WONGAWILLI COLLIERY

INTEGRATED WASTEWATER MANAGEMENT PLAN

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GLOSSARY OF TERMS AND ABBREVIATIONS

Terms	
Incident	A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in the Project Approval. See "Unintended Event" –Environment Manager is responsible to determine if a report of an "unintended event" represents an "incident" as defined.
Project Approval	Part 3A Major Project approval MP09_0161 as modified
Secretary	The Secretary of the Department of Planning and Environment
Abbreviations	
AEMR	Annual Environmental Management Review
BOD	Biological Oxygen Demand
DAWR	Department of Agriculture and Water Resources
DEC	Department of Environment and Conservation
DP&E	Department of Planning &Environment
DPI	Department of Primary Industries
DRE	Division of Resources and Energy
EA	Environment Assessment
EMS	Environment Management System
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ERM	Environmental Resources Management Australia Pty Ltd
IWMP	Integrated Waste Water Management Plan
LDP	Licenced Discharge Point
LGA	Local Government Area
KL	Kilolitre
MOP	Mining Operations Plan
MP	Major Project
mtpa	Million tonnes per annum

NRE	Natural Resources Environment
NSW	New South Wales
O&G	Oil and Grease
PKCT	Port Kembla Coal Terminal
SMP	Subsidence Management Plan
TARP	Trigger Action Response Plan
TN	Total Nitrogen
TSS	Total Suspended Solids
UV	Ultra Violet
WCC	Wollongong City Council
WCL	Wollongong Coal Limited
WNSW	Water NSW
WWC	Wongawilli Colliery

INTEGRATED WASTEWATER MANAGEMENT PLAN

1 INTRODUCTION

This Integrated Wastewater Management Plan has been developed from Report 001 Rev P3 from Cardno for Natural Resources Environment (NRE) and prepared in accordance with the principles and guidelines contained within:

- DPI NSW Guidelines for Recycled Water Management Systems 2015.
- DAWR Australian Guidelines for Water Recycling: Managing Health and Environmental Risks for waste and Storm Water 2006.
- Wongawilli Mine Integrated Wastewater Management Plan Report 001 Rev P3.

1.1 Project Background

Wongawilli Coal Pty Ltd owns Wongawilli Colliery (WWC) in the Southern Coalfield of New South Wales. Wongawilli Coal Pty Ltd is a wholly owned subsidiary of Wollongong Coal Limited (WCL). Wongawilli Colliery is located approximately 14 km south-west of Wollongong, within the Wollongong and Wingecarribee Local Government Areas (LGAs).

Wongawilli Colliery currently operates under a major project approval granted by the Planning Assessment Commission (PAC) under delegation on 02 November 2011 (MP 09_0161). The project approval allows:

- Continued use of the surface infrastructure at the Wongawilli pit top as currently operated;
- Coal production at the historic level of up to 2 million tonnes per annum (mtpa);
- Mining in the Nebo area in the north east corner of the lease area;
- Continued development and construction of the Western Drive;

- Continued transportation of run of mine coal from the Colliery to Port Kembla Coal Terminal (PKCT) by rail; and
- Rehabilitation of the site.

A modification (MOD1) to MP 09_0161 was approved on 27 November 2015. MOD1 authorised the continuation of mining operations until 31 December 2020.

In July 2016 DeltaSBD Ltd became the Mine Operator then in June 2017 the contract miner (Delta) went into receivership and mining at Wongawilli ceased. WCL then became owner/operator of the Wongawilli Colliery, and maintained the mine in preparation for recommencement of mining. Approval for a variation to mining methods was received from the Department on the 5th September 2017. Mining operations recommenced in a reduced capacity in October 2017.

Wongawilli Mine ceased the production of coal on March 13th 2019 in accordance with directions from inspectors of the DPE. A number of Notices were subsequently issued to confirm the verbal advice. On March 15th a Stop Work Order was issued to the mine under Section 51 of the Act. On May 31 2019 WWC was then placed into Care and Maintenance (C&M). From June 2019 the site workforce was reduced to 14 WCL employees. That number will be reduced further after site clean-up has been completed. Due to the reduction in working hours and the number of people on site, site security has been increased to ensure site security.

