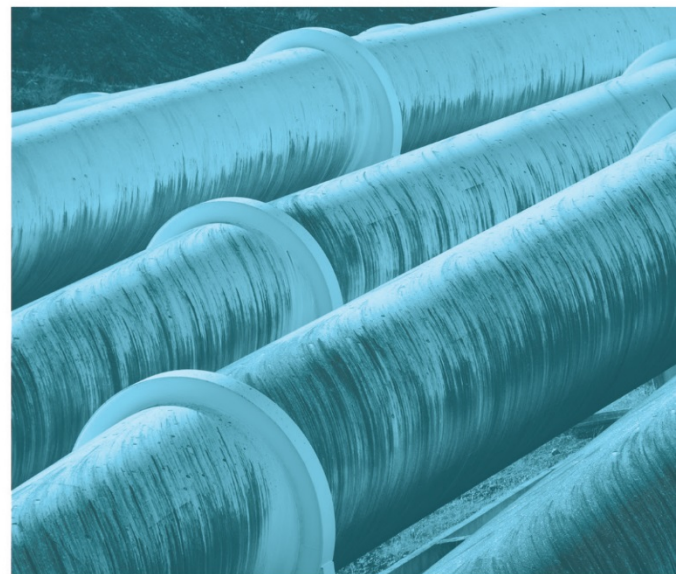




Pollution Incident Response Management Plan (PIRMP)

Balranald Mineral Sands Project

Prepared for Iluka Resources Limited
June 2020





Servicing projects throughout Australia and internationally

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Pollution Incident Response Management Plan (PIRMP)

Balranald Mineral Sands Project

Report Number

S190512 RP 1

Client

Iluka Resources Limited

Date

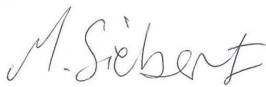
9 June 2020

Version

v3 Final

Prepared by

Approved by



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9 June 2020

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9 June 2020

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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1 Introduction

This Pollution Incident Response Management Plan (PIRMP) has been prepared in accordance with the requirements of the *Protection of the Environment Operations Act 1997* (POEO Act) and details how Iluka Resources Limited (Iluka) will minimise potential pollution risks associated with site activities for the Balranald Mineral Sands Project.

1.1 Overview

The Balranald Project includes construction, 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 (Balranald town), respectively, as shown in Figure 1.1.

The Balranald Project included undertaking a bulk sampling activity (the activity) at the West Balranald deposit to test the selective in-situ removal of up to 100,000 tonnes (t) of ore, with the activity area and site layout shown in Figure 1.2.

1.2 Consents, authorisations and licences

1.2.1 Part 4 development consent

On 5 April 2016, Iluka was granted Development Consent from the NSW Minister for Planning under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for a mineral sand mine in south-western New South Wales, known as the Balranald Mineral Sands Project (the Balranald Project). The project was assessed and approved as a State Significant Development 5285 (SSD-5285).

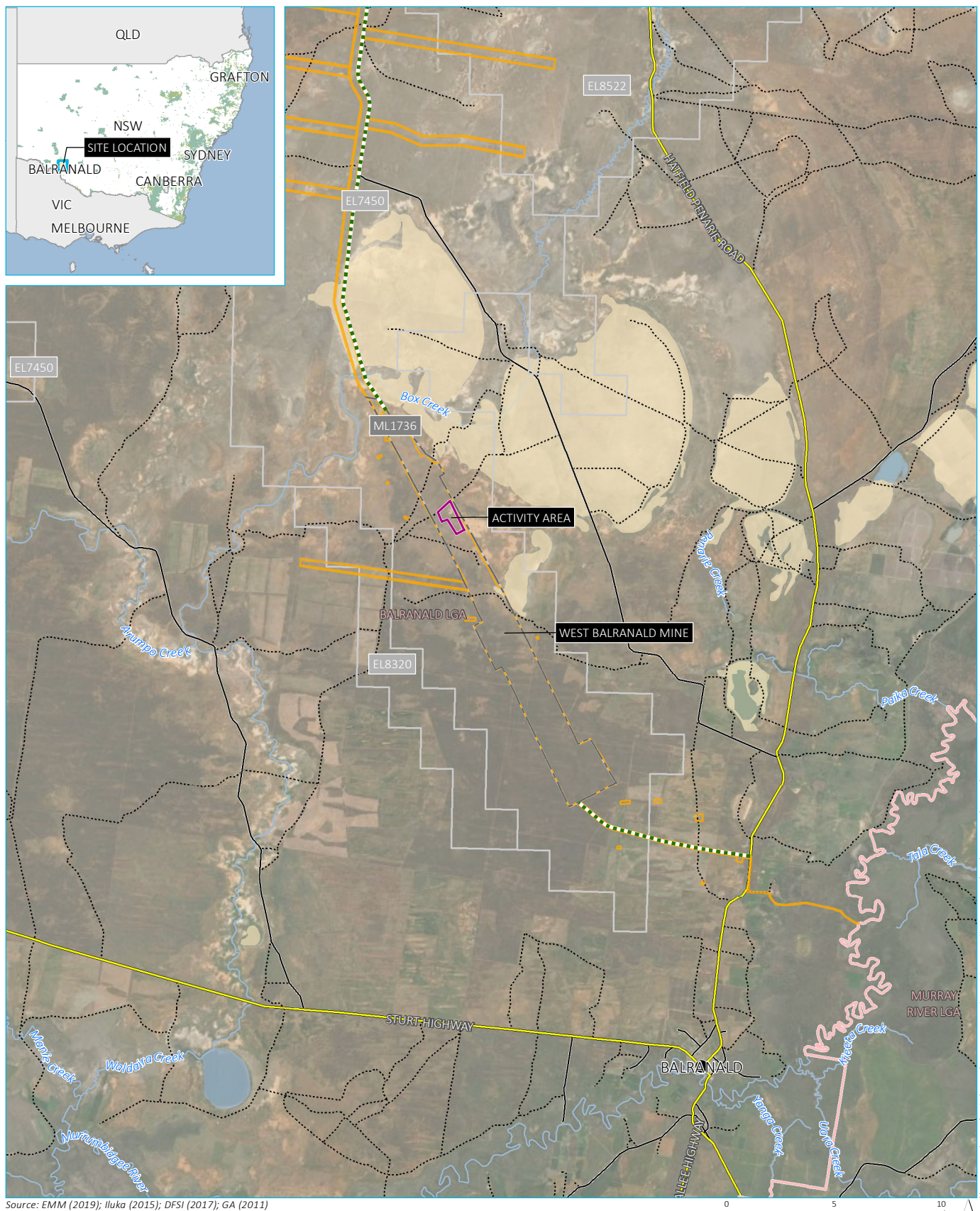
1.2.2 Mining lease

On 9 May 2016, Iluka obtained a mining lease (ML 1736) from the NSW Minister for Industry, Resources and Energy under the NSW *Mining Act 1992* (Mining Act). The term of ML 1736 is for 21 years with the lease expiry date being 9 May 2037. ML 1736 covers the West Balranald deposit as shown on Figure 1.1 and Figure 1.2. ML 1736 provides approval to mine for a number of resources including rutile, zircon and ilmenite.

