



Brown coal-fired power stations licence review: public report

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Executive summary

Context

The three brown coal power stations in Victoria were designed in the 1970s - 1980s and commissioned in the 1980s - 1990s. The power stations were built by the State Government to take advantage of an abundant natural resource (brown coal) and deliver affordable electricity for all Victorians. These power stations are now scheduled for decommission in the next 15 to 20 years.

Environment Protection Authority Victoria (EPA) reviews the licences held by brown coal power stations about every five years to ensure that the licence conditions are consistent with current government policy and Regulations, the latest science, and take into account community views and expectations.

EPA has now concluded its latest licence review.

The purpose of this report is to summarise the outcome of the licence review for the AGL Loy Yang Pty Ltd (Loy Yang A), Loy Yang B Operations & Maintenance Pty Ltd (Loy Yang B) and Energy Australia Yallourn Pty Ltd (Yallourn) brown coal-fired power stations.

The review process

This is the first systemic review of the licences for Loy Yang A (“LYA”), Loy Yang B (“LYB”) and Yallourn. For more information on the origins of the systemic review of licences, please refer to [Approvals review final report](#) (publication 1521) (epa.vic.gov.au/about-epa/publications/1521).

This review has been conducted in accordance with section 20(9) the *Environment Protection Act 1970* (“EP Act 1970”) which empowers EPA to amend and add new conditions to licences already issued under the EP Act 1970.

Other matters relevant to the review:

- The amended *Environment Protection Act 2017* (“amended EP Act 2017”) and associated draft *Environment Protection Regulations* (“Draft EP Regulations”) are expected to come into effect on 1 July 2021. These licences will span the operation of the EP Act 1970 and amended EP Act 2017.
- The licence review has been conducted under the EP Act 1970. However, as the licences will span the EP Act 1970 and amended EP Act 2017, EPA has sought to harmonise the amended and new conditions within the broad purpose and framework of the amended EP Act 2017. The amended EP Act 2017 will introduce a preventative framework of environment protection laws including the general environment duty (section 25 of amended EP Act 2017). Where relevant, this review has been informed by the general environmental duty by:
 - shifting the focus on licence conditions to prevention of harm; and
 - the concept of reasonably practicable in the inception of licence conditions.
- Section 76 of the amended EP Act 2017 enables EPA to review these licences after four years (from the commencement of the amended EP Act 2017). This future review will be undertaken under the full legal framework of the amended EP Act 2017.
- This review has been conducted in accordance with the State Environment Protection Policies (SEPPs) made under the EP Act 1970, in particular State Environment Protection Policy (Air Quality Management) (SEPP AQM).
- Requirements under section 17 of the *Climate Change Act 2017* (CC Act) have been taken into account in the licence review (this matter is detailed in the report).
- To obtain community input to the licence review, EPA conducted extensive consultation with community groups between February 2018 and May 2018. In total, 493 submissions were received with wide ranging issues, some of which were beyond the scope of EPA licensing.
- The licence review also drew on:
 - historical compliance records
 - air modelling
 - all available scientific and technical information
 - expert advice from EPA’s Applied Sciences Division
 - community submissions

- community conference
- licence holder submissions.

Licence amendments

As a result of the review, EPA has made amendments to the licence conditions for air emissions, wastewater, mines and landfills.

Air emissions

The amendments to the air emission conditions are:

- The parameters required to be monitored have been made consistent for all three licences.
- Discharge maximum limits and monitoring requirements for mercury, fine particles (PM_{2.5}) and coarse particles (PM₁₀) have been added to each licence.
- Due to historical technological constraints in collecting fine particles (PM_{2.5}) and coarse particles (PM₁₀) data in real time, a requirement to develop a monitoring program to establish the distribution of these two particles fractions in the discharge has been introduced. Following the conclusion of this program EPA will use the results of this program to establish 90th percentile limits for both fine particles (PM_{2.5}) and coarse particles (PM₁₀), which will complement the maximum limits set with current data.
- The mercury limits added to each licence are based on National Pollution Inventory data and information provided by licence holders. These limits are consistent with current policy, and are protective of human health and the environment, ensuring licence holders cannot increase mercury emissions significantly without EPA approval.
- The air discharge limits for most parameters have been reduced in each licence.
- The three brown coal-fired power stations are required to monitor air emissions continuously and share the data with community through their own company websites.
- Yallourn is required to undertake continuous emissions monitoring system to be able to monitor in real time oxides of nitrogen and sulfur dioxide (the other two power stations already have this capability).
- Exemption hours for start-up and shutdowns for LYA and LYB have been set to a maximum of 88 hours per year and have been made clearer by including exceedance of mass emission rates. Due to evidence of high frequency of start-ups and shutdowns, the exemption hours for start-ups and shutdowns for Yallourn has been set at 600 hours (reduced from 1,200 hours).
- Although the class 3 indicators (extremely hazardous substances that are carcinogenic, mutagenic, teratogenic, highly toxic, or highly persistent, and which may threaten the beneficial uses of the air environment) emissions are, on the available evidence, very low, the information available is outdated. As such a monitoring condition for relevant class 3 indicators has been added to each licence to confirm current understanding and assist with future refinement of any conditions.
- In accordance with SEPP AQM, EPA has introduced a condition that requires a risk management monitoring program requirement—due to be implemented under the amended EP Act 2017—to require regular and robust analysis of the practicability of introducing continuous technological and process improvement to reduce emissions. Where identified risks cannot be eliminated, the licence holder must describe how the risks identified are being minimised so far as reasonably practicable (SFARP). SFARP is a dynamic concept: it changes over time within the site-specific risk context. As such, the licence holder must assess and (where applicable) implement changes such as technological advances as new or alternative risk control measures become available. Of specific relevance to emission control technologies, EPA's expectation is that this condition requires the licence holders to continually assess emerging technologies concerning emissions reductions and determine their suitability.
- No direct limits are set on greenhouse gases requirements under licence from this review, however the reduced emission limits imposed by this review will cap greenhouse gas emissions to approximately current levels. This is because of the emissions limits, limiting possible increase in processing capacity, which in turn prevents any significant increases in greenhouse gas emissions.

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Wastewater

The amendments to the wastewater conditions are:

- reduction in headroom (difference between the licence limit and actual discharge quality) where current limits are too high compared with the actual quality of the discharge; and
- replacing total dissolved solids and total suspended solids with electrical conductivity for consistency ease of measurement.

Mine and landfill

The amendments to the mine and landfill conditions are:

- Yallourn and Loy Yang A are required to have rehabilitation plans for ash ponds, ash landfills and solid inert landfills.
- Yallourn and Loy Yang A are required to implement mine dust audit recommendations.
- Loy Yang A licence condition LI_DL1.1.1 that refers to outdated policy (SEPP Groundwaters of Victoria 1997) was replaced with LI_DL1.1.2 which referred to updated SEPP Waters 2019. The SEPPs allow designation of a groundwater attenuation zone around aging infrastructures such as ash ponds. Groundwater attenuation zones ensure safe use of groundwater resources outside of this zone and the licence holder (Loy Yang A) is responsible to ensure groundwater impacts from the ash ponds remains within this zone. At the end of life of the power stations, when ponds are no longer required, the groundwater impacts within the attenuation zone will be remediated.

Individual licences

The individual licences and supporting information about how to comply with the new conditions can be viewed on the [EPA website](#)

(portal.epa.vic.gov.au/irj/portal/anonymous?NavigationTarget=ROLES://portal_content/epa_content/epa_roles/epa.vic.gov.au.anonrole/epa.vic.gov.au.searchanon&trans_type=Z001) or the [Engage Victoria website](#) (engage.vic.gov.au/review-brown-coal-power-station-licences).

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1 Background

This report is to inform the Victorian community about:

- the process and legal framework for the review of EPA licences held by AGL Loy Yang Pty Ltd (Loy Yang A), Loy Yang B Operations & Maintenance Pty Ltd (Loy Yang B) and Energy Australia Yallourn Pty Ltd (Yallourn) brown coal-fired power stations
- the engagement process EPA undertook during the licence review
- the outcome of the licence review and explanation of the amended and new conditions for the brown coal-fired power stations.

EPA undertook a significant reform of its licensing system in 2010. The subsequent EPA approvals review ([Approvals review final report](#) (publication 1521)(epa.vic.gov.au/about-epa/publications/1521) released in 2013, identified a need to ensure licences are kept up to date with changing science, environmental conditions and community standards (recommendation H). In 2015, EPA announced the introduction of five-yearly periodic licence review. Since then, EPA has reviewed licences for landfills, mines, coal processing, powers stations (excluding brown coal-fired power stations) and updated all EPA licences with new standard licence conditions.

This review has been conducted in accordance with section 20(9) the *Environment Protection Act 1970* (“EP Act 1970”) which empowers EPA to amend and add new conditions to licences already issued under the EP Act 1970.

At the outset of the review, EPA made clear to the licence holders that the review would consider adding PM_{2.5} and mercury emission limits due to changes in policy and standards, both nationally and internationally. It was also EPA’s intent to focus on monitoring and reporting of emissions in response to strong community sentiment about the need for greater transparency

The amended *Environment Protection Act 2017*

The amended EP Act 2017, once it comes into effect, will further enhance environment protection through measures including:

- A new ‘[general environmental duty](#)’, (epa.vic.gov.au/for-business/new-laws-and-your-business/general-environmental-duty) which will apply to all Victorians, requiring that risks of harm to human health or the environment from pollution or waste be minimised so far as is reasonably practicable. The concept of reasonably practicable will require consideration of the following factors:
 - the likelihood of those risks eventuating
 - the degree of harm that would result if those risks eventuated
 - what the person concerned knows, or ought reasonably to know, about the harm or risks of harm and any ways of eliminating or reducing those risks
 - the availability and suitability of ways to eliminate or reduce those risks
 - the cost of eliminating or reducing those risks.
- A tiered permissioning framework made up of licences, permits and registrations. The type of permission required for different activities will be based on the level of risk to the environment from the activity, and the level of control that EPA believes needs to be put in place. Licences are designed for complex activities that have significant risk of harm to the environment and human health. They are intended for complex activities that need the highest level of regulatory control. Although the Draft EP Regulations are yet to be formally made, EPA expects that brown coal-fired power stations will continue to require this level of permissioning, ensuring appropriate management of the risks to human health and the environment.
- A suite of new [licence conditions](#) (epa.vic.gov.au/about-epa/publications/1850) will be rolled out to all operating licences including a key requirement to develop a risk management and monitoring program (RMMP) which requires comprehensive risk identification assessment of the controls and measures to eliminate or minimise the risks so far as reasonably practicable. In addition, there will be new licence requirements requiring decommissioning plans.
- A statutory provision to enable regular review of operating licences. The review of operating licences would occur after the operating licence has been in force for four years (or any longer period determined by EPA).

Brown coal-fired power stations

The three brown coal-fired power stations were designed in the 1970s - 1980s and commissioned in the 1980s - 1990s. The power stations were built by the State Government to take advantage of an abundant natural resource (brown coal) and deliver affordable electricity for Victorians. The three plants were designed and commissioned at a time in which there was not as strong a focus on emissions intensity or energy efficiency, though some improvements have been made over time. The details of the three power plants are as follows:

- Energy Australia Yallourn Pty Ltd (Yallourn) was commissioned in 1980 with capacity of 1538 MW. Its emission intensity is the highest at 1.417 t CO₂-e / MWh
- AGL Loy Yang Pty Ltd (Loy Yang A), in Traralgon was commissioned in 1986 with capacity of 2180 MW. Its emission intensity is now 1.211 t CO₂-e / MWh)
- Loy Yang B Operations & Maintenance Pty Ltd (Loy Yang B) in Traralgon was commissioned in 1995 with capacity of 1140MW. Its emission intensity is now 1.226 t CO₂-e / MWh).