1.2 Purpose and Scope

Schedule 3 of the project approval requires NRE (now WCL) to prepare and implement an IWMP for all black and grey water for the entire surface facilities site. The initial plan was completed as a report by Cardno in October 2010.

NRE (now WCL) engaged Cardno in 2010 to review the project approval conditions, assess the site facilities and prepare the IWMP.

Schedule 3 also requires WCL to conduct the following:

- Ensure any discharge of wastewater occurs in accordance with EPL 1087 (refer to Section 2.1);
- Investigate ways to minimise black and grey wastewater generated onsite (refer to Section 3.5);
- Implement reasonable and feasible measures to minimise black and grey wastewater generated onsite (refer to Section 3.5);
- Monitor the amount of black and greywater generated onsite (refer to Section 3.6);
- Maximise the potential reuse of treated wastewater and aim to achieve a zero direct discharge to surface waters (refer to Section 4); and
- Ensure irrigation of treated wastewater is undertaken in accordance with DEC's *Environmental Guidelines for the Utilisation of Treated Effluent* (refer to Section 4).

1.3 Consultation and Distribution

The initial plan was prepared in consultation with the Environment Protection Authority (EPA), Water NSW (WNSW) and Wollongong City Council (WCC). A log of consultation with agencies was presented in the development of the original IWWMP. An update of this Plan will be completed at any time feedback is received as per Section 6.6 of this Plan.

This Plan will be distributed to Department of Planning and Environment (DP&E) for comment prior to update and distribution to:

- EPA;
- Division of Resources & Energy (DRE);
- WNSW; and
- WCC.

In accordance with Schedule 6, Condition 10 of the Project Approval, WCL will make this Plan publicly available on the WCL website and will be responsible for its maintenance. A hard copy will also be kept at the Wongawilli Colliery, Jersey Farm Road, West Dapto, NSW 2530.

Any revisions undertaken will be the responsibility of WCL and any notifications will be sent accordingly. WCL will not be responsible for maintaining uncontrolled copies beyond ensuring the most recent version is maintained on WCL's computer system, website, and hard copy at the Wongawilli Colliery, Jersey Farm Road, West Dapto, NSW 2530.

1.4 Report Structure

This Integrated Waste Water Management Plan has been prepared in WCL management plan format and in accordance with the requirements of Schedule 4, Condition 8 and Schedule 6, Condition 2 of the project approval. It also addresses Schedule 4, Conditions 16 to 19 and elements of Schedule 3, Condition 7(i) of the project approval.

2 CONSENTS, LEASES & LICENCES

During the reporting period, Wongawilli Colliery held approvals for a variety of activities. These approvals included mining leases and lease related approvals (MOP and SMP), complying development certificates, development consents, major project approvals, environmental protection licences and a variety of other approvals. These are outlined in Table 2.1.

Table 2.1: Consents, Leases & Licences relevant to mining activities at Wongawilli Colliery

Licence and/or Approval	Document Number	Issue Date	Expiry Date
Mining Lease (DRE)	ML 1596	03/02/2012	07/10/2029

Licence and/or Approval	Document Number	Issue Date	Expiry Date
Mining Lease (DRE)	ML 1565	02/08/2006	9/10/2015
Consolidated Coal Lease (DRE)	CCL 766	27/06/2005	9/10/2015
Mine Operations Plan - Interim (DRE)	MOP	31/07/2017	31/12/2020
Subsidence Management Plan (DRE)	SMP LW11,12,15,16, 19 & 20 (Mod)	01/06/2010	31/12/2017 No longer needed
Subsidence Management Plan (DRE)	Nebo Longwalls N1-N6	17/12/2015	31/01/2020
Project Approval – Nebo Area Project	MP 09_0161	02/11/2011	31/12/2020
Complying Development Certificate for a ROM Coal Screening and Sizing Plant (PCA)	CDC272/09	24/02/2010	NA
Project Approval for the Construction of a New Bath House and Office Extensions (DP&E)	MP 09_0030	03/02/2012	07/10/2029
Environmental Protection Licence - WCL Wongawilli Colliery (EPA)	EPL 1087	1st October (Anniversary Date)	NA
Environment Protection Licence WCL -Avondale Colliery (EPA)	EPL 12442	31 March (Anniversary Date)	NA
Radiation Control Licence/Registration (EPA)	5061480	-	13/08/2020
Apparatus Licence (ACMA)	1939618	02/06/2016	02/05/2017
WaterNSW Special Areas Access Mining Consent	D2015/036046	04/03/2016	04/03/2021
WC_WONGAWILLI_1	16/1925	19/01/2016	30/06/2025
Surface Disturbance Notice (DRE)	06/3092	24/02/2010	NA
Surface Disturbance Notice (DRE)	11/19 & 06/3052	05/01/2011	NA
Part 5 Approval (WaterNSW) – Avon	D2011/1059	09/05/2011	At Completion of

