



Loy Yang B Environment Improvement Plan FY 20

Loy Yang B Power Station

Powering  alintaenergy

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1 Endorsement

Consistent with our Environmental Management System (EMS), annual environmental planning involves consultation with a wide range of stakeholders including Engineering & Maintenance, Production, supervisors, team leaders and senior management. Feedback received from any regulator or community engagement opportunity is also considered.

Key environmental risks and opportunities are assessed, along with our business as usual (BAU) environmental objectives.

Feedback is collated and reviewed with any environmental initiatives submitted into the business planning process. All approved initiatives are appropriately assigned, resourced and budgeted for.

This Environment Improvement Plan (EIP) is updated annually and any initiatives or actions are consistent with the Loy Yang B (LYB) Business Plan. Actions are tracked for progress throughout the year.



Tony Hicks
General Manager

2 Environment Policy

LYB Operations & Maintenance Pty Ltd (the Company) operates and maintains the 1,100 MW brown coal fired station, Loy Yang B Power Station.

The Company recognises the importance of utilising and continuing to improve our compliance position within the Operational Excellence framework which includes elements of Environmental management.

Loy Yang B (LYB) is dedicated to the protection of the environment and supports practices that prevent pollution and consistently operates within its environmental licence conditions.

The Company believes that sound environmental performance contributes to its competitive strength and benefits its customers and employees and the wider community. Company personnel continually strive to improve station efficiency and to responsibly manage the Company's electricity generation operations to manage and minimise its impact on the environment.

Significant environmental regulatory reform is anticipated in the short to medium term that will require diligent review of our key impacts – air/greenhouse emissions, disposal of drainage, ash and saline water and our consumption of natural resources.

To achieve these aims and considering the current circumstances, the Company is committed to:

- Conducting all operations in accordance with the relevant environmental legislation, regulations, obligations, agreements and licences which relate to the power station operations and identified environmental aspects and impacts;
- Maintaining and demonstrating compliance to an Environmental Management System certified to AS/NZS ISO 14001 and ensure effective integration with the AS/NZS ISO 9001 Quality Management System;
- Continually improving both the effectiveness of the Environmental Management System to enhance Environmental Performance through the setting and reviewing of Environmental Objectives and Targets within the Business Plan and the annual Environment Improvement Plan.

Approved: 4/01/2018

Review Date: 1/07/2020

LYB.POL.02-Environment Policy

3 Operating Arrangements

Loy Yang B consists of two electricity generating units operating at baseload operation 24 hours per day, 365 days per year. The generating units are shut down during planned maintenance intervals.

Brown coal is supplied from the Loy Yang open cut mine, owned and operated by AGL Loy Yang.

Cooling water is sourced from Blue Rock and Narracan storages where bulk entitlement allocations are owned.

Potable and demineralised water for use within the boilers and turbines is sourced from Moondarra Reservoir.

Ash disposal is via the AGL Loy Yang ashing system and Saline Waste Outfall Pipeline (SWOP).

Site stormwater drainage enters the AGL Loy Yang Settling Pond, before being discharged into the Traralgon Creek.



Figure 1- Aerial of Loy Yang B Power Station. Ash holding dams in the background.