Since the 1980s, the power stations have been central to the secure supply of energy to all Victorians. Similarly, the power stations have played a prominent role in the economy of the Gippsland community and the state as a whole. However, the infrastructure at each plant has been in operation for decades and in the case of Yallourn, is expected to be decommissioned in 2032. In the case of Loy Yang A and Loy Yang B, those power stations are currently planned to operate until 2048. These matters were raised during the consultation process and form part of the background in which this licence review has been conducted.

The age of the infrastructure, the availability and cost of implementation of new technologies is relevant context for this licence review. The principles of environmental protection contained in the EP Act 1970 have been instructive in how EPA has considered these matters.

2 The decision-making framework under the EP Act 1970

The key legislation for environment protection in Victoria is the *Environment Protection Act 1970* ([EP Act 1970](#)) ([legislation.vic.gov.au/in-force/acts/environment-protection-act-1970/214](#)). Under the EP Act 1970, subordinate legislation can be made, such as State Environment Protection Policies ([SEPPs](#)) ([epa.vic.gov.au/about-epa/laws/legislation-regulations-and-policies/sepps](#)), Waste Management Policies ([WMPs](#)) ([epa.vic.gov.au/about-epa/laws/legislation-regulations-and-policies/waste-legislation/waste-management-policies](#)), and [Regulations](#) ([epa.vic.gov.au/about-epa/laws/legislation-regulations-and-policies/regulations](#)). In undertaking the review, consideration was also given to other relevant legislation.

This report provides a summary of the review of the EPA licences issued under section 20 of the EP Act 1970 to the three brown coal-fired power stations – Loy Yang A, Loy Yang B and Yallourn – as part of its periodic licence-review program. These power stations are defined as a scheduled premise (category K01) under the Environment Protection (Scheduled Premises) Regulations 2017 and as such require an EPA licence to operate.

This review was initiated by EPA and the amendments to licence conditions resulting from the review are implemented pursuant to section 20(9) of the EP Act 1970. In conducting this review, EPA has had regard to the principles of environment protection in sections 1B – 1L of the EP Act 1970 namely:

1. principle of integration of economic, social and environmental considerations
2. the precautionary principle
3. principle of intergenerational equity
4. principle of conservation of biological diversity and ecological integrity
5. principle of improved valuation, pricing and incentive mechanisms
6. principle of shared responsibility
7. principle of product stewardship
8. principle of wastes hierarchy
9. principle of integrated environmental management
10. principle of enforcement
11. principle of accountability.

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In considering these environment protection principles, EPA has followed the process described in the [Application of the Environment Protection Principles to EPA's Approvals Process](#) (publication 1565) (epa.vic.gov.au/about-epa/publications/1565). While this publication relates to the approval process under the section 19 of the EP Act 1970, it is also informative to licence condition reviews conducted under section 20(9) of the EP Act 1970.

Consultation with licence holders

To inform the licence review, in November 2017, EPA required power station operators to prepare an air quality assessment of the current performance and licence limits (for oxides of nitrogen, sulfur dioxide, carbon monoxide, mercury, particles PM₁₀ and PM_{2.5}) against policy requirements (SEPP Ambient Air Quality and SEPP Air Quality Management). In addition, EPA required the power station operators responded to issues raised by the community.

The air quality assessment and responses to issues raised by the community were key inputs to a an independently chaired community conference under Section 20B of the EP Act 1970, which is discussed further below.

As is the case for all licence reviews, the licence holders were provided with draft licence conditions for their consideration. EPA received detailed submissions from each of the licence holders. These submissions contain commercially sensitive information which cannot be disclosed by EPA in accordance with section 60 of the EP Act 1970.

Consultation with the community

EPA first conducted a targeted community consultation followed by an open consultation for all Victorians during February and May 2018. EPA received 493 submissions which raised a wide range of issues, and more information is available on [EPA's website \(epa.vic.gov.au/about-epa/what-we-do/works-approvals-and-licences/improving-licensing/brown-coal-fired-power-stations-licence-review\)](#).

In August 2018 at Traralgon, EPA held an independently chaired community conference under Section 20B of the EP Act 1970 to better understand community concerns and identify potential solutions. Two sessions (day and evening) were held to ensure everyone had the opportunity to attend.

The conference report, community submissions, power station operator's responses to community-raised issues ahead of the section 20B conference and air emission modelling reports are all published on the project page on the [Engage Vic website \(engage.vic.gov.au/review-brown-coal-power-station-licences\)](#).

The [20B conference report](#) (makes several recommendations for EPA to consider in its decision making. The recommendations are broken down into seven topic areas:

1. General

- EPA licence conditions need to be outcome-focussed and not prescriptive of the method employed to achieve the outcome. As stated above, consideration needs to be given to ensuring alignment with the key outcomes that the conference participants are seeking from the licence review (as documented in this report under each topic heading). In addition to ensuring alignment of licence limits with international best practice standards and national best practice standards.
- EPA needs to consider including a more regular licence review process in the licence conditions to ensure that the licences remain aligned with government policy, community expectations, and advances in technology.

2. Monitoring and reporting

- EPA needs to consider conducting a review of the monitoring stations in the Latrobe region to ensure the number of monitoring stations, location of monitoring stations and operation of monitoring stations are compliant with national air quality monitoring standards and reflect the current and future plans for the housing footprint in the area.
- A risk-based approach needs to be considered to determine the appropriate monitoring frequency and the suite of pollutants tested. However, consideration does need to be given to the community request for real time monitoring of all pollutants including in-stack emissions monitoring.
- Consideration needs to be given to the community request for more regular reporting of the real-time monitoring data for example, monthly reports with independently verified or audited data. Consideration also needs to be given to the integration and public release of the data collected by EPA and Latrobe Valley Air Monitoring Network (LVAMN).

- EPA and power station operators need to further consider an appropriate format for the public release of the data. This needs to be simple and in plain language. This could include a dashboard reporting style with the ability to drill down into the raw data. The data needs to be accessible in a summary form, and the raw data in a user friendly and downloadable format.
- Further consideration needs to be given to the idea that power station operators contribute to the cost of monitoring and reporting processes, while ensuring the data collection and reporting process is carried out independently.

3. Continuous improvement

- Further consideration needs to be given to the idea that licences need to require evidence of continuous improvement.
- EPA needs to consider including licence conditions that require continuous improvement plans, with monitoring and reporting on the progress/attainment of goals focused on efficiency improvements (that get more value/energy for the emissions released). Consideration needs to be given to EPA appointing an independent auditor to review the adequacy of plans and monitor the progress towards the goals.
- Power station operators need to consider conducting a joint feasibility study of best-practice pollution reduction technologies and controls (comparative power stations/age/technology) to identify what can be achieved, what are the likely benefits for pollution reduction and the likely costs for implementation.

4. Accountability

- EPA needs consider the request to report to the local community on exceedances and licence condition breaches and what enforcement action was taken, with an intent for more timely turn-around times between exceedances and follow up action from EPA.
- EPA needs to consider the request for more clarity on data and reporting verification processes for air quality monitoring data, to provide more transparency and confidence for the community around EPA's accountabilities and data reporting chain.

5. Best practice site management

- Further consideration needs to be given to licence conditions that are designed to protect water quality for both surface and ground water. Consideration needs to be given to appropriate water quality monitoring of discharges and ensuring that the monitoring data is available to the public, and particularly to any beneficial users of the water. Consideration also needs to be given for the need for a hydrological assessment of any potential impacts and accessions to underground aquifers.
- EPA needs to consider conducting a review of current water discharge limits to ensure adequate protection to surface and ground water that meet current community expectations.
- Further consideration needs to be given to licence conditions that ensure best practice dust management at mine sites. Consideration needs to be given to the need for boundary dust monitoring and effective co-regulation and enforcement processes (including progressive fines) for fugitive dust emissions exceedances.
- Power station operators need to give consideration to effective mechanisms to inform the local community about mine closure bonds and financial assurances covering each site.
- Consideration needs to be given to the request for appropriate levels of community consultation on site rehabilitation issues, designs, and implementation processes and timelines.

6. Health impacts

- Consideration needs to be given to the idea that it is critical for the local community to have access to real time data for air quality and adequate alerts for periods of higher risk of pollutant emissions. This enables community members to better make informed decisions to manage their own health.
- Clarification is required on the level of risk associated with water vapour emissions and what pollutants are likely to be in the water vapour component. Consideration should then be given to expanding the list of pollutants to be monitored to include water vapour.
- EPA needs to consider the concept of a pollution emissions exceedance levy to be paid back to the community – through a local health organisation, such as the Latrobe Health Assembly – as health compensation to the community for exceedances of licence limits.

7. Climate change

- The community expects EPA to consider climate change in all decisions. The community submitted that EPA needs to consider the request for more clarity on EPA's scope of powers under the Climate Change Act 2017 and what greenhouse gas (GHG) regulatory powers can apply to the licence review process.
- Power station operators need to consider joining Victoria's Take2 climate change pledge program (to reduce emissions) to align with State Government policy and community expectations of corporations operating in Victoria.
- Further consideration needs to be given to licence conditions that require a Continuous Improvement Plan for GHG emissions with clear targets, and a clear implementation plan. Consideration needs to be given to including a staged/ stepped reduction in emissions targets. Consideration needs to be given to the use of an independent auditor to monitor progress. Consideration also needs to be given to mechanisms to communicate progress to the community and key stakeholders.

3 Outcomes of the review

As required by section 20B(4) of the EP Act 1970, EPA has had regard to matters raised in the section 20B conference. Each of these topic areas is discussed below.

(a) Air emissions

(i) Emission levels

Review outcomes:

- **The parameters monitored under each licence are consistent for all three licences.**
- **Discharge limits and monitoring requirements for mercury, fine particles (PM_{2.5}) and coarse particles (PM₁₀) emission limits have been added to each licence.**
- **Due to historical technological constraints in collecting real time data for fine particles (PM_{2.5}) and coarse particles (PM₁₀), a requirement to develop a monitoring program to establish the distribution of these two particles fractions has been introduced. Following the conclusion of this program EPA will use this information to establish 90th percentile limits for both fine particles (PM_{2.5}) and coarse particles (PM₁₀).**
- **The air discharge limits for most of the discharge to air parameters currently on each licence have been reduced (see Appendix A, tables 1, 2 and 3).**
- **A new condition which exempts the total particles mass emission rates for 88 hours per year (which is 1 per cent of the time) has been included for both Loy Yang A and Loy Yang B.**
- **For Yallourn, the new condition will have an exemption period of 600 hours per year. This represents a 50 per cent reduction of the exemption time from current allowance.**

Considerations

The review of the ambient air quality¹ in the Latrobe Valley airshed for common pollutants such as particles (PM_{2.5} and PM₁₀), ozone and nitrogen dioxide meets standard (SEPP AAQ) with exception of the short-term fine particles (PM_{2.5}) attributed to planned and unplanned burns.

¹ Ambient air quality is measured in accordance with the requirements of the National Environment Protection (Ambient Air Quality) [Measure](#). EPA also provides air quality data ([updated hourly](#)) on its website and produces [annual air quality summaries](#).

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The review of the ambient air quality² in the Latrobe Valley airshed for common pollutants such as particles (PM_{2.5} and PM₁₀), ozone and nitrogen dioxide meets standard (SEPP AAQ) with exception of the short-term fine particles (PM_{2.5}) attributed to planned and unplanned burns.

