BALRANALD MINERAL SANDS PROJECT

Air Quality Management Plan

January 2023

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Author:	Brendan Isaacs		
Authorised by:	Dave Wright	**Date:**	08/03/2023
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Abbreviations

Abbreviation	Full Title
AQMP	Air Quality Management Plan
AWS	Automatic Weather Station
Consent	Development Consent SSD-5285
CPM	Continuous Particulate Monitor
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	Environmental Management Strategy
EPA	NSW Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
HMC	Heavy mineral concentrate
HSEC	Health, Safety, Environment and Community
Iluka	Iluka Resources Limited
ISO	International Standard Organisation
LCC	Lost Control Card
LOM	Life of Mine
MOD1	Development Consent Modification 1
MUP	Mining Unit Plant
NSW	New South Wales
PAX	Potassium amyl xanthate
PIRMP	Pollution Incident Response Management Plan
RMP	Radiation Management Plan
WA	Western Australia
WCP	Wet concentrator plant
WHIMS	Wet high intensity magnetic separator

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1. Introduction

1.1. Purpose and scope

This Air Quality Management Plan (AQMP) has been prepared by Iluka Resources Limited (Iluka) to satisfy the requirements of Schedule 3, Condition 9 of NSW Development Consent (SSD-5285). This AQMP has been prepared using the Departments *Guideline for the preparation of Environmental Management Plans* (DIPNR 2004) and the management plan requirements in Schedule 5, Condition 3 of NSW Development Consent (SSD-5285).

The AQMP is applicable to all activities for the underground mining trial at the Balranald west mine including construction, operations, decommissioning, rehabilitation and other works consistent with the NSW Development Consent (SSD-5285). The AQMP does not cover exploration activities outside the approved Project boundary or mining leases.

Should Iluka undertake construction of the open cut mining at West Balranald or at the Nepean deposit, a revised AQMP will be prepared prior to commencement of construction to include management measures and monitoring relevant to the site for approval by DPE, in accordance with Schedule 2, Condition 17 of Development Consent (SSD-5285).

The conditions of consent to which the AQMP relates to and where they are addressed in the AQMP is presented in Table 2.

1.2. Objectives

The AQMP has been prepared to assist those undertaking activities on the site to apply appropriate management measures to minimise the impacts to air quality and to ensure that particulate matter emissions generated by the development do not cause exceedances of the criteria specified in Schedule 3, Condition 7 of Development Consent (SSD-5285).

1.3. Environmental Policy

The Iluka HSEC policy is publicly available at https://www.iluka.com/ and provides a declaration of the importance Iluka places on conducting its business safely, without detrimental health effects and with regard to the community and the value of the natural environment.

2. Project description

2.1. Project overview

Iluka have approval to develop a mineral sands mine in south-western New South Wales (NSW), known as the Balranald Mineral Sands Project (the Balranald Project). It includes construction, open-cut mining, primary processing, and rehabilitation of two linear mineral sand deposits, known as the West Balranald and Nepean deposits, located approximately 12 kilometres (km) and 66 km north-west of the town of Balranald, respectively. The Balranald Project also included undertaking an approved bulk sampling activity at the West Balranald deposit with the removal of up to 100,000 tonnes (t) of mineral ore to trial the use of underground mining methods.

Development consent (SSD-5285) was granted for the Balranald Project by a delegate of the NSW Minister for Planning under the EP&A Act on 5 April 2016 (herein referred to as the consent). Approval was also granted under the EPBC Act (EPBC 2012/6509) by a delegate of the Commonwealth Minister for the Environment on 6 January 2017 (herein referred to as the Commonwealth approval).

Iluka has undertaken some of the approved bulk sampling activity involving the extraction of the mineral ore from depth using trial underground mining within the approved disturbance area of the West Balranald deposit.

The outcome of the bulk sampling activity confirmed the effectiveness of the underground mining method, validated key elements of the mining unit design and have been used to help guide future life-of-mine (LOM) operational conditions and inform the potential suitability (commerciality and potential reduced environmental impacts) of underground mining as an alternative method for resource extraction.

On 21 December 2022, Iluka were granted approval to modify the consent (MOD1) to expand the underground mining trial which includes an additional area of disturbance to the approved Balranald Project area to enable primary processing of the ore into heavy mineral concentrate (HMC) and transport of HMC offsite for secondary processing at Iluka's facilities in Victoria and/or Western Australia (WA).

Iluka intend to construct and operate the underground mining trial for up to six years as approved, at the completion of the underground mining trial Iluka would either seek a life of mine approval for underground mining, cease operations and rehabilitate or develop the open cut mining method to extract the remainder of the ore deposit.

2.2. Site location plan

The regional setting and conceptual site layouts for the Balranald Project is presented in Figure 1 to Figure 3 respectively.