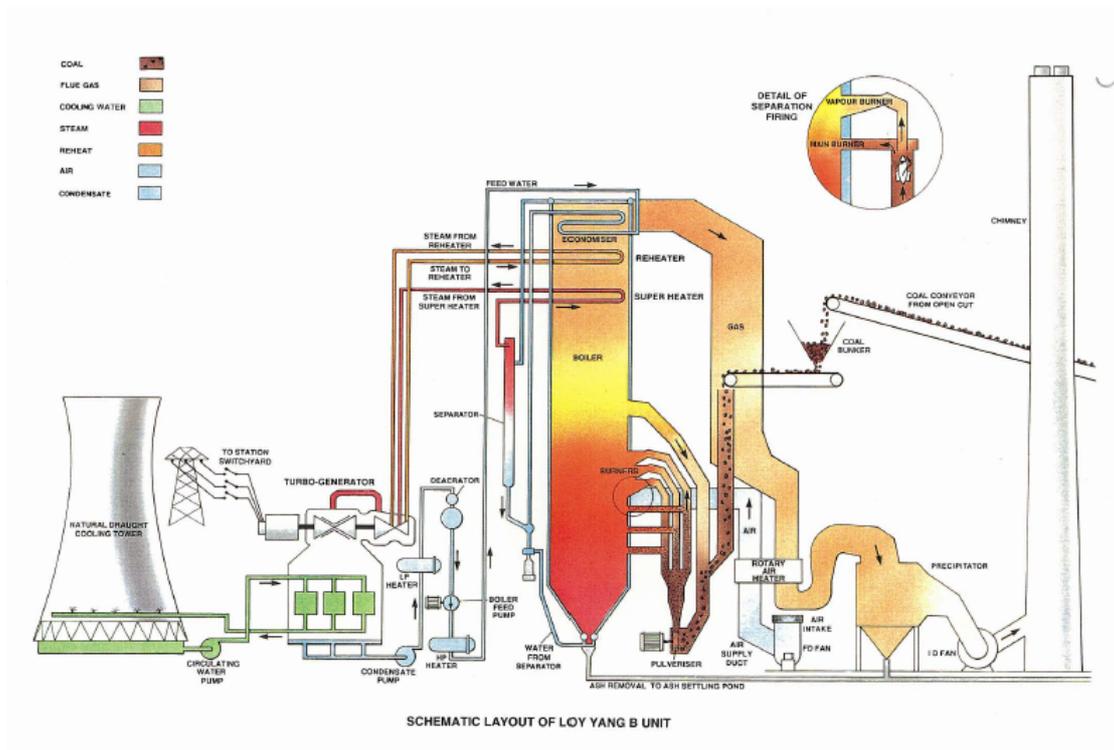


Figure 2 – Loy Yang B Power Station Schematic Overview

4 Site Management & Business Systems

- General Manager, Tony Hicks
- Manager, Engineering & Maintenance, Sean Halloran-Lavelle
- Manager, Production, Des Dalton

Supporting certified management systems include:

ISO9001 Quality Management Systems

ISO14001 Environmental Management Systems

Loy Yang B holds EPA accredited licence 3987 which can be viewed online:

<https://www.epa.vic.gov.au/our-work/licences-and-approvals/search-licence>

5 Environmental Impacts & Risks

Loy Yang B's key impacts on the environment include:

| | ACTIVITY | HAZARD |
|---|--|---|
| Significant Environmental Aspects & Impacts | Flue gas emissions | Flue gas discharge to airshed <ul style="list-style-type: none"> • particulates (dust;) • sulphur dioxide; • oxides of nitrogen; • carbon monoxide. |
| | Greenhouse emissions | Flue gas emissions containing greenhouse gases. |
| | Amenity – odour, noise and dusts | Loss of public amenity. |
| | Drainage discharges – stormwater and site drainage | Discharge of ash/saline water, chemical effluent or hydrocarbons to Loy Yang Settling Pond. |
| | Ash disposal – transport of ash solids/saline waters via pipeline to Loy Yang Ash Pond | Ash disposal pipeline failure. |
| | Waste disposal – EPA Prescribed | Incorrect disposal of EPA hazardous wastes. Reliance on contractors and sub-contractors. |

6 Waste Minimisation

We are dedicated to reducing our waste to landfill and maximising resource recovery. *LYB's Waste Management and Disposal* procedure ensures environmental compliance and minimises the impact of disposal activities on the environment through responsible management and adhering to relevant environmental legislation.

Loy Yang B's largest solid waste contribution is the disposal of ash that is left over after combustion of coal in the both boilers. Ash is continually removed and pumped via dedicated pumps and pipelines discharging into AGL Loy Yang's ash settling pond facility.

Other waste reduction measures on site include recycling facilities for kitchen co-mingled items, paper and cardboard, steel, timber, batteries, fluorescent lighting and electrical waste. We conduct annual solid waste audits to measure compliance and assist with future recycling initiatives.

Where required, our waste is assessed and categorised in accordance with the EPA Industrial Waste Resource Guidelines, Solid Industrial Waste Hazard Categorisation and Management, Publication 631. Hazardous waste is removed from site using EPA approved transport and waste receiver companies as part of the EPA waste certification process.

