



#### AGL Loy Yang

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### Introduction

This Sustainability Report<sup>1</sup> has been prepared to comply with a Notice received under section 26 of the Mineral Resources (Sustainable Development) Act 1990. This Sustainability Report relates to the AGL Loy Yang mine over the 2016/17 financial year.

#### The AGL Loy Yang Mine

The AGL Loy Yang Mine is situated in the Latrobe Valley approximately 160 km east of Melbourne. The AGL Loy Yang Partnership (AGL Loy Yang) currently owns the Loy Yang Mine, which provides coal to the 2200 MW Loy Yang A Power Station (also owned by the AGL Loy Yang Partnership), the 1050 MW Loy Yang B Power Station (owned by ENGIE), and other minor customers. AGL Loy Yang Mine is one of Australia's largest open cut mine with an annual nominal output of 30 million tonnes of brown coal and 6-8 million cubic metres of overburden and waste interseam (soil that overlies the coal seams).

The Open Cut Mine itself currently occupies an area of 600 ha and has a depth of 200 metres, is 4.5 km long and 2.5 km wide at its widest. In pit overburden placement commenced in April 2017. An external overburden area is currently also being filled to the south of Bartons Lane and occupies 665 ha.

Operations continue 24 hours a day, 365 days a year. Coal is fed directly to the power stations and other customers via conveyor belt systems, which includes up to 18 hours of reserve supply held in the 80,000t Raw Coal Bunker (RCB).

The Loy Yang Mine was initially opened up near the outlet in the southern area of the mine, with excavation developing in a north easterly direction. Excavation is now being developed in an easterly direction. In the future, excavation will swing further to the south.

Mine operations use Bucket Wheel Excavators (BWE) (or dredgers), travelling stackers, mobile plant and conveyor systems to dig and transport coal and dispose of overburden and inter-burden materials.

Operation of the entire AGL Loy Yang Mine facility is monitored via the Mine's Control Centre located at the Mine Administration Offices. The Mine Administration area includes a number of offices, depot, storage and workshop buildings all located on the south side of the Open Cut and are occupied by a variety of mining personnel and site based contractors.

The Planning and Development Group provides essential infrastructure services to the entire site, including Loy Yang B and the numerous contractors established on site. Their services include low quality and high quality water, sewerage, drainage, ash disposal system and roads.

Between the commencement of mining in 1982 and 30 June 2017 the area disturbed by mining is approximately 1,227 ha (including 259 ha already rehabilitated). The area of the external overburden dump is approximately 665 ha (of which 288 ha has been rehabilitated). The final area of the mine will be approximately 2,200 ha, and the final external dump 850 ha.

 $^{
m 1}$  In addition to this Sustainability Report, AGL annually publishes a company-wide sustainability report to provide a transparent

account of our performance in relation to the social, environmental and economic challenges facing AGL and the energy industry. For more information on AGL's company-wide sustainability approach and performance over FY2016, visit: http://agl2016.sustainabilityreport.com.au/



The open cut operations are covered by Mining Licence (MIN) 5189 and a Work Plan approved in May 1997 (which has been subject to minor variations). The area covered by MIN 5189 is 4,561.4 ha. The Loy Yang A and B Power Stations are located on an area excluded from MIN 5189.

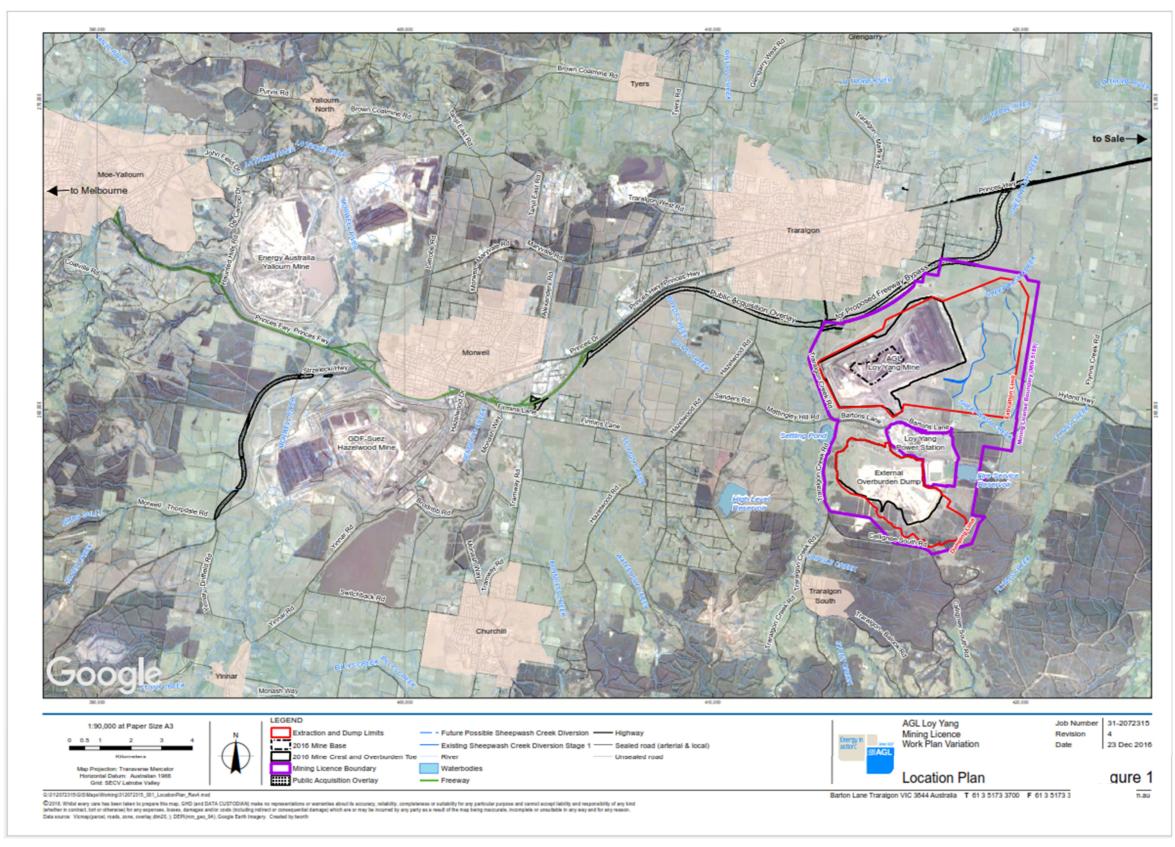


Figure 1 Loy Yang Mine Location Plan

## **Economic benefits of the operation**

AGL Loy Yang Mine is Australia's largest open cut mine with an annual nominal output of 30 million tonnes of brown coal and 6-8 million cubic metres of overburden and waste interseam (soil that overlies the coal seams).