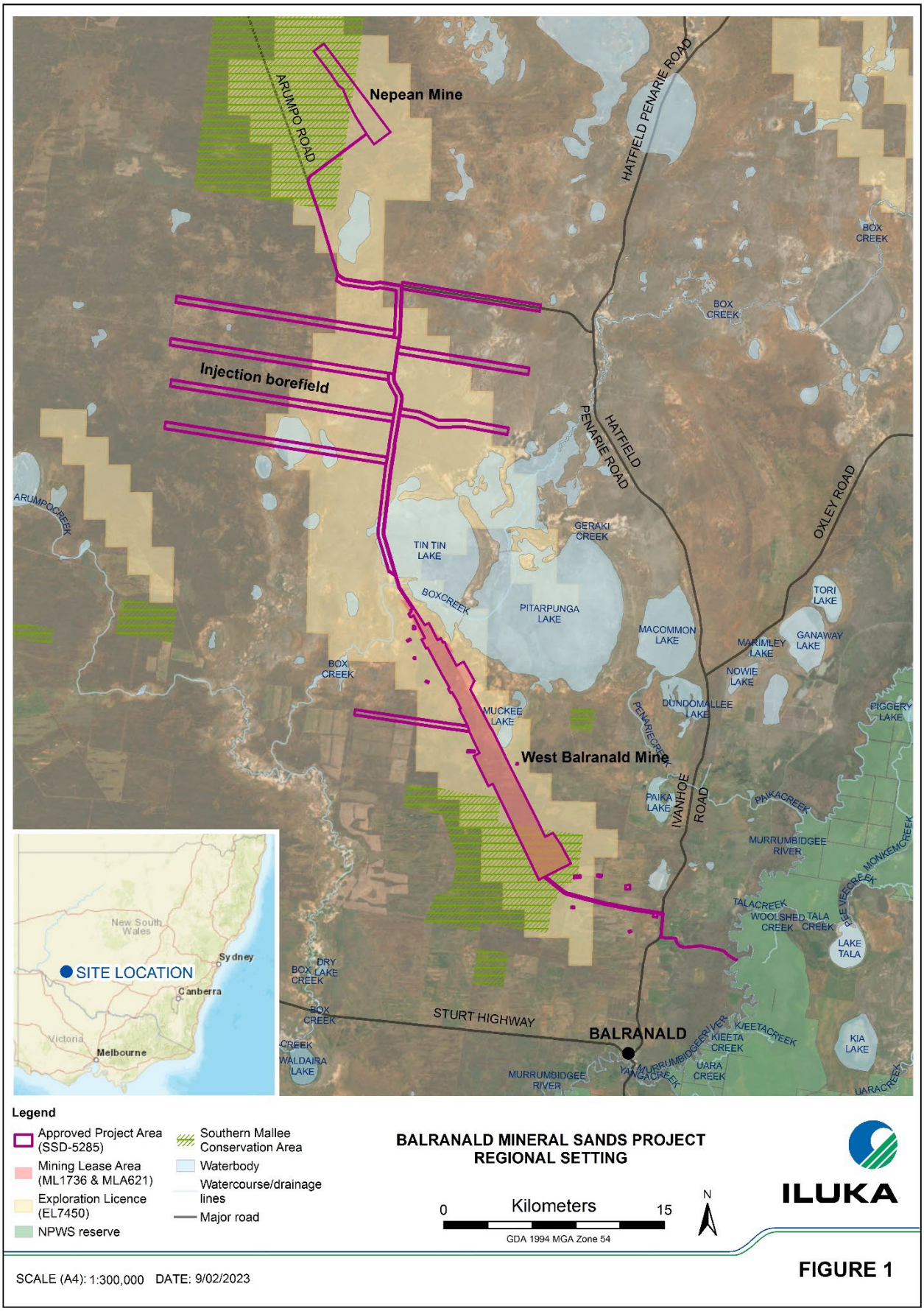

Figure 1- Regional setting

Figure 2- Underground mining general arrangement

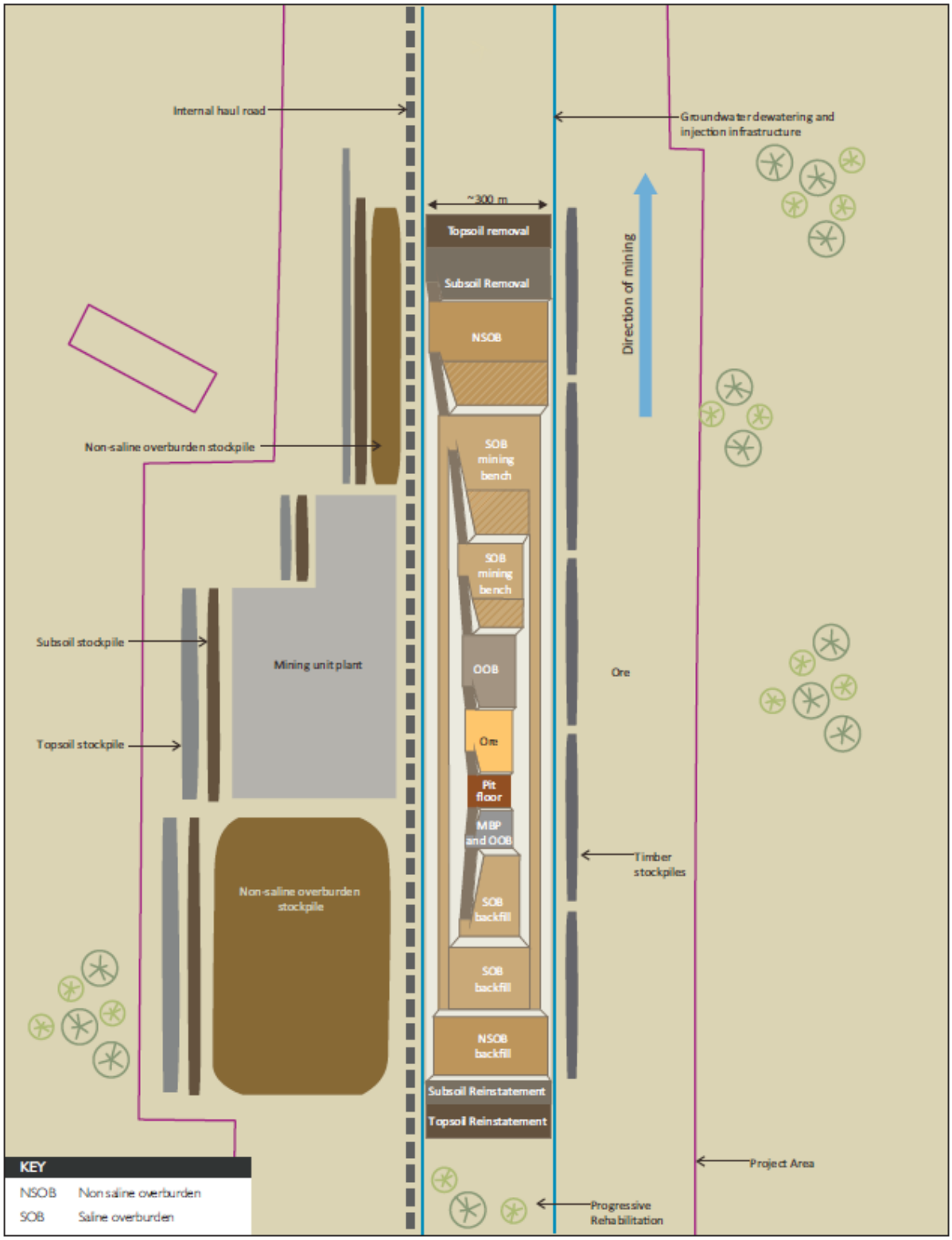

Figure 3- Opencut mining general arrangement

2.3. Scope of works

All works will be carried out in accordance with Iluka's EMS and AQMP (Section 4) to manage air quality risks associated with the construction and operation of the Balranald west mine underground mining trial. An indicative list of plant and equipment that will be used in the construction and operation of the mine is:

- surface mobile equipment (SME) e.g. dozers, graders, scrapers, tractor scoops, excavators, haul trucks, rollers, water trucks and loaders;
- lifting equipment (cranes, telehandlers and forklifts);
- mining plant (drill rigs, groundwater bores and lighting plants); and
- processing plant (wet concentrator plant, floatation plant, WHIMS plant, conveyors, pumps and stackers).

2.3.1. Construction

Construction of the underground mining trial involves the initial vegetation clearing and soil stripping within the approved Balranald Project footprint, with the following infrastructure proposed to be located within this area:

- processing plant infrastructure, comprising WCP, flotation plant and WHIMS plant;
- product and tails pad(s);
- process water, potassium amyl xanthate (PAX) and fines dams;
- underground mining infrastructure;
- temporary stockpiles (topsoil, subsoil and overburden);
- timber stockpiles (felled vegetation);
- hardstand and laydown areas;
- site offices, warehousing, workshops, amenities and carparking;
- services and utilities infrastructure;
- fuel storage and dispensing area;
- telecommunications tower;
- mine access road and accommodation camp; and
- internal access tracks and roadways.

Additional construction works would be undertaken should the open cut mining method be developed.

2.3.2. Operations

2.3.2.1. Underground mining method

The underground mining method will extract mineral ore via a process of pumping slurried ore to the surface.

The predicted processing rate is anticipated to be between 50 and 200 tph, consistent with the previous bulk sampling activity.

The processing plant has a number of components including the screening plant, WCP, flotation plant and WHIMS plant.

The ore is concentrated through the processing plant to generate two primary product streams, magnetic HMC and non-magnetic HMC.

HMC will be stockpiled on site and transported to an off-site location for processing.

Tailings generated at the processing plant will include fine clays (slimes) and courser sand tails. The coarse sand tailings will be placed on surface directly above the panels ahead of mining. The topsoil and subsoil will be pre-stripped from these areas prior to the emplacement of the coarse sand tails and then returned for rehabilitation.

The majority of the fine sand slimes and a portion of the finer sand tails resulting from the flotation process will be reinjected underground. The mining process is depicted in Figure 5.

2.3.2.2. Open cut mining method

Open cut mining operations would involve a sequenced dry-mining method using trucks and shovels and associated equipment fleets.

Dewatering of groundwater from aquifers overlying and surrounding the ore body would be required ahead of mining operations. Groundwater extracted prior to mining will be injected into the Loxton-Parilla Sands Formation via a network of re-injection bores.

Ore would be processed through a mining unit plant (MUP) before being processed through the wet concentrator plant (WCP) to produce HMC and Ilmenite.

Tailings and by-products from mineral processing would be progressively backfilled in the mining void and capped with overburden material.

Overburden emplacement would include stockpiling outside of the mining pit and direct backfilling of the mining void.

The opencut general arrangement is shown in Figure 3.

2.4. Timing of activities

The Balranald west mine includes a construction period of approximately 18 months followed by an operational phase of approximately six years to extend underground mining trials. Year 1 of the operational phase overlaps with the completion of the construction phase by approximately four months. The site will operate 24 hours per day, seven days per week during construction, mining, processing and transport activities. The indicative planned sequencing of activities is presented in Figure 4.

