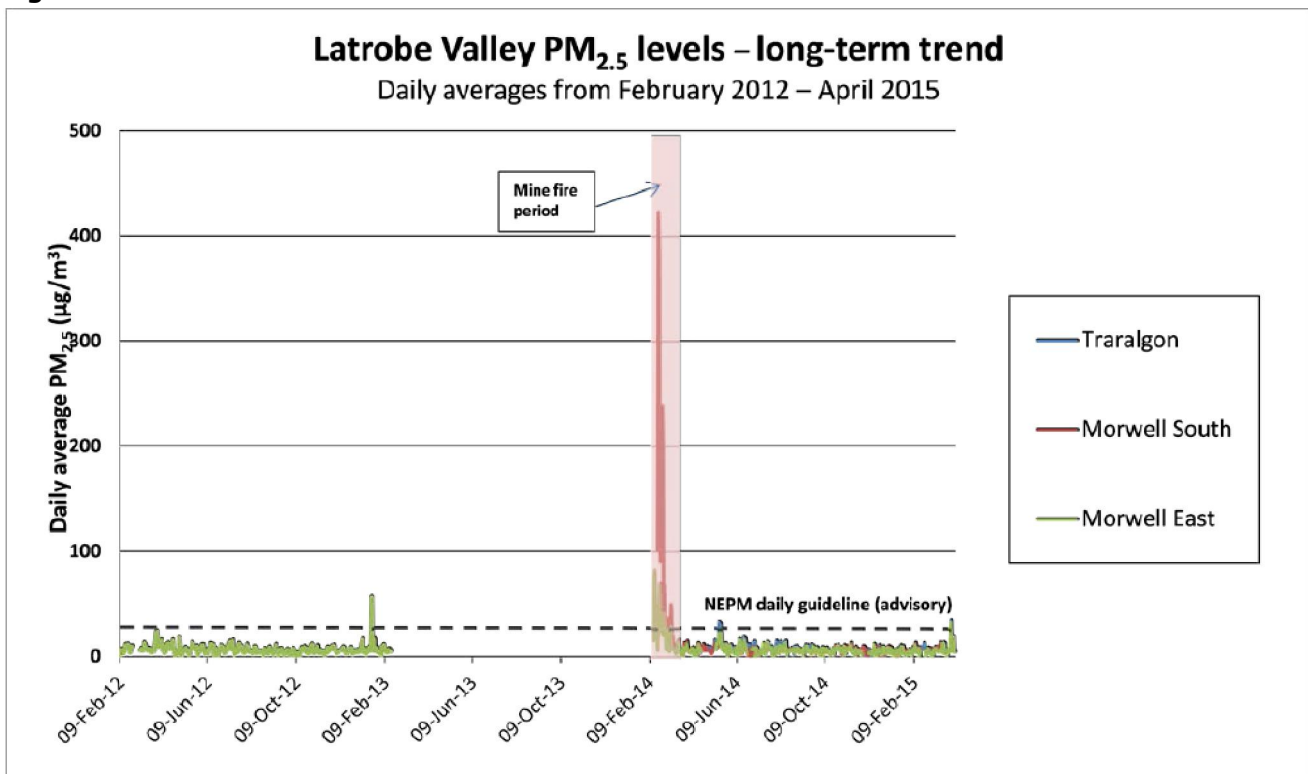
This report concluded that:

An extensive program of air sampling and monitoring conducted during the Recovery Phase of the Hazelwood mine fire showed that any air quality impacts recorded during the mine fire have now dissipated. All of the compounds tested during the incident returned to background, or low, stable concentrations shortly after emissions from the fire ceased. This has remained the case for the duration of the Recovery Phase.

To illustrate this conclusion that air quality has returned to background, or low stable concentrations, we have excerpted two graphs from the report regarding long term trends in particulate levels in the Latrobe Valley.