1.2.3 Environment protection licence

On 10 June 2016, Iluka obtained an environment protection licence (EPL20795) under the POEO Act to undertake the following scheduled activities:

- Mineral processing (30,000-100,000 t per annum (pa)).
- Mining for minerals (30,000-100,000 t pa).
- Waste disposal.
- Waste processing.



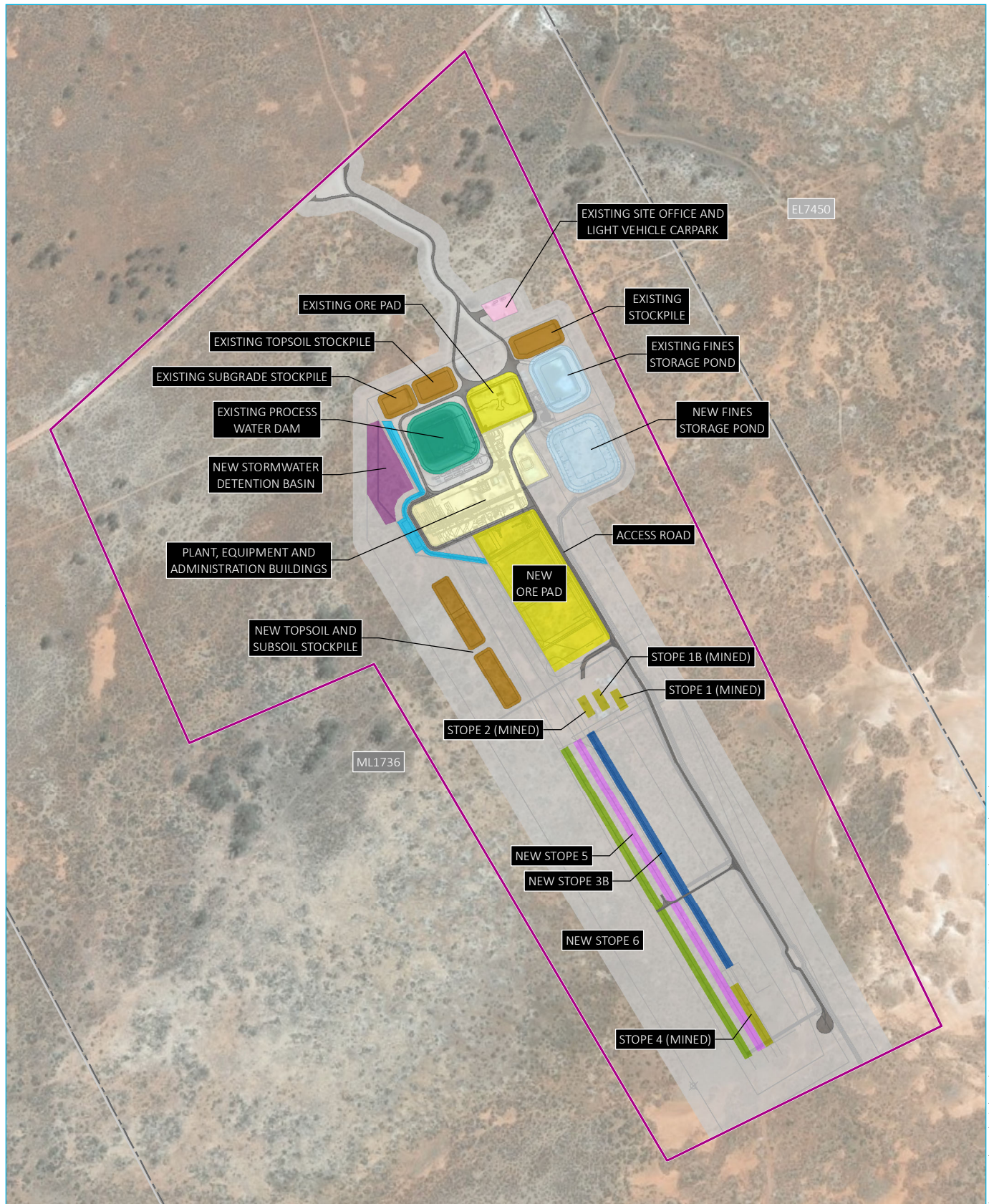
KEY

- Activity area
- Project boundary
- Access road
- Mining Lease 1736
- Iluka mineral tenement
- Main road
- Local road
- Vehicular track
- Named watercourse
- Perennial lake
- Ephemeral lake
- Local government area

Regional location

Iluka Resources Limited
Environmental Management Plan
Figure 1.1





Source: EMM (2019); Iluka (2015); DFSI (2017); GA (2011)

KEY

- Activity area
- Mining Lease 1736
- Iluka mineral tenement

Indicative site layout

- Access road
- Activity footprint
- Existing site office and light vehicle carpark
- Fines storage pond
- Ore pad
- Plant, equipment and administration buildings

- Process water dam
- Spoon drain
- Stockpile
- Stope (mined)
- Stope 3B
- Stope 5
- Stope 6

0 100 200
m
GDA 1994 MGA Zone 54

Site map

Iluka Resources Limited
Pollution Incident Response Management Plan
Figure 1.2

1.3 Iluka management system overview

Iluka has three established management systems to manage health and safety aspects relevant to the Balranald Project, including:

- Risk Management System;
- HSEC Management System; and
- Iluka Project Management System (IPMS).

The overall management of the Balranald Project is undertaken in accordance with, and using procedures, forms and processes from, these systems.

To execute these processes at the Balranald Project, a site Health and Safety Management System has been developed, consisting of six management plans and supporting site processes, templates and forms. The structure of the Balranald Project Health and Safety Management System is shown in Figure 1.3.