Modelling of pollutants emitted from all sources from the Latrobe Valley was carried out according to a modelling proposal, which was presented to EPA by power stations consultant GHD in a letter dated 11 May 2018. The proposal covered how the emissions would be estimated based on a set of different operating scenarios ranging from maximum load (worst case scenario) to typical operating conditions. This was intended to provide a range of potential emission profiles and be a sensitivity analysis of the modelling. In addition, the proposal was to use Calpuff instead of Aermot, which is the default approved regulatory model as per [Guidance notes for using the regulatory air model AERMOD in Victoria](#) (publication 1551) (epa.vic.gov.au/about-epa/publications/1551). In subsequent meetings with the consultants, EPA agreed and approved the methodology in the modelling proposal.

It is important to note that [modelling report](https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/5915/3420/9508/3136071-REP_Licence_Review_Community_Report.pdf) (https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/5915/3420/9508/3136071-REP_Licence_Review_Community_Report.pdf) conclusions are not solely based on the modelling that was carried out expressly for the purposes of the licence review. Monitoring data taken from EPA's network and the Latrobe Valley Ambient Air Monitoring Network (LVAAMN) was used to develop the air quality background for the report. This included the 5 years of air quality background from 2013-2017 which is inherently conservative method as the background in this case included the Hazelwood Power Station emissions contribution that have since been decommissioned (March 2017).

Assumptions in the modelling report were conservative. Given this and EPA's knowledge of the Latrobe Valley air quality, the modelling report findings are sound and its predictions and report conclusions can be relied upon.

Environmental Justice Australia (EJA) raised concerns including the adequacy of the ambient air monitoring network and the reliance on the ambient air monitoring network by the power stations. EPA has worked closely with the Latrobe Valley community to improve the air monitoring capabilities within the region through a [co-design program](#) (epa.vic.gov.au/for-community/get-involved/citizen-science-program/citizen-science-projects/latrobe-valley-air-monitoring-co-design). As a result, there is a single, broad air [monitoring network](#) (epa.vic.gov.au/for-community/airwatch) created for the Latrobe Valley. In addition, introduction of the risk management and monitoring program (RMMP) condition (see emissions reduction section) and the requirements for improved monitoring of fine particles (PM_{2.5}) and coarse particles (PM₁₀) address some of their concerns. The new information from this monitoring will continue to be reviewed and used to inform future decisions on monitoring of air quality in the Latrobe Valley.

Review findings

The licence review was focused on the reducing of air emissions limits to ensure the plants operate efficiently and reduce their impact on the environment.

Air emission data ranging from 2011 to 2018 (sourced from annual performance statements or requested from the licence holders) were reviewed and compared with each licence limit (see Appendix A). The data shows maximum air emissions for all three power stations were below their respective licence limits³, demonstrating that the power stations could operate well within current limits for carbon monoxide, chlorine compounds, fluorine compounds and oxides of nitrogen. It was therefore concluded that emission limits could be reduced, imposing much tighter restrictions to reduce the harmful effects of air emissions and providing greater impetus for licence holder to continue ongoing monitoring, assessment and adoption of new technology. This approach is consistent with the general environmental duty in the amended EP Act 2017.

The review also identified that the three licences were not explicit that the exemption for particles mass concentration as set in the discharge to air table of the licence conditions only applies during startup or shut down of the power station. EPA accepted the submissions from the licence holders that start up and shut down processes should be exempt because these processes were essential to operation and maintenance of the power station. EPA has reduced the "exempt period" for startup and shut down processes for all three power stations.

² Ambient air quality is measured in accordance with the requirements of the National Environment Protection (Ambient Air Quality) [Measure](#). EPA also provides air quality data ([updated hourly](#)) on its website and produces [annual air quality summaries](#).

³ Note: *How air discharge limits are set in Victoria* – other jurisdictions set an absolute end of pipe air discharge limits that all plants must meet before they are commissioned. Victorian licences are required to meet the requirements of the State Environment Protection Policy (Air Quality Management), SEPP(AQM), which sets air quality standards for Victoria (not an end of pipe hard limit). SEPP AQM focusses on ground level concentrations through modelling of emitted pollutants are below safe levels to protect human health and the environment. This is how licence limits are set.

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For consistency and removal of any confusion, a new condition which exempts the total particles mass emission rates during start up and shut down processes has been included in the licence. The intention of this condition is to ensure that exemption only applies to accidental failure of major equipment used to control particles discharges—which is adequately maintained to reduce the likelihood of such failures. The condition does not exempt failures of equipment due to poor maintenance regimes or other such operational issues.

The new condition exempts the total particles mass emission rates for 88 hours per year (which is 1 per cent of the time) for both Loy Yang A and Loy Yang B. Yallourn experiences more frequent outages (up to 60 per year lasting for up to 5 hours each) and the likely shift from baseload to intermediate capacity as market demands lessen will also increase the number of outages. LYA and LYB are newer, use gas (LYB) or black coal (LYA) as auxiliary start up fuel while Yallourn uses oil, they also have very few outages per year. Therefore, a higher exemption period of 600 hours per year will apply for Yallourn. This, still, represents a reduction of the exemption time from 1200 hours to 600 hours per year (50 per cent) and the licence conditions LI_DA1.10.3 and LI_DA1.10.4 are now very clear about what constitutes an exemption.

The discharge maximum limits and monitoring for mercury, fine particles (PM_{2.5}) and coarse particles (PM₁₀) emissions are now reflected in new conditions for each licence due to their significance as pollutants of concern.

The mercury limits added to each licence are based on National Pollution Inventory data. The limits are consistent with current policy and are protective of human health and the environment. The limits also ensure that licence holders cannot increase mercury emissions above current levels.

Due to historical challenges in collecting real time data for fine particles (PM_{2.5}) and coarse particles (PM₁₀), a requirement to develop a monitoring program to establish the distribution of these two particles fractions has been introduced. Following the conclusion of this program EPA will use this information to establish 90th percentile limits for both fine particles (PM_{2.5}) and coarse particles (PM₁₀) to complement the maximum limits set as part of this review.

(ii) Emission control (recommendations 8 and 10 in the s20B Conference Report)

Review outcome:

- **A condition has been inserted that will require regular and robust analysis of the practicability of introducing continuous technological and process improvement to reduce emissions.**

Considerations

As part of the licence review, EPA required the licence holders to provide any work they had already done or investigated to reduce their emissions to air. The licence holders submitted that no further action is required as the air shed remains within the SEPP Ambient Air Quality (AAQ) specifications. The licence holders also highlight technical challenges, with the introduction of improved control technology such as the use of fabric filter baghouses (FFB) as an option to deal with particle emissions than the currently installed Electrostatic precipitators (ESPs) for reduction of particles emissions.

The licence holders noted that the installation of FFB would result in a 12 MW decrease in net power station output, involve considerable ongoing operational costs, existing large infrastructure would need replacement and installation of new infrastructure (including bypass duct work). The licence holders anticipated several years of lead time and considerable length of unit shut downtime (most likely months) would be needed to remove the existing ESPs and install the FFB technology. The licence holders submitted that these measures were disproportionate to the associated risks.

Other submissions made on behalf of community and environment groups contended that installing emissions control technology (flue gas desulfurization for SO_x; selective catalytic reduction for NO_x emissions) were cost effective and affordable measures. Based on the age of the units under review (more than 30 years old which is a typical engineering life) these submissions noted the power stations should undertake substantial, capital-intensive, and life-extending modifications. The emissions control technology would form part of these major capital works.

Review findings

EPA has considered all submissions relating to this matter. Further, EPA has considered the current scientific and technical evidence in relation to this issue and noted that advances in technology are expected to enhance the practicability for installation and maintaining of emissions control technologies.

EPA is not satisfied that the matters raised by the licence holders should preclude future consideration of investment emission reduction technology. In accordance with SEPP AQM, EPA has introduced a requirement for robust analysis of the practicability of introducing continuous technological and process improvement to reduce emissions. As part of the

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Risk Management Monitoring Program (RMMP) licence holders will need to develop their site specific environmental and risk control performance objectives. These objectives relate to the performance monitoring aspect of the condition which ensures that the licence holder measures the effectiveness of the controls they have employed, and the outcomes of their risk reduction measures.

Where identified risks cannot be eliminated, the licence holder must describe how the risks identified are being minimised so far as reasonably practicable (SFARP). SFARP is a dynamic concept: it changes over time within the site-specific risk context. As such, the licence holder should assess and (where applicable) implement changes such as technological advances as new or alternative risk control measures become available. Of specific relevance to emission control technologies, EPA's expectation is that this condition requires the licence holders to continually assess emerging technologies concerning emissions reductions and determine their suitability.

The RMMP condition will be attached to all EPA licence (post July 2021), once the transitional amendments have been completed.

(iii) Monitoring and reporting (recommendations 3 to 7 in the s20B Conference Report)

Review outcomes:

- **The three power stations are required to monitor air emission continuously and share these data with community through their own company websites.**
- **High frequency of data collection (Continuous Emissions Monitoring System) and data sharing with community through company websites) is consistent with SEPP AQM.**
- **Yallourn will be required, within 12 months, to monitor continuous emissions monitoring of the oxides of nitrogen and sulfur dioxide (to comply with the point above.**

Considerations

The National Environment Protection (Ambient Air Quality) Measure ([NEPM AAQ](http://comlaw.gov.au/Series/F2007B01142)) (comlaw.gov.au/Series/F2007B01142) was established in 1998 to provide a nationally consistent framework for monitoring and reporting on six common ambient air pollutants. On 25 February 2016, the NEPM AAQ was varied to introduce a 25 µg/m³ annual standard for PM₁₀, a daily standard of 25 µg/m³ for PM_{2.5} and an 8 µg/m³ annual standard for PM_{2.5}. The NEPM AAQ also removed the number of allowable exceedances for PM_{2.5} and PM₁₀. More information about proposed variation of the Ambient Air Quality standards for nitrogen oxide and sulfur dioxide can be found [here](http://environment.gov.au/protection/air-quality/ambient-air-quality-nepm) (environment.gov.au/protection/air-quality/ambient-air-quality-nepm).

Victoria's SEPP AAQ has adopted the requirements of the varied NEPM AAQ but with a more stringent environmental quality objective for particles as PM₁₀ standard (a 20 µg/m³ annual standard). Given the power stations are not currently monitoring each of the particle fractions, and the stringent requirements in policy for PM₁₀, this review identified the need to include these fractions separately on each of the power stations licences.

The [Minamata Convention](http://mercuryconvention.org/Home/tabid/3360/language/en-US/Default.aspx) (mercuryconvention.org/Home/tabid/3360/language/en-US/Default.aspx) on mercury is a global treaty to protect human health and the environment from the adverse effects of mercury. Although Australia has not ratified the Minamata Convention, it is a signatory to this convention requiring monitoring and reducing mercury emissions into the environment. The emissions monitoring discussed below shows that mercury is not currently monitored but will be added to each licence.

Emissions monitoring for the power stations is conducted in four ways:

1. continuous
2. predictive (process-based estimates based on inputs rather than direct sensor readings)
3. periodic stack testing
4. ambient air monitoring using NATA accredited stations and less reliable indicative sensors that increase coverage.

The first three are required under licence, with preference to continuous monitoring where possible. Table 1 below provides a comparison of the three power stations' air emission monitoring systems. The table demonstrates that Yallourn power station does not have continuous monitoring systems in place for nitrous oxides (NOx) and sulfur dioxides (SOx).

Table 1: summary of emission monitoring

MONITORING	Continuous			Predictive (PEMS)			Periodic Stack Testing		
	LYA	LYB	Yallourn	LYA	LYB	Yallourn	LYA	LYB	Yallourn
Flue gas flow	Y	Y	Y	N	N	N	Y	Y	Y
O ₂	Y	Y	Y	N	N	N	Y	Y	Y
Temperature	Y	Y	Y	N	N	N	Y	Y	Y
Pressure	N	Y	N	N	N	N	Y	Y	Y
NO _x	Y	Y	N	N	N	Y	Y	Y	Y
CO	Y	N	N	N	N	Y	Y	Y	Y
SO ₂	Y	Y	N	N	N	Y	Y	Y	Y
HCL as Cl ₂	N	N	N	N	N	Y	Y	Y	Y
Fluoride as HF	N	N	N	N	N	Y	Y	Y	Y
Total particles (TPM)	Y	Y	Y	N	N	N	Y	N	N

Review findings

Based on submissions received and all available technical information, EPA formed the view that the licence holders need to make improvements in relation to continuous monitoring of air emissions. Further, EPA considered that the licence holders needed to improve the way in which this data was shared with the community. This included reporting of any exceedances and non-compliance issues.