Licence and/or Approval	Document Number	Issue Date	Expiry Date
Water Quality monitoring			Monitoring
Part 5 Approval (WaterNSW) – LW19 Subsidence Survey Line	D2011/13055	10/05/2011	At Completion of LW19
Part 5 Approval (WaterNSW) – Nebo Longwalls N1 to N6 Monitoring	D2013/18268	25/03/2013	31/03/2018
Water Licence	10BL602990	16/01/2013	16/01/2018
License to Store (Class 1.1B & 1.1D Explosives)	XSTR200001	09/01/2017	13/12/2021

2.1 License Requirements

WCL are required to operate the Colliery in accordance with Environment Protection License (EPL) 1087. The quality and quantity of water discharged from the stabilisation ponds is regulated under this license as License Discharge Point (LDP) 1. The concentration limits for any discharges from LDP 1 are provided in Table 2.2. The specified discharge quantity limit for LDP1 is 30 kL/day.

Table 2.2: EPL 1087 Concentration Limits

Criteria	Units	100 Percentile Concentration Limit
Oil and Grease	mg/L	10
pH	pH	6.5 - 8.5
Total Suspended Solids	mg/L	30
Biological Oxygen Demand	mg/L	20

2.2 Relevant Legislation and Guidelines

WCL will conduct approved mining operations consistent with the Project Approval conditions and any other legislation that is applicable. The following Acts may also be applicable:

- *Wollongong Local Environment Plan* 2009;
- *Wollongong Local Environment Plan (West Dapto)* 2010;
- *Environmental Planning and Assessment Act* 1979 (NSW);
- *Local Government Act* 1993 (NSW);
- *Protection of the Environment Operations Act* 1997(NSW); and
- *Water Management Act* 2000(NSW).

Relevant licences or approvals required under these Acts will be obtained as required.

3 WASTEWATER SOURCES AND CHARACTERISATION

3.1 Wastewater Characterisation

The wastewater generated at the Colliery can be separated into blackwater and greywater which are defined by NSW Health as follows:

- Blackwater is wastewater that comes from toilet bowls and urinal systems on site.
- Greywater is wastewater that comes from showers, hand basins, laundry and kitchen sinks on site.

Blackwater will typically contain higher concentrations of biological oxygen demand (BOD5), total suspended solids (TSS), total nitrogen (TN) and pathogenic microorganisms when compared to greywater. Greywater will typically contain higher concentrations of physical contaminants such as dirt, lint and hair compared to blackwater. Greywater may also contain higher concentrations of phosphorus depending on the type of soap and detergent used.

3.2 Wastewater Sources

Wastewater is managed in the following systems:

- Main Admin building - blackwater from toilets and urinals is collected in a 8,000L poly tank;
- Blackwater from the new bath house is captured in a 5,000L poly tank;
- Greywater from the new bath house is piped down the decline to the Primary Stabilisation Lagoon which then flows into the Secondary Stabilisation Lagoon;
- Workshop area – blackwater from toilets and urinals are captured in a septic tank;
- Rail Yard Ablution Block has two toilets that are connected to a small septic tank; and
- The lower bathhouse is no longer used so there is no greywater being sent to the Primary and Secondary Stabilisation Lagoons.