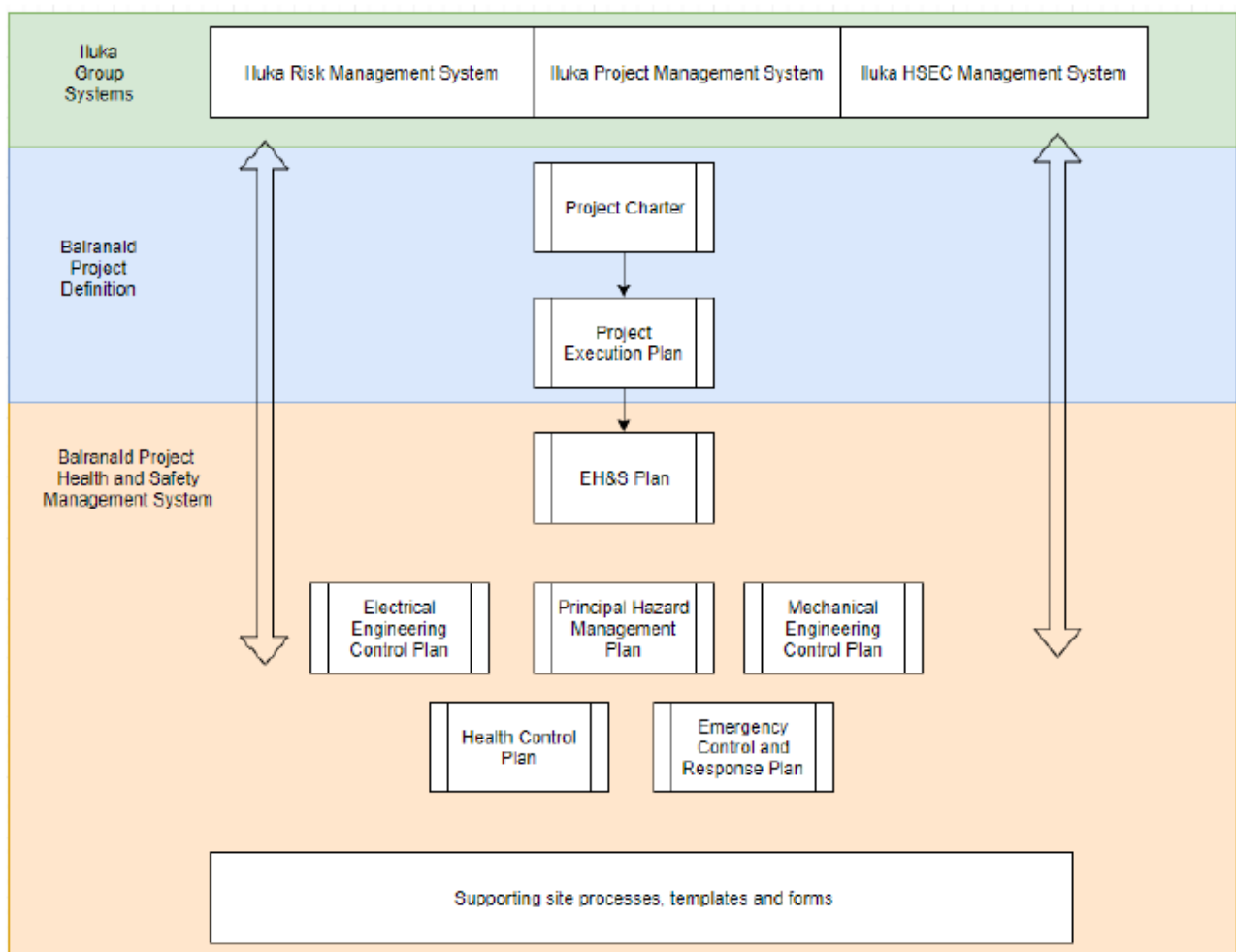


Figure 1.3 Balranald Health and Safety Management System

The *Emergency Control and Response Plan* specifically describes the Balranald Project emergency management and response arrangements and forms the primary reference tool for site staff in the event of an emergency (eg fire, hazardous material leak, medical emergency, vehicle / mobile plant incident, etc.).

The *Emergency Control and Response Plan* defines what constitutes an emergency, the structure of the emergency response teams and appropriate response procedures to identified hazards. It provides guidance on the mobilisation and escalation procedures for the emergency response teams, as well as the roles and responsibilities for each of the team members. The principal function of the plan is to ensure the safe movement and protection of **site occupants** should an emergency arise.

The principal function of the PIRMP is to ensure the protection of the **environment** where a pollution incident occurs (eg hazardous material leak). Specifically, where a pollution incident occurs at the activity site during the activity where material harm to the environment is caused or threatened, this PIRMP must be immediately implemented, in addition to any relevant requirements of the *Emergency Control and Response Plan*.

2 Pollution incident response management plan

2.1 Objectives of the PIRMP

Under Part 5.7A of the POEO Act, holders of an Environment Protection Licence (EPL) are required to prepare, keep, implement and test a PIRMP.

This document is intended to fulfil Iluka's EPL20795 requirements for a PIRMP under Part 5.7A of the POEO Act.

This PIRMP has been prepared in accordance with the NSW EPA's *Environmental Guidelines: Preparation of Pollution Incident Response Management Plan 2012*.

The objectives of this PIRMP are to:

- ensure comprehensive and timely communication about a pollution incident to staff at the activity site, the NSW Environment Protection Authority (EPA), other relevant authorities specified in the Act (such as local council, NSW Ministry of Health, SafeWork NSW, and Fire and Rescue NSW) and people outside the activity site who may be affected by the impacts of a pollution incident;
- minimise and control the risk of a pollution incident at the activity site by requiring identification of risks and the development of planned actions to minimise and manage those risks; and
- ensure that the plan is properly implemented by trained staff, identifying persons responsible for implementing it, and ensuring that the plan is regularly tested for accuracy, currency and suitability.

The definition of a pollution incident is described in Section 3.2.

This PIRMP details how Iluka will minimise potential pollution risks associated with the Balranald Project and more specifically the activity licenced under EPL20795.

2.2 The activity

The activity is an unconventional mining method to test the selective in-situ removal of mineral ore and reflects a continuation of a smaller bulk sampling activity (known as T1) undertaken by Iluka during Q1-2015 and Q1-2016 in accordance with approval under Part 5 of the EP&A Act from NSW Trade & Investment, Resources & Energy (Reference OUT13/28341 and OUT15/27702).

The activity commenced under SSD-5285 in Q2-2016 and Q3-2016 and successfully extracted approximately 6,400 t of ore from three stopes (referred to as Stopes 1B, 3 and 4) and backfilled approximately 700 t of ore (known as T2). Iluka placed the activity site into care and maintenance during 2017 and 2018 to review the mining and environmental monitoring outcomes.

Iluka now propose to recommence unconventional mining (known as T3) to trial the selective in-situ removal of the remaining 93,600 t of ore approved under SSD-5285.

T3 will create up to three additional underground cavities (referred to as Stopes 5, 6 and one of either the remainder of Stope 4, or 3B), each with an approximate volume of 21,000 cubic meters (m³) in volume, located approximately 65 – 69 m below the natural surface level. The overburden typically comprises sands, clayey sands and clay layers with minimal or not continuous induration or rock.

The activity site is located entirely within the disturbance footprint of the West Balranald mine, including the area of the open cut pit. As such, all land disturbed by the activity will eventually be subsumed by mining of the West Balranald mine (see Figure 1.1 and Figure 1.2).

2.2.1 Asset register

Activity site infrastructure is shown in Figure 1.2 and comprises:

- access tracks;
- internal roads for the activity site;
- ore pad's;
- sand tails stockpile;
- water storage infrastructure comprising:
 - a turkey's nest dam;
 - a process water dam filled with groundwater from a production well; and
 - a fines dam's;
- site compound, including hardstand areas for drill rig, office buildings, container storage and diesel fuel storage and dispensing area;
- new access holes and backfill injection wells;
- plant and equipment including cyclones, screens, spirals, fixed plant, thickener tank, surge tank and sand stacker;
- monitoring infrastructure (eg groundwater, subsidence); and
- fencing around the site infrastructure.