The licence review also identified that lack of continuous monitoring for NO_x and SO_x at Yallourn power station. This has necessitated a new licence condition for the Yallourn Power Station to undertake continuous monitoring for NO_x and SO_x. This brings Yallourn in line with Loy Yang A and Loy Yang B.

(iv) Health impacts (recommendations 18 to 20 in the s20B Conference Report)

Review outcome:

- **Although the class 3 indicators emissions are very low as estimated by NPI and past testing, the information is outdated. As such a monitoring condition for class 3 has been added to each licence to confirm current understanding and assist with future refinement of any conditions.**

Considerations

Clause 20 of SEPP AQM stipulates that generators emitting class 3 indicators (extremely hazardous substances that are carcinogenic, mutagenic, teratogenic, highly toxic, or highly persistent, and which may threaten the beneficial uses of the air environment) must reduce them to the maximum extent achievable (MEA).

Review findings

A detailed review of historical assessments and annual reports that the licence holders provide to the National Pollution Inventory (NPI) establish that the levels of the class 3 indicators emitted from the stacks of the power stations are very low. NPI data was used as recent result from stack testing were not available. Nevertheless, class 3 indicators are extremely hazardous substances that are carcinogenic, mutagenic, teratogenic, highly toxic, or highly persistent, and the data being relied upon is outdated. Class 3 indicators can present risks of harm to human health and the environment if in high enough concentrations.

Monitoring of class 3 indicators is essential to better characterise emissions and understand any change in risk profile. The monitoring will be undertaken by the licence holders and information provided to EPA and all stakeholders. The monitoring will provide the licence holders, EPA and all stakeholders detailed data that will inform the need for further action to address the risks posed by class 3 indicators. These conditions are also consistent with the general environmental duty that will be introduced by the amended EP Act 2017.

EPA accepts that the licence holders should not be required to monitor all class 3 indicators, but rather just those likely to be emitted given the fuel source and processes occurring at their premises.

(v) Accountability (s20B report recommendations 11 to 12 in the s20B Conference Report)

Review outcome:

- **The three power stations are required to monitor air emissions continuously and share this data with community through their own company websites.**

Considerations

The licence holders are currently required to prepare and implement a monitoring program to demonstrate licence compliance. [Licence assessment guidelines](#) (publication 1321) (epa.vic.gov.au/about-epa/publications/1321-2) provides advice on how to develop a monitoring program. EPA requires environmental auditor approved monitoring programs for sites with landfills to ensure adequate characterization of risk for a comprehensive monitoring program. Licence holders are also required to provide an Annual Performance Statement (APS) regarding compliance with licence conditions.

Review findings

EPA understands and accepts the needs of the community be better informed about emissions data. EPA has, in each licence, introduced a condition requiring the licence holders to frequently make the emissions data available to the public (daily compliance summary followed by monthly validated data summary). This data will also be used by EPA for the purposes of compliance

(vi) Continuous improvement and best practice site management (recommendations 8 to 10 and 13 to 17 in the s20B Conference Report)

Review outcome:

- **The review outcome for air emission controls will contribute to continuous improvement of emissions to air.**
- **A new licence condition (Risk Management Monitoring Program) will require that a specific investigation into possible improvements to pollution control measures is undertaken by the power stations. The Risk Management Monitoring Program requirement will mean regular and robust analysis of the practicability of introducing continuous technological and process improvement to reduce emissions.**

Considerations

One of the SEPP AQM policy aims is to “drive continuous improvement in air quality and achieve the cleanest air possible having regard to the social and economic development of Victoria”. SEPP AQM requires generators of emissions to:

- manage their activities and emissions in accordance with the aims, principles, and intent of the policy
- pursue continuous improvement in their environmental management practices and environmental performance
- apply best practice to the management of their emissions or, if they emit Class 3 indicators, reduce those emissions to the maximum extent achievable.

Review findings

The three licence holders broadly demonstrate compliance with licence limits. However, when considering all sources of air pollutants, the air quality modelling available for this review indicated instances of exceedances of ambient air quality (with reference to SEPP AAQ) in the Latrobe Valley. For example, short term exceedances PM_{2.5} and PM₁₀ standards during planned burns, or sulfur dioxide standard exceedance which occurs under specific meteorologic conditions in an uninhabited part of the Latrobe valley (refer to [Air monitoring report 2019: Compliance with the National Environment Protection \(Ambient Air Quality\) Measure](#) (publication 1875) (epa.vic.gov.au/about-epa/publications/1875) for more about ambient air quality compliance with national requirements across the state).

Based on information provided by the licence holders and a comparison of analogous technology internationally regarding emissions control technologies, EPA was satisfied that there are commercially available technologies to reduce emissions. EPA acknowledges the technical challenges of installation and current costs of such technologies.

However, it is expected that emerging technologies will enhance practicability for installation and maintaining of superior emissions control technologies. This matter is detailed above, under Air Emission Controls of this review, and is in line

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with the SEPP AQM requirement for continuous improvement of environmental management practices. This is also aligned with the '[general environmental duty](http://epa.vic.gov.au/for-business/new-laws-and-your-business/general-environmental-duty)' (epa.vic.gov.au/for-business/new-laws-and-your-business/general-environmental-duty) which will soon apply to all Victorians, requiring that risks of harm to human health and the environment from pollution or waste be minimized so far as is reasonably practicable.

(vii) Climate change (recommendations 21 to 23 in the s20B Conference Report)

Review outcome:

- **No direct limits on greenhouse gases have been included in the licences as a result of this review. However, the reduced emission limits imposed by this review will effectively cap greenhouse gas emissions. This is due to the effect of the emissions limits limiting possible increase in processing capacity, which in turn prevents any significant increases in GHG emissions. EPA continues to use the works approval process to consider the impact of new applications on climate change**

Considerations

The *Climate Change Act 2017* ("CC Act") is the primary legislative vehicle for the Victorian Government's policy settings and initiatives relating to climate change. It establishes a long-term emissions reduction target of net zero emissions by 2050. It requires five-yearly interim emission reduction targets to be set. It also requires emission reduction pledges (whole-of-government, sector, and local government) and a Climate Change Strategy to be developed to help drive emission reductions.

[The Victorian Government response to the Independent Inquiry into the Environment Protection Authority](http://environment.vic.gov.au/__data/assets/pdf_file/0025/49741/Andrews-Labor-Government-Response-to-the-Independent-Inquiry-into-the-Environment-Protection-Aut.pdf) (environment.vic.gov.au/__data/assets/pdf_file/0025/49741/Andrews-Labor-Government-Response-to-the-Independent-Inquiry-into-the-Environment-Protection-Aut.pdf) supported the following recommendations in relation to greenhouse gas emissions:

Recommendation 8.1

Confirm the nature and extent of EPA's role in regulating greenhouse gas emissions within Victoria's wider whole-of-government policy settings.

Response: Support

Government is restoring Victoria as a model for other states on climate change action. In November 2016, government introduced a Climate Change Bill into Parliament. If passed, this Bill will:

- *enshrine a long-term target for Victoria of net zero emissions by 2050*
- *require five yearly interim targets to keep Victoria on track to meeting this long-term target*
- *introduce new policy objectives and updated guiding principles that will provide the basis for taking climate change considerations into account in government decision-making*
- *require development every five years of a Victorian Climate Change Strategy to set out how interim targets will be met and how adaptation to the impacts of climate change will be fostered*
- *establish a process for government to make pledges to reduce emissions from its own operations and across the economy*
- *establish a system of periodic reporting to provide transparency, accountability and ensure the community remains informed.*

In setting five yearly interim targets and developing the Victorian Climate Change Strategy, government will identify appropriate policy instruments, including determining if and when EPA regulation is appropriate.

Recommendation 8.2

Ensure EPA has the appropriate statutory instruments to give effect to its role in managing greenhouse gas emissions, as determined by government and informed by advice from EPA.

Response: Support

Government will ensure that EPA has appropriate instruments and tools to give effect to any role in managing greenhouse gas emissions as required.

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In undertaking this review, EPA has considered the likely contribution of the power stations to Victoria's GHG emissions, potential biophysical impacts, potential detrimental impacts of climate change (including potential alteration of the frequency and severity of bush fire impacts) and other matters as required under section 17 of the CC Act. Appendix C presents greenhouse and energy information for black and brown coal generation facilities in Australia.

EPA notes that guidelines for the purposes of section 18 of the CC Act are not yet available.

Review findings

For the purposes of section 17 of the CC Act, this review is not about whether the power stations should hold a licence, or more broadly should generate GHG emissions. These power stations already hold a licence and are currently operating.

The primary purpose of this review is to examine the conditions of these current licences to ensure discharge limits are set appropriately and are consistent with State Environment Protection Policies. EPA has reviewed historical records of air emissions as described above to ensure the limits are protective of human health and the environment. Air emissions discharge limits have been set to have the effect of ensuring licence holders cannot increase their greenhouse emissions above historic levels – effectively capping emissions. If any licence holder seeks to increase power generation capacity (for example by upgrading turbines), thereby burning more coal and increasing greenhouse gas emissions, a works approval would be required, and it would be reviewed on its merits consistent with published advice.

Furthermore, EPA's view is that under the EP Act 1970, it does not have the power to set direct GHG limits. However, the following matters should be noted:

- The reduction in emission levels generally and the introduction of discharge limits and monitoring requirements for mercury, fine particles (PM_{2.5}) and coarse particles (PM₁₀) will cap greenhouse gas emissions.
- The three power stations will each stop operating before 2050 consistent with net zero greenhouse gas emissions by 2050. Yallourn has committed to closure date of no more than 2032, LYA no more than 2048 and LYB planned 2047.
- EPA (under *Environment Protection Act 1970*) continues to assess 'best practice' greenhouse gas design for new developments undergoing works approvals under section 19 of the EP Act 1970. EPA decisions include consideration of greenhouse gas emissions from applicants' proposals, with requirements for better design and best practice where our assessment identifies these opportunities. This approach ensures good design from the outset minimises greenhouse emissions of the life of a development. [Loy Yang B turbine upgrade](http://epa.vic.gov.au/about-epa/news-media-and-updates/news-and-updates/epa-approves-loy-yang-b-power-station-upgrade) (epa.vic.gov.au/about-epa/news-media-and-updates/news-and-updates/epa-approves-loy-yang-b-power-station-upgrade) in 2017 went through this process.

For new developments, information of how EPA applies section 17 of the CC Act can be found [here](#).

(b) Wastewater discharge (recommendations 15 to 19 in the s20B Conference Report)

Review outcome:

- **No change to the list of parameters monitored except:**
 - **Reduction in headroom (difference between the licence limit and actual discharge quality) where the discharge limits were orders of magnitude higher than the reported maximums over the 7-year period;**
 - **Replacing total dissolved solids and total suspended solids with electrical conductivity for ease of measurement; and**
 - **Limiting temperature above ambient before wastewater can be discharged.**

Considerations

Wastewater from Loy Yang A and its mine is currently discharged into Traralgon Creek under EPA licence. Yallourn power station and mine wastewater is currently discharged into Morwell River under the EPA licence. Loy Yang B has a contractual arrangement with Loy Yang A. The wastewater is monitored regularly to ensure compliance with the EPA licence.