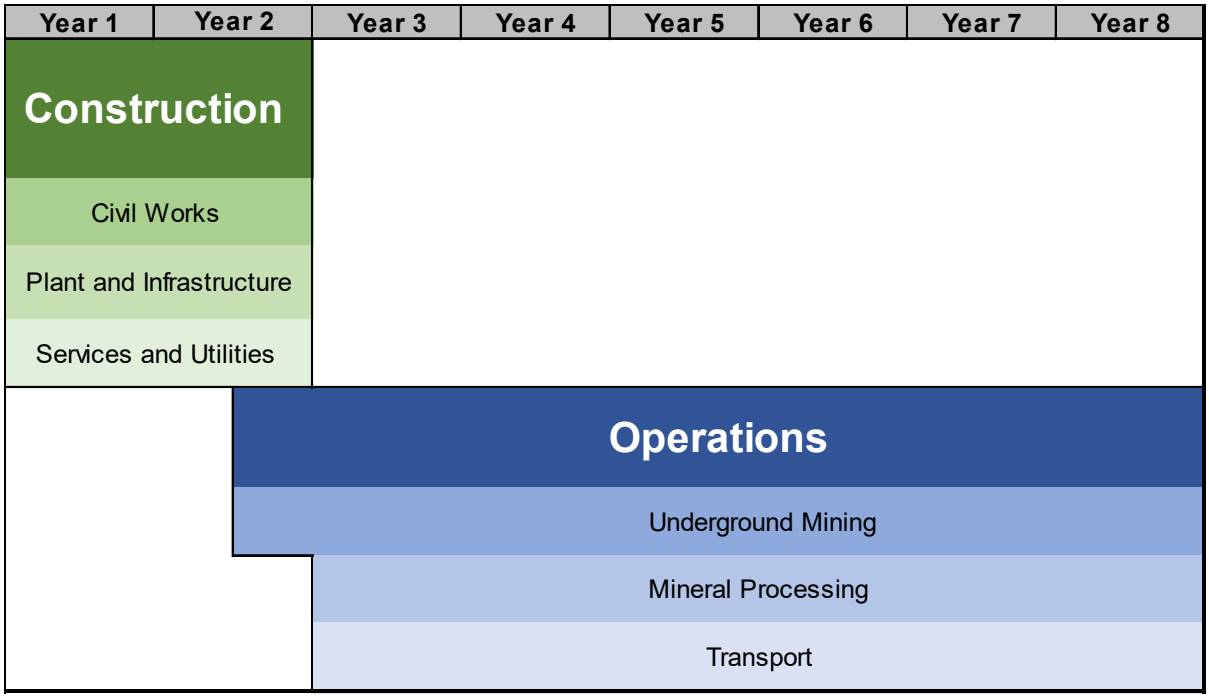

Figure 4- Sequence of site activities

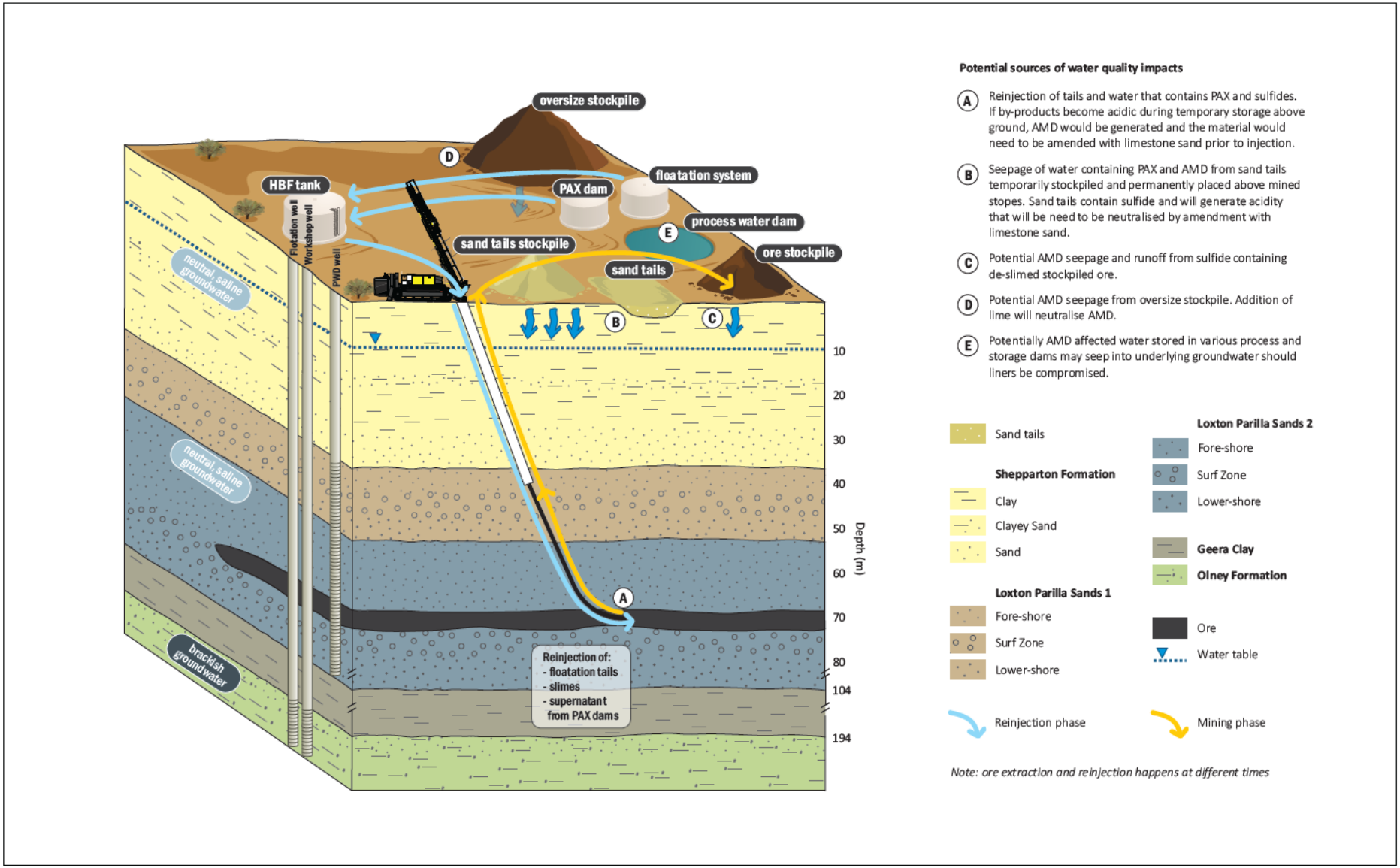

Figure 5- Mining process

3. Community and stakeholder engagement

3.1. Consultation for the preparation of the AQMP

Iluka has prepared the AQMP in consultation with the EPA as required by Schedule 3, Condition 9(a) of Development Consent (SSD-5285). Details of the consultation undertaken are provided in (Appendix A).

3.2. Communication

In accordance with Schedule 5, Condition 10 of NSW Development Consent (SSD-5285), the Iluka website will be maintained as a tool for the provision of information to stakeholders and interested parties about the environmental and community performance of the Project .

Information available on the Iluka website will kept up to date to the satisfaction of the Secretary of the DPE.

Stakeholder engagement is also managed in accordance with Iluka's Social Management Plan.

Engagement with stakeholders should be conducted in a meaningful, transparent, collaborative and consistent manner. External stakeholder interactions are recorded in Iluka's database to ensure a record of stakeholder interactions is maintained for the life of the operation.

3.3. Complaints

Iluka will maintain an enquiries and community complaints hotline for the Balranald Project (Phone 1800 305 993 or email balranald.community@iluka.com). The community hotline will be publicly advertised on the Iluka website Balranald engagement hub.

Community complaints will be managed in accordance with Iluka's Social Management Plan and Social Performance standard *(Group Standard 02 – Social Performance)*.

Iluka's Social Management Plan for the Balranald operation provides additional requirements regarding stakeholder engagement and consultation.

In the event a complaint or inquiry is made by an external party the nominated Iluka employee (dependent on the nature of the complaint) will be directed on the course of action in consultation with the Senior Manager.

A record of the event will be entered into the HSEC electronic management system. Any actions arising from the event will be tracked to ensure the event is dealt with appropriately.

Community inquires and complaints will be recorded. The following information will be captured:

- the date and time ;
- the method by which the complaint or inquiry was made;
- any personal details of the complainant if provided;
- the nature of the complaint or inquiry;
- the action taken by Iluka in relation to the complaint or inquiry, including any follow-up contact with the proponent; and
- if no action was taken by Iluka, the reasons why no action was taken.

The record will be kept for at least 4 years.

The Social Management Plan includes a grievance resolution process to enable Iluka to respond appropriately and respectfully to any issues raised by stakeholders (including internal stakeholders). The grievance resolution process is summarised in Figure 6.

A complaints and inquiry register is available on the Iluka community engagement hub website https://www.iluka.com/engage/balranald and kept up to date on a monthly basis.

3.4. Dispute resolution

In the event of a disagreement between Iluka and a member of the community, the nominated Iluka employee (dependent on the nature of the complaint) will be directed on the course of action in consultation with the Senior Manager. Iluka will undertake the liaison to reach a resolution. Should resolution of the dispute not be reached through this primary process, either party may refer the matter to the Secretary of the DPE for resolution.

A flow diagram summarising the dispute resolution process is presented in Figure 6.