7 Environmental Objectives

We believe that our good environmental performance is a strength of our business and we will continue to identify improvement opportunities to our electricity generation operations that further minimise Loy Yang B's impact on the environment.

We maintain environmental compliance in accordance with the site's EPA accredited licence and achieved 100% compliance for the 2018/2019 reporting period. We also completed our objectives contained in our previous Environment Improvement Plan (FY19) below.

| Item | Target date | Achieved |
|--|-------------|----------|
| Continue participation with EPA regarding the EPA Licence Review process that commenced in 2018 | Q3 | Yes |
| Deliver the first annual Loy Yang B Sustainability Report | Q1 | Yes |
| Develop a Research & Development Program for Loy Yang B | Q4 | Yes |
| Prepare and respond to changes in state or national carbon policy | Q4 | Yes |
| Investigate the release of data to publicly report boiler flue gas emissions to the Loy Yang B website | Q3 | Yes |

This year (FY20) our environmental improvement initiatives include:

| Item | Target date | Achieved |
|--|-------------|----------|
| Complete the Victorian Environment Protection Authority's (EPA) licence review and assess any changes in conditions or licence limit values to ongoing compliance | Q3 | - |
| Review draft subordinate legislation associated with the Environment Protection Amendment Act 2018 (EPA Act), such as regulations, environment reference standards, codes of practice, guidance materials and participate in industry consultation | Q1 | - |
| Prepare for the commencement of the EPA Act ¹ , including completing a compliance audit of our environmental management system and framework to assess compliance with new requirements | Q2 | - |
| Investigate the impact on our operations associated with potential variations to the National Environment Protection Measure (NEPM) on ambient air quality | Q2 | - |
| Deliver a research and development program | Q2 | - |

Loy Yang B FY20 Business Plan environmental KPIs include:

| Description | Target (Annual) |
|-------------------------------------|-----------------|
| Environmental Complaints (verified) | 0 |
| Reportable (EPA) Incidents | 0 |
| EPA Licence Breaches | 0 |

More specific environmental actions/KPIs considered as BAU, and how they are integrated with normal business and operational processes, are described in detail within *QMS.41 Environment Systems Manual*.

¹ Due to occur on 1 July 2020.

8 Operating Conditions

Loy Yang B power station's operations are undertaken by experienced and trained personnel who operate from a central control room location 24/7. All critical aspects of the power station are displayed continuously to the operator through interface terminal and control screens. Audible and visual alarms are configured to alert the operator to any abnormal or emergency conditions, allowing them enough time to respond.

Examples include stack emissions monitoring equipment installed in the boiler flue gas emissions discharge (the stack). Alarm conditions are set to highlight adverse trends, allowing the operator enough time to undertake a range of actions including reduction of generation to prevent a licence breach.