3 Regulatory requirements

3.1 Legislative requirements

The requirements of PIRMP are set out in Part 5.7A of the POEO Act and the *Protection of the Environment Operations (General) Regulation 2009* (POEO(G) Regulation).

In summary, this provision requires the following:

- All holders of EPLs must prepare a PIRMP (section 153A, POEO Act).
- The PIRMP must include the information detailed in the POEO Act (section 153C) and be in the form required by the POEO(G) Regulation (clause 98B).
- Licensees must keep the plan at the premises to which the EPL relates (section 153D, POEO Act).
- Licensees must test the plan at least every 12 months and after any pollution incidents in accordance with the POEO(G) Regulation (clause 98E).
- If a pollution incident occurs during an activity so that material harm to the environment is caused or threatened, licensees must immediately implement the PIRMP (section 153F, POEO Act).

Table 3.1 lists information required for inclusion in a PIRMP under Section 153C of the POEO Act and Clause 98C of the POEO (General) Regulation and where this information is in this plan.

Table 3.1 PIRMP requirements under Section 153C of the POEO Act and clause 98C of the POEO (G) Regulation

Section 153C	Detail required	Location in PIRMP
(a)	<p>The procedures to be followed by the holder of the relevant EPL, or the occupier of the relevant premises, in notifying a pollution incident to:</p> <ul style="list-style-type: none"> • the owners or occupiers of premises in the vicinity of the premises to which the environment protection licence or the direction under section 153B relates; • the local authority for the area in which the premises to which the environment protection licence or the direction under section 153B relates are located and any area affected, or potentially affected, by the pollution; and • any persons or authorities required to be notified by Part 5.7. 	4.1
(b)	A detailed description of the action to be taken, immediately after a pollution incident, by the holder of the relevant environment protection licence, or the occupier of the relevant premises, to reduce or control any pollution.	4.1.1
(c)	The procedures to be followed for co-ordinating, with the authorities or persons that have been notified, any action taken in combating the pollution caused by the incident and, in particular, the persons through whom all communications are to be made.	4.2 4.3
(d)	<p>Any other matter required by the Protection of the EO(G) Regulations (as set out below):</p> <p>98C (1)(a)</p> <p>A description of the hazards to human health or the environment associated with the activity to which the licence relates (the relevant activity).</p>	5.1

Table 3.1 PIRMP requirements under Section 153C of the POEO Act and clause 98C of the POEO (G) Regulation

Section 153C	Detail required	Location in PIRMP
	98C (1)(b) The likelihood of any such hazards occurring, including details of any conditions or events that could, or would, increase that likelihood.	5.2
	98C (1)(c) Details of the pre-emptive action to be taken to minimise or prevent any risk of harm to human health or the environment arising out of the relevant activity.	5.4
	98C (1)(d) An inventory of potential pollutants on the premises or used in carrying out the relevant activity.	5.1
	98C (1)(e) The maximum quantity of any pollutant that is likely to be stored or held at particular locations (including underground tanks) at or on the premises to which the licence relates.	5.1
	98C (1)(f) A description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident.	Table 5.11
	98C (1)(g) The names, positions and 24-hour contact details of those key individuals who: (i) are responsible for activating the plan; (ii) are authorised to notify relevant authorities under section 148 of the Act; and (iii) are responsible for managing the response to a pollution incident.	Table 4.2
	98C (1)(h) The contact details of each relevant authority referred to in section 148 of the Act.	Table 4.1
	98C (1)(i) Details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on.	Table 4.3
	98C (1)(j) The arrangements for minimising the risk of harm to any persons who are on the premises or who are present where the scheduled activity is being carried on.	5.6
	98C (1)(k) A detailed map (or set of maps) showing the location of the premises to which the licence relates, the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises and the location of any stormwater drains on the premises.	Figures 1.1, 1.2 & 5.1 Appendix A & B
	98C (1)(l) A detailed description of how any identified risk of harm to human health will be reduced, including (as a minimum) by means of early warnings, updates and the action to be taken during or immediately after a pollution incident to reduce that risk.	5.6
	98C (1)(m) The nature and objectives of any staff training program in relation to the plan.	7.1
	98C (1)(n) The dates on which the plan has been tested and the name of the person who carried out the test.	7.2

Table 3.1 PIRMP requirements under Section 153C of the POEO Act and clause 98C of the POEO (G) Regulation

Section 153C	Detail required	Location in PIRMP
	98C (1)(o) The dates on which the plan is updated.	7.2
	98C (1)(p) The manner in which the plan is to be tested and maintained.	7.2

3.2 Definition of a pollution incident

The definition of a pollution incident is as follows:

Pollution Incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is likely occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

A pollution incident is required to be notified if there is a risk of ‘material harm to the environment’, which is defined in section 147 of the POEO Act as:

- harm to the environment is material if:
 - it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial; or
 - it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations); and
 - loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

Iluka must report pollution incidents immediately to the EPA, NSW Health, Fire and Rescue NSW, WorkCover NSW and the local council. ‘Immediately’ has its ordinary dictionary meaning of promptly and without delay.

4 Notification and communication

4.1 External notification

Iluka, its employees, contractors and sub-contractors have a duty to notify any pollution incident where there is risk of ‘material harm to the environment’ (as defined in the POEO Act, see Section 3.2). The authorities that require notification immediately following a pollution incident at the activity site are listed in the order they are to be contacted in Table 4.1.

Table 4.1 External agencies

Name	Contact details	Location
Police	000 03 5020 1404	Balranald
Ambulance	000	Balranald
NSW Rural Fire Service	000	Balranald
Fire and Rescue NSW	000 03 5020 1577	Balranald
NSW Volunteer Rescue Squad	03 5020 1966	Balranald
Hospitals	03 5020 1606	Balranald District Hospital
	03 5033 9900	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.poisoninfo.nsw.gov.au
NSW Environment Protection Authority (EPA)	13 15 55	www.epa.nsw.gov.au
NSW Resources and Energy – Resources Regulator	1300 814 609	www.resourcesandenergy.nsw.gov.au
SafeWork NSW	13 10 50	www.safework.nsw.gov.au
Balranald Shire Council	03 5020 1300	Balranald

Schedule 5, Condition 6 of Iluka’s development consent (SSD-5285) requires reporting to relevant agencies and external stakeholders as follows:

- Iluka shall immediately notify the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment.
- For any other incident associated with the development, Iluka shall notify the Secretary and any other relevant agencies as soon as practicable after the Applicant becomes aware of the incident.
- Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

4.1.1 Procedure for contacting emergency services

Prior to the start of on-site activities

The Site Manager shall ensure local emergency services are provided with a site tour. The site tour aims to familiarise local services with:

- site layout;
- operational aspects;
- site access requirements;
- current response resources and arrangements; and
- special requirements.