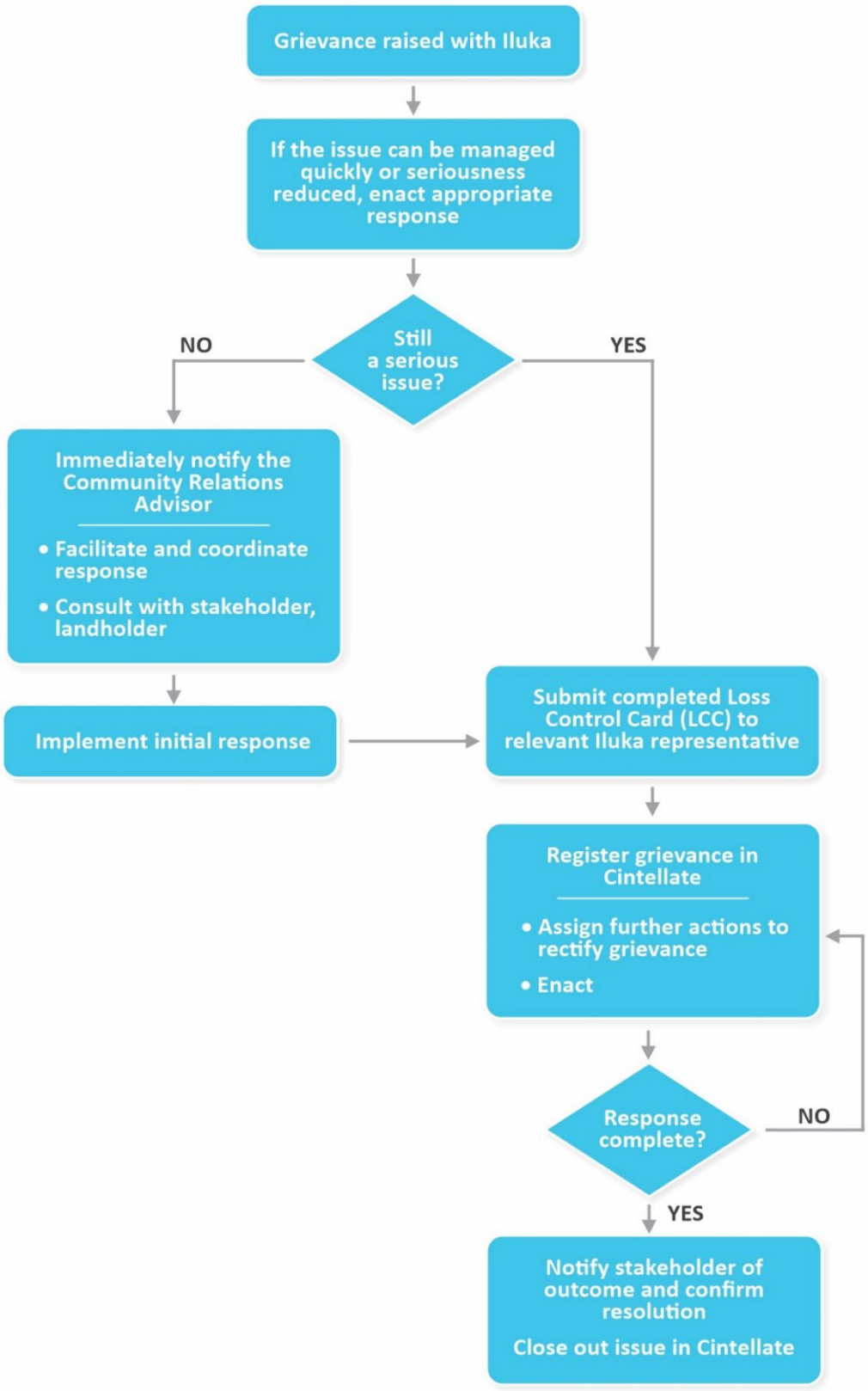

Figure 6- Summary of grievance resolution process

4. Environmental management framework

4.1. Relationship to existing EMS

Iluka's EMS has been developed to fulfil the relevant conditions in the NSW Development Consent (SSD-5285 and Commonwealth Approval (EPBC Act 2012/6509) by providing a strategic framework for environmental management of the Project including all environmental management plans (EMPs), strategies and programs prepared for the Project . The EMS establishes the overarching framework for the monitoring and environmental management of activities undertaken for the Project . The EMS incorporates the principals of continuous improvement and is consistent with the five pillars of International Standard Organisation (ISO) 14001: Environmental Management Systems. This AQMP is a subordinate of Iluka's EMS.

4.2. Environmental management structure and responsibilities

All persons undertaking activities on the site are responsible for environmental management and are accountable for the following:

- complying with relevant legislation;
- complying with the EMS;
- communicating any information they become aware of in relation to environmental management; and
- taking actions to prevent and mitigate environmental impacts.

All employees and contractors within Iluka are held accountable for promoting and displaying behaviours consistent with the Iluka Plan. Table 1 defines HSEC and EMS related accountabilities.

Table 1- Roles and responsibilities for Environment and Community management

Role	Accountabilities
Operations Manager	• Ensure business plans align with wider sustainability objectives and targets. • Promote a culture of accountability and risk awareness, ensuring corrective and preventive actions are completed. • Promote active participation in Environment & Community matters in general. • Provide effective resources to implement the management system within the operation / function. • Ensure overall compliance to the EMS & HSECMS within the operation / function.
Environment, Rehabilitation and Community Relations (ERCR) Superintendent	• Provide advice/support to the operation for achievement of ongoing environmental compliance. • Inform, investigate and provide advice for environmental issues, non-compliances and incidents to the Operations Manager. • Support the preparation of environmental reports in compliance with corporate and regulatory requirements.

	• Review and oversee the implementation of the EMS, EMPs and procedures in accordance with corporate and regulatory requirements. • Ensure regular review environmental risk assessments with operational team members and other stakeholders as required. • Oversee rehabilitation planning and implementation. • Respond to and report on community complaints in consultation with the Operations Manager. • Conduct internal compliance audits of applicable regulatory approvals, licences and other legislation for the project. • Liaise with government regulators and other stakeholders on environment and community matters. • Develop procedures required for effective environmental management of the operation.
Environmental Specialist	• Manage the environmental monitoring database. • Collate data and prepare written reports for environmental and community performance reporting. • Implement and review the EMS, EMPs and procedures in accordance with corporate and regulatory requirements • Assist and provide advice to the Environmental Technician in collection of environmental monitoring data. Inform the creation of procedures required for effective environmental management of the operation. • Conduct site environmental inspections and audits to identify issues and report findings to the ERCR Superintendent. • Assist in achieving compliance with regulatory requirements related to environmental management as required by the ERCR Superintendent. • Participate in the review and development of environmental risk assessments. • Conduct internal compliance audits of applicable regulatory approvals, licences and other legislation for the project and advise the ERCR Superintendent of any non-compliances. • Manage site waste removal and treatment requirements
Environmental Technician	• Conduct the environmental monitoring required by the approved EMPs for the project. • Follow procedures for environmental monitoring accurately and consistently. • Collect and record raw data accurately and consistently for all compliance monitoring. • Maintain calibration records of all equipment and ensure within manufacturers specifications. • Conduct site environmental inspections and report issues identified to ERCR Superintendent. • Assist with on ground environmental improvement works.
Rehabilitation Specialist	• Coordinate the planning and implementation of the rehabilitation in accordance with the Rehabilitation Management Plan and applicable procedures.

	• Coordinate the rehabilitation monitoring programs including engagement of specialised consultants. • Ensure that rehabilitation resources are managed effectively to ensure the success of the rehabilitation. • Prepare rehabilitation related documents and maintain the spatial data base • Liaise with government regulators and other stakeholders on all rehabilitation matters.
Site Employees and Contractors	• Understand and comply with the Iluka EMS, HSEC policy and supporting standards • Accept accountability to ensure personal safety and the health and safety of others, and protect the environment • Identify, assess and control risks prior to undertaking any activity • Actively challenge or refuse to work in unsafe conditions or where unacceptable impact to the environment or community may occur • Intervene to prevent incidents • Actively participate in HSEC meetings, initiatives, risk assessments and monitoring programs • Report all incidents and near hits immediately • Correct or isolate hazardous situations in the workplace • Understand and follow the local emergency procedures • Comply with and suggest improvements to site documentation, processes and procedures

4.3. Legal and compliance requirements

The relevant legal and compliance requirements as well as policies, standards and guidelines and where they are referenced in this AQMP are provided in Table 2.

Table 2- Legal and compliance requirements relevant to the AQMP

NSW Development Consent (SSD-5285)	AQMP Section
Sc.3(C.9) The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:	This AQMP
(a) be prepared in consultation with the EPA;	Appendix A
(b) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;	Section 4.6 & Table 3
(c) include an air quality monitoring program for evaluating and reporting on: • *compliance against the air quality criteria in this consent;* • *compliance against the air quality operating conditions;* • *compliance with the applicable emissions criteria for the Ilmenite Separation Plant; and*	Sections 4.7 & 4.8
(d) defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.	Section 4.15

<table>
<tr><td>Sc.3(C.6) The Applicant must ensure that no offensive odours are emitted from the site, as defined under the POEO Act.</td><td>Section 4.6 & Table 3</td></tr>
<tr><td>Sc.3(C.7) The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 3 and 4 at any residence on privately owned land.
Table 3: Long term impact assessment criteria for particulate matter
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th>[a,d]Criterion</th></tr>
<tr><td>Particulate matter < 10 µm (PM_{10})</td><td>Annual</td><td>25 µg/m^3</td></tr>
<tr><td>Particulate matter < 2.5 µm ($PM_{2.5}$)</td><td>Annual</td><td>8 µg/m^3</td></tr>
</table>
Table 4: Short term impact assessment criterion for particulate matter
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th>[b] Criterion</th></tr>
<tr><td>Particulate matter < 10 µm (PM_{10})</td><td>24 hour</td><td>50 µg/m^3</td></tr>
<tr><td>Particulate matter < 2.5 µm ($PM_{2.5}$)</td><td>24 hour</td><td>25 µg/m^3</td></tr>
</table>
Notes

• a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
• b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
• c Deleted
• d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.</td><td>Section 4.6 & Table 3</td></tr>
<tr><td>Sc.3(C.8) The Applicant must:
(a) implement all reasonable and feasible measures to minimise the:
• off-site odour and dust emissions of the development; and
• release of greenhouse gas emissions from the development;</td><td>Section 4.6 & Table 3</td></tr>
<tr><td>(b) minimise any visible off-site air pollution generated by the development;</td><td>Section 4.6 & Table 3</td></tr>
<tr><td>(c) minimise the surface disturbance of the site;</td><td>Section 4.6 & Table 3</td></tr>
<tr><td>(d) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d to Tables 3-4); and</td><td>Section 4.6 & Table 3</td></tr>
<tr><td>(e) assess air quality monitoring data to determine whether the development is complying with the relevant conditions of this consent and, if necessary, adjust the scale of operations on site to meet the criteria in this consent.</td><td>Section 4.8 & 4.10</td></tr>
<tr><td>Sc.3(C.10) During the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline.</td><td>Section 4.7.3</td></tr>
<tr><td>Sc.5 (C.3) The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:
(a) detailed baseline data;</td><td>Section 4.7.1</td></tr>
</table>