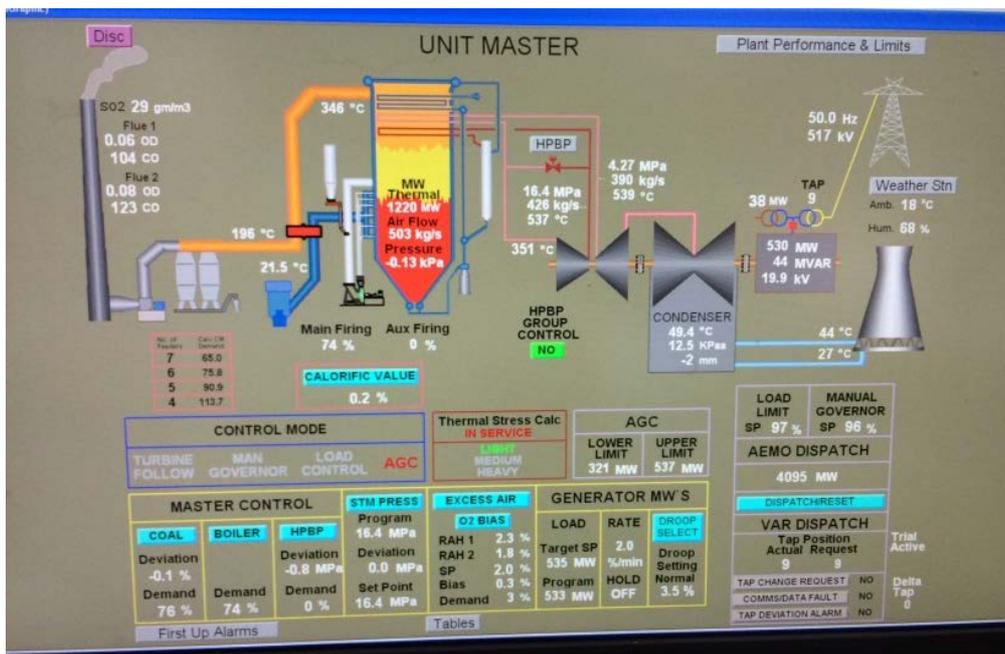


Figure 3 - Image of a Control Room Operator Interface Screen

9 Complaint Response

No recorded complaint has been received from the community or stakeholders in relation to environmental performance in Loy Yang B's operating history.

Loy Yang B has an incident reporting and a public complaints procedure in place that deals with any environmental related event or situation.

Incident reporting, defined within the control instruction *LYT0132 Environmental Operating Response*, is initiated internally when:

Any unplanned situation or event that occurs (actual or near miss) where:

- any spill to ground or the drainage system of an environmentally hazardous material or substance;
- emissions to atmosphere that exceed the operating licence specifications;
- any incorrect disposal of environmentally hazardous wastes or materials;
- a public complaint regarding the operating of Loy Yang B has been received directly or via a third party such as the EPA Victoria.

In any instance where the EPA operating licence conditions have been exceeded, a business notification report is immediately lodged with EPA Victoria.

10 Contingency Arrangements

LYT0132 Environmental Operating Response provides clear instruction to control room personnel in response to plant abnormalities and alarm conditions relating to environmental discharge to air and drains.

| Event | Environmental Impact | Control |
|--|--|---|
| High particulates, sulphur dioxide, nitrogen oxide or carbon monoxide in flue gas detected. | EPA licence breach (30 min). | <p>Continuous Emissions Monitoring system within the stack.</p> <p>A three-minute alarm condition on adverse trends provides sufficient response time for operator to modify process and prevent/avoid a licence breach.</p> <p>Adherence to coal draw directions from raw coal bunker.</p> |
| Ash disposal pipeline failure between Loy Yang B and AGL Ash Pond. | Loss of ash solids and saline water to ground, drains. | <p>Online monitoring equipment measuring pH and electrical conductivity in drainage system.</p> <p>Ash pipeline run back pit alarm indicating pipeline failure.</p> <p>Pipeline inspection, monitoring and maintenance routines.</p> |
| Failure or loss of ashing equipment, chemical storages, chemical effluent overflow, oil filled equipment including a fire event. | Loss of environmental hazardous material to the AGL Settling Pond. | <p>Loy Yang B and AGL online monitoring equipment measuring pH, electrical conductivity and hydrocarbon in drainage system.</p> <p>Notification to AGL Loy Yang.</p> <p>Settling Pond outlet isolation valve.</p> <p>Pit B3 site drainage recovery equipment.</p> |

11 Assessment & Monitoring

Loy Yang B Power Station
LYP0131 – Environmental Compliance - Monitoring, Measurement and Assessment

Objectives

To summarize the risk assessment and monitoring program that allows both Loy Yang B (LYB) and the Environment Protection Authority (EPA) to determine compliance with the operating license conditions set out in 3987.

Specifically, the monitoring program must:

- Determine the type and frequency of monitoring required, based on level of risk
- Be a documented, risk-based monitoring program that can be demonstrated that it is appropriate to the operational activities at LYB
- Describe how all monitoring records are filed and stored and able to be produced as requested by the EPA
- Describe how collected monitoring data is used to support completion of the Annual Performance Statement (APS)
- Describe the quality control and verification protocols surrounding each monitoring event
- Be sufficiently robust and be able to demonstrate adequately to the EPA should LYB be selected to undergo audits of environmental performance and validation of claims made in the APS submissions
- Reflect the findings identified in QMS.41 Environment Systems Manual, Compliance Obligations, License Compliance Risk Summary Table
- Be implemented and regularly updated/reviewed

Having an established, reviewed and current monitoring program that is risk based will assist in demonstrating compliance with the EPA operating license 3987 and the APS submissions.