The Mine supplies coal that fuels the two adjacent Power Stations, namely:

- · Loy Yang A Power Station operated by AGL Loy Yang.
- Loy Yang B Power Station operated by ENGIE Loy Yang B.

Power stations currently fed by the Loy Yang Mine provide approximately 50% of the electricity generated in Victoria. The mine and these two power stations have been identified as critical infrastructure for the State of Victoria.

AGL Loy Yang currently employs approximately 600 FTE and 300 contractors. It is estimated that Loy Yang Mine contributes \$10 million per week to the local community through procurement, labour and the hiring of contractors.

# **Environmental management**

#### Overview of environmental management plan

The Loy Yang Mine Environmental Management Plan (EMP) covers operations on MIN5189 and includes details on the following:

- Mining operations, organisations, individuals and associated processes at AGL Loy Yang Mine;
- Water treatment operations
- · Waste storage and disposal operations, including ash waste and non-mineral waste
- · Rehabilitation activities

The EMP does not include the power station operations as they are excluded from MIN5189.

The objective of the EMP is to outline the systems to manage environmental systems within the Loy Yang Mine.

The EMP identifies the environmental management structure and responsibilities, approvals and licencing requirements, reporting and training undertaken and property description. The EMP also describes the activities undertaken on site and the infrastructure onsite. The potential environmental impacts and the control and monitoring measures undertaken for each aspect of Loy Yang Mine's operation are described in the EMP and outlined in detail in separate management plans referenced in the EMP. Review of the environmental control systems is undertaken as part of the EMP.

Loy Yang Mine also has an Environmental Management System (EMS) that is designed to manage Loy Yang Mine's environmental obligations in a detailed, systematic, planned and documented manner.

The Loy Yang Mine EMS:

- serves as a tool to improve environmental performance
- provides a systematic way of managing environmental activities
- provides order and consistency to address environmental events through the allocation of resources, assignment of responsibilities and on-going evaluation of practices, procedures and processes



- consolidates environmental activities and responsibilities across the site, providing references to procedures, registers and policy documents
- focuses on continual improvement of the system.

The EMS is a critical component of Loy Yang Mine's environmental and social responsibility activities and underpins its on-going environmental performance.

In addition to organisational drivers which underpin the development of the EMS, the Environment Protection Authority of Victoria (EPA) also requires the establishment and implementation of an EMS as part of its accredited licensing provisions.

#### **Key Environmental Risks**

Table 1 below outlines the aspects of the environment that have been identified as being potentially impacted by the activities undertaken at Loy Yang Mine. The key commitments and control strategies utilised at Loy Yang Mine are also outlined in Table 1.

Table 1 Summary of Loy Yang Mine Environmental Commitments and Control Strategies

Aspect	No.	Key Commitment	Control Strategies
AIR	1.	No loss of visual amenity due to air emissions	EPA licence #11149 limits  Dust Trigger Action Response Plan  Operational Controls for Dust Suppression  Field monitoring program (online monitoring)
NOISE	2.	No impact offsite from mining activities	Operational procedures Monitoring program
WATER	3.	No offsite discharge of water containing contaminants	EPA licence #11149 limits Operational management procedures Online monitoring program
	4.	Land disturbance does not result in adverse discharge to surface or groundwater	Strategic mine planning process Approved Work Plan Variation
	5.	Maintain ash containment systems to prevent contamination to surface and groundwater	EPA Licence #11149 limits Groundwater monitoring network and program
		Maintain environmental flows in Traralgon Creek	EPA licence #11149 limits
	7.	No exceedance of SWOP licence conditions	Gippsland Water waste monitoring program Online controls to stop pumps if turbidity & pH exceeded Trigger Action Response Plan
	8.	Collect and use artesian water as a resource	SRW Licenced extraction Regional subsidence monitoring Groundwater modelling Monitoring monthly usage SRW usage report
	9.	Dosing system to treat water before discharge from site	EPA licence #11149 limits Online monitoring of discharge Automated treatment systems
	10.	Maintain adequate water supply	Bulk Entitlement rights (as granted by Minister)



Aspect	Aspect No. Key Commitment		Control Strategies		
			Review operation and liaison with Water Authorities for Lake Narracan		
	11.	No negative impact on groundwater outside the boundary of the attenuation zone	EPA licence #11149 limits  Monitoring bores and modelling  Groundwater monitoring program every six months and annual reporting		
WASTE	12.	Appropriate waste disposal	EPA accredited waste disposal contractors used Regular "housekeeping" audits Routine maintenance		
REHABILITATION	13.	Weed control	Operational procedures		
	14.	Maintain topsoil resource	Long term rehabilitation programs Topsoil stripping / stockpiling plans		
	15.	Use appropriate rehabilitation techniques	Work Plan Variation Plantation management plan Long term rehabilitation programs Land Rehabilitation Manual		
	16.	Maintain progressive rehabilitation	Work Plan Variation Rehabilitation standards / audit protocols Long Term Rehabilitation Strategy Strategic Mine Rehabilitation Plan		
LAND	17.	Discharge of wastewater to land must not adversely affect the land.	EPA licence #11149 limits Monitoring and design program		
	18.	Land disturbance does not result in adverse discharge to land	Work Plan Variation Rehabilitation Strategic mine planning process		
	19.	Maintain ash containment systems to prevent contamination to land	EPA licence #11149 limits Placement of ash as per design Leachate return systems to ash pond Containment practices		
	20.	Control soil erosion	Work Plan Variation Operational procedures Land management Rehabilitation		
	21.	Minimise acid mine drainage	Clay capping  Dump management plan  Adjusted pH of final effluent as required to meet EPA regulations  Online monitoring & alarms  Retention ponds/ drainage flows managed		
CULTURAL HERITAGE	22.	Recognition of Archaeology and Heritage native title and reclamation of land parcel	Traditional Owner Settlement Act 2010 – S31 deed agreement CHMP for mining areas		
	23.	Gain consent for destruction or removal of European and	Operational procedure Archaeological surveys – survey and recovery process		



Aspect	No.	Key Commitment	Control Strategies
		Aboriginal Archaeology and Heritage sites	
ENVIRONMENTAL AWARENESS 24.		24. Ensure all site personnel know their environmental commitments and responsibilities  Integrate environmental awareness into training pac EMS work developing procedures Succession planning Appropriately trained contractors used on site JSEA: assessments undertaken before activities commence.	
COMMUNITY	25.	Community support and no negative perception of AGL LY activities	Community consultation (through activities such as the Environmental Review Committee (ERC)) Stakeholder management process EPA licence requirement to undertake reporting Reports to the community, Annual Sustainability Report, public forums, etc.
ENVIRONMENTAL MANAGEMENT SYSTEM	26.	Compliance with EMS	Compliance calendar Monitoring program Internal and EPA audits Review

Table 2 below outlines the environmental monitoring undertaken at Loy Yang Mine. For each of the identified environmental aspects, monitoring is undertaken to determine the impact on the environment from the operational activities at Loy Yang Mine. The timing, frequency and responsibility for each monitoring activity is also outlined in Table 2.