(b) a description of: • *the relevant statutory requirements (including any relevant approval, licence or lease conditions);* • *any relevant limits or performance measures/criteria;* • *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	Section 4.3 Table 2 Section 4.8
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 4.6
(d) a program to monitor and report on the: • *impacts and environmental performance of the development;* • *effectiveness of any management measures (see c above);*	Section 4.7 Section 4.10
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 4.15.2
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 4.15.4
(g) a protocol for managing and reporting any: • *incidents;* • *complaints;* • *non-compliances with statutory requirements; and* • *exceedances of the impact assessment criteria and/or performance criteria; and*	Section 4.14.1 Section 3.3 Section 4.10.1 Section 4.10.1
(h) a protocol for periodic review of the plan.	Section 4.16
NSW EPA Environment Protection Licence 20795	
(O3.1) Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.	Section 4.6 & Table 3
(M1.1) The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.	Section 4.7.2
(M1.2) All records required to be kept by this licence must be: *a) in a legible form, or in a form that can readily be reduced to a legible form;* *b) kept for at least 4 years after the monitoring or event to which they relate took place; and* *c) produced in a legible form to any authorised officer of the EPA who asks to see them.*	Section 4.7.2
(M1.3) The following records must be kept in respect of any samples required to be collected for the purposes of this licence: *a) the date(s) on which the sample was taken;* *b) the time(s) at which the sample was collected;* *c) the point at which the sample was taken; and* *d) the name of the person who collected the sample.*	Section 4.7.2
Policies, Standards and Guidelines	
AS/NZS 3580.9.11:2022 Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM10 beta attenuation monitors	Section 4.7.2
AS/NZS 3580.9.12:2013 Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM2.5 beta attenuation monitors.	Section 4.7.2
AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications.	Section 4.7.3
Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA, 2022)	Section 4.7.3
Iluka Health, Safety, Environment and Community Policy	Section 1.3

Iluka Standard 2: Social Performance	Section 3.3
Iluka Standard 3: Training and Awareness	Section 4.4
Iluka Environmental Management Strategy	Section 4.1

4.4. Training and awareness

Iluka have a standard for training and awareness *(Group Standard 3:Training and Awareness)* to ensure employees and contractors are appropriately trained and are competent to perform their work.

Inductions (excluding visitor induction) shall be undertaken every two years or more frequently as required. The Iluka induction and a Project specific induction shall be undertaken prior to commencement of works.

Processes and procedures are developed and implemented by the operation to identify, prioritise and plan the fulfilment of training needs commensurate with HSEC risks. Processes shall include (at a minimum):

- development of a training needs analysis, including the identification of training needs for all employees and contractors within the area, operations, Project or function;
- delivery of training and maintaining currency;
- methods and criteria for the determination of competency; considering training, education, skills and experience; and
- evaluation of the effectiveness of training processes and programs.

Training attendance, inductions and competency shall be recorded. Employee and contractor records shall be maintained and attendance recorded in the Iluka Training Management System.

Iluka maintain a training platform , which requires employees to undertake specific training programs periodically.

4.5. Environmental risk assessment

A risk assessment has been undertaken to quantify environmental and community risk. Mitigation measures have been identified to minimise impacts to be as low as reasonably practicable during all the phases (e.g. construction, operations, decommissioning and rehabilitation) of the Project. The risk assessment will be reviewed regularly throughout different stages of the Project. A copy of the air quality risk assessment has been included in Appendix B.

4.6. Environmental management measures

Air quality management at the Project will involve a combination of proactive and reactive management strategies, as well as at-source control measures. These measures will be supported by Continuous Particulate Monitoring of PM_{10} and $PM_{2.5}$ concentrations. The management measures and controls that will be implemented are outlined in Table 3.

Table 3- Air quality management measures and controls

No.	Air quality management measures	Phase	Timing/frequency	Location	Responsibility	Source/reference	Evidence/documentation
Management Measures and Controls for Dust Emissions							
AQ1	Sand tailings in mining panels covered with overburden progressively and as soon as reasonably practical.	Operational	During mining	Mine path	Earthworks Supervisor	Risk Assessment	Mine plan/Mine survey
AQ2	Topsoil and subsoil stockpiles limited to a height of 2m and 10m respectively (dependant on soil properties).	Construction/Operational	At all times	Mining Lease	Earthworks Supervisor	RMP	Stockpile survey
AQ3	Watering or application of commercial dust suppressants/stabilising agents to stockpiles for short term stabilisation (if required)	Construction/Operational	As required	Mining Lease	Environmental	Risk Assessment	Annual Rehabilitation Report
AQ4	Seeding of topsoil stockpiles for long-term stabilisation (if required)	Construction/Operational	As required	Mining Lease	Environmental	Risk Assessment	Annual Rehabilitation Report
AQ5	Minimising front-end-loader and excavator drop heights when loading trucks.	Operational	At all times	HMC loading area	Shift Supervisor	EIS	Inspection report

No.	Air quality management measures	Phase	Timing/frequency	Location	Responsibility	Source/reference	Evidence/documentation
AQ6	Vehicles transporting mineral concentrate are completely covered whilst in transit to minimise visible offsite air pollution.	Operational	At all times	Transport route/privately owned land	Transport Manager	Development Consent (SSD-5285)	Inspection report
AQ7	Minimise clearing and open area in front of mining to minimise visual offsite air pollution.	Operational	At all times	Mine path	Mine Planning	Risk Assessment	Mine plan
AQ8	Progressive rehabilitation	Operational	After disturbance	Mine path	Environmental	Development Consent (SSD-5285)	Forward Program & Annual Rehabilitation Report
AQ9	Watering or application of commercial dust suppressants/stabilising agents to unpaved haul routes and tracks.	Construction/Operational	As required	Trafficable areas/privately owned land	Earthworks Supervisor	EIS	Inspection report
AQ10	Watering during topsoil/subsoil stripping	Construction/Operational	At all times	Topsoil stripping areas	Earthworks Supervisor	Risk Assessment	Inspection report
AQ11	Limit or postpone machinery movements during adverse meteorological conditions and extraordinary events when dwellings are located downwind.	Construction/Operational	During high wind events that increase dust lift off where dwellings are affected.	Mining Lease/haul roads/privately owned land	Earthworks Supervisor	Risk Assessment	Inspection report

No.	Air quality management measures	Phase	Timing/frequency	Location	Responsibility	Source/reference	Evidence/documentation
AQ12	Deploy additional water carts during adverse meteorological conditions and extraordinary events to minimise offsite visible air pollution.	Construction/Operational	During high wind events that increase dust lift off where dwellings are affected.	Mining Lease/haul roads/privately owned land	Earthworks Supervisor	Risk Assessment	Inspection report
AQ13	Product areas fenced with fabric to minimise sand drift off site.	Operational	At all times	Processing areas/privately owned land	Engineer	Project design	Inspection report
AQ14	Monitor dust emissions with a Continuous Particulate Monitor.	Construction/Operational	At all times	Mining Lease/privately owned land	Environmental	Development Consent (SSD-5285) Environment Protection Licence (20795)	Monitoring report/Annual Review
Management Measures and Controls for Greenhouse Gas Emissions							
AQ15	Plant and equipment are maintained in a proper and efficient condition and operated in a proper and efficient manner top minimise Greenhouse Gas emissions.	Construction/Operational	At all times	Mining Lease	Equipment Maintainers	Development Consent (SSD-5285) Environment Protection Licence (20795)	Plant and equipment maintenance records/Pre-start inspections/Training records.
AQ16	Minimise double handling of material and vehicle movements through effective mine planning to minimise Greenhouse Gas emissions.	Construction/Operational	At all times	Mining Lease	Mine Planning	Risk Assessment	Mine plan/Inspection report

No.	Air quality management measures	Phase	Timing/frequency	Location	Responsibility	Source/reference	Evidence/documentation
AQ17	Use of lower emission fuels and renewable energy sources where feasible.	Operational	Opportunistic	Mining Lease	Operations Manager	Risk Assessment	Detailed designs/Change management
Management Measures and Controls for Off-site Odours							
AQ18	Putrescible waste is covered at all times and removed from camp and site regularly to reduce offensive odours.	Construction/Operational	As required (Approx. every 2 weeks)	Waste storage area (camp and site)	Facilities Manager	Risk Assessment	Inspection report
AQ19	Sewage treatment systems are maintained as per manufacturers requirements and monitored for abnormal odours.	Construction/Operational	Monthly (or as per manufacturers recommended frequency)	Sewage treatment areas	Facilities Manager	Risk Assessment	Service records/Inspection report

4.7. Air quality monitoring program

Air quality monitoring will be undertaken using a Continuous Particulate Monitor (CPM) to measure PM_{10} and $PM_{2.5}$ at the closest sensitive receptor (R5). Irrespective of land ownership the CPM will be used to assess compliance with air quality criteria specified in Table 2.

The Ilmenite separation plant is not proposed to be constructed for the underground mining trial and therefore there is no specific emission criteria where compliance monitoring is required as part of this plan.

Meteorological monitoring will be conducted at Iluka's Automatic Weather Station (AWS) which complies with the requirements in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (EPA, 2022) guideline.

An overview of the air quality monitoring program is provided in Table 4 and Figure 7 below shows the location of the CPM, AWS and sensitive receptor locations relevant to the Project area.

4.7.1. Baseline data

No previous PM_{10} or $PM_{2.5}$ monitoring has been undertaken at the Balranald Project. The Air Quality and Greenhouse Gas Assessment (ENVIRON Australia, May 2015) used available regional monitoring data to assess the likely air quality impacts from the Balranald Project.

For PM_{10}, the annual average PM_{10} concentrations ranged from 16.7 µS/m³ at Albury NSW to 28 µS/m³ at Mildura VIC, with an average PM_{10} concentration of 18 µS/m³ adopted in the assessment.