During an emergency

1. Dial 000.
2. Request relevant services (ie Police, Ambulance, Rural Fire Service, Fire and Rescue).
3. Then give:
 - a) nature of incident;
 - b) location and access to the area (activity site accessed via Burke and Wills Road (unsealed road) which turns due east approximately 15 km off Hatfield-Penarie Road. Access is then through Karra Station (private property) via an unsealed access track 5 km; and
 - c) any other relevant information (eg person(s) injured etc).
4. Arrange for someone to direct emergency services from the Karra Station turn off on Burke and Wills Road to incident location.
5. Provide relevant information to emergency services on arrival.

The Balranald Police Station is staffed 24 hours a day within the Balranald township. In an emergency the Balranald Police will be primarily be responsible for:

- traffic control;
- security control; and
- facilitating the response to missing persons.

Additional police stations are in Mildura and Swan Hill.

The ambulance station is located adjacent to the Balranald District Hospital. The ambulance fleet is on-call 24 hours a day and consists of two all-wheel drive (AWD) vehicles plus a larger two-wheel drive (2WD) mobile unit. All-wheel drive units should be able to access most areas of the Balranald Project site except in periods during or after heavy rains.

On most occasion's patients would be evacuated to the Balranald Hospital for stabilisation and treatment, however there maybe the need to transfer patients directly to Mildura or Swan Hill depending on criticality and availability of local resources.

Balranald has a small all-weather airfield approximately 3-4 km north of the Balranald township which allows for the aero-medical evacuation of critical emergencies via the NSW Ambulance Service. The Royal Flying Doctor Service is based in Broken Hill and may assist with aero-medical evacuation depending on circumstances.

The process of medical evacuation and treatment shall be determined by the local Rural NSW Ambulance Service and the treating doctor.

The Rural Fire Service (RFS) is a volunteer-based service located in the Balranald Township. Two fire trucks are available to deploy from Balranald while additional support can be provided from the Country Fire Authority (CFA) in Swan Hill. The primary responsibility of the RFS is firefighting and providing support to other emergency organisations as required.

The Volunteer Rescue Association (VRA) is a local volunteer-based organisation that responds to vehicle incidents and search and rescue based out of the Balranald township. Outside assistance can be called upon from Narrandera. The VRA are normally initiated by the local Police, however, can be contacted separately as needed. The VRA has two four-wheel drive (4WD) rescue vehicles fitted with specialised road rescue extrication and retrieval equipment. Further assistance can also be called upon by the local RFS.

The expected response times will vary according to availability of local resources. In most occasions the local response time would be 20-40 minutes for the activity site.

4.2 Internal notification

The contact details of Iluka personnel responsible for the management and implementation of PIRMP are given in Table 4.2.

Table 4.2 Personnel responsible for implementing PIRMP

Name	Contact details	Position	Responsibilities
Personnel			
Stephan Esterhuysen	042 9222 945	Project Manager	Be accountable for project EH&S performance Ensure adequate resources are provided to maintain EH&S standards Provide active and visible leadership in EH&S Review and approve project EH&S and emergency control and response procedures Ensure EH&S is a key consideration in project planning Ensure project EH&S risks have been identified and managed Ensure project compliance to EH&S legislation Ensure EH&S is a key consideration in the design phase Ensure a full investigation is conducted for incidents as required

Table 4.2 Personnel responsible for implementing PIRMP

Name	Contact details	Position	Responsibilities
Joel Butcher	0428 820 528	Site Manager, Community Relations, Chief Warden	Accountable for EH&S performance of the field program Ensure personnel under their control are trained and inducted Review and investigate incidents and hazards Ensure individuals are authorised to access the project site Ensure program EH&S risks have been identified and managed Ensure the contractor is able to meet project EH&S requirements Ensure program activities are adequately resourced and supervised Engage with stakeholders on project issues Maintain Stakeholder Engagement Plan Assist in the resolution of community complaints and concerns
Lisa McGrath	0475 122 950	HSEC Manager	Maintain the EH&S Plan, Emergency Control and Response Plan and PIRMP
Patrick Nolan	0400 803 557	Senior Safety Advisor	Ensure EH&S systems are in place and maintained for the project
Mick Katzorke	0400 803 557	Senior Safety Advisor	Ensure emergency control and response systems are in place and maintained for the project Review contractor EH&S pre-qualifications and plans Provide EH&S support and advice to project team members Submit EH&S performance reports to management Conduct regular EH&S inspections and audits Facilitate EH&S incident investigations Conduct inductions and facilitate EH&S training Facilitate contract risk assessments Promote EH&S in appropriate forums Provide EH&S coaching and mentoring to project team members
Paul Gibbons	0477 702 413	Senior Environment Specialist	Ensure relevant environmental approvals are in place prior to work Establish systems for managing environmental impacts and risk
Luke Griffiths	0412 022 242	Environment Specialist	Establish and implement environmental monitoring programs Liaise with government agencies Conduct regular environment inspections and audits Participate in contract EH&S risk workshops, if required Facilitate reporting and investigation of environmental incidents Provide specialist environmental support to project team
Daniel Emes	0439 879 737	Radiation Safety Officer	Radiation awareness and management Radiation emergency response

In the event of a pollution incident the most senior person on site will assume the role of Emergency Response Team Leader, usually the Site Manager, or in his/her absence, the Site Supervisor, or in his/her absence the Project Engineer, or in his/her absence the Operator.

4.3 Communicating with neighbours and the local community

In the event of an incident of actual or potential material harm the community will be notified by the following procedures:

- Information provided to the community will include the following details specific to the incident:
 - The type of incident that has occurred.
 - Potential impacts to the community.
 - Contact details for the site and relevant authorities.
 - Advice or recommendations based on the incident.

The only people allowed to address the media and the public are those assigned as per Iluka's *DSSP-NAT-CORP-0012: Crisis Management Plan*. Anyone else is strictly prohibited from giving comments or answering any questions from the media or the public.

Neighbouring properties near or on the activity site are private landholders primarily used for cropping and livestock. Landholders are described in Table 4.3

A local muster point shall be detailed on the site evacuation plan. The muster point on site is shown on Figure 5.1 and shall be signed posted and site personnel shall be made aware of the location during the site induction.

Table 4.3 Landowner details and the location of neighbouring properties

Name	Contact details	Location
Bruce Williams	Mobile: 0427346798 UHF 40	Karra, Bramah
Bernie Hoare	Mobile: 0427515008 UHF 27	Tin Tin
Sam Lanteri	Mobile: 0427748483 UHF 37	Hughdale
Peter and Sue Morton Brett Morton (son) Nathan Morton (son)	Mobile: 0429201756 (Peter) Mobile: 0429201757 (Brett) Mobile: 0407381429 (Nathan)	Pine Lodge, Dundomallee (water extraction)
Dianne Williams	03 5020 1653 Mobile: 0427206801	Nanda
Craig and Sue Williams	Mobile: 0427346412 UHF 16	Upton Downs
Anthony and Trudi Curran	03 5029 7290 Mobile: 0428263204 UHF 14	Wampo
Phillip and Sandi Pippin	03 5020 6844 Mobile: 0427206844 UHF 30	Wintong

5 Major hazards

5.1 Inventory of pollutants

Hazardous materials stored at the activity site primarily include diesel fuel as well as chemicals for use by the drill rig and any ancillary equipment.