Table 2 Loy Yang Mine Environmental Monitoring

Monitoring Type	Monitoring Locations	Timing and Frequency	Repsonsibility
Air	Ambient air monitoring as part of the Latrobe Valley Air Monitoring Network	Monthly site walk around during operating hours	Scientific Services Manager
	Deposition gauges at 2 locations (D7, D8) outside the site boundary and nearby sensitive receptors (e.g. Flynn Farm)  Visual inspections from elevated viewing point  Particulate monitoring at numerous (currently 5) locations (S1 – S4 and 'Stuckeys'), sensitive receiver locations, or appropriate representative locations.  Odour survey along the boundary of the premises	Monitoring following complaints  Regular audits of environmental performance  Visual inspections weekly, or during dry, windy weather events.  Particulate monitoring – continuous recording of PM10 concentration.  Dust deposition – continuous, with monitors replaced monthly.	Planning and Development Manager  Environment and Earth Sciences Superintendent  Environment Business Partner
		Regular audits of environmental performance – once annually as part of an annual non-statutory audit.	Scientific Services
Noise	Unattended Noise logging when required (previously undertaken at the six sensitive receiver locations: Whitelaws track, Liddiard Road (Hilltop Park), Chester Park Drive, Stuart Creek, Traralgon Creek Road, Sagars Road).	Monthly site walk around during operating hours  Monitoring following complaints  Regular audits of environmental performance	Planning and Development Manager  Environment and Earth Sciences Superintendent



Monitoring Type	Monitoring Locations	Timing and Frequency	Repsonsibility
			Environment Business Partner
Water	Surface water monitoring at surface water discharge locations - Discharge points (L150, L160, L171) and upstream location L203 and downstream location L201 of Traralgon Creek.  Visual inspection of surface water/stormwater drains and discharge points.  Effectiveness of leachate collection and pump back system  Visual inspection - stormwater management systems.  Visual inspections of OB dump surface.  Regular statutory audits  Regular observation  Land and Drainage Systems  Groundwater bore monitoring and modelling for groundwater plume  Background water monitoring  Irrigation site runoff and site boundary runoff monitoring	On line sampling at non-licenced discharge point following an event.  On line and sampling at licenced discharge points  Locations L203, L171, L201 and L160 sampled weekly when flowing.  Visual inspection – once per week and after each significant rain event.  Six monthly for groundwater bores.  Recording of all spillage incidents on Incident Register.	Planning and Development Manager Environment and Earth Sciences Superintendent Environment Business Partner
Ash	Visual inspections of leached ash disposal areas.	Recording of all incidents on Incident Register. Regular audits	Environment Business Partner  Planning and Development Manager  Environment and Earth Sciences Superintendent
Hazardous Materials	EPA Transport Certificates  Monitoring of litter complaints and inspection of area.		Environment Business Partner  Planning and Development Manager  Environment and Earth Sciences Superintendent

# Activities and monitoring outcomes 2016 - 17

During the 2016-2017 period the following environmental management activities were undertaken:

- Dust suppression through placement of paper mulch within the mine, water sprays within the mine, water trucks on unsealed roads;
- Weed spraying; and
- Water treatment before discharge offsite through polymer and caustic dosing.



Table 3 below outlines the water monitoring results at each discharge point from July 2016 through to June 2017. The exceedances of the target limits observed at L160 are discussed further.

Table 3 Loy Yang Mine 2016-2017 EPA Licence Limits vs Actual Discharge Water Qualities

Sampling Point		Suspended Solids (mg/L)	Total Dissolved Solids (mg/L	Turbidity (mg/L)	рН	Colour (Pt/Co)
L160 – EPA Licence Limit	Maximum	40	700	40	6 – 8.5	70
	Median	20	500	20		50
L160 - Combined SW and NW floc	Maximum	110	380	89	7.1	140
ponds discharge	Median	5	290	3.7	6.7	60
L171 – EPA Licence Limit	Maximum	40	700	40	6 – 8.5	70
	Median	20	500	20		50
L171- Settling pond & O/B runoff	Maximum	8	450	16	7.3	40
ponds discharge	Median	5	350	2.6	6.8	20

°C = Degrees Celsius

mg/l = Milligrams/litre

NTU = Nephelometric Turbidity Units

pH = pH units

PtCo = Platinum Cobalt Units

Table 4 Total Groundwater Pumped and Collected 2016-2017

Month	Pumped ML	Pumped to PYPS ML	Collected %
July	97.2	959.7	98.7
August	1,083.7	1,047.6	96.7
September	964.8	956.4	99.1
October	1,040.2	1,031.1	99.1
November	1,021.8	1,007.7	98.6
December	843.2	802.9	95.2
January	908.7	793.8	87.4
February	916.0	826.2	90.2
March	757.5	717.0	94.7
April	769.6	704.8	91.6
May	881.5	827.0	93.8
June	820.8	787.1	95.9



Month	Pumped ML	Pumped to PYPS ML	Collected %
Total	10,105	10,461.3	

Table 5 Groundwater Pumped M2B, M2C and Traralgon (ML) 2016-2017

Month	Traralgon	M2C	M2B	Total Seepage
July	755.0	212.2	0	54.0
August	819.0	263.9	0	61.2
September	737.6	227.3	0	54.3
October	768.1	272.2	0	51.6
November	719.8	289.0	0	53.7
December	439.6	176.5	0	41.3
January	698.4	210.3	0	53.5
February	735.6	180.6	0	50.1
March	546.0	210.6	0	51.7
April	554.3	245.3	0	50.0
May	648.0	233.5	0	57.1
June	619.9	200.8	0	50.1
Total	7,287.1	2,697.2	0	628.6

## Rehabilitation

#### **Final Concept Rehabilitation Plan**

The rehabilitation goals for Loy Yang Mine area are:

- Cover all exposed coal with non-combustible inert material and vegetated where applicable
- · Create a geotechnical stable landform
- · Safe to humans and wildlife
- · Non-polluting
- · Create a land form that sustains post-mining land use.
- Complete the majority of the rehabilitation works within 15 years of closure; with a subsequent period of monitoring and maintenance as required.

Loy Yang Mine is committed to the progressive and final rehabilitation of the Loy Yang open cut mine. Loy Yang Mine recognises that there are challenges in achieving the key objectives as outlined above. As a result Loy Yang Mine commits to work with government bodies, researchers and the operators of the Yallourn and Hazelwood mines to better understand the risks.