For $PM_{2.5}$, limited $PM_{2.5}$ monitoring data was available for rural NSW, with an average ratio of 0.36 for $PM_{2.5}$ to PM_{10} calculated using data from 17 stations where concentrations of both PM_{10} and $PM_{2.5}$ are recorded. An annual average $PM_{2.5}$ concentration of 6.5 µS/m³ was adopted in the assessment.

A dust deposition monitoring network was installed in May 2014 for baseline data collection and the initial mining trials, with the air quality monitoring program detailed in Table 6. Average dust deposition levels from 4 dust deposition gauge locations are presented in Table 4. The average dust deposition of the four gauges used in the collection of baseline data was 1.97 g/m²/month. The calculated average background concentration is consistent with background dust levels specified in the Air Quality and Greenhouse Gas Assessment for the Balranald Project (ENVIRON Australia, May 2015).

Table 4- Air quality monitoring program

Site ID	Location	Parameter	Frequency and Units of measure	Sampling Method
CPM1	Karra Homestead (R5)	PM_{10} & $PM_{2.5}$	Continuous (Averaging period of 24 hour and Annual) µg/m³	AS/NZS 3580.9.11:2022 AS/NZS 3580.9.12:2022
AWS	Site	Rainfall, humidity, solar radiation, wind	Continuous	AS/NZS 3580.14:2014

		speed, wind direction and temperature.	mm, %, W/m2, km/h, degrees, °C	

Table 5- Dust deposition baseline data

Date	Insoluble Solids (g/m²/month)			
	Bal 1	**Bal 2**	**Bal 3**	**Bal 5**
May 2014	1.4	0.65	0.24	0.23
June 2014	3.5	0.16	0.1	0.08
July 2014	1.9	0.42	0.57	0.13
August 2014	0.77	0.42	0.33	0.28
September 2014	14*	0.80	0.53	0.50
October 2014	2.3	0.59	0.34	5.10
November 2014	2	1.10	5.50	2
December 2014	15*	0.85	0.65	0.81
Average	**5.1**	**0.62**	**1.03**	**1.14**

** Bal 1 is located adjacent a shearing shed and vehicle access tracks which may results in intermittent elevated dust levels from agricultural activities (i.e. stock movement, machinery and vehicles) and not attributed to mining activities.*

4.7.2. Particulate monitoring

Particulate monitoring will be conducted in accordance with the methods detailed in the *Approved Methods for the Sampling and Analysis of Air Pollution in New South Wales* (EPA, 2022) and Australian Standards *AS/NZS 3580.9.11:2022- Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM10 beta attenuation monitors and AS/NZS 3580.9.12:2022- Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM2.5 beta attenuation monitors.*

The CPM will be operated and maintained by competent and trained environmental staff, equipment calibrations will be undertaken in accordance with manufacturers recommended frequency and calibration certificates kept on file.

The results of particulate monitoring will be imported into Iluka's database and will be published on the Iluka website in accordance with Schedule 5, Condition 10 of Development Consent (SSD-5285) and a summary of all monitoring results will reported annually in the Annual Review (Section 4.11.2).

Air quality results will be assessed and reported against the air quality criteria (compliance limits) specified in Condition 7 (Table 3 and Table 4) of Development Consent (SSD-5285), recreated in Table 2.

Monitoring results will be kept in a legible form for at least four years from the date of the monitoring results being obtained. The results obtained from any monitoring will be made available to an authorised officer if requested.

The following records will be kept in respect of any samples required to be collected for air quality monitoring:

- the date(s) on which the sample was taken;
- the time(s) at which the sample was collected;

- the point at which the sample was taken;
- the name of the person who collected the sample; and
- any observations (i.e. sample contamination, tampering).

4.7.3. Meteorological monitoring

Meteorological monitoring is undertaken at Iluka's AWS in accordance with Schedule 3, Condition 10 of Development Consent (SSD-5285). Meteorological monitoring complies with the requirements in the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* guideline (EPA, 2022) and AS/NZS 3580.14:2014- *Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications.*

The following data is collected by the weather station:

- rainfall;
- humidity;
- solar radiation;
- continuous wind speed and direction; and
- temperature statistics (e.g. average, maximum and minimum).

4.8. Environmental Inspections

Environmental inspections will be carried out to identify environmental hazards and to assess the effectiveness of air quality management measures and controls.

Table 6 outlines the inspection program that will be implemented during the construction and operation of the Project .

Inspections will be documented in the form of a checklist and any hazards or non-conformances will be reported using Iluka's inspection management system. Any actions arising from the inspections will be allocated as soon as reasonably practical and tracked using the Iluka inspection management system until closed out.

Table 6- Air quality inspection program

Inspection area	Details of inspection	Timing/frequency	Responsibility
Stockpiles (topsoil, subsoil, overburden, HMC, sand tails, waste)	• Constructed below maximum heights. • Stockpile stability (no visual dust or erosion) • Temporary stockpiles constructed in sheltered areas where possible.	Monthly	Environmental

Inspection area	Details of inspection	Timing/frequency	Responsibility
Roads	• Roads sufficiently watered to minimise wheel generated dust. • Stabilising agents (if any) still effective. • Haul truck loads are covered when transporting HMC. • Offsite visible air pollution.	Daily	Earthworks supervisor
Topsoil handling	• Water being applied during topsoil stripping to prevent dust generation. • Land prepared ahead for mining minimised and in accordance with mine plan. • Suitability of weather conditions for topsoil stripping/replacement.	During topsoil handling and/or monthly	Earthworks supervisor
Mining	• Dust generation from open areas. • Haul distances and double handling being minimised where feasible. • Clearing in accordance with mine plan. • Sand tailings covered progressively with overburden.	Monthly	Earthworks supervisor
Mineral processing	• Sand fences in good condition. • Evidence of offsite sand drift. • Trafficable areas kept clean and free of product. • Stockpiles remain damp and sprays working (if any).	Weekly	Processing Manager
Rehabilitation	• Rehabilitation progressive and according to mine plan. • Landforms stable and non-polluting.	Monthly	Earthworks supervisor
Continuous Particulate Monitor	• Equipment in good condition, and in calibration. • Note any stock or farming activity in the vicinity of monitor that may lead to non-mining related exceedances. • Take note of any dust storm events as they occur. • Results obtained and reported at required frequency.	Monthly/opportunistic recording of dust storms	Environmental

Inspection area	Details of inspection	Timing/frequency	Responsibility
General (Site and camp)	• Putrescible waste stored onsite or at camp not giving off offensive odours. • Sewage treatment systems functioning correctly and maintained in accordance with manufacturers recommendations. • No offensive odours present at camp or site offices from sewage treatment systems or effluent disposal areas. • Offsite visible air pollution.	Monthly	Environmental

4.9. Environmental control maps or plans

Figure 7 below shows the location of the Continuous Particulate Monitor, weather station and sensitive receptor locations relevant to the Project area.

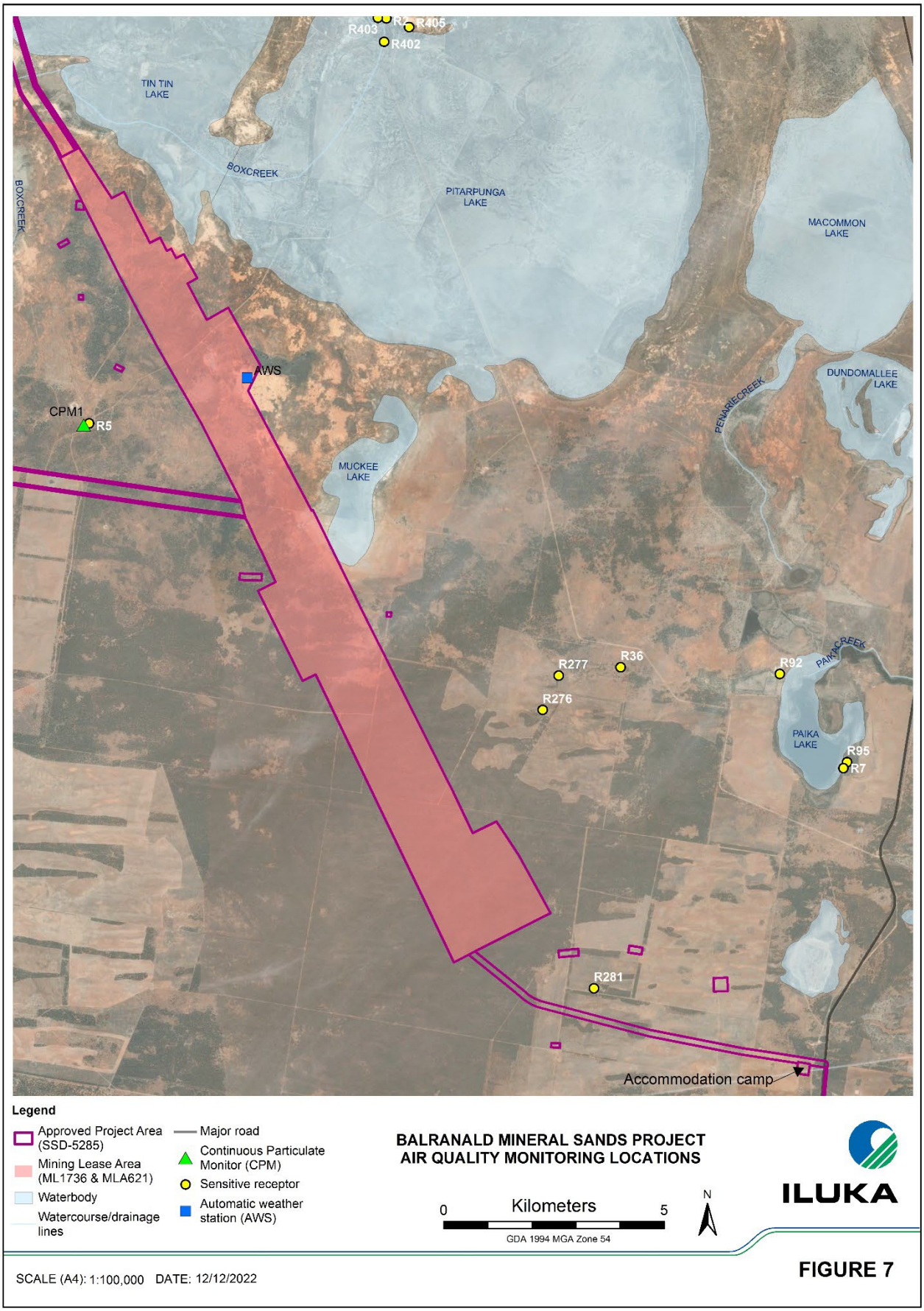

Figure 7- Air quality monitoring locations

4.10. Compliance monitoring and reporting

4.10.1. Compliance monitoring

Compliance for the Project is to be achieved by:

- adherence to conditions of the Development Consent, EPA Licence, Mining Lease conditions and corporate policies;
- annual compliance reporting in the Annual Review;
- review of the EMPs within 3 months of an Annual Review, a reportable incident, an Independent Environmental Audit or modifications to the conditions of the Consent;
- regular compliance auditing (both internal and external)
- revision of risk assessments periodically or after a reportable incident or a new hazard is identified;
- identification of performance against criteria and/or performance measures; and
- implementation of corrective measures to rectify a non-compliance or performance issue.

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with the Project .

Iluka maintains an electronic database system for the management of obligations, stakeholder interactions and compliance monitoring. Each compliance source and its associated obligations are periodically audited for compliance by the responsible person. Actions can be assigned to any obligation to ensure compliance is met, automatic email alerts prompt the actioners to undertake the required tasks.

Iluka also maintains an electronic database system for the storage and management of environmental monitoring data. Compliance reports can be generated from the database and compared against known performance criteria or trigger levels. Monitoring schedules and alerts can be setup to notify environmental staff of required monitoring events.

Iluka environmental staff undertake scheduled environmental inspections of work areas to identify environmental hazards, which are reported and managed via Iluka's electronic inspection management system.

In accordance with Schedule 5, Condition 6A of the Consent, non-compliances will be reported to DPE within seven (7) days of becoming aware of the non-compliance. Notification will be in writing via the Departments Major Projects Website and detail the reasons for the non-compliance and what actions have been, or will be, undertaken to address the non-compliance.

4.10.2. Environmental reporting

Annual Review

In accordance with Schedule 5, Condition 4 of the Development Consent (SSD-5285), Iluka will submit an Annual Review to DPE before 31 March each year for the previous year.

The Annual Review will specifically address the following aspects of Condition 4, which directly relate to air quality:

- include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against:
    - the relevant statutory requirements, limits or performance measures/criteria;
    - the monitoring results of previous years; and
    - the relevant predictions in the EIS;
- 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 development;
- identify any discrepancies between the predicted and actual impacts of the development, 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 development.

Annual EPA Return

Environment Protection Licence (20795) requires the inclusion of a monitoring and complaints summary in Iluka's Annual Return that is completed and supplied to the EPA not later than 60 days after the end of each reporting period. Air quality is required to be reported to the EPA as part of the Annual Return.

Air quality information included in the Annual Return includes:

- a statement of compliance;
- a monitoring and complaints summary including;
    - an analysis and interpretation of monitoring results; and
    - actions to correct identified adverse trends.

The Annual Review and Annual EPA Return and any air quality monitoring results will be published on the Iluka website in accordance with Schedule 5, Condition 10 of the Development Consent (SSD-5285).

4.11. Environmental auditing

Within 1 year of the commencement of construction and every three years thereafter, a full Independent Environmental Audit will be undertaken, as required by Schedule 5, Condition 8 of NSW Development Consent (SSD-5285). The Independent Environmental Audit will include consultation with all relevant agencies and will be conducted by a suitably qualified experienced and independent team of experts whose appointment has been endorsed by the Secretary of the DPE.

The Independent Environmental Audit will:

- assess the environmental performance of the Project and assess whether it complies with the requirements of all relevant approvals;
- review the adequacy of any approved strategy, plan or program required under all relevant approvals; and

- recommend measures or actions to improve the environmental performance of the Project and/or any strategies, plans or programs required under the relevant approvals.

A copy of the Independent Environmental Audit along with the response to any recommendations contained in the audit report, will be provided to the Secretary of the DPE and made available on the Iluka website.

4.12. Other environmental reporting

In accordance with Schedule 5, Condition 3 of NSW Development Consent (SSD-5285), Iluka has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

Environmental reporting requirements including timing, submission and distribution methods are summarised in Table 7.

In accordance with Schedule 5, Condition 7 of NSW Development Consent (SSD-5285), Iluka will provide regular reporting on the environment and community performance of the Project on the Iluka website community engagement hub (https://iluka.com/engage/balranald).

Table 7- Environmental reporting requirements

Report	Frequency	Distribution	Distribution Method
Incident Report	Notification immediately when becoming aware and reported via DPE Major Projects Portal.	DPE and any relevant agencies	DPE Portal/ Email
Annual Review	Annually by 31 March each year.	DPE and any relevant agencies	DPE Portal/Iluka website
Annual Return	Annually by 8 August (60 days from end of reporting period)	NSW EPA	eConnect EPA /Iluka website
Independent Environmental Audit Report	Every 3 years (Commencing within 1 year of the commencement of construction)	DPE	DPE Portal/Iluka website
Annual Rehabilitation Report & Forward Program	Annually by 1 March (60 days from end of reporting period)	NSW Resources Regulator	Regulator Portal/Rehabilitation Portal/Iluka website

4.13. Environmental management documents

The environmental management documents and electronic database systems that will be used to record and report environmental management measures for air quality include:

- Environmental site inspection checklist;
- Incident alert forms;
- HSEC system (Hazard, Incident and inspection management);
- Environmental monitoring database
- Complaints register;
- Monitoring reports; and
- Annual Review

4.14. Environmental incident and emergency management

4.14.1. Environmental incidents

An incident is defined as 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 NSW Development Consent (SSD-5285).

Following the Group Guideline -Hazard Incident Emergency Classification (GUI1135), incidents of serious actual or potential consequence must be immediately notified to the Environment, Rehabilitation and Community Relations (ERCR) Superintendent (or equivalent environment representative) and site Operations Manager or their delegate.

The ERCR Superintendent (or equivalent environment representative) shall then:

- Determine if the incident is a 'notifiable incident' for notification to a Regulator.
- Consult with the Operations Manager or their delegate and the Environment Manager to agree on incident classification and notification requirements.
- Complete the notification within the legislated timeframes.
- Determine if the incident is a 'reportable incident' for inclusion in reports to the Regulator.

The reporting of incidents will be conducted in accordance with Schedule 5, Condition 6 of NSW Development Consent (SSD-5285) and in accordance with the protocol for industry notification of pollution incidents under Part 5.7 of the Protection of the *Environment Operations Act, 1997*.

Iluka will immediately notify the Department and any other relevant agencies immediately after the authorised person becomes aware of the incident and set out the location and nature of the incident. The DPE can be notified of incidents via the Major Projects Website https://pp.planningportal.nsw.gov.au/major-Projects and the NSW EPA can be notified by telephoning the hotline on **131 555.**

The incident report will:

- describe the date, time and nature of the exceedance/incident;
- identify the cause (or likely cause) of the exceedance/incident;
- describe what action has been taken to date; and
- describe the proposed measures to address the exceedance/incident.

4.14.2. Environmental emergencies

Iluka will maintain a Pollution Incident Response Management Plan (PIRMP) for the Project in accordance with Condition R1.1 of Environment Protection Licence 20795. The PIRMP outlines the process for responding to environmental emergencies in a timely and effective manner and adopting appropriate measures for the control and recovery from emergencies. Where appropriate, environmental emergency response procedures will be integrated with the Balranald Project Emergency Control and Response Plan.

Preparedness for emergencies by staff, personnel, contractors and service providers will be undertaken in accordance with on-site training requirements whereby personnel will be appropriately trained in the use of emergency response equipment and procedures, and will be made aware of their responsibilities should such an event occur. A list of external agencies that may be required in the event of an emergency is presented in Table 8.