The facilities at the Colliery are identified in Figure 3.1. The following four wastewater streams are produced on site. The lower bathhouse is no longer used:

3.2.1 Main Office Building (Black and Greywater)

There are currently five staff members utilising the administration buildings facilities. Wastewater is produced from toilets, urinals, basins and showers. The blackwater and greywater from the main office building is combined and is collected in an above ground septic tank located near the main office building on the main access road to the site. This septic tank is monitored regularly and is currently being emptied every three weeks by a licensed waste removal contractor (Remondis).

3.2.2 New Bathhouse (Blackwater / Greywater)

The bath house contains 32 shower cubical, two urinals and three toilet bowls. The black water is collected in an above ground septic tank located underneath the bath house. Due to the site being in Care & Maintenance this facility is not being used at this time. This septic tank is monitored regularly and emptied by a licensed waste removal contractor (Remondis) as required.

The greywater from the bath house flows through pipework underneath the bath house and down the decline to the Primary Stabilisation Lagoon which then flows into the Secondary Stabilisation Lagoon (Figure 3.2).

The stabilisation lagoons are designed to collect greywater prior to discharge to the nearby creek via LDP1. Treatment is achieved by a combination of sedimentation, biological digestion and UV (sunlight). The ponds rarely contain significant volumes of water.

3.2.3 Workshop / Training Room

The blackwater and greywater from the Workshop and Training Room is combined and is collected in an in-ground septic tank which is located between the training room and workshop. The workshop building contains three toilets and one urinal which are used by occasionally by site staff. This septic tank is monitored regularly and emptied by a licensed waste removal contractor (Remondis) as required.

Railyard Ablution Block

A small ablution block is located in the railway yard at the bottom of the site. Two toilets are connected to a small septic tank. This facility has minimal use and is emptied as required.