#### Final Closure concept and closure plan

The closure concept is to partially flood the final open cut void to form a lake, return the remaining disturbed land to agricultural use, and develop native flora/fauna vegetation corridors that connect to the remaining bush reserves adjacent to the Mining licence area. Current undisturbed land will continue to be



used as pasture/grazing land. The closure concept is shown in Figure 2 (Figure 19b of the Work Plan Variation).

AGL Loy Yang is committed to achieving a final closure concept over the Mining Licence area with the following rehabilitation goals:

- · Reduce the mining footprint
- Reinstate a natural ecosystem similar to that which existed pre-mining, over parts of the area,
- Reinstate previous land use over parts of the area, and develop a lake for the remainder of the area.

AGL Loy Yang is committed to rehabilitating some land immediately adjacent to the Mining Licence area within the final rehabilitation concept.

At this point in time, it is AGL's intention that the land will remain in private ownership at the completion of mining with limited public access. Land will be made available through leasing to the public. AGL Loy Yang commits to flooding the mine as soon as practicable after the completion of mining and earthworks associated with rehabilitation.

#### **Community Consultation**

AGL Loy Yang has adopted company-wide principles that guide our approach to engaging with stakeholders about rehabilitation. These principles include:

- **Transparency** AGL will provide stakeholders with information to enable better understanding of the issues related to rehabilitation of AGL sites.
- **Engagement** AGL will undertake ongoing engagement with stakeholders to ensure a diverse range of views are considered in rehabilitation plants and processes.
- Accountability AGL will publish relevant information at least annually to enable external assessment of rehabilitation activities.

Consistent with these AGL-wide rehabilitation principles, AGL Loy Yang has adopted a set of rehabilitation principles to provide a framework for planning and undertaking rehabilitation activities and for setting appropriate objectives and targets. One of the rehabilitation principles adopted by AGL Loy Yang is "regular consultation to be conducted with stakeholders during the rehabilitation planning process and their interest taken into account". The local community is considered to be a stakeholder of the final closure plan and consultation on rehabilitation planning will be included in the community engagement plan as outlined in the approved Work Plan Variation.

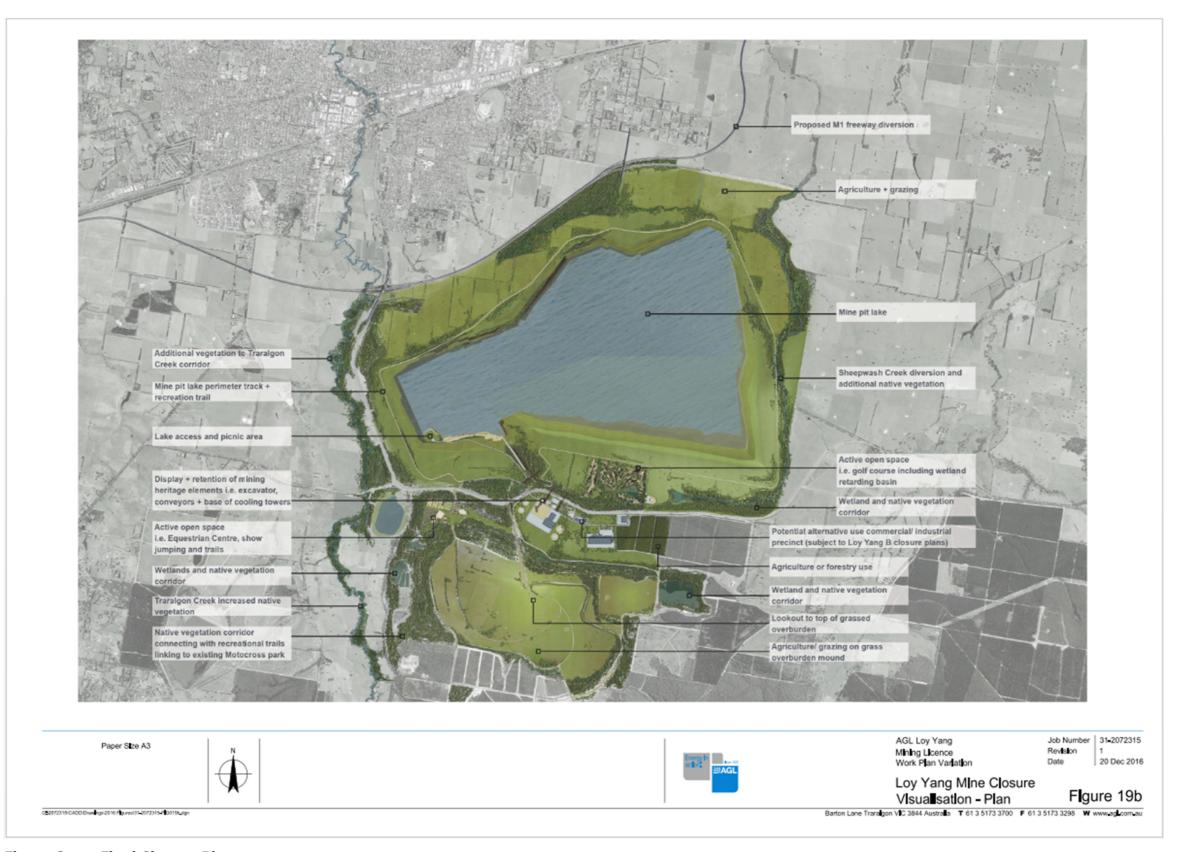


Figure 2 Final Closure Plan

#### **Progressive rehabilitation milestones**

Progressive rehabilitation will take into account future mining development and designated final land uses to maximise the efficient use of resources. Progressive rehabilitation of the coal mine is carried out as and when final pit batters and floor areas become available, that is, are no longer required for production or support infrastructure, such as flood protection, fire water infrastructure and power supply purposes.

Loy Yang Mine's plans for the progressive rehabilitation of the coal exposed in the final slopes mine (above the overburden fill level) is determined by the on-going access, infrastructure layout and geotechnical stability of the coal batters. Loy Yang Mine's experience with coal slope rehabilitation shows that there are competing issues still to be resolved in determining the design for progressive coal slope rehabilitation. In order to assist in resolving some of these technical issues, Loy Yang Mine is conducting a comprehensive number of trials of rehabilitation options on sections along the west and north western permanent slopes. The trials will assist in determining the final rehabilitation design (inter-slope angle, clay and topsoil coverage, infrastructure layout, drainage and maintenance) for the existing slopes and maintenance requirements.

For progressive rehabilitation all future permanent batters will be designed to be safe, stable and sustainable. The results from the aforementioned trials will be used to inform the rehabilitation design for these permanent batters on the northern, eastern and southern slopes (about 14 km).