The Environmental Management Plan (October 2019) outlines the environmental monitoring requirements.

5.1.1 Fuel storage and use

Storage of hazardous material will comprise diesel and other chemicals. The diesel and chemicals will be used by the drill rig and any ancillary equipment.

Diesel will be stored on site in two separate double-skinned bunded fuel cells each with a capacity of 30,000 L. Over the course of the activity, approximately 1.4 million litres of diesel will be required.

Chemicals will be stored onsite for use by the drill rig and any ancillary equipment (total approximately 15,000 litres).

The following mitigation measures will be implemented:

- Hazardous substances will be stored in compliance with or exceed regulatory requirements.
- An isolation valve will be present on the fuel cell outlet, before the dispensing hose, to enable isolation of tank contents in the event of a leak.
- The isolation valve will be made of steel and locked to prevent unauthorised release of product.
- All fittings, pumps, valves and hoses will be replaced or repaired if not correctly functioning.
- Pumps will be of an approved type for the pumping of fuel.
- Spills will be managed in accordance with Iluka's hydrocarbon spill kit procedure.
- A copy of Iluka's hydrocarbon spill kit procedure will be kept on site at all times.
- Hydrocarbon spill kits and absorbent matting will be located on site at the fuel cell, drill rig and in all vehicles.
- All site personnel, including contractors, will be inducted in the use of hydrocarbon spill kits.
- Gensets will be appropriately bunded.
- Waste hydrocarbon bins will be provided and collected by licensed waste contractor(s) for off-site disposal at a licensed landfill.
- Current safety data sheets (SDSs) will be maintained on site for all chemicals on site, including for the drilling additives.
- Information contained within SDSs will be considered when determining the most appropriate means of disposal.

- All vehicles scheduled to take part in the field programs will be inspected prior to accessing site to identify potential hydrocarbon leaks or other defects.
- Substances no longer required will be removed by a licensed waste contractor for off-site disposal at a licensed facility.

5.1.2 Chemical storage and use

Chemicals will be stored on site for use by the drill rig and ancillary equipment (total approximately 15,000 litres) – refer Table 5.1.

Table 5.1 Chemicals stored and handled on the activity site

Location	Chemical type(s)	Maximum quantity
Activity site	AMC BIOCIDE G	<1,000 litres (L)
	AMC DET XTRA	<1,000 L
	AMC GEL	<1,000 L
	AMC LIQUI-SPERSE HT	<1,000 L
	AMC PAC L	<1,000 L
	AMC PHPA (PRODUCT OBSOLETE)	<1,000 L
	AMC SODA ASH	<1,000 L
	AMC XAN BORE	<1,000 L
	AZOLLA ZS 100	<1,000 L
	BOSTIK RTV 922	<1,000 L
	BRAKE AND CLUTCH FLUID	<1,000 L
	CIGWELD COMMWELD COPPER AND BRASS FLUX	<1,000 L
	LOCTITE 272	<1,000 L
	METHYLATED SPIRITS	4,000 L
	DUSTEX (x 4)	<1,000L
	LIME	

The assessment, approval and use of hazardous chemicals shall be controlled in accordance with Iluka's *Hazardous Substances Procedure*.

Hazardous substances will be approved before they are introduced onto the activity site. The requestor wishing to introduce a hazardous substance will complete the first page of the *Hazardous Substances Approval Form FRM7436* which will then be submitted to the Iluka Site Health & Safety Advisor (Site H&S Advisor) for assessment and approval. A copy of the manufacturer's SDS is to be attached to the approval form to assist with the assessment.

The assessment process will determine:

- if the substance is necessary;
- if there is a less hazardous alternative; and
- if the health, safety and environmental risks associated with storage, handling and disposal are adequately controlled.

Once approval has been granted, the Iluka Site H&S Advisor will add the hazardous chemical to ChemAlert.

All dangerous goods are also registered on Iluka's Dangerous Goods Manifest that is kept on site at the sign-in office.

5.1.3 Ionising radiation

There are two (2) sources of ionising radiation at the activity site:

1. Density gauges.
2. Naturally occurring radioactive material (NORM) derived from the heavy mineral stockpile.

Radiation associated with these sources will be managed according to the activity site *Radiation Management Plan (RMP)* under the guidance of the appointed Radiation Safety Officer (RSO).

The following controls are in place to keep potential radiation exposure as low as reasonably achievable (ALARA):

- Density gauges installed and removed by qualified Radiation Safety Officer (RSO).
- Ore stockpile (20,000 t) remain in-situ on an engineered pad (see Section 5.1.6).
- Access control to the activity site is restricted by fencing and due to its location being on private land.
- Implementation of standard operating procedures for NORM in accordance with RMP.
- Ore stockpile will be stabilised with a chemical binding agent to minimise/prevent windblown loss.
- Housekeeping and personal hygiene procedures will be maintained.

The locations of density gauges on site are shown in Figure 5.1.

5.1.4 Air quality

Schedule 3, Condition 7 of the development consent prescribes air quality performance criteria and are reproduced in Table 5.2.

Table 5.2 Criteria for particulate matter and deposited dust

Pollutant	Averaging period		Criterion
Total suspended particulate (TSP) matter	Annual		90 µg/m ³
Particulate matter < 10 µm (PM10)	Annual		30 µg/m ³
Particulate matter < 10 µm (PM10)	24 hours		50 µg/m ³
Deposited dust	Annual	Maximum increase in deposited dust level - 2 g/m ² /month	Maximum total deposited dust level - 4 g/m ² /month

The following mitigation measures will be implemented:

- Ore stockpiles will be limited to a height of 6 m.
- Topsoil/subsoil stockpiles will be limited to a height of 3 m.
- The moisture content of the ore material stockpile will be maintained, or additional stabilisation methods will be applied (eg sprinklers, tarpaulin covers).
- A water truck will be available for dust suppression, as required.
- Appropriate speed limits will be applied to access tracks to minimise dust generation.

- Water will be injected down drilling rods to dampen and suppress dust.
- Shade-cloth fencing will be erected around the ore pad to minimise loss of material through wind.
- All vehicles will be fitted with exhaust mufflers engineered to manufacturer specifications.
- All vehicles will be inspected prior to commencing activities to ensure equipment is serviceable.

5.1.5 Noise management

Schedule 3, Condition 3 of the development consent prescribes noise criteria, and are reproduced in Table 5.3.

Table 5.3 Criteria for operational noise

Location	Day	Evening	Night	
	LAeq(15min)	LAeq(15min)	LAeq(15min)	LA1(1min)
All privately-owned land	35	35	35	45
Mungo National Park and Mungo State Conservation Area	50	50	50	-

The following controls will be implemented:

- All plant and equipment will be in good working order and fitted with muffling devices to minimise noise and ensure sound outputs are within manufacturer specifications.

The following protocols will be implemented:

- Landholders whose land is directly affected by the activity will continue to be updated on the activities and access routes in use on their properties.
- Landholder/community complaints will be recorded and addressed promptly in accordance with Iluka's *HSEC Group Standard 02 - Social Performance* (Appendix E).