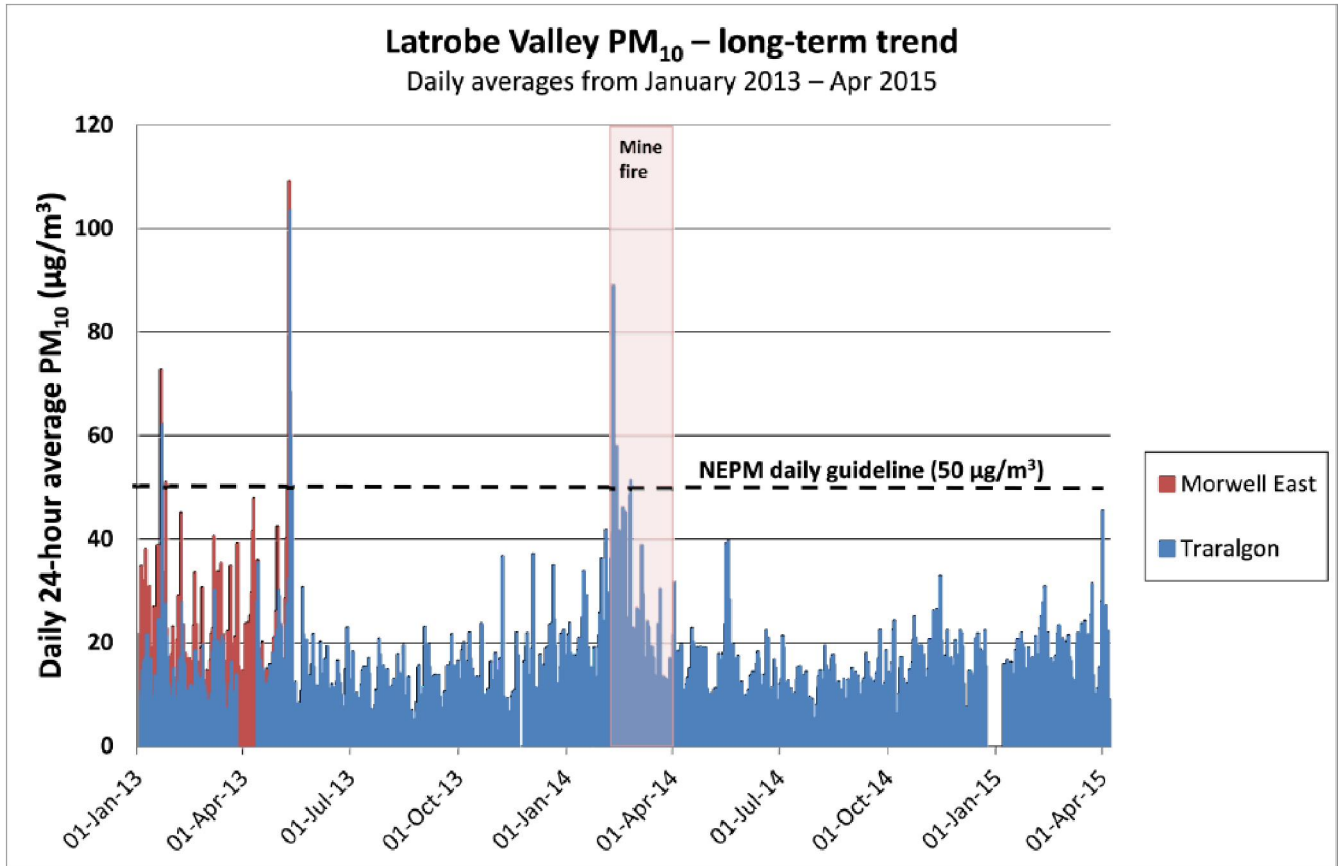
The graph below in **Figure 4 – Latrobe Valley PM_{2.5} levels – long term trend** shows the long term trend of daily average PM_{2.5} concentrations in the Latrobe Valley during the time period from 9 February 2012 to 8 April 2015.