In assessing the acceptability of rehabilitation objectives, indictors and completion criteria Loy Yang Mine has had regard to the hierarchy for mine rehabilitation. AGL Loy Yang has selected strategies that are listed higher in this hierarchy in preference to those listed lower. The hierarchy in order of decreasing capacity to prevent or minimise environmental harm is:

- 1. Avoid disturbance that will require rehabilitation
- 2. Reinstate a "natural" ecosystem as similar as possible to other existing ecosystem in the region
- 3. Reinstate previous land use (e.g. grazing or plantation)
- 4. Develop lower value land use
- 5. Leave the site in an unusable condition or with potential to generate future pollution or adversely affect environmental values.

There are 9 domains within the closure concept plan. The domain closure indicators and acceptance criteria for each domain are summarised in Table 6. Within the acceptance criteria defined by this rehabilitation plan certification is to be read as self-certification by Loy Yang Mine.



Table 6 Closure domain indicators and acceptance criteria

Closure Domain	Closure Indicators	Closure Acceptance Criteria		
Unaffected land	Continuance of existing pasture, grazing land use	Certification that vegetation type and density are suitable for visual screening.		
	Develop visual screens along the southern edge of the proposed Traralgon by-pass			
Waterways	Native species Revegetation  Water quality	Certification that vegetation type and coverage is suited to the regional assessment of waterway requirements. Certification report on vegetation self-supporting over a continuous 3 year period. Certification of water quality meeting EPA guidelines within the waterways over a continuous 3 year period.		
	Flooding	Certification that water ways will not overflow in 1:100 ARI event.		
Overburden dumps (external)	Return to pasture, grazing land use	Certification that pasture grasses are established and self- sustaining		
• • • • • • •	2	Certification that weed management is successful.  Certification that slopes are safe and stable in the long		
Overburden batters	Stable batters	term.  Erosion restricted to less than 10% of exposed area.  Certification that pasture grasses are established and self-sustaining.		
		Certification that weed management is successful.		
Coal batters above lake water line	Stable batters	Certification that slopes are safe and stable in the long term.  Certification that erosion rates meet regional expectations.  Certification that pasture grasses are established and self-sustaining with over 70% coverage.  Certification that weed management is successful.		
		Certification that exposed coal in the batters is covered with overburden to a minimum depth of 0.5 m.		
Coal batters below final lake water level	Stable batters  Removal of infrastructure	Certification that slopes are safe and stable in the long term. Certification that groundwater pumps and associated infrastructure can be removed from the batters progressively as lake water level rises.		
Pit floor (exposed)	Floor coverage	Certification that exposed coal in the pit floor is covered with overburden to a minimum depth of 0.5 m.		
	Removal of infrastructure	Certification that groundwater pumps and associated infrastructure can be removed from the pit floor.		
Pit void (Lake)	Stable batters  Minimal erosion due to wave action	Certification that slopes are safe and stable in the long term.  Certification of long term stability of the beach areas and lower batters.		



## Overview of rehabilitation activities 2016 - 17

Table 7 below outlines the land disturbance and rehabilitation during the reporting period. All rehabilitation works include the shaping of the batter, placement of fill and topsoil and revegetation.

Table 7 2016-2017 Land Disturbance and Rehabilitation

Land Disturbance and Rehabilitation	Date drilled
Pits - Total	931 ha
Overburden and waste rock dumps - Total	296 ha
Total current area of land disturbed	1,227 ha
Pits 2016-2017	17.4 ha
Overburden and waste rock dumps 2016-2017	3.6 ha
Total area of land disturbed in 2016-2017	21. ha
Area rehabilitated in 2016-2017	45.9 ha
Percentage of the area rehabilitated in 2016-2017 that was revegetated with local native vegetation	0%

Figure 3 below displays the rehabilitation undertaken at Loy Yang Mine in the reporting period and since mining commence.

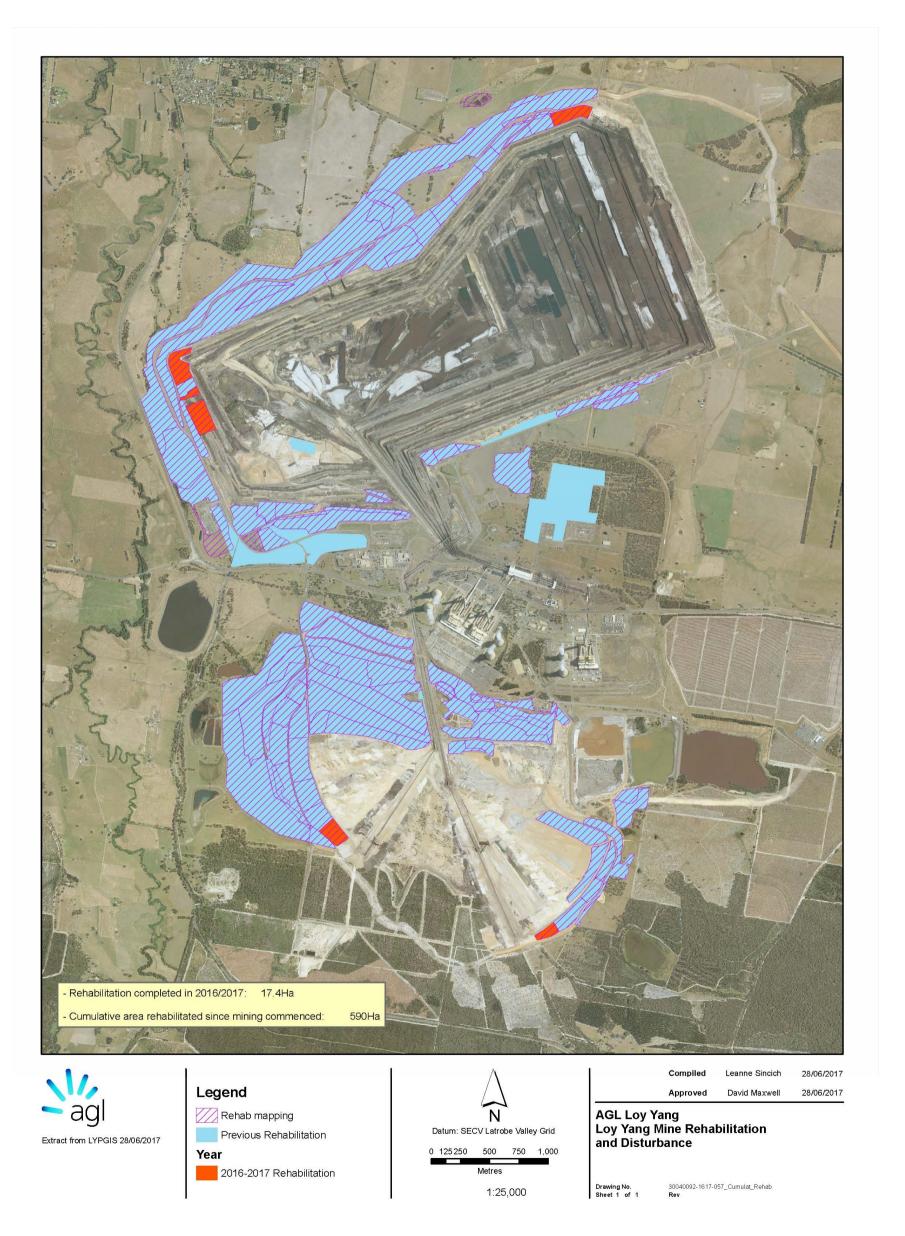


Figure 3 Rehabilitation at Loy Yang Mine

# **Community engagement**

#### Overview of community engagement plan

For AGL, authentic community engagement will ensure high quality services and operations that understand and respond to stakeholder interests.