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Each power station has a monitoring program (see section 3(c)) which informs the parameters to be monitored and reported to EPA. The monitoring programs for the power stations are approved by EPA appointed Environmental Auditor and is considered to be comprehensive and rigorous.

Review findings

EPA undertook a detailed review of wastewater discharge data from 2011 to 2018. The data showed compliance with licence limits for both Loy Yang A and Yallourn (Loy Yang B does not have a water discharge as their waste is managed by Loy Yang A under contract).

However, the review revealed that, for some effluent quality parameters, the limits were too high and required tightening. In some cases, the parameters monitored were inconsistent. EPA determined that these parameters needed to be revised to ensure consistency between operators and compliance with EPA policy for wastewater discharge into the environment (SEPP Waters). These matters have been addressed in amendments to licence conditions.

(c) Landfills and mine

(i) Ash pond management (recommendations 15 to 19 in the s20B Conference Report)

Review outcomes:

- **An additional condition has been introduced requiring rehabilitation plans for ash ponds as a condition of each licence (excludes Loy Yang B, given the lack of an ash pond at this site).**
- **Updates to the groundwater attenuation zone licence condition (Loy Yang A) to refer to current policy**

Considerations

The ash ponds were constructed by the State Electric Commission of Victoria (SECV) in 1980-81 through cut and fill operations. The SECV commissioned the ash pond 1982 used it to hold saline wastewater from the Hazelwood and Yallourn power stations. The ash pond commenced receiving ash in 1983 with the commissioning of the Loy Yang A power station. The ash pond still receives a continuous discharge of ash from both the Loy Yang A and Loy Yang B power stations, as well as saline water from the Yallourn power station.

Groundwater monitoring has been conducted since the early 1980s.

Review findings

Ground water monitoring shows that seepage from the ash pond has the potential to affect surrounding groundwater. In the 1990s, measures were undertaken to reduce ash deposition rates and to lessen impacts on groundwater. However, further action to eliminate seepage from the ash pond was at the time considered impractical as it would require shutdown of all the Latrobe Valley power stations.

Accordingly, in 2001 EPA designated a [groundwater attenuation zone](http://epa.vic.gov.au/about-epa/publications/841) (epa.vic.gov.au/about-epa/publications/841) around the ash pond (licence condition LI_DL1.1.1 – Loy Yang A), which is a practical way of managing seepage from this aging infrastructure whilst it is still in use. The groundwater attenuation zone ensures safe use of groundwater resources outside of this zone and the licence holder (Loy Yang A) is responsible to ensure impacts of the seepage remains within this zone.

Loy Yang A licence condition LI_DL1.1.1 that refers to outdated policy (SEPP Groundwaters of Victoria 1997) was replaced with LI_DL1.1.2 which referred to updated SEPP Waters 2019. The SEPPs allow designation of a groundwater attenuation zone around aging infrastructures such as ash ponds.

(ii) Ash landfills and solid inert landfills (recommendations 15 to 17 in the s20B Conference Report)

Outcome

A new condition requiring development of rehabilitation plans for landfills (excludes Loy Yang B which does not have a landfill) has been attached to Loy Yang A and Yallourn's licences.

Considerations

Loy Yang A and Yallourn power stations have their own ash landfills. Loy Yang B has a contractual arrangement with Loy Yang A to send its ash waste to Loy Yang A's ash pond. The management of the ash landfills follow EPA policies (EPA [Publication 788](#)) and requires independent audit under section 53V of EP Act 1970. The audit reports are published on EPA's website and responses to the auditor's recommended actions are reported in Annual Performance Statements.

Recent audits can be found at:

- [2017- s53V audit of Yallourn Ash Landfill, Hard Waste Landfill & Asbestos Landfill](#); and
- [2017 - s53V audit of AGL Loy Yang Ash Landfill Operations](#).

As part of the 2015-16 review of landfill licences, [licence conditions](#) were updated and new conditions added to Loy Yang A and Yallourn landfill [licences](#) requiring Environment Auditor approval of site monitoring programs, financial assurance for landfills and general improvements ensuring all conditions met landfill policy [Siting, design, operation and rehabilitation of landfills](#) (publication 788) (www.epa.vic.gov.au/about-epa/publications/788-3) requirements. No rehabilitation plans are available.

Review findings

This review did not assess the sufficiency and form of any financial assurance imposed by the licences.

With one exception, the imposition of rehabilitation bonds is a matter for the Earth Resource Regulator and formed no part of this review. The exception relates to the rehabilitation of the landfills at Loy Yang A and Yallourn (noting Loy Yang B does not have a landfill).

EPA has noted that the licence holders at Loy Yang A and Yallourn have, in accordance with EPA waste management policy, progressively rehabilitated filled landfills. However, given the importance of these rehabilitative measures, EPA has formed the view that conditions should be imposed on licence holders at Loy Yang A and Yallourn to develop rehabilitation plans. This ensures transparency and accountability for progressive rehabilitation of the filled landfills.

Although it expected under EPA waste management policy and Loy Yang A and Yallourn have been progressively rehabilitating filled landfills, the rehabilitation requirement is not explicit in either licence. This review has introduced this requirement to ensure transparent and timely rehabilitation of landfills.

(iii) Mine management (recommendations 15 to 17 in the s20B Conference Report)

Review outcome:

- **No new condition is proposed. However, EPA notes the commitments of Loy Yang A and Yallourn to comply with the recent mine dust management audit done by Earth Resources Regulator and EPA.**

Considerations

The Earth Resources Regulator (ERR) is the primary regulator of mines and extractive industry. However, given the mining activity undertaken at Loy Yang A and Yallourn is a scheduled activity under Environment Protection (Scheduled Premises) Regulations 2017, EPA also plays a regulatory role. Mining activity is not undertaken at Loy Yang B.

The licence conditions for Loy Yang A and Yallourn power stations are designed to ensure the mining activities do not adversely impact on the Latrobe Valley community, particularly from dust.

Review Findings

In 2018, ERR and EPA undertook a joint of the dust management practices at Loy Yang A and Yallourn power stations. Both licence holders accepted the audit recommendations regarding dust management. EPA is satisfied that those recommendations provide an adequate compliance framework and determined licence conditions were unnecessary

4 Individual licences

As a result of this licence review, the new and amended licence conditions are outlined in Appendix B of this report.

The individual licences and supporting information about how to comply with the new conditions can be viewed at:

- [EPA's website](https://portal.epa.vic.gov.au/irj/portal/anonymous?NavigationTarget=ROLES://portal_content/epa_content/epa_roles/epa.vic.gov.au.anonrole/epa.vic.gov.au.searchanon&trans_type=Z001)
(https://portal.epa.vic.gov.au/irj/portal/anonymous?NavigationTarget=ROLES://portal_content/epa_content/epa_roles/epa.vic.gov.au.anonrole/epa.vic.gov.au.searchanon&trans_type=Z001)
- [Engage Victoria's website](https://engage.vic.gov.au/review-brown-coal-power-station-licences) (<https://engage.vic.gov.au/review-brown-coal-power-station-licences>).

Appendix A: Air emissions limits review

Table 1: AGL Loy Yang Air Emissions review

Discharge point no	Indicator	Limit Type	Unit	Current discharge limit	Max Reported Discharge (2011 - 2018)	Proposed action
1 to 15	Particles	Maximum	g/min	43400	40500	AMEND
	Particles	90th Percentile	g/min	NONE	11500	ADD
1 to 4	Particles as PM _{2.5}	Maximum	g/min	NONE	1900	ADD
	Particles as PM _{2.5}	90th Percentile	g/min	NONE	550	ADD
	Particles as PM ₁₀	Maximum	g/min	NONE	2500	ADD
	Particles as PM ₁₀	90th Percentile	g/min	NONE	1200	ADD
	Carbon monoxide	Maximum	g/min	206000	110500	AMEND
	Carbon monoxide	90th Percentile	g/min	NONE	14400	ADD
	Chlorine compounds (as chlorine)	Maximum	g/min	33000	23200	AMEND
	Fluorine compounds (as HF)	Maximum	g/min	8200	216	AMEND
	Oxides of nitrogen (as NO ₂)	Maximum	g/min	114000	87700	AMEND
	Oxides of nitrogen (as NO ₂)	90th Percentile	g/min	NONE	57500	ADD
	Sulfur dioxide	Maximum	g/min	400000	386500	RETAIN
	Sulfur dioxide	90th Percentile	g/min	NONE	177000	ADD
	Sulfur trioxide	Maximum	g/min	33000	26400	AMEND
	Mercury compounds	Maximum	g/min	NONE	1.44	ADD

Table 2: EA Yallourn Emissions review

Discharge point no	Indicator	Limit Type	Unit	Current discharge limit	Max Reported Discharge (2011 to 2018)	Limit Action
A1,A2a,A2b	Particles	Maximum	g/min	24,100	21984	RETAIN
	Particles	90th Percentile	g/min	NONE	13094	ADD
	Carbon monoxide	Maximum	g/min	139,000	128372	RETAIN
	Carbon monoxide	90th Percentile	g/min	NONE	77818	ADD
	Chlorine compounds (as chlorine)	Maximum	g/min	22,000	16190	AMEND
	Fluorine compounds (as HF)	Maximum	g/min	5,600	362	AMEND
	Oxides of nitrogen (as NO ₂)	Maximum	g/min	51,600	48503	RETAIN
	Oxides of nitrogen (as NO ₂)	90th Percentile	g/min	NONE	44551	ADD
	Sulfur dioxide	Maximum	g/min	104,000	106887	RETAIN
	Sulfur dioxide	90th Percentile	g/min	NONE	61295	ADD
	Sulfur trioxide	Maximum	g/min	10,900	2777	AMEND
	Particles as PM _{2.5}	Maximum	g/min	NONE	16488	ADD
	Particles as PM _{2.5}	90th Percentile	g/min	NONE	9821	ADD
	Particles as PM ₁₀	Maximum	g/min	NONE	19786	ADD
	Particles as PM ₁₀	90th Percentile	g/min	NONE	11785	ADD
	Mercury compounds	Maximum	g/min	NONE	0.4868	ADD

Table 3: Loy Yang B Emissions review

Discharge point no	Indicator	Limit Type	Unit	Current discharge limit	Max Reported Discharge (2011 to 2018)	Limit Action
DPs 1 to 4	Particles	Maximum	g/min	11,100	9000	AMEND
	Particles	90th Percentile	g/min	NONE	3100	ADD
	Carbon monoxide	Maximum	g/min	90,000	8800	AMEND
	Carbon monoxide	90th Percentile	g/min	NONE	-	ADD
	Chlorine compounds (as chlorine)	Maximum	g/min	14,400	12100	AMEND
	Fluorine compounds (as HF)	Maximum	g/min	3,600	92	AMEND
	Oxides of nitrogen (as NO ₂)	Maximum	g/min	50,400	32000	AMEND
	Oxides of nitrogen (as NO ₂)	90th Percentile	g/min	NONE	-	ADD
	Sulfur dioxide	Maximum	g/min	200,000	196000	RETAIN
	Sulfur dioxide	90th Percentile	g/min	NONE	78000	ADD
	Sulfur trioxide	Maximum	g/min	14,400	10800	AMEND
	Particles as PM _{2.5}	Maximum	g/min	NONE	2000	ADD
	Particles as PM _{2.5}	90th Percentile	g/min	NONE	-	ADD
	Particles as PM ₁₀	Maximum	g/min	NONE	2800	ADD
	Particles as PM ₁₀	90th Percentile	g/min	NONE	-	ADD
	Mercury compounds	Maximum	g/min	NONE	1.63	ADD