Figure 3.1: Wongawilli Mine Facilities

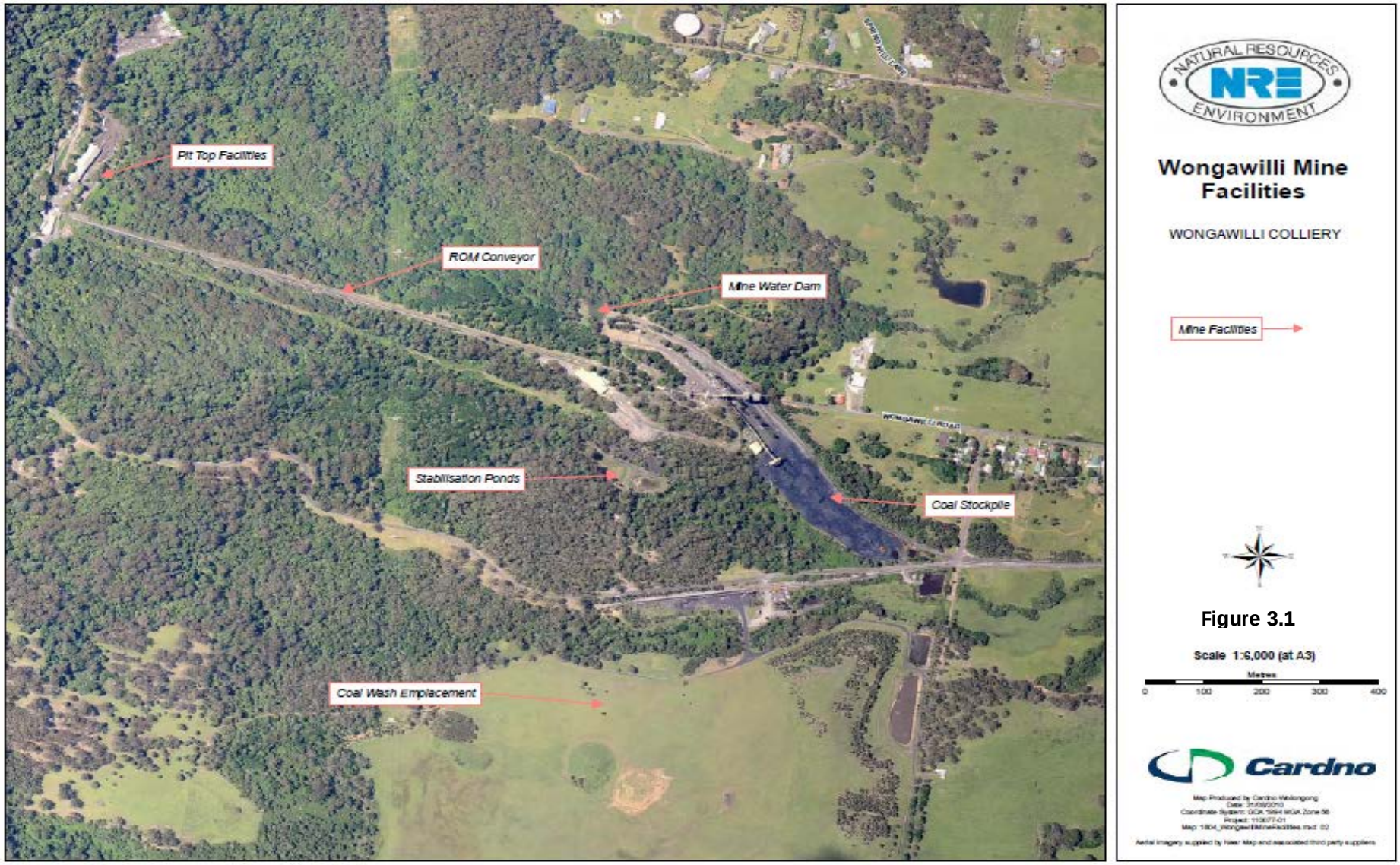

Figure 3.2: Primary and Secondary Stabilisation Ponds

3.3 Wastewater Load

ERM conducted an "Onsite Sewage Management Audit and Assessment" as part of the Environmental Assessment Report for the new bath house project. ERM determined the existing average daily wastewater flow as part of the audit. A water meter was installed on the potable water line that feeds the pit top facilities and monitored over a two week period.

The average potable water consumption over the monitoring period was 11.2 kL/d. A 20 % allowance was made for external uses including garden watering and equipment washing. This allowance was deducted from the consumption rate which resulted in a wastewater production rate of 8.9 kL/day. The study then estimated the average daily per capita flows as follows:

- Bath house greywater: 34 L / person / day;
- Bath house blackwater: 7 L / person / day;
- Combined sewage from the office building: 35 L / person / day.

Table 3.1 provides a breakdown of the wastewater load as estimated by ERM.

Table 3.1: Wastewater Load as Estimated by ERM

	Average Wastewater Production	Workforce Size	Average Daily Flow (kL/day)
Bathhouse Blackwater	13L/person/day	200	2.6
Combined Wastewater from Office Buildings	63L/person/day	20	1.2
Total Blackwater			3.8
Bathhouse Greywater	61L/person/day	200	12.2
Total Wastewater			16

3.4 Future Wastewater Load

The site is currently in Care & Maintenance therefore water usage is minimal compared to an operating site. When the mine becomes operational again the future wastewater load can be estimated by using the existing wastewater loading in Table 3.1 and revising the workforce size. The workforce size will increase significantly when mining activity commences again. Table 3.2 outlines the possible projected future wastewater loading if the mine reaches full production.

Table 3.2: Future Wastewater Loading

	Average Wastewater Production	Workforce Size	Average Daily Flow (kL/day)
Bathhouse Blackwater	13L/person/day	412	5.4
Combined Wastewater from Office Buildings	63L/person/day	30	1.9
Total Blackwater			7.3
Bathhouse Greywater	61L/person/day	412	25.1
Total Wastewater			32.4

3.5 Methods to Minimise Potable Water Consumption

The Australian Government has established the Water Efficiency Labelling and Standards (WELS) Scheme. The scheme registers, rates and labels products that are water efficient. The schemes website publishes the data presented in Table 3.3. This data allows consumers to compare the efficiency of water efficient rated products against standard products.

Table 3.3: Water Efficiency Comparison

	Standard Product	Water Efficient Product	Potential Reduction in Water Consumption
Showerhead	15 – 25L/min	6 – 7L/min	Up to 60-75%
Basin Tap	15 – L/min	As little as 2L/min	Up to 90%
Toilet	12L/flush (single flush)	4L/flush (dual flush)	Up to 65%

All showerheads, toilets, urinals and basin taps are water efficient devices and have been installed in the new bath house to minimise wastewater generation. Dual flush toilets have been installed in toilet facilities on site.