In delivering high quality engagement practices which identify, seek to understand, and respond to the interests, concerns, risks and interdependencies of its stakeholders, AGL will make better quality decisions, and will aim to exceed its regulatory requirements for engagement.

AGL Energy follows the approach of the IAP2 International Association for Public Participation Australasia Quality Assurance Standard for Community and Stakeholder Engagement.

Ensuring individuals affected by a decision have input into that decision enables better quality decisions to be made, and helps to ensure that everywhere AGL operates, communities are better off as a result of AGL's activities.

AGL's key commitments include the points listed below. A move towards a standard Community Engagement practice across AGL's fleet is ongoing.

- Knowing where you stand we combine local presence, knowledge and research to understand the communities in which we operate.
- Using a range of communication channels that suit community needs we seek to understand how stakeholders like to be informed and involved in our projects.
- Keeping it local we take opportunities to employ local people, use locally sourced products, involve local communities and build local relationships. We seek feedback from stakeholders to improve the way we work together.
- Showing not telling we provide opportunities for stakeholders to see and experience how we operate, including site tours, equipment inspections and community engagement activities.
- Doing what we say we'll do we build trust by delivering on our promises. We record, measure and report on our commitments to ensure we are keeping them.
- Building internal capacity we review and improve our communication activities so our people are informed, engaged and understand the commitments we make.

In line with AGL's overarching Community Engagement Policy and standards, AGL Loy Yang is currently undertaking consultation with key stakeholders regarding the appropriate model to oversee its community engagement activities. This includes an evaluation of AGL's Community Dialogue model which is the general model proposed for all AGL assets. Currently this work is undertaken by the Environmental Review Committee (ERC).

Alongside this, AGL has placed a strong emphasis on diversity and inclusion. To develop and strengthen relationships with Aboriginal and Torres Strait Islander (ATSI) peoples and their local communities, AGL is undertaking preliminary work, including consultation with Reconciliation Australia, to establish a formalised, strategic Reconciliation Action Plan to support engagement. Consultation will be undertaken with the Gunaikurnai people to ensure the local community is engaged and empowered during the planning and implementation stages of this strategy, and any operations of AGL Loy Yang which may impact that community.

AGL Loy Yang will clearly outline as part of its community engagement what is and is not negotiable. While the majority of the operations of the Loy Yang mine must meet mandated requirements set out in the



Approved Work Plan, the community is empowered to decide how it wishes to provide and receive communication from AGL Loy Yang around its operations.

AGL Loy Yang's key commitments to community engagement are provided in Table 8

Table 8 AGL Loy Yang's Key Commitments to Community Engagement

Area of Focus Purpose and Outcomes		Approach		
Community Engagement is an integral part of operations	AGL Loy Yang will ensure that the community is engaged early, involved in the decision making process	The AGL Loy Yang Community Engagement Plan will detail objectives, opportunities and outcomes of community involvement.		
	wherever possible, and made aware of any potential impacts.  Community expectations will be understood and managed.	AGL Loy Yang will capture all information regarding its stakeholders in its stakeholder register, Consultation Manager, and engage with stakeholders per their level of interest, involvement or impact.		
		AGL Loy Yang will offer opportunities to engage interested and relevant stakeholders.		
		The Community Relations Manager (CRM) will support all community engagement activates and will identify opportunities to build local relationships.		
		The CRM will undertake a periodic review of the Community Engagement Plan and the Stakeholder Register to ensure both are current and reflect changing requirements.		
		Community engagement will be supported by Operations Management and the relevant Business Partners on site, along with the broader Government and Community Relations Team within AGL Energy.		
		Communications will clearly state the intent and issues to be dealt with, and will detail what the community is being asked to participate in and why.		
Community attitudes and expectations are identified	AGL Loy Yang will make every effort to be a legitimate and trusted partner	Annual public engagement forums are held, and open to any interested stakeholder.		
		AGL Loy Yang will support community groups and initiatives through its Community Partnerships Program.		
		AGL Loy Yang will identify areas of opportunity to support community groups and initiatives outside of the program where it aligns with AGL's strategic priorities.		
		Briefings will be provided to key community groups and interested parties on topics either identified by the community or by AGL Loy Yang, where the topic may impact or be of interest to the community.		
		AGL Loy Yang will support a Community Monitor survey to be undertaken annually.		
		AGL Loy Yang will further develop its external website at agl.com.au/loyyang		



Area of Focus	Purpose and Outcomes	Approach	
		AGL Loy Yang is committed to a health and safety culture that serves in the best interests of its staff and contractors, the broader communities, and complies with all environmental requirement and incident response procedures.	
		AGL Loy Yang will ensure stakeholders have the opportunity to be informed of potential or actual impacts of its operations.	
		AGL Loy Yang will implement its emergency response plans in the case of an environmental or safety incident.	
Social impacts	AGL will identify and communicate potential impacts to stakeholders.	AGL Loy Yang will identify potential impacts and recommend management and / or mitigation strategies.	
	A complaints management system is in place with regular reviews of emerging issues.	AGL Loy Yang will offer information to interested stakeholders and briefings to affected landowners and neighbours.	
		AGL Loy Yang will seek to minimise intrusion and disruption to stakeholders, existing land use activities and existing infrastructure.	
		AGL Loy Yang will conduct all activities in accordance with the relevant approvals.	
		Safe works practices will be followed and ensure the site does not pose any health and safety risks for those onsite, neighbours and those passing by.	
		AGL's Community Complaints Policy and Management Procedures will be followed.	
Evaluation and measurement of effective	AGL Loy Yang will continue to identify areas for improvement in its practice of	Evaluate the communication and engagement activities against quality, cost and timeliness of consultation.	
stakeholder engagement	community engagement.	For example:	
		Communicating stakeholder and community engagement feedback to identify areas of improvement and success	
		Participants evaluation of consultation activities to include consulting key stakeholders for their feedback	
		Measuring feedback over time to demonstrate if consultation has resulted in an increase in the percentage of people who say AGL listens to their view or who have expressed satisfaction with AGL Community Monitor survey	
		Regular, formal review to determine successes and identify areas for improvement	
		Measuring the timeliness of preparation of communications resources and delivery of them as well as community satisfaction with the standard of information provided	



Area of Focus	Purpose and Outcomes	Approach
		Refine engagement techniques and practices to increase community involvement as required.