5.1.6 Water management

i Surface water

The activity does not involve abstraction from, and/or discharge to, surface water sources. Schedule 3, condition 14 of the development consent prescribes performance measures for surface water and are reproduced in Table 5.4.

Table 5.4 Water management performance measures (surface water)

Feature	Performance measure
Water management – general	<ul style="list-style-type: none"> • Minimise the use of clean water (ie water not in contact with disturbed areas) on site. • Minimise the need for make-up water from external supplies.

Table 5.4 Water management performance measures (surface water)

Feature	Performance measure
Construction and operation of infrastructure	<ul style="list-style-type: none"> Design, install and maintain erosion and sediment controls generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction</i> including Volume 1, Volume 2A – <i>Installation of Services</i> and Volume 2C – <i>Unsealed Roads</i>. Design, install and maintain infrastructure within 40 m of watercourses generally in accordance with the <i>Guidelines for Controlled Activities on Waterfront Land</i> (DPI 2007), or its latest version. Design, install and maintain any creek crossings generally in accordance with the <i>Policy and Guidelines for Fish Habitat Conservation and Management</i> (DPI, 2013) and <i>Why Do Fish Need to Cross The Road? Fish Passage Requirements for Waterway Crossings</i> (NSW Fisheries 2003), or their latest versions.
Clean water diversion and storage infrastructure	<ul style="list-style-type: none"> Design, install and maintain the clean water system to capture and convey the 100-year ARI flood. Maximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site.
Sediment dams	<ul style="list-style-type: none"> Design, install and/or maintain the dams generally in accordance with the series <i>Managing Urban Stormwater: Soils and Construction</i> – Volume 1 and Volume 2E <i>Mines and Quarries</i>.
Mine water storages	<ul style="list-style-type: none"> Design, install and/or maintain mine water storage infrastructure to ensure no discharge of mine water or saline water off-site (except in accordance with an EPL). On-site storages (including mine infrastructure dams, groundwater storage and treatment dams) are suitably designed, installed and/or maintained to minimise permeability, where practicable.
Flood mitigation measures	<ul style="list-style-type: none"> Design, install and maintain flood mitigation measures including bunds to exclude flows from inundating the mining areas for all flood events up to and including the Probable Maximum Flood level. Manage any residual downstream impacts in an appropriate manner.
Overburden emplacements	<ul style="list-style-type: none"> Design, install and maintain emplacements to encapsulate and prevent any off-site migration of tailings, acid forming and potentially acid forming materials, and saline and sodic material. Design, install and maintain emplacements to prevent off-site migration of saline groundwater seepage.
Chemical and hydrocarbon storage	<ul style="list-style-type: none"> Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standards.

The following mitigation measures will be implemented to manage surface water volumes:

- Site infrastructure (ore pad) will be designed for a 1:50 year average recurrence interval (ARI) flood event, while the drill pads/hardstands will be designed for a 1:10 year ARI.
- All site infrastructure containing extracted ore will be contained on a pad specifically engineered to contain additional runoff in the event of an extreme rainfall event.
- All site infrastructure containing fines will be contained in a dam specifically engineered to contain any additional runoff in the event of an extreme rainfall event (ie with sufficient design capacity).
- Drilling muds encountered during construction of groundwater monitoring infrastructure will be disposed into a lined turkeys nest dam or surface storage tanks.
- Diversion drains will be constructed within the perimeter of site infrastructure to divert surface water runoff away from the site infrastructure and into a detention basin.

- Overburden stockpiles will be located on an engineered hardstand that diverts surface runoff to the diversion drains.
- During construction, sediment collection devices and erosion control works will be implemented, if required (eg silt fences, sandbags, diversion drains, geofabric).

The following procedures will be implemented in the event of a saline leakage from any water storage infrastructure, including pipelines:

- The spill will be immediately contained.
- The area will be flushed with fresh water, if required.
- The spill event will be reported through the Iluka incident reporting system (ie Loss Control Card (LCC)), root causes will be identified, remedial measures will be implemented to prevent re-occurrence and the relevant regulator and landholder will be notified, if required.
- Affected soils will be tested after 12 months, if required, and additional remediation actions will be implemented. This may include:
 - disposal of the contaminated soil to a suitable waste facility; and
 - the introduction of uncontaminated topsoil at the affected site.

The following measures will be implemented to mitigate potential acid generation in the ore stockpile:

- Construction methods used for the ore pad will reduce the potential for seepage (eg compaction, low permeability material incorporating limestone).
- Minimise surface area of ore stockpiles.
- Surface water drainage control around stockpiled ore.
- Regular water monitoring at the process water dams and surface drainage surrounding ore stockpile in accordance with the Groundwater Management Plan (GMP).
- During the care and maintenance phase the stockpile will be sprayed with binding agent to prevent dust generation and covered by a low permeability layer if acid mine drainage test work identifies any risks of acid generation.

The potential impact of contamination of land due to acid generation is considered to be insignificant in the long-term as the site will be later completely mined and re-processed, which would remove any residual contamination.

ii Ground water

Schedule 3, Condition 14 of the development consent prescribe performance measures for groundwater management measure and reproduced in Table 5.5.

Table 5.5 Water management performance measures (groundwater)

Feature	Performance Measure
Loxton Parilla Sands and Shepparton alluvial aquifers	<p>Negligible environmental consequences to the alluvial aquifer beyond those predicted in the EIS, including:</p> <ul style="list-style-type: none"> • negligible change in groundwater levels beyond those predicted; • negligible change in groundwater quality beyond those predicted; and • negligible impact to other groundwater users' levels beyond those predicted.

A GMP has been prepared to manage potential groundwater risks associated with the activity. Operating objectives for the management of groundwater are defined in the GMP:

- Meet dewatering, water supply and disposal requirements.
- Do not adversely impact neighbours water availability.
- Do not adversely impact native groundwater quality off the mining lease or in the underlying Lower Renmark Group.
- Use water efficiently.

The following mitigation measures will be implemented (as outlined in the GMP):

- The construction methodology for all groundwater production and re-injection wells will ensure hydraulic isolation of the screened aquifer from other overlying formations, via pressure-grouting of casing material.
- Abstraction volumes from the LPS¹ and Lower Renmark Group² will be in accordance with Water Access Licences 31101 and 31102 respectively.
- Groundwater abstraction and re-injection will be in accordance with site specific trigger levels (SSTLs) to ensure appropriate management responses are implemented to minimise the impacts to both the environment and other water users.
- Injection water quality will be in accordance with water licence conditions 60WA583169 and 60BL216701, being:
 - the pH of the water to be reinjected is between 6.5 and 8.5, or is treated to bring the pH within this range; and
 - water injected to the aquifer to make the ore slurry must be of the same or better quality as the aquifer receiving water (as per the beneficial use classification) and should be free of any pollutants.

1 Abstraction allowance of 2,350ML has been purchased for the Balranald project under Water Access Licence No. 31102 for the 2019/20 water trade period, water for the 2020/2021 period will be secured as in accordance with statutory requirements.