3.6 Monitoring of Wastewater Consumption and Wastewater Generation

WCL are required to monitor the amount of wastewater generated onsite to meet the conditions of the project approval. WCL will continue to meet this requirement by conducting the following works:

- Black water from toilets on site is captured in poly tanks.
- Black water tanks are monitored regularly and is currently being pumped out every three weeks. This will increase with mining activity, and

- Investigate the installation of a water meter on the greywater line that goes down near the decline.

4 WASTEWATER RECYCLING OPTIONS

There has been three potential recycling options for black and grey water looked at for the site.

- Dust suppression of coal stockpiles
- Irrigation of adjacent farmland
- Reuse for toilet flushing in the pit top facilities

To reuse black and grey water on site it would require a treatment plant to be installed and maintained. The benefits of a treatment plant for the site would be:

- All treatment is consolidated in the one location at minimal additional cost;
- Greater degree of confidence that wastewater is treated to a consistently safe quality; and
- Stabilisation ponds could be used for storage only increasing the buffer storage available for storm events.

A treatment plant has been investigated, and is an expensive option that could only be implemented if future mining reached full production. Another option to take into consideration would be connecting to the local sewage network. New estates have been developed in very close proximity to the mine so this could be an easier option.

4.1 TARP

A TARP was developed for the management of waste water on site. The primary goal of this TARP is to monitor risks and then control or eliminate the risk using the appropriate management action. The TARP is shown in Appendix B. All TARPS will need to be reviewed and updated for the recommencement of any mining activities associated with the Wonga South Project.

5 INCIDENTS, COMPLAINTS AND NON-CONFORMANCES

5.1 Incidents

The definition of incident in the Plan is same as that used in the project approval:

"*A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this approval.*"

Incidents will be handled in accordance with the WCL Wongawilli Colliery EMS Framework incident management processes and will be reported to DP&E.

Reporting and liaison with DRE, EPA and WCC will commence in accordance with the requirements of Schedule 6, Condition 6 of the project approval.

5.2 Complaints Handling

Complaints will be handled in accordance with the WCL Wongawilli Colliery EMS Framework community complaints and enquiries management processes.

As required by Schedule 6, Condition 10 of the project approval, a copy of a complaints register (updated on a Monthly basis) will be kept on the WCL website. A summary of complaints will be available to regulatory authorities on request and provided in the Annual Environmental Management Reports (AEMRs).

5.3 Non-Conformance Protocol

Non-conformances with performance measures and criteria in this Plan or project approval will be classified as an incident and will be investigated and documented using WCL's incident management processes.

The incident will be reported to DP&E and, if triggers, performance criteria or measures are exceeded, the Contingency Plan in Section 6.3 will be activated. Reporting and liaison with DRE, EPA and WCL will commence in accordance with the requirements of Schedule 6, Condition 6 of the project approval.

6 PLAN ADMINISTRATION

6.1 Roles and Responsibilities

Environment and Community management is regarded as part of the responsibilities of all Colliery personnel. The roles and function of the main personnel responsible for the implementation of environmental and community management including the plans, procedures and action plans contained in this plan are outlined in WCL's Management Operating System.

6.2 Resources Required

In accordance with the WCL SYS POL 003 Environmental Policy, Management shall ensure that the appropriate resources are made available to achieve the implementation of this Plan. It is the role of the Group Environment Manager to ensure that these requirements are communicated to WCL Management.

6.3 Training

All training and inductions conducted are to be undertaken as per the WCL Training procedures.

6.3.1 Staff Training

As a part of employment on site, all staff will be required to sit through a site induction which includes an environmental component. The induction covers things such as; Waste management, water management, hydrocarbon management, weed management, erosion and sediment control and legislation etc. Other environmental training will be identified and assessed as required. Staff that are required to work in the WNSW Catchment Area will also be required to complete an online WNSW Induction before undertaking task in the catchment.