AGL Loy Yang employs a comprehensive suite of communication and engagement tools to identify the attitudes, expectations and concerns of key stakeholders and the wider community. This information is used to inform key decisions made by the business.

The IAP2 Spectrum of Public Participation recognises five streams of engagement – Inform, Consult, Involve, Collaborate and Empower.

Methods for identifying attitudes, expectations and concerns are outlined in Table 9.

Table 9 Community and Stakeholder Engagement Methods

Method and/or Technique	Inform	Consult	Involve	Collaborate	Empower
Advertising	✓				
Advisory Committees	✓	✓	✓	✓	
Briefings	✓	✓	✓		
Community fairs/events	✓	✓	✓		
Community meetings	✓	✓	✓		
Community reference groups	✓	✓	✓	✓	
Discussion groups and workshops	✓	✓	✓		
Displays	✓	✓			
Education and awareness programs	✓	✓	✓		
Fact sheets	✓	✓			
Media stories	✓				
Newsletters	✓				
One on One interviews or meetings	✓	✓	✓	✓	
Open days	✓	✓	✓		
Policy actions teams	✓	✓	✓	✓	
Survey research		✓			

#### **Stakeholder Categorisation**

The Community Engagement Plan identifies a stakeholder as an individual, organisation or group who is affected by the operations of AGL Loy Yang.

Stakeholders are categorised using the following definition, and communication is targeted to each category depending on their identified requirement and interest.

• Stakeholders directly impacted or involved.



- Individuals, businesses, government agencies, community or social groups who are directly impacted by, or involved in, the operation of the mine.
- · Stakeholders with a direct interest.
- Individuals, businesses, government agencies, community or social groups who have a direct interest in the operation of the mine.
- · Stakeholders of standing.
- Individuals, businesses, government agencies, community or social groups of standing in the local community.
- · Broader stakeholders, indirect stakeholders.
- Individuals, businesses, government agencies, community or social groups who are based in the region and who are not impacted directly by, but may have an interest in, the operation of the mine.

### Overview of community engagement activities 2016-17

Table 10 Community Engagement Activities 2016-2017

Activity	Date	Activity promotion or advertising	Stakeholders involved
Work Plan Variation community consultation undertaken with a number of stakeholders - see evidence report WPV briefings -	August - November 2016	Work Plan Variation Overview	Flynn Landare Discussion Group, EPA Gippsland, Voices of the Valley, Gippsland Water, Southern Rural Water
Integrated Mines Rehabilitation Workshops	Various	Consultation of Integrated Mines Research Project	AGL, ENGIE, EnergyAustralia, DEDJTR, ERC, DELWP, Jacobs, SRW, LCC, TRB
Committee for Gippsland AGM	14th December 2016	Media present at AGM	Committee for Gippsland representatives, local business and industry, state government representatives
Opening of Jack Vines Lookout	21st December 2016		Jack Vines family and community members
Traralgon Tennis International, major sponsors via the Community Support Fund (Local Community Investment Program)	14th to 19th January 2017	AGL Loy Yang representative guest speaker at tennis dinner and presents trophies on grand final.	Traralgon Tennis Association, Latrobe City, community, Tennis Australia
TS4 Activities – Media events on TS4 with Nigel Browne - WIN TV, ABC Radio, Latrobe Valley Express and Yarram Standard Phone meetings with Basslink and VicRoads regarding TS4	February to April 2017	News stories in all forms of media. Advertising in many forms including radion on road closures. Opening of Jack Vines lookout to the public to view stacker entering the mine.	Basslink, VicRoads, Latrobe City Council, state government, Tasmanian government, landholders, Loy Yang neighbours, community.
Traralgon Tennis new showcourt opening	10th March		Minister for Sport John Erin, Member for Eastern Victorian Region Harriet Shing, Latrobe City Council, Traralgon Tennis Association



Activity	Date	Activity promotion or advertising	Stakeholders involved
Worker Transfer Scheme signing with Doug Jackson/Steve Rieniets/Vic Govt/Unions	10th March 2017	All forms of media covered this event and interviewed Executive General Manager of Group Operations Doug Jackson	Victorian Government, unions, Hazelwood workers
Diversity Breakfast with Victorian Commissioner for Gender and Sexuality Ro Allen	22nd March 2017		Victorian Commissioner for Gender and Sexuality Ro Allen, Committee for Gippsland, other community groups
Meeting with Federation University to discuss collaboration agreement	27th March 2017		Deputy Vice Chancellor Todd Walker, Senior Marketing Lecturer Vaughan Reimers
Minister for Skills and Skills commissioner roundtable on skills needs in Gippsland	30th March 2017		The Hon. Gayle Tierney, Minister for Training and Skills and Mr Neil Coulson, the Victorian Skills Commissioner along with Gippsland local government representatives including mayors and industry representatives
Loy Yang general manager Steve Rieniets presents to Latrobe City Council	4th April 2017	Steve Reiniets makes presentation to Latrobe City Council briefing on AGL Loy Yang operations and taking questions	Latrobe City Mayor and councillors
Share the Dignity	19th April 2017	Media covers AGL Loy Yang's involvement in Share the Dignity	Share the Dignity - Homeless women's shelter, Quantum Support Services and Orana Gunrah Refuge both in Morwell.
Site tour and meeting with Minister Wade Noonan	20th April 2017	Minister tours TS4 path and Loy Yang mine with Executive GM group operations Doug Jackson, Loy Yang GM Steve Rieniets and Loy Yang head of mining Nigel Browne. Media coverage.	Minister for Resources Wade Noonan
Nigel Browne guest speaker at International Workers Memorial Day organised by GARDS - shares safety message	28th April 2017		
AGL Loy Yang celebrates International Day Against Homophobia Transphobia & Biphobia (IDAHOT) day	18th May 2017	Media cover story of AGL Loy Yang employee Shane Mitchell and his involvement in AGL's LGBTI inclusion network called Shine.	arc Yinnar
Participation in Morwell Tech School Co- Design Workshop	22nd May 2017		Federation University, Federation Training, local secondary school educators and students, industry
Renewable Energy Round Table with Minister for Energy	2-Jun-17	Media present	Minister for Energy, Environment and Climate Change Lily D'Ambrosio



Activity	Date	Activity promotion or advertising	Stakeholders involved
Attendance and key contributor to monthly Gippsland Executive Forums	Ongoing	Presentation made by head of mining Nigel Brown on rehabilitation activity	Business and industry in Latrobe Valley including Australian Paper, Latrobe Regional Hospital, Gippsland Water etc
ERC meetings	Ongoing (4)	Environmental and community issues	ERC (Community Members, LCC, ERR, EPA etc)

# **Compliance record**

### Reportable events and corrective actions

There were 2 EPA reportable events reported during the period.