Appendix B: Changes to licence conditions and limits

Schedule 1 - Recommended conditions 10961 - Yallourn

Conditions group	Condition No.	Condition text	Change
General	LI_G1	You must ensure that waste is not discharged, emitted or deposited beyond the boundaries of the premises except in accordance with this licence or under the Act	No change
	LI_G2	You must immediately notify EPA of non-compliance with any condition of this licence by calling 1300 EPA VIC (1300 372 842), sending an email to contact@epa.vic.gov.au, or using the EPA Interaction Portal.	No change
	LI_G3	By 30 September each year you must submit an annual performance statement to EPA for the previous financial year in accordance with the Annual Performance Statement Guidelines (EPA Publication 1320.3, released June 2011)	No change
	LI_G4	Documents and monitoring records used for preparation of the annual performance statement must be retained for five years from the date of each statement, and be able to be immediately produced upon request by an officer of the Authority	No change
	LI_G5	You must establish and implement a risk based monitoring program that enables you and EPA to determine compliance with each condition of this licence. The monitoring program must comply with the requirements of the monitoring guidelines (EPA document 1321.2, released June 2011).	No change
	LI_G5.2	You 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 policy (Ambient Air Quality).	No change
	LI_G6	You must provide EPA with a financial assurance determined by the EPA, and maintain such assurance (including any part of such assurance) so that it can be claimed on, utilised or realised as and when required.	No change
	LI_G9	<ol style="list-style-type: none"> 1. You must develop by a risk management and monitoring program for your activities which: <ol style="list-style-type: none"> a) identifies all the risks of harm to human health and the environment which may arise from the activities you are engaging in at your premises; b) clearly defines your environmental performance objectives; c) clearly defines your risk control performance objectives; d) describes how the environmental and risk control performance objectives are being achieved; e) identifies and describes how you will continue to eliminate or minimise the risks in [1a] so far as reasonably practicable (SFARP); and f) describes how the information collated in compliance with this clause, is or will be disseminated, used or otherwise considered by you or any other party. 2. The risk management and monitoring program must be: <ol style="list-style-type: none"> a) documented in writing; b) signed by a duly authorised officer of the licensed entity; and c) made available to the Authority on request. 	NEW
Amenity	LI_A1	You must ensure that odours offensive to the senses of human beings are not discharged, emitted or released beyond the boundaries of the premises.	No change
	LI_A2	You must ensure that there are no emissions of noise and/or vibrations from the premises which are detrimental to either of the following : a) the environment in the area around the premises; and b) the wellbeing of persons and/or their property in the area around the premises.	No change
	LI_A3	You must ensure that nuisance dust and/or nuisance airborne particles are not discharged or emitted beyond the boundaries of the premises, except as permitted by this licence.	No change
Waste Acceptance	-	Licence does not have any waste acceptance conditions	No change
Waste Management	-	Licence does not have any waste management conditions	No change
Landfill (and ash ponds)	LI_L1	You must develop and put into place a monitoring program that accords with Section 2 of the Landfill Licensing Guidelines, (EPA Publication 1323). The program must evaluate the risks to the environment associated with the operation of the landfill and the steps which can be taken to manage such risks and enable both you and EPA to determine changes in the condition of the environment or impacts to environmental quality as a result of activities at the premises. The monitoring program must be verified by a person who has been appointed as an environmental auditor under the Environment Protection Act 1970 and it must do all of the following : <ol style="list-style-type: none"> a) contain an assessment of the risks to the environment arising from the waste that has been deposited at the premises and of the current landfill operation prepared in accordance with the Landfill Licensing Guidelines, (EPA Publication 1323) or another method approved by EPA in writing; b) describe the environmental monitoring of landfill gas, leachate, groundwater, land, air, odour, noise, dust and surface water which will be undertaken to respond to the risks identified in the risk assessment in paragraph a) above; c) contain trigger levels and contingency actions to prevent further pollution when exceeded; d) specify the frequency for completing environmental audits of the landfill operation; and 	No change

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Conditions group	Condition No.	Condition text	Change
		e) be appropriate and adapted to the characteristics of the landfill, including the landfill design, the volume of waste received, the age and planned future lifespan of the landfill and the surrounding environment.	
	LI_L2	You must engage a person who has been appointed as an environmental auditor under the Environment Protection Act 1970 to conduct and submit to EPA environmental audits of the risk of harm actually or potentially arising from landfill operation under Section 53V of the Act at the frequency specified in the monitoring program.	No change
	LI_L3.2.1	By the end of each day's operations no waste must be visible and waste must be covered in one of these ways: a) with a layer of soil at least 0.30 metres thick for all other wastes; or by b) using alternative cover approved by EPA in writing.	No change
	LI_L4	Waters contaminated by leachate must not be discharged beyond the boundaries of the premises.	No change
	LI_L22.1	You must prepare a landfill and ash-pond rehabilitation plan that you provide to EPA by 31 Dec 2021. The plan must accord with the requirements of Section 8 of Best Practice Environmental Management, Siting, Design, Operation and Rehabilitation of Landfills (EPA Publication 788, released August 2015) and must be consistent with the mining rehabilitation plan approved under the Mineral Resources (Sustainable Development) Act 1990 (Vic). The plan must be verified by a person who has been appointed as an environmental auditor under the Environment Protection Act 1970 and must: a) outline the performance objectives and environmental performance measures for the rehabilitation of landfills and ash ponds; b) outline the key activities that will take place when rehabilitating the landfills and ash ponds; c) specify the proposed timeframes for key rehabilitation activities; d) specify the environmental management framework applied to the rehabilitation activities to ensure that the risks associated are adequately assessed and controlled; e) be revised and submitted to EPA at least every 5 years; or after a major variation to the plan as prescribed in [EPA publication 1323.3].	NEW
Air	LI_DA1.10.2	The discharge of indicators listed in the 'Discharge to Air' Table must not exceed the corresponding discharge limits in that table, except for particles exemption conditions LI_DA1.10.3 and LI_DA1.10.4.	Amended (See Discharge to Air Table in Schedule 2)
	LI_DA1.10.3	The discharge limits for particles in the 'Discharge to Air' Table do not apply during plant start-up and shut down for an aggregate period of 600 hours for any 12-month period.	New
	LI_DA1.10.4	The concentration of particles discharged from discharge point(s) A1, A2a and A2b can exceed 0.22 grams per normal cubic metre (based on 30 minute averages at 12% CO2) during plant start-up and shut-down for an aggregate period of 600 hours for any 12-month period.	Amended
	LI_DA4.1	You must conduct continuous monitoring of the following discharge to air indicators: a) particles (total), at discharge point(s) all discharge points. b) sulfur dioxide, carbon monoxide and oxides of nitrogen, at discharge point(s) A2a and A2b) from 12 months from licence issue date.	New
	LI_DA4.2	You must maintain a publicly accessible website, to which you must publish: a) Within 12 hours of the end of each day, whether the Discharge Limits, as specified in the 'Discharge to Air' Table in condition LI_DA1.10.2, were exceeded at any time within the preceding day for the following indicators particles (total), carbon monoxide, sulfur dioxide, and oxides of nitrogen; b) Within 14 calendar days of the end of each month, a summary of validated monitoring data for the preceding month from the monitoring program in condition LI_DA4.1 and a summary of the information in (a) for the preceding month. The summary of validated monitoring data must include: EPA licence number; discharge point, map showing discharge point location and discharge point description / type; indicator; limit type; unit; discharge limit; monitoring frequency; relevant dates; upfront explanation of apparent missing data; timeframe and details of any exceedances of discharge limits and associated explanations; monitoring system availability; outages and explanations; details of any corrections made after the publishing of the previous monthly summary. c) A copy of your current EPA licence; the licensee's name and address of premises; a link to the EPA Portal search page for licences and APS reports; GPS location details of all monitoring points/areas and a map showing this. d) Information and monitoring data must be published in a legible form which allows for direct download in common open file formats. e) Information and monitoring data must be retained at the premises for five years from the date of publishing.	New
	LI_DA4.3	You must establish and implement a program for a 12-month period to monitor the discharge to air, at discharge point(s) A1, A2a and A2b, of fine particles PM2.5 and coarse particles PM10 to establish the 90th percentile annual frequency distribution. The results of this program must be made available to EPA on request and must be published to the publicly accessible website required by condition LI_DA4.2 by 31 March 2022.	New

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Conditions group	Condition No.	Condition text	Change
	LI_DA4.4	You must establish and implement a program for a 12-month period to monitor the discharge to air, at discharge point(s) A1, A2a and A2b, of all class 3 indicators listed in Schedule A of State Environment Protection Policy (Air Quality Management) likely to be emitted from your premises, as agreed in writing with EPA. The results of this program must be made available to EPA on request and must be published to the publicly accessible website required by condition LI_DA4.2 by 31 March 2022.	New
	LI_DA1.5	The annual frequency distribution of the mass discharge rate of sulfur dioxide from each of discharge points A1, A2a and A2b must not exceed (a) a 90th percentile mass rate of 35000 grams per minute and (b) a 50th percentile mass rate of 21000 grams per minute.	Removed
	LI_DA2	Visible emissions to air other than steam must not be discharged from the premises, except as permitted by this licence.	No change
Water	LI_DW1	You must ensure that surface water discharged from the premises is not contaminated with waste.	No change
	LI_DW2	Discharge of waste to surface waters must be in accordance with the 'Discharge to Water' Table.	See Discharge to Water Table in Schedule 3
	LI_DW2.09	Maximum discharge allowed from the premises is 150 ML/Day.	No change
Land	LI_DL1.3	You must ensure that the activities carried on at the premises do not do either of the following: a) cause detriment to any beneficial use which may be made of groundwater both within and beyond the boundary of the premises. b) pollute groundwater both within and beyond the boundary of the premises contrary to section 39 of the <i>Environment Protection Act 1970</i> .	No change
	LI_DL3.3	Deposit of wastes generated at the premises must be in accordance with Schedule 2 except for leached ash which may be transported from the premises to a facility licensed to accept such waste.	No change

Schedule 2 - Recommended discharge to air indicator limits 10961 – Yallourn

Discharge point no	Description of Discharge Points	Indicator	Limit Type	Unit	Proposed discharge limit for feedback	Limit Action
A1,A2a,A2b	All air discharge points	Particles	Maximum	g/min	24,100	No change
		Particles	90th Percentile	g/min	14,500	New
		Carbon monoxide	Maximum	g/min	139,000	No change
		Carbon monoxide	90th Percentile	g/min	85,600	New
		Chlorine compounds (as chlorine)	Maximum	g/min	21,000	Amend
		Fluorine compounds (as HF)	Maximum	g/min	1,300	Amend
		Oxides of nitrogen (as NO ₂)	Maximum	g/min	51,600	No change

Schedule 3 Recommended discharge to water indicator limits 10961 – Yallourn

Discharge point no	Description of Discharge Points	Indicator	Limit Type	Unit	Proposed discharge limit for feedback	Limit Action
W1	Yallourn mine floc. pond to Morwell R	Flow Rate	Mean Daily flow	ML/D	80.5	No change
		Colour	annual median	Pt-Co	44	Amend
		Colour	maximum	Pt-Co	70	No change
		Suspended Solids	annual median	mg/l	NONE	REMOVE
		TDS	annual median	mg/l	NONE	REMOVE
		TDS	maximum	mg/l	NONE	REMOVE
		Turbidity	annual median	NTU	24	Amend
		Turbidity	maximum	NTU	53	Amend

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		Oxides of nitrogen (as NO ₂)	90th Percentile	g/min	49,100	New			pH	minimum	pH	6	No change
		Sulfur dioxide	Maximum	g/min	104,000	No change			pH	maximum	pH	8.5	No change
		Sulfur dioxide	90th Percentile	g/min	73,100	New			EC	annual median	µS/cm	790	New
		Sulfur trioxide	Maximum	g/min	8,200	Amend			EC	maximum	µS/cm	940	New
		Particles as PM _{2.5}	Maximum	g/min	18,200	New							
		Particles as PM ₁₀	Maximum	g/min	21,800	New							
		Mercury compounds	Maximum	g/min	10.44	New							