2 An abstraction allowance of 150ML has been purchased for the Balranald project under Water Access Licence No. 31101 for the 2019/20 water trade period, water for the 2020/2021 period will be secured as in accordance with statutory requirements.

5.1.7 Acid mine drainage

To manage impacts associated with potential acid generation at the ore stockpile, Iluka will employ the following mitigation measures:

- Construction methods used for the ore pad will reduce the potential for seepage (eg compaction, low permeability material incorporating limestone or liner).
- Minimise surface area of ore stockpiles.
- Surface water drainage control around stockpiled ore.
- Regular surface and groundwater monitoring at the process water dams, drainage surrounding ore stockpile.
- During the care and maintenance phase the stockpile will be covered by a low permeability layer if acid and metalliferous drainage (AMD) test work identifies any risks of acid generation.
- Ore material will be retained onsite until the Balranald Project is operational, unless the appropriate consents are in place.

5.1.8 Subsidence management

A *Subsidence Management Plan* (SMP) has been prepared to manage and mitigate impacts from the activity.

During rehabilitation, the cavities will be backfilled to improve ground stabilisation. With proposed backfilling, the SMP predicts a subsidence depth of 600 mm.

It is noted however that there is a high degree of uncertainty about the absolute levels of subsidence due to the scarcity of data on which to base a prediction model. T3 will assist in improving the accuracy and confidence in subsidence predictions, by gathering more empirical data.

In accordance with the SMP, the following mitigation measures will be implemented:

- Ore removal will be limited to one cavity at a time, to better monitor potential visual subsidence.
- Site infrastructure will be located outside of the subsidence zones of influence (ie outside of the areas directly above the cavities and stopes).
- Earthmoving equipment will be used to reshape the affected subsided surface as part of site rehabilitation, if required.

5.2 Description and likelihood of hazards

Iluka has undertaken risk assessment workshops to identify the risks for mining operations, processes and rehabilitation and closure associated with the activity.

This includes a dedicated operational risk assessment and an environmental risk assessment. A broad range of relevant personnel have provided input into the risk assessments including Iluka operational staff, Senior Environment Specialist, Senior Environment and Community Specialist, and environmental and heritage consultants.

The risk assessments have been undertaken using Iluka's PRC6806: *Risk Assessment Procedure*, which is generally in accordance with the requirements of the AS/NZS ISO 3100:2009 *Risk Management - Principles and Guidelines*.

The potential major hazards and procedures to be followed in the event of each hazard are described in detail in the *Balranald Project EH&S Plan*.

5.3 Risk assessment

The risk assessment was undertaken using two variables, namely:

- the potential severity or consequences of the hazard; and
- the likelihood of the impact occurring.

The variables were evaluated, assuming standard management measures would be in place.

Table 5.6 Severity or consequence of hazards

Level of effect	Example of each level
Insignificant/acceptable	No effect – or so minor that effect is acceptable
Minor	First aid treatment only; spillage contained at site.
Moderate	Medical treatment; spillage contained but with outside help.
Major	Extensive injuries; loss of production
Catastrophic	Death; toxic release of chemicals

The definitions in Table 5.6 and Table 5.7 were applied.

The severity of potential hazards according to the severity classes given in Table 5.7.

Table 5.7 Likelihood of hazard

	Criteria	Description
Almost certain	Expected in most circumstances	Effect is a common result
Likely	Will probably occur in most circumstances	Effect is known to have occurred at this site or it has happened
Possible	Might occur at some time	Effect could occur at this site or I've heard of it happening
Unlikely	Could occur at some time	Effect is not likely to occur at the site or I have not heard of it happening

Table 5.7 **Likelihood of hazard**

	Criteria	Description
Rare	May occur in exceptional circumstances	Effect is practically impossible

The risk matrix (refer Table 5.8) was then used to determine the environmental risk rankings for the project. In each case, a score of 1 to 5 is given for the consequence and likelihood of hazard, with the sum of the scores used to determine the environmental risk.

Table 5.8 **Environmental assessment matrix**

Likelihood	Consequences				
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
5 Almost certain	6 High	7 Critical	8 Critical	9 Critical	10 Critical
4 Likely	5 High	6 High	7 Critical	8 Critical	9 Critical
3 Possible	4 Medium	5 High	6 High	7 Critical	8 Critical
2 Unlikely	3 Low	4 Medium	5 High	6 High	7 Critical
1 Rare	2 Low	3 Low	4 Medium	5 High	6 High

Table 5.9 lists the four classes of environmental risk utilised in the assessment:

Table 5.9 **Risk rating**

Score	Action
7-10 A: Critical	ACT NOW – Urgent - do something about the risks immediately. Requires immediate attention.
5-6 H: High	Highest management decision is required urgently
4 M: Medium	Follow management instructions.
2-3 L: Low	OK for now. Record and review regularly, and if any equipment/ people/ materials/ work processes or procedures change.

The results of the risk assessment are shown in Table 5.10.

Table 5.10 Risk assessment

Potential impact	Occurrence	Severity	Risk Ranking
Ore stockpile			
Windblown loss of mineralised ore (NORM)	3 (Possible)	1 (Minor)	4 (Medium)
Water			
Process water dam leak or failure and release outside activity site boundary	3 (Possible)	1 (Minor)	4 (Medium)
AMD			
Acid generation at the ore stockpile	3 (Possible)	1 (Minor)	4 (Medium)
Subsidence			
Subsidence above underground mined cavities	3 (Possible)	1 (Minor)	4 (Medium)
Accident / emergency			
Accidents/incidents/medical emergencies	3 (Possible)	2 (Medium)	5 (High)

5.4 Pre-emptive actions to be taken

Iluka has developed and implemented the following pre-emptive actions and procedures for potential emergency and pollution incidents at the activity site:

- Provision of adequate safety and pollution control equipment onsite including spill kits, access to a water cart, safety showers and firefighting equipment.
- Established clear evacuation routes, assembly points and procedures.
- Personal protective equipment (PPE) required for all personnel and visitors on the site.
- Pre-mobilisation inspection of plant and equipment prior to accessing site.
- Dangerous goods review in accordance with SafeWork NSW requirements.

5.5 Safety equipment

Safety equipment or other devices used to minimise risks to the environment and human health and to contain or control a pollution incident at the site is outlined in Table 5.11.

Table 5.11 List of safety equipment

Safety equipment	Description	Location
Communication systems		
Site access	The access of all individuals to the project site shall be in accordance with the Balranald Project <i>Site Access Procedure</i> (PRC7414). Visitors shall complete a visitor's induction and be accompanied by a fully inducted person at all times while on the project site.	To be completed by all personnel prior to accessing site.

Table 5.11 List of safety equipment

Safety equipment	Description	Location
UHF, mobile and satellite telephones	These will permit communications with outside emergency services.	All vehicles (satellite phones required where UHF or mobile service is out of range)
Firefighting equipment		
Fire extinguisher - vehicles	These are to be used in combating minor fires.	Fire