Scope

This is applicable to all operational aspects of LYB where the receiving environment (air, water, noise, land, waste) may be affected.

Figure 4 - Image of LYP0131 Environmental Compliance – Monitoring, Measurement and Assessment

Monitoring, measurement, assessment and record keeping are key aspects of environmental compliance. Continuous measurement data for air emissions and drainage discharges is automatically recorded and retained for future interrogation.

Maintenance routines (inspections, measurements, calibrations) of key operating plant associated with significant environmental impacts are programmed to designated work groups at defined intervals. Follow-up corrective actions are initiated should any maintenance routine fail to meet defined performance criteria.

Monthly environmental reporting to senior management consists of detailed assessment of continuous measurement data to ensure compliance. EPA reportable event/licence breaches are reported immediately to EPA via its business notification hotline.

12 Review & Reporting

Formal management system reviews occur quarterly where environmental performance, audit findings, complaints, non-compliance, investigation outcomes, environmental actions and opportunities for performance are tabled and discussed.

This is in addition to detailed environmental performance reports distributed monthly to senior management and employees that include compliance, air, water, greenhouse, efficiency and waste.

EPA reporting occurs annually and includes the [Annual Performance Statement \(APS\)](#) and submission to the [National Pollutant Inventory \(NPI\)](#).

Greenhouse reporting (NGER) is undertaken annually to the [Clean Energy Regulator](#).

13 Auditing

The environmental management system is integrated with other systems including quality and safety. An internal audit program is prepared annually with audit topics selected based on their risk profile.

Other external audits regarding environmental performance include:

- FY19 Annual Performance Statement (APS), Jul 19
- Environment Management System, Jul 19
- EMS ISO14001 re-certification, Jul 19
- FY19 Sustainability Report Data, Aug 19
- FY19 National Greenhouse and Energy Reporting (NGER), Aug 19

14 Community Engagement

Loy Yang B has a Stakeholder Strategy in place which includes consultation with the local community.

A coordinated approach to stakeholder engagement will allow Loy Yang B to:

- minimise unexpected risks;
- secure the foundations of our social licence to operate through building constructive stakeholder relationships;
- ensure issues such as regulatory compliance, environment and safety are considered;
- create community engagement, formal consultation and collaborative decision-making opportunities.

15 Turbine Retrofit Project 2019/2020

In May 2019 Loy Yang B successfully completed the Turbine Retrofit upgrade to Unit 2 increasing its generating output capacity with improvements to its overall efficiency.

Unit 1 will undergo a similar upgrade in FY21.

16 Loy Yang B Sustainability Report

The purpose of the report is to provide an overview of our business and our environmental, economic and social performance during the 2018/19 financial year (FY19). It also provides information on how we manage the risks and opportunities associated with sustainability challenges. The report will be published to the [Alinta Energy website](#) in December 2019.

17 Latrobe Valley Air Monitoring Network Inc (LVAMN Inc)

At Loy Yang B we measure emissions through a combination of continuous measurement and periodic stack testing techniques. Calibration of continuous measurement equipment and periodic testing is undertaken by accredited third parties.

As a condition of our power station licence, we must assess the effect of our air emission discharges on the ability of the airshed to comply with the State Environment Protection Policy for Ambient Air. To support this, Loy Yang B contributes to the Latrobe Valley Air Monitoring Network (LVAMN Inc), an industry funded ambient air monitoring network operating in the Latrobe Valley airshed. This operates in conjunction with an EPA network of ambient monitoring locations. Detailed results from both ambient networks are available on the [LVAMN Inc](#) and EPA Victoria public websites.

LVAMN Inc conducts an annual review and summarises their ambient air quality results, as well as regularly completing air dispersion modelling assessments and reporting on the modelling findings. This review confirms that Loy Yang B's air emissions do not compromise the beneficial uses of the environment as specified by EPA Victoria's policy.