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Schedule 1 Recommended conditions 11149 – Loy Yang A

Conditions group	Condition No.	Condition text	Change
General	LI_G1	You must ensure that waste is not discharged, emitted or deposited beyond the boundaries of the premises except in accordance with this licence or under the Act	No change
	LI_G2	You must immediately notify EPA of non-compliance with any condition of this licence by calling 1300 EPA VIC (1300 372 842), sending an email to contact@epa.vic.gov.au, or using the EPA Interaction Portal.	No change
	LI_G3	By 30 September each year you must submit an annual performance statement to EPA for the previous financial year in accordance with the Annual Performance Statement Guidelines (EPA Publication 1320.3, released June 2011)	No change
	LI_G4	Documents and monitoring records used for preparation of the annual performance statement must be retained for five years from the date of each statement, and be able to be immediately produced upon request by an officer of the Authority	No change
	LI_G5	You must establish and implement a risk based monitoring program that enables you and EPA to determine compliance with each condition of this licence. The monitoring program must comply with the requirements of the monitoring guidelines (EPA document 1321.2, released June 2011).	No change
	LI_G5.2	You 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 policy (Ambient Air Quality).	No change
	LI_G6	You must provide EPA with a financial assurance determined by the EPA, and maintain such assurance (including any part of such assurance) so that it can be claimed on, utilised or realised as and when required.	No change
	LI_G9	<ol style="list-style-type: none"> 1. You must develop a risk management and monitoring program for your activities which: <ol style="list-style-type: none"> a) identifies all the risks of harm to human health and the environment which may arise from the activities you are engaging in at your premises; b) clearly defines your environmental performance objectives; c) clearly defines your risk control performance objectives; p) describes how the environmental and risk control performance objectives are being achieved; d) identifies and describes how you will continue to eliminate or minimise the risks in [1a] so far as reasonably practicable (SFARP); and e) describes how the information collated in compliance with this clause, is or will be disseminated, used or otherwise considered by you or any other party. 2. The risk management and monitoring program must be: <ol style="list-style-type: none"> a) documented in writing; b) signed by a duly authorised officer of the licensed entity; and c) made available to the Authority on request. 	NEW
	Amenity	LI_A1	You must ensure that odours offensive to the senses of human beings are not discharged, emitted or released beyond the boundaries of the premises.
LI_A2		You must ensure that there are no emissions of noise and/or vibrations from the premises which are detrimental to either of the following : a) the environment in the area around the premises; and b) the wellbeing of persons and/or their property in the area around the premises.	No change
LI_A3		You must ensure that nuisance dust and/or nuisance airborne particles are not discharged or emitted beyond the boundaries of the premises, except as permitted by this licence.	No change
Waste Acceptance	-	Licence does not have any waste acceptance conditions	No change
Waste Management	-	Licence does not have any waste management conditions	No change
Landfill	LI_L1	<p>You must develop and put into place a monitoring program that accords with Section 2 of the Landfill Licensing Guidelines, (EPA Publication 1323). The program must evaluate the risks to the environment associated with the operation of the landfill and the steps which can be taken to manage such risks and enable both you and EPA to determine changes in the condition of the environment or impacts to environmental quality as a result of activities at the premises. The monitoring program must be verified by a person who has been appointed as an environmental auditor under the Environment Protection Act 1970 and it must do all of the following :</p> <ol style="list-style-type: none"> a) contain an assessment of the risks to the environment arising from the waste that has been deposited at the premises and of the current landfill operation prepared in accordance with the Landfill Licensing Guidelines, (EPA Publication 1323) or another method approved by EPA in writing; b) describe the environmental monitoring of landfill gas, leachate, groundwater, land, air, odour, noise, dust and surface water which will be undertaken to respond to the risks identified in the risk assessment in paragraph a) above; c) contain trigger levels and contingency actions to prevent further pollution when exceeded; d) specify the frequency for completing environmental audits of the landfill operation; and 	No change

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Conditions group	Condition No.	Condition text	Change
		e) be appropriate and adapted to the characteristics of the landfill, including the landfill design, the volume of waste received, the age and planned future lifespan of the landfill and the surrounding environment.	
	LI_L2	You must engage a person who has been appointed as an environmental auditor under the Environment Protection Act 1970 to conduct and submit to EPA environmental audits of the risk of harm actually or potentially arising from landfill operation under Section 53V of the Act at the frequency specified in the monitoring program.	No change
	LI_L4	Waters contaminated by leachate must not be discharged beyond the boundaries of the premises.	No change
	LI_L22.1	<p>You must prepare a landfill and ash-pond rehabilitation plan that you provide to EPA by 31 December 2021. The plan must accord with the requirements of Section 8 of Best Practice Environmental Management, Siting, Design, Operation and Rehabilitation of Landfills (EPA Publication 788, released August 2015) and must be consistent with the mining rehabilitation plan approved under the Mineral Resources (Sustainable Development) Act 1990 (Vic). The plan must be verified by a person who has been appointed as an environmental auditor under the Environment Protection Act 1970 and must:</p> <ul style="list-style-type: none"> a) outline the performance objectives and environmental performance measures for the rehabilitation of landfills and ash ponds; b) outline the key activities that will take place when rehabilitating the landfills and ash ponds; c) specify the proposed timeframes for key rehabilitation activities; d) specify the environmental management framework applied to the rehabilitation activities to ensure that the risks associated are adequately assessed and controlled; e) be revised and submitted to EPA at least every 5 years; or after a major variation to the plan as prescribed in EPA publication 1323.3. 	NEW
Air	LI_DA1.10.2	Discharge of waste to air must be in accordance with the 'Discharge to Air' Table except for particles exemption conditions LI_DA1.10.3 and LI_DA1.10.4	Amended (See Discharge to Air Table changes in Schedule 2)
	LI_DA1.10.3	The discharge limits for particles in the 'Discharge to Air' Table do not apply during plant start-up and shut down for an aggregate period of 88 hours for any 12-month period.	NEW
	LI_DA1.10.4	The concentration of particles discharged from discharge point(s) 1 to 4 can exceed 0.24 grams per normal cubic metre (based on 3 minute averages at 12% CO2) during plant start-up and shut-down for an aggregate period of 88 hours for any 12-month period.	NEW
	LI_DA4	You must conduct continuous monitoring of the following discharge to air indicators, particles (total), carbon monoxide, sulfur dioxide, and oxides of nitrogen], at discharge point(s) 1-4.	New
	LI_DA4.2	<p>You must maintain a publicly accessible website, to which you must publish:</p> <ul style="list-style-type: none"> a) Within 12 hours of the end of each day, whether the Discharge Limits, as specified in the 'Discharge to Air' Table in condition LI_DA1.10.2, were exceeded at any time within the preceding day for the following indicators particles (total), carbon monoxide, sulfur dioxide, and oxides of nitrogen; b) Within 14 calendar days of the end of each month, a summary of validated monitoring data for the preceding month from the monitoring program in condition LI_DA4 and a summary of the information in (a) for the preceding month. The summary of validated monitoring data must include: EPA licence number; discharge point, map showing discharge point location and discharge point description / type; indicator; limit type; unit; discharge limit; monitoring frequency; relevant dates; upfront explanation of apparent missing data; timeframe and details of any exceedances of discharge limits and associated explanations; monitoring system availability; outages and explanations; details of any corrections made after the publishing of the previous monthly summary. c) A copy of your current EPA licence; the licensee's name and address of premises; a link to the EPA Portal search page for licences and APS reports; GPS location details of all monitoring points/areas and a map showing this. d) Information and monitoring data must be published in a legible form which allows for direct download in common open file formats. e) Information and monitoring data must be retained at the premises for five years from the date of publishing. 	new
	LI_DA4.3	You must establish and implement a program for a 12-month period to monitor the discharge to air, at discharge point(s) 1 to 4, of fine particles PM2.5 and coarse particles PM10 to establish the 90th percentile annual frequency distribution. The results of this program must be made available to EPA on request and must be published to the publicly accessible website required by condition LI_DA4.2 by 31 March 2022.	New
	LI_DA4.4	You must establish and implement a program for a 12-month period to monitor the discharge to air, at discharge point(s) 1 to 4, of all class 3 indicators listed in Schedule A of State Environment Protection Policy (Air Quality Management) likely to be emitted from your premises, as agreed in writing with EPA. The results of this program must be made available to EPA on request and must be published to the publicly accessible website required by condition LI_DA4.2 by 31 March 2022.	New

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Conditions group	Condition No.	Condition text	Change
	LI_DA1.5	The annual frequency distribution of the mass discharge rate of sulfur dioxide from each of discharge points 1 to 4 must not exceed (a) a 90th percentile mass rate of 200,000 grams per minute and (b) a 50th percentile mass rate of 120,000 grams per minute.	Removed
	LI_DA2	Visible emissions to air other than steam must not be discharged from the premises, except as permitted by this licence.	No change
Water	LI_DW1	You must ensure that surface water discharged from the premises is not contaminated with waste.	No change
	LI_DW2	Discharge of waste to surface waters must be in accordance with the 'Discharge to Water' Table.	See Discharge to Water Table in Schedule 3
Land	LI_DL1.1	You must ensure that the activities carried on at the premises do not do either of the following, except as permitted by condition LI_DL1.1.1: a) cause detriment to any beneficial use which may be made of groundwater both within and beyond the boundary of the premises; and b) pollute groundwater both within and beyond the boundary of the premises contrary to section 39 of the Environment Protection Act 1970.	No change
	LI_DL1.1.2	In accordance with Clause 57 of State Environment Protection Policy (Waters), the environmental quality indicators and objectives for sulfate, aluminium, total dissolved solids and chloride do not apply within the attenuation zone shown in Schedule 1B.	Amended to reflect changes to the SEPP
	LI_DL1.2	You must ensure that the activities carried on at the premises do not do either of the following: a) cause detriment to any beneficial use which may be made of the land on the premises outside of the boundary of any landfill cells; and b) pollute land on the premises contrary to section 45 of the Environment Protection Act 1970.	No change
	LI_DL2	You must ensure that the discharge of wastewater does not change the condition of land so as to make that land or any part of that land harmful or potentially harmful to human beings or the environment.	No change
	LI_DL3.1	Deposit of wastes generated at the premises must be in accordance with Schedule 2.	No change

Schedule 2 - Recommended discharge to air indicator limits 11149 – Loy Yang A

Discharge point no	Description of Discharge Points	Indicator	Limit Type	Unit	Draft discharge limit for feedback	Limit Action
1 to 15	Bubble limit for DPs 1 to 15	Particles	Maximum	g/min	40,500	No change
1 to 4	Bubble limit for DPs 1 to 4	Particles	90th Percentile	g/min	16,200	New
		Particles as PM2.5	Maximum	g/min	15,800	New
		Particles as PM10	Maximum	g/min	30,800	New
		Carbon monoxide	Maximum	g/min	121,600	Amend
		Carbon monoxide	90th Percentile	g/min	40,000	New

Schedule 2 - Recommended discharge to water indicator limits 11149 – Loy Yang A

Discharge point no	Description of Discharge Points	Indicator	Limit Type	Unit	Proposed discharge limit for feedback	Limit Action
L160	Combined SW and NW floc ponds discharge	Flow Rate	Mean Daily flow	ML/D	5	No change
		Suspended solids	annual median	mg/l	NONE	REMOVE
		Suspended solids	maximum	mg/l	NONE	REMOVE
		TDS	annual median	mg/l	NONE	REMOVE
		TDS	maximum	mg/l	NONE	REMOVE
		EC	annual median	µS/cm	550	New
		EC	maximum	µS/cm	660	New