There were no reportable events as described in the MR(S)D Act.

The results of the analyses of the weekly water sample collected on Monday 11th July 2016 from the EPA licensed discharge point L160 reported suspended solids of 69 mg/L, exceeding the licence limit of 60 mg/L. The subsequent investigation found that severe cold fronts experienced in early July 2016 resulted in 70 mm of rain falling at Loy Yang over an 8-day period. Overtopping of the North-West Corner Retention Pond resulted in an increase in flow rate through the flocculant dosing station. The manually set flocculant dosing rate was not adjusted in proportion to the increased flowrate, resulting in higher suspended solids. The investigation recommended implementation of a flocculant dosing automation project and the design and installation of telemetry on the treatment system.

The results of the analyses of the weekly water sample collected on Monday 1st August 2016 from L160 reported suspended solids of 110 mg/L and turbidity of 89 NTU, exceeding the licence limit of 60 mg/L and 80 NTU respectively. July 2016 rainfall of 145 mm was the highest on record. The rate of flow through the treatment system was in excess of the design throughput and therefore reduced the available settling time. The system was designed for short duration, high intensity rain events. Retention requirements for long periods of regular rainfall requiring sustained operation of the treatment system were not considered in the original design of the system.

EPA was notified of each event.

# **Mine Stability**

### **High level summary of Declared Mine Report**

During the period two reports detailing the geotechnical and hydrogeological performance of Loy Yang Mine (LYM) between 1 July 2016 and 30 June 2017 were prepared (AGL, 2016 and AGL 2017) This is in accordance with the LYM Ground Control Management Plan (GCMP) and Department of Economic Development, Jobs, Transport and Resources reporting guidelines (DEDJTR, 2015).

These reports are based on the results of the monitoring program as outlined in the GCMP and structured as mitigating controls for the geotechnical risks. This program included the following activities:

- Ground movement surveys based on pin network June and December
- Monitoring of groundwater pressures for both mine batter stability and aquifer depressurisation



- Periodic inspections of mine domains (Fortnightly, monthly, and annually)
- Annual inspection and mapping of operating faces to record defects (mostly update crack / joint orientations)
- Dam inspections (daily, monthly, and annually)
- · Repair and maintenance of cracks and other geotechnical issues

The reports detail performance of permanent batters, the mine operating face, mine floor, dams and the external overburden dump as well as providing a summary of other reports generated during the period.

A summary of findings, contained in the two reports are detailed below.

#### **Aquifer depressurisation**

- TR and M2C aquifer pressures remained below the High Aquifer Pressures Events TARP Trigger Level 1
  (TL1) levels from July 2016 to June 2017 across all mine domains. M2B pressures were also below
  Target Levels across all mine domains with the exception of a small area in the SE corner with a minor
  exceedance which is not considered significant as pressures below 1.4 FOS. M2B pressures at this
  location have dropped during the 12 month period and are expected to reduce below Trigger Levels in the
  second half of 2017.
- The TARP TL1 and TL2 categories were triggered three times during the review period by the following pumping outages. Additional monitoring was completed during the pumping outages and confirmed pressures didn't exceed the TL1 levels.
  - o January 2017 TR aquifer > 7 day outage at LY4184 and LY3752 due to electrical supply issues.
  - January 2017 M2C aquifer >7 day outage of 2 of 3 key pump bores (LY4421 and LY4462 due to electrical supply issue on groyne
  - March 2017 TR aquifer short term simultaneous outage of all TR bores due electrical supply interruptions from TS4 relocation into the mine.
- Total groundwater extractions during the reporting period (12 months) was 11,622 ML and was below the total monthly licenced allocations for all aguifers.
- Operational performance for the Traralgon and M2C aquifer pump bores was 90.8 % and 87.6% respectively for the reporting period. The Traralgon aquifer was affected by electrical outages at LY4184 and LY3752 in January and all TR bores in March. Similarly the M2C aquifer pump bore performance was affected by electrical outages of the groyne bores in January, outages at several bores due to TS4 in March, the pump failure at LY4221, LY4451 and LY4467 and the delayed pump delivery for LY4461.
- Previously drilled M2C pump bore LY4808 was commissioned in September 2016. One M2C pump bore LY4665 was drilled on the north eastern batters in the reporting period and will be commissioned when power supply connected.
- Previously drilled TR pump bore LY4395 was redeveloped in January to clear the screens and a pump installed but was unable to be commissioned due sand in the discharge flow. A further camera inspection was completed in June and bore rehabilitation program completed. The bore will be commissioned when the repaired pump is retuned to site.
- M2C aquifer pump bores LY3828 and LY4070 were permanently decommissioned in December 2016 due to commencement of internal overburden dumping in this area in 2017.
- TR pump bore LY3238 failed in March 2017. The bore was planned to be decommissioned due to its location on the western batters and age and will be replaced with the commissioning of LY4395.



#### **Geotechnical Performance**

- All stability bore water levels remained below target during the period.
- Two monitoring points, N12/2 and LY4575, in North Eastern Domain recorded Trigger Level 1 (>1 mm per day) movement during the period. These monitoring points are located close to high extraction areas of the mine, where extraction occurred across the L200 and L300 levels. No geotechnical issues arose and groundwater levels in the vicinity remained at Target.
- No significant subsurface movements have been recorded by the shear monitoring boreholes installed across the mine site.
- Cracking was observed in the vicinity of the N6 Stability Line and Zig Zag Ramp during planned inspections. The Ground Movement TARP was initiated resulting in localised geotechnical inspections, pin surveys, and horizontal drain and groundwater level checks. The cause was found to be a leaking fire service pipeline feeding water into coal joints, opening a crack and triggering local coal block movement. The leak was fixed by 23 May 2017 and recommended surface water drainage works were completed by 6 June 2017. Pin survey indicated localised block movement that ceased on repair of the leak. The operational issues reported during the period were resolved effectively with existing site resources and were done so in a timely manner.
- The operational issues reported during the period were resolved effectively with existing site resources and were done so in a timely manner.

There were no significant events, developments, or issues of a geotechnical or hydrogeological nature at LYM during the year that would be classified Reportable Incidents and therefore require reporting to the regulator and formal investigation. Actions, improvements and GCMP implementation progressed and continued through the period.