6.3.2 Inductions

All contractors and associated subcontractors will be required to participate in a site induction prior to the commencement of work. As a minimum, the induction is to include:

- An overview of the Cardinal Rules, Environment Policy and EMS requirements;
- Environmental incident and community compliant reporting requirements;
- Environmental emergency contact details;
- In the event that there are specific environmental management requirements relating to a contractor's work activities, details of these requirements are to be issued to the contractor in writing as a part of the induction; and
- Records, which detail the attendees, content of the induction/training as well as any additional information provided, will be maintained.

In addition to the induction program, training will be provided as deemed necessary to contractors to provide them with the knowledge, skills and awareness to minimise environmental impact. At a minimum this should include:

- Contractors whose activities are not directly supervised by Colliery personnel; and
- Contractors whose activities are ongoing and have the potential to result in an environmental incident (e.g. stockpile contractors).

6.4 Record Keeping and Control

Environmental records are to be managed in accordance with the WCL SYS PRO 001 Document and Data Control procedure.

All records of the EMS will be stored so that they are readily retrievable and suitably protected from deterioration or loss. Archiving will be managed in accordance with the WCL SYS PRO 001 Document and Data Control procedure. A master copy of each management plan including all appendices and supporting information is to be held in the office of the Environment Department.

6.5 Auditing

In accordance with Schedule 6, Condition 8 of the project approval an Independent Environmental Audit will be undertaken by a suitably qualified auditor and include experts in any field specified by the Secretary within 12 months of the approval and every three years after that.

This audit must:

- Be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
- Include consultation with the relevant agencies;
- Assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
- Review the adequacy of strategies, plans or programs required under the abovementioned approvals; and
- Recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.

The 20106-2019 Independent Environmental Audit was undertaken by Wolfpeak. The next Independent Environmental Audit will be completed in 2022.

6.6 Plan Revision

6.6.1 Annual Review

In accordance with Schedule 6, Condition 3 of the project approval, an Annual Review of the environmental performance of the Project is prepared. The Annual Review will:

- Describe the works carried out in the past year, and the works proposed to be carried out over the next year;
- Include a comprehensive review of the monitoring results and complaints records of the Project over the past year, including a comparison of these results against the:
    - Relevant statutory requirements, limits or performance measures/criteria;
    - Monitoring results of previous year/s; and
    - Relevant predictions in the EA(s).

- Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- Identify any trends in the monitoring data over the life of the Project;
- Identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- Describe what measures will be implemented over the next year to improve the environmental performance of the Project.

6.6.2 Plan Revision

In accordance with Schedule 6, Condition 4 of the project approval, this Plan will be reviewed within three months of:

- The submission of an annual review;
- The submission of an incident report;
- The submission of an audit; and
- Any modification to the conditions of approval (unless the conditions require otherwise or as otherwise agreed with DP&E).

The revision status of this plan is indicated in the Section 6 of each copy. Revisions to any documents listed within this Plan will not necessarily constitute a revision of this document. The distribution of controlled copies is described in Section 1.3.

7 CONTROL AND REVISION HISTORY

PROPERTY	VALUE
Approved by	Group Environment Manager
Document Owner	WWC Environmental Department
Effective Date	11/02/2020

REVISIONS

VERSION	DATE REVIEWED	REVIEW TEAM (CONSULTATION)	NATURE OF THE AMENDMENT
1	21/10/10	B Elliot (BSE)	Report 001 Rev P3
2	27/03/2019	John Ross. Eladio Perez, Robert Faddy-Vrouwe	Change from Cardno format to WCL format. AEMR review and minor updates.
3	11/02/2020	Ron Bush, Robert Faddy-Vrouwe, Sasa Cugalj	Yearly AEMR review and minor update.

VERSION	DATE REVIEWED	REVIEW TEAM (CONSULTATION)	NATURE OF THE AMENDMENT

Appendix A: WCL Wongawilli Colliery Waste Water Management and Mitigation

Waste Water Management and Mitigation

Aspect	Feature	Management and Mitigation
Water Use	Potable Water	• Site audit of potable water usage and infrastructure to identify water saving opportunities.
	Black Water	• Stored in onsite in above ground and in ground septic tanks. • Tank levels to be monitored regularly • Currently emptied every three weeks by licenced waste removal contractor.
	Grey Water	• Implement potable water saving devices. • Ensure that grey water transfer infrastructure is functioning properly.
Water Contamination	Sewage Treatment	• Black Water to be stored in onsite tanks for regular disposal offsite. • Connection to town sewerage when available if possible. • Investigate costs to install a sewage treatment plant.
Water Discharge	Licensed Water Discharge	• Maintain compliance with EPL No.1087.
	Receiving Water Quality	• Water quality monitoring as per Surface Water Management Plan and TARP.
Water Management System	System Integrity	• Maintenance of existing water management system.