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	Chlorine compounds (as chlorine)	Maximum	g/min	33,000	Amend			turbidity	annual median	NTU	21	Amend
	Fluorine compounds (as HF)	Maximum	g/min	1,200	Amend			turbidity	90 th percentile	NTU	40	No change
	Oxides of nitrogen (as NO ₂)	Maximum	g/min	96,500	Amend			pH	minimum	pH	6	No change
	Oxides of nitrogen (as NO ₂)	90th Percentile	g/min	73,600	New			pH	maximum	pH	8.5	No change
	Sulfur dioxide	Maximum	g/min	400,000	No change			Flow Rate	Mean Daily flow	ML/D	40	No change
	Sulfur dioxide	90th Percentile	g/min	200,000	New			colour	annual median	Pt-Co	44	Amend
	Sulfur trioxide	Maximum	g/min	29,100	Amend			colour	maximum	Pt-Co	70	No change
	Mercury compounds	Maximum	g/min	15	New			Suspended solids	annual median	mg/l	NONE	REMOVE
									Suspended solids	90th Percentile	mg/l	NONE
L171	Setting pond & O/B runoff ponds discharge	temperature above ambient	above ambient	deg	6	Amend						
		TDS	annual median	mg/l	NONE	REMOVE						
		TDS	maximum	mg/l	NONE	REMOVE						
		EC	annual median	µS/cm	900	New						
		EC	maximum	µS/cm	1,320	New						
		turbidity	90th Percentile	NTU	NONE	REMOVE						
		turbidity	annual median	NTU	40	Amend						
		pH	minimum	pH	6	No change						
		pH	maximum	pH	8.5	No change						

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Schedule 1 - Recommended conditions 3987 – Loy Yang B

Conditions group	Condition No.	Condition text	Change
General	LI_G1	You must ensure that waste is not discharged, emitted or deposited beyond the boundaries of the premises except in accordance with this licence or under the Act	No change
	LI_G2	You must immediately notify EPA of non-compliance with any condition of this licence by calling 1300 EPA VIC (1300 372 842), sending an email to contact@epa.vic.gov.au, or using the EPA Interaction Portal.	No change
	LI_G3	By 30 September each year you must submit an annual performance statement to EPA for the previous financial year in accordance with the Annual Performance Statement Guidelines (EPA Publication 1320.3, released June 2011)	No change
	LI_G4	Documents and monitoring records used for preparation of the annual performance statement must be retained for five years from the date of each statement, and be able to be immediately produced upon request by an officer of the Authority	No change
	LI_G5	You must establish and implement a risk based monitoring program that enables you and EPA to determine compliance with each condition of this licence. The monitoring program must comply with the requirements of the monitoring guidelines (EPA document 1321.2, released June 2011).	No change
	LI_G5.2	You 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 policy (Ambient Air Quality).	No change
	LI_G9	<p>1. You must develop a risk management and monitoring program for your activities which:</p> <ul style="list-style-type: none"> a) identifies all the risks of harm to human health and the environment which may arise from the activities you are engaging in at your premises; b) clearly defines your environmental performance objectives; c) clearly defines your risk control performance objectives; p) describes how the environmental and risk control performance objectives are being achieved; d) identifies and describes how you will continue to eliminate or minimise the risks in [1a] so far as reasonably practicable (SFARP); and e) describes how the information collated in compliance with this clause, is or will be disseminated, used or otherwise considered by you or any other party. <p>2. The risk management and monitoring program must be:</p> <ul style="list-style-type: none"> a) documented in writing; b) signed by a duly authorised officer of the licensed entity; and c) made available to the Authority on request. 	New
Amenity	LI_A1	You must ensure that odours offensive to the senses of human beings are not discharged, emitted or released beyond the boundaries of the premises.	No change
	LI_A2	You must ensure that there are no emissions of noise and/or vibrations from the premises which are detrimental to either of the following : a) the environment in the area around the premises; and b) the wellbeing of persons and/or their property in the area around the premises.	No change
	LI_A3	You must ensure that nuisance dust and/or nuisance airborne particles are not discharged or emitted beyond the boundaries of the premises, except as permitted by this licence.	No change
Waste Acceptance	-	Licence does not have any waste acceptance conditions	No change
Waste Management	-	Licence does not have any waste management conditions	No change
Landfill	-	Licence does not have any landfill conditions	No change
Air	LI_DA1.10.2	The discharge of indicators listed in the 'Discharge to Air' Table must not exceed the corresponding discharge limits in that table, except for particles exemption conditions LI_DA1.10.3 and LI_DA1.10.4.	Amended (See Discharge to Air Table in Schedule 2)
	LI_DA1.10.3	The discharge limits for particles in the 'Discharge to Air' Table do not apply during plant start-up and shut down for an aggregate period of 88 hours for any 12-month period.	NEW
	LI_DA1.10.4	The concentration of particles discharged from discharge point(s) 1 to 4 can exceed 0.15 grams per normal cubic metre (based on 30 minute averages at 12% CO ₂) during plant start-up and shut-down for an aggregate period of 88 hours for any 12-month period.	NEW

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Conditions group	Condition No.	Condition text	Change
	LI_DA4	You must conduct continuous monitoring of the following discharge to air indicators, particles (total), carbon monoxide, sulfur dioxide, and oxides of nitrogen, at discharge point(s) 1 to 4.	New
	LI_DA4.2	<p>You must maintain a publicly accessible website, to which you must publish:</p> <ul style="list-style-type: none"> a) Within 12 hours of the end of each day, whether the Discharge Limits, as specified in the 'Discharge to Air' Table in condition LI_DA1.10.2, were exceeded at any time within the preceding day for the following indicators particles (total), carbon monoxide, sulfur dioxide, and oxides of nitrogen; b) Within 14 calendar days of the end of each month, a summary of validated monitoring data for the preceding month from the monitoring program in condition LI_DA4 and a summary of the information in (a) for the preceding month. The summary of validated monitoring data must include: EPA licence number; discharge point, map showing discharge point location and discharge point description / type; indicator; limit type; unit; discharge limit; monitoring frequency; relevant dates; upfront explanation of apparent missing data; timeframe and details of any exceedances of discharge limits and associated explanations; monitoring system availability; outages and explanations; details of any corrections made after the publishing of the previous monthly summary. c) A copy of your current EPA licence; the licensee's name and address of premises; a link to the EPA Portal search page for licences and APS reports; GPS location details of all monitoring points/areas and a map showing this. d) Information and monitoring data must be published in a legible form which allows for direct download in common open file formats. e) Information and monitoring data must be retained at the premises for five years from the date of publishing. 	new
	LI_DA4.3	You must establish and implement a program for a 12-month period to monitor the discharge to air, at discharge point(s) 1 to 4, of fine particles PM2.5 and coarse particles PM10 to establish the 90th percentile annual frequency distribution. The results of this program must be made available to EPA on request and must be published to the publicly accessible website required by condition LI_DA4.2 by 31 March 2022.	New
	LI_DA4.4	You must establish and implement a program for a 12-month period to monitor the discharge to air, at discharge point(s) DP 1 to 4, of all class 3 indicators listed in Schedule A of State Environment Protection Policy (Air Quality Management) likely to be emitted from your premises, as agreed in writing with EPA. The results of this program must be made available to EPA on request and must be published to the publicly accessible website required by condition LI_DA4.2 by 31 March 2022.	New
Water	LI_DA2	Visible emissions to air other than steam must not be discharged from the premises, except as permitted by this licence.	No change
	LI_DW1	You must ensure that surface water discharged from the premises is not contaminated with waste.	No change
Land	LI_DL1	You must not contaminate land or groundwater	No change

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Schedule 2 Recommended discharge to air indicator limits 3987 – Loy Yang B

Discharge point no	Description of Discharge Points	Indicator	Limit Type	Unit	Proposed discharge limit for feedback	Limit Action
DPs 1 to 4	All air discharge points	Particles	Maximum	g/min	11,000	No change
		Particles	90th Percentile	g/min	4,000	New
		Carbon monoxide	Maximum	g/min	56,000	Amend
		Carbon monoxide	90th Percentile	g/min	3,000	New
		Chlorine compounds (as chlorine)	Maximum	g/min	14,400	Amend
		Fluorine compounds (as HF)	Maximum	g/min	396	Amend
		Oxides of nitrogen (as NO ₂)	Maximum	g/min	41,800	Amend
		Oxides of nitrogen (as NO ₂)	90th Percentile	g/min	35,200	New
		Sulfur dioxide	Maximum	g/min	200,000	No change
		Sulfur dioxide	90th Percentile	g/min	89,100	New
		Sulfur trioxide	Maximum	g/min	13,000	Amend
		Particles as PM _{2.5}	Maximum	g/min	4,800	New
		Particles as PM ₁₀	Maximum	g/min	8,300	New
		Mercury compounds	Maximum	g/min	10	New

The amended licences can be found here: <https://engage.vic.gov.au/review-brown-coal-power-station-licences>

Appendix C – Greenhouse and energy information for black and brown coal generation facilities 2017-18

Facility Name	State	Electricity production (GJ)	Electricity production (MWh)	Total scope 1 emissions	Total scope 2 emissions	Total emissions	Emission intensity	Primary fuel
				(t CO2-e)	(t CO2-e)	(t CO2-e)	(t CO2-e/ MWh)	
Yallourn Power Station	VIC	36,860,112	10,238,920	13,671,954	184,359	13,856,313	1.34	Brown coal
Loy Yang Power Station and Mine	VIC	61,026,883	16,951,912	19,861,938	245,177	20,107,115	1.17	Brown coal
Loy Yang B Power Station	VIC	31,933,714	8,870,476	10,131,496	1,280	10,132,776	1.14	Brown coal
Gladstone Power Station	QLD	32,309,449	8,974,847	8,502,292	44,729	8,547,021	0.95	Black coal
Liddell Power Station	NSW	30,667,257	8,518,683	7,799,843	40,396	7,840,239	0.92	Black coal
Callide B Power Station	QLD	19,818,112	5,505,031	5,063,694	39,846	5,103,540	0.92	Black coal
Collie Power Station	WA	7,314,999	2,031,944	1,842,676	6,017	1,848,693	0.91	Black coal
Callide C Power Station	QLD	21,023,694	5,839,915	5,240,790	24,875	5,265,665	0.9	Black coal
Muja Power Station	WA	15,838,621	4,399,617	3,979,427	3,236	3,982,663	0.9	Black coal
Callide C Power Station (facility)	QLD	21,023,694	5,839,915	5,240,790	24,875	5,265,665	0.9	Black coal
Bluewaters Power 1	WA	5,796,946	1,610,263	1,440,940	3,278	1,444,218	0.89	Black coal
Bayswater Power Station	NSW	55,964,880	15,545,800	13,705,014	20,951	13,725,965	0.88	Black coal
Bluewaters Power 2	WA	6,232,601	1,731,278	1,521,195	1,138	1,522,333	0.88	Black coal
Mt Piper Power Station	NSW	28,311,455	7,864,293	6,823,827	17,475	6,841,302	0.87	Black coal
Eraring Power Station	NSW	61,870,118	17,186,144	14,898,414	16,502	14,914,916	0.87	Black coal
Stanwell Power Station	QLD	31,695,761	8,804,378	7,627,813	9,922	7,637,735	0.87	Black coal
Tarong Power Stations	QLD	43,557,325	12,099,257	10,437,422	36,528	10,473,950	0.86	Black coal
Vales Point Power Station	NSW	29,025,803	8,062,723	6,966,897	48,729	7,015,626	0.86	Black coal
Kogan Creek Power Station	QLD	18,916,535	5,254,593	4,354,532	6,154	4,360,686	0.83	Black coal
Millmerran Power Station (facility)	QLD	25,420,974	7,061,382	5,790,913	3,438	5,794,351	0.82	Black coal