Figure 4



The graph below in **Figure 5-Latrobe Valley PM10 – long term trend** shows the long –term trend of daily average PM10 concentrations in the Latrobe Valley measured using a BAM at Morwell (East) and a TEOM at Traralgon. The graph shows the time period from January 2013 to April 2015.

Figure 5



(f) Occupational Health and Safety (OH&S)

216. AGL Loy Yang has a good record of compliance with the OH&S Act and OH&S Regulations. Five Improvement Notices have been issued to AGL Loy Yang during the past two years in respect of the mine, all of which have been complied with by the due date. AGL Loy Yang has never been charged with, or prosecuted for, any contravention of the OH&S Act or the OH&S Regulations. AGL Loy Yang has established and maintains a cooperative relationship with the regulator.

AGL Loy Yang's Participation in Environmental and Public Health Studies

217. AGL Loy Yang through its ongoing involvement in the LVAMN undertakes a combination of monitoring and modelling to understand and assess its impact on the Latrobe Valley Region. Risk assessments combining the modelling and monitoring results are undertaken in order to assess population exposure and sensitivity.

218. AGL Loy Yang has recently partnered with Federation University, where by the health science group have been onsite to deliver three Health Living seminars to our employees and contractors. AGL Loy Yang partner with Latrobe Community Health service and Gippsland Life Line to deliver healthy living and mental health sessions. As part of the AGL Loy Yang Major Outage a number of community organisation have financially benefited from the Safety Awareness scheme including Latrobe Valley Cancer Care Centre, Latrobe Regional Hospital, Gippsland Asbestos Awareness Group GARDS, Morwell Salvation Army, Gippsland Life Line and number of other local charities. This outage safety scheme ensures good connection with community.

AGL Loy Yang's Commitment to Improving Environmental and Health Outcomes

219. AGL Loy Yang recognises the fundamental relationship between occupational health and safety, business values, quality, productivity and employee well-being. AGL Loy Yang is committed to ensuring that all activities are conducted in compliance with relevant legislation, regulations, government policies and codes of practice.
220. AGL Loy Yang has a robust Community Engagement Plan and a strong commitment to proactive community engagement. AGL Loy Yang maintains a stakeholder database to assist in identifying appropriate community, government, union, media and business stakeholders to engage with.

EMERGENCY MANAGEMENT

Overview

221. AGL Loy Yang has a comprehensive, detailed and rehearsed Crisis Management Plan (**CMP**) and Emergency Management Plans (**EMP**). The plans align with and adopt the *Australasian Inter-Service Incident Management System (AIIMS)*. This system is a nationally recognised system for the nation's fire and emergency service agencies organisational principles and structures used to manage large emergencies.

Emergency Management Plan (EMP)

222. The objective of AGL Loy Yang's EMP is to outline a plan for prevention of, preparedness for, responding to, and recovering from, emergencies that may threaten any asset vested in the control of AGL Loy Yang or that may threaten AGL Loy Yang's ability to continue operation.
223. The EMP does not change any of the fundamental procedures that AGL Loy Yang already has in place. The EMP provides guidelines on interfacing with external combating authorities and conforms to the requirements of the *Emergency Management Act 1986 (Vic)* and the *Victoria State Disaster Response Plan (Emergency Management Committee) 1992*. The terminology and titles used throughout the EMP are also compatible with those found within the AIIMS.
224. The EMP has been prepared in consultation with the Victoria State Emergency Service, and in accordance with the OH & S Act, *Australian Standard AS 3745 1995* and Part 3, Division 2, *Dangerous Goods (Storage and Handling) Regulations 1989 (Vic)*.
225. This EMP was based on the industry model developed by the Victoria State Emergency Service. The plan comprehensively covers large emergencies, including: fire, plant

failure, earthquake, motor vehicle collision, flooding, terrorism and other incidents deemed as a large emergencies.