Appendix B: WCL Wongawilli Colliery Waste Water TARP

Aspect	Feature	Monitoring		TARPS	
		Type	Whom	Trigger	Response
Water Use	❒ Pit Top Potable Water Use.	❒ Weekly Meter Readings during Maintenance Inspections.	❒ WCL	❒ >20% increase in water usage sustained over a 1 month period, as compared to historic cumulative average for supply point. ❒ Meter not recording flow.	❒ Undertake visual inspection of potable water infrastructure to supply point for leaks. Repair as necessary. ❒ Identify any changes of activity at supply point. Cease as required. ❒ If new activity is not avoidable. Identify methods to provide alternate supply. ❒ If alternate supply is not possible, ensure water used by activity is minimised where possible. ❒ Check and replace flow meter. ❒ Check pipe work for leaks.
Water Contamination	❒ Containment Measures.	❒ Weekly Environmental Inspections.	❒ WCL	❒ Damage to containment areas and infrastructure.	❒ Assess effectiveness of containment due to damage. ❒ Organise additional temporary containment as required. ❒ Organise for damage to be repaired as soon as practical. ❒ Investigate cause of damage. ❒ Develop and implement controls to prevent recurrence as required.

Aspect	Feature	Monitoring		TARPS	
		Type	Whom	Trigger	Response
				❒ Inappropriate use of containment measures	❒ Investigate and raise as an incident as required. ❒ Develop and implement controls to prevent recurrence as required.
				❒ Sewage tank levels above 75%	❒ Arrange for tanks to be pumped out and disposed offsite. ❒ Review and adjust pump out schedule if inadequate.
				❒ LDP 1: o BOD>50mg/L o O&G>10mg/L o pH 6.5-8.5 o TSS>30mg/L o Discharge>30KL/Day	❒ On receiving results immediately notify EPA of exceedance. ❒ Investigate incident and commence remedial actions to achieve compliance. ❒ Provide written details of the notification to the EPA within 7 days of incident date. ❒ Provide a written report to EPA as per EPL 1087 conditions. ❒ Develop and implement controls to prevent recurrence as required.
		❒ LDP 1 monitored as per EPL 1087 Conditions	❒ WCL ❒ Contractors	❒ Damage/Failure to system components	❒ Investigate cause of damage/failure and rectify.

Aspect	Feature	Monitoring		TARPS	
		Type	Whom	Trigger	Response
Water Discharge	❒ Licensed Water Discharge	❒ Daily visual assessment of Stabilisation Lagoons	❒ WCL	❒ LDP 1: o BOD>50mg/L o O&G>10mg/L o pH 6.5-8.5 o TSS>30mg/L ❒ Discharge>30KL/Day	❒ Excavate sediment from Lagoons as required.
		❒ Weekly Environmental Inspections	❒ WCL ❒ Contractors	❒ Activity commenced without erosion control measures.	❒ Cease activity until adequate erosion control measures are in place. ❒ Develop and implement controls to prevent recurrence as required.
Water Management System	❒ System Integrity	❒ Weekly Environmental Inspections	❒ WCL ❒ Contractors	❒ Erosion control measure full of sediment	❒ Excavate sediment from Lagoons as required. ❒ Develop and implement controls to prevent recurrence as required.
				❒ Damage to containment areas and infrastructure.	❒ Assess effectiveness of containment due to damage. ❒ Organise additional temporary containment as required. ❒ Organise for damage to be repaired as soon as practical. ❒ Investigate cause of damage. ❒ Develop and implement

Aspect	Feature	Monitoring		TARPS	
		Type	Whom	Trigger	Response
					controls to prevent recurrence as required.
				❒ Damage/Failure to system components.	❒ Investigate cause of damage/failure and rectify.