On detection of an actual or potential environmental incident which may endanger personnel, property or the environment Iluka shall:

- alert the Iluka area supervisor to the location and nature of the emergency
- control and/or contain any release to the environment if safe to do so;
- evacuate all personnel to the nearest muster point if there is threat to human health and ensure all personnel are accounted for;

- ensure the emergency is responded to;
- notify the site Emergency Response team and/or Emergency Services as required;
- handover control to the site Emergency Response team and/or Emergency Services on arrival and assist as directed;
- Initiate clean up and recovery; and
- hold an emergency response debrief

Table 8- External agency contact details

Name	Contact details	Location
Police	000 03 5898 4980	Balranald
Ambulance	000	Balranald
NSW Rural Fire Service	000	Balranald
Fire and Rescue NSW	000 03 5020 1577	Balranald
Hospitals	03 5071 9800	Balranald Multi-Purpose Health Service
	03 5033 9300	Swan Hill District Hospital (emergency)
	03 5022 3333	Mildura Base Hospital (emergency)
NSW State Emergency Service	13 25 00	www.ses.nsw.gov.au
NSW Poisons Information Centre	13 11 26 (24-hour hotline)	www.poisonsinfo.nsw.gov.au
NSW Environment Protection Authority(EPA)	13 15 55	www.epa.nsw.gov.au
NSW Resources and Energy – ResourcesRegulator	1300 814 609	www.resourcesregulator.nsw.gov.au
SafeWork NSW	13 10 50	www.safework.nsw.gov.au
Balranald Shire Council	03 5020 1300	Balranald

4.15. Corrective and preventative actions

4.15.1. Incident assessment

All air quality related incidents will be assessed to determine the likely cause of the incident using information regarding prevailing climatic conditions, the nature of activities taking place and recent air quality monitoring results.

An assessment will be conducted to determine:

- timing of elevated particulate levels;
- general location of the elevated particulate levels;
- climatic conditions at the time of the elevated particulate levels (i.e. wind speed, wind direction, rainfall, dust storms);

- potential contributing factors to the elevated particulate levels (i.e. adjacent land use activities, bushfires, contamination); and
- whether the elevated particulate levels are attributable to Project activities.

If the above assessment determines that an exceedance is due to Project related dust, then the management strategies detailed in Section 4.15.3 to help prevent recurrence may be implemented in an effort to reduce impacts to air quality.

If the exceedance is due to Project related dust, then it will be reported in accordance with the provisions for incident reporting outlined in Section 4.14.1.

4.15.2. Contingency plan

In the event that air quality criteria detailed in Table 2 are considered to have been exceeded the following contingency plan will be implemented:

1. Iluka will apply adaptive management and incident response procedures outlined in Sections 4.15.1 and 4.15.4. (if considered an incident).
2. The exceedance will be reported in accordance with 4.14.1.
3. An appropriate course of action and contingency measures such as, but not limited to those described in Section 4.15.3 will be developed in consultation with air quality specialists and EPA as necessary.

4.15.3. Potential contingency measures

Potential contingency measures to be considered following an exceedance of air quality criteria identified in Table 2 may include:

- additional watering of exposed haul roads;
- application of chemical dust suppressants; and
- other controls identified as necessary.

Following implementation, the effectiveness of the additional control measures adopted will be further assessed by monitoring.

4.15.4. Adaptive management

In accordance with Schedule 5, Condition 2 of NSW Development Consent (SSD-5285), over the life of the Project, Iluka will assess and manage risks to ensure that there are no exceedances of the criteria and/or performance measures outlined in Schedules 3 of NSW Development Consent (SSD-5285). Where any exceedance of these criteria and/or performance measures occurs, at the earliest opportunity Iluka will:

- take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;

- consider all reasonable and feasible options for remediation and include these the incident report to the DPE the preferred remediation measures; and
- implement remediation measures as directed by the Secretary of the DPE.

4.16. EMP review and revision process

In accordance with Schedule 5, Condition 5 of Development Consent (SSD-5285), the AQMP will be reviewed within 3 months of the submission of:

- the Annual Review;
- a reportable incident;;
- an Independent Environmental Audit; and
- any modification to the conditions of the Consent.

Where the review leads to revisions in any document, a revised document will be submitted to the Secretary of the DPE within 4 weeks of the revision occurring.

5. References

ENVIRON Australia Pty Ltd 2015, *Balranald Mineral Sands Project Air Quality and Greenhouse Gas Assessment*

DIPNR 2004, *Guideline for the preparation of Environmental Management Plans*

Appendix A- Record of consultation

DOC23/31768-3
1 February 2023

Iluka Resources Limited
GPO Box U1988
PERTH WA 6845

Via Major Projects Planning Portal

Attention: Brendan Isaacs

EPA Advice on Air Quality Management Plan

Dear Brendan

Thank you for your request to review the Air Quality Management Plan for the Balranald Mineral Sands Project dated January 2023.

The EPA encourages the development of such plans to ensure that proponents and licensees have determined how they will meet their statutory obligations and environmental objectives.

The EPA does not approve or endorse these plans, our role is to set environmental objectives for environmental management, not to be involved in developing strategies such as this plan to achieve those objectives. We have no further comments on this plan.

If you have any enquiries about this matter please contact Nick Van Lijf by telephoning 02 6969 0704 or by electronic mail at info@epa.nsw.gov.au.

Yours sincerely

JASON PRICE
Unit Head
Regulatory Operations Regional
NSW Environment Protection Authority

Phone 131 555
Phone +61 2 9995 5555
(from outside NSW)

TTY 133 677
ABN 43 692 285 758

Locked Bag 5022
Parramatta
NSW 2124 Australia

4 Parramatta Square
12 Darcy St, Parramatta
NSW 2150 Australia

info@epa.nsw.gov.au
www.epa.nsw.gov.au

Appendix B- Air Quality Risk Assessment

Aspect	Applicable Project phase	Source	Risk definition	Management measures/controls	Residual Risk
Dust	Operations	Fugitive	Fugitive dust generated from HMC and sand stockpiles/backfill adversely effects human health and/or biodiversity (Smothering of vegetation).	• HMC and sand stockpiles minimised • Additional PPE on days of high winds (goggles and dust masks). • Sand tailings covered with overburden progressively	Low
Dust	Care & Maintenance	Fugitive	Fugitive dust generated from HMC and sand stockpiles adversely effects human health and/or biodiversity (Smothering of vegetation).	• Stockpile in place for >3 months treated with suppressants if required.	Low
Dust	All phases	Fugitive	Fugitive dust generated from topsoil/subsoil stockpiles adversely effects human health and/or biodiversity (Soil loss).	• Topsoil/subsoil stockpiles limited to a height of 2m and 10m respectively (dependant on soil properties) • Locate temporary construction stockpiles in sheltered areas where possible. • Application of chemical dust suppressants if required for short-term stabilisation. • Seeding of stockpiles if required for long-term stabilisation.	Low
Dust	Operations	Fugitive	Fugitive dust generated from loading and transportation of HMC adversely effects human health and/or biodiversity (Smothering vegetation).	• Front end loader and excavator drop heights minimised when loading trucks. • All loads covered when transporting HMC. • HMC remains moist after separation process.	Low

Aspect	Applicable Project phase	Source	Risk definition	Management measures/controls	Residual Risk
Dust	All phases	Fugitive	Wheel generated dust on roads adversely effects human health and/or biodiversity (Smothering vegetation).	• Watering or application of chemical suppressants to unpaved haul routes. • Minimise speed) of traffic. • Road maintenance program. • Additional water trucks during adverse meteorological conditions.	Low
Dust	Operations	Fugitive	Fugitive dust generated from product areas adversely effects human health and/or biodiversity (Smothering vegetation).	• Product areas fenced with fabric to minimise sand drift. • HMC remains moist after separation process. • Process area kept free from build-up of HMC in traffic areas. • Additional PPE on days of high winds (goggles and dust masks)	Low
Dust	All phases	Fugitive	Fugitive dust generated through topsoil/subsoil stripping and replacement works adversely effects human health and/or biodiversity (Soil loss).	• Application of water to working areas. • Limit or postpone machinery movements during high dust risk events when dwellings are located downwind. • Minimise haul distances where feasible. • Sealed cabins on all equipment.	Low

Aspect	Applicable Project phase	Source	Risk definition	Management measures/controls	Residual Risk
Dust	All phases	Fugitive	Open areas left exposed generating dust that adversely effects human health and/or biodiversity (Soil loss).	• Minimise clearing in front of mining. • Clearing in accordance with mine plan. • Progressive rehabilitation as soon as practical after disturbance occurs.	Low
Greenhouse gas	All phases	Point	Plant and equipment producing higher than expected exhaust emissions has a negative impact on air quality and climate change.	• Plant and equipment are maintained in a proper and efficient condition and operated in a proper and efficient manner. • Maximise efficiencies through good mine planning and minimising double handling. • Use of lower emission fuels or renewable energy sources.	Low
Compliance	All phases	Fugitive	Performance criteria specified in Project approvals is exceeded leading to a non-compliance.	• Monitoring PM10 and PM2.5 particulates using a Continuous Particulate Monitor. • Review performance and apply additional management measures or controls as required. • Report any exceedances to criteria as required by approvals.	Low
Community	All phases	Fugitive	Fugitive dust event leads to community complaint.	• AQMP implemented. • Environmental and community performance reported in Annual Review and made available on Iluka website. • Sensitive receptor locations identified and monitored	Low

Aspect	Applicable Project phase	Source	Risk definition	Management measures/controls	Residual Risk
Community	All phases	Point	Offensive odours are emitted from putrescible waste or sewage generation at the camp or site leading to complaint or adverse health effects.	• Waste is covered (within bins) at all times • Bins are emptied by waste contractor on a regular basis that is sufficient for volumes generated. • Recycling programs are investigated and adopted where practical. • Sewage treatment systems are maintained in accordance with manufacturers requirements. • Effluent disposal areas are located away from and downwind of accommodation camp and offices.	Low