226. AGL Loy Yang's Emergency Service Provider exercises all identified elements within the EMP at least annually. Progress against the schedule is reported on a monthly basis to AGL's Head of Security and Emergency to ensure compliance.
227. From a staffing perspective:
- employees are training on the EMP and the EMP is regularly exercised with learnings from the exercises integrated into the EMP through updates;
 - AGL Loy Yang has 8 Emergency Service Liaison Officers, whom train regularly and are responsible for ensuring the EMP is current;
 - AGL Loy Yang has 18 nationally accredited level 2 Incident Controllers within the staff; and
 - all contractors and visitors to AGL Loy Yang must undergo a site induction which highlights the emergency management arrangements, prior to access a knowledge test on the arrangement must first be successfully passed.

Emergency Management Network

228. AGL Loy Yang plays key roles in the regional and industry Emergency Management Network, as:
- Chair of the Central Gippsland Essential Industries Group and sits on a number of regional and state Emergency Management committees;
 - AGL Loy Yang participates in joint exercises of Emergency Management arrangements with Emergency Services and conducts site familiarisation tours and briefings with agencies and government;
 - AGL Loy Yang is a member of the International Association of Emergency Managers and a sponsor of the Centre for Disaster Management and Public Safety with the University of Melbourne.
 - AGL Loy Yang is a member of the Trusted Information Network and the Security Continuity Networks.

CONCLUSIONS

229. AGL's core values system is critical to the way in which the company manages its facilities and programs. AGL's overarching value of 'safe and sustainable' incorporates not only the safety of our employees but a strong commitment to the protection of our environment and the communities in which we operate. This value is ingrained in how we conduct business and is directly relevant to the management of the environmental and public health performance of the AGL LY Mine and AGL LYA.
230. In this submission we have provided an overview of the operation of the AGL LY Mine and AGL LYA and have attempted to identify the key parts of these operations that have the potential to generate environmental and public health risks. We have also described the mineral resources and environmental regulatory regime under which we operate and which is designed to ensure the achievement of the environmental and public health objectives that are set by Government.

231. Finally, we have detailed the performance of the AGL LY Mine and AGL LYA from an environmental perspective in order to inform the Board, and the community more generally, of the strength of our performance and our commitment to good practice. AGL Loy Yang maintains a strong environmental compliance record, which, in our view, demonstrates a commitment that extends 'beyond compliance'.
232. We note that the post-Hazelwood Mine Fire requirement that coal mine operators undertake a detailed risk assessment of their operations has enhanced this framework. Accordingly, AGL considers that the existing mineral resources, environmental and public safety regulatory frameworks are generally robust.
233. However, AGL acknowledges that regulatory frameworks should evolve over time to meet changing community expectations and to reflect new understandings of risk, informed by developments in science. It is critical that policy reform be evidence based and proportionate to the risks that the regulation is intended to address. In this respect, AGL recognises the recent work of the Council of Australian Environment Ministers' toward revised ambient air standards. AGL recognises this work is likely to ultimately lead to a strengthening of air emissions standards for AGL LYA. AGL is confident our current environmental management systems can meet evolving industry standards and we support the continuing review of emissions standards to ensure they continue to reflect contemporary science.
234. AGL acknowledges the results of the LVAMN, which demonstrate that regional air quality is generally good and is meeting ambient air standards.
235. We look forward to participating in this process and think there is a role for the LVAMN, together with the EPA, to increase the quantity and quality of relevant information shared with the community. In our view, public confidence in the air quality regulatory framework is critical to building trust with the broader industry.
236. While not directly engaged by the terms of reference, AGL has recently released a revised Greenhouse Gas Policy and has committed to the decarbonisation of our generation fleet by 2050. AGL will continue to engage with stakeholders, including the Latrobe Valley community on how a low carbon transition is managed and achieved.
237. AGL looks forward to the hearings on Terms of Reference 6 and 7 to be held in September 2015. Once we have had an opportunity to consider the evidence and submissions presented to the hearing, AGL will participate in these hearings and contribute to the formulation of recommendations to the Board in relation to how public health outcomes in the Latrobe Valley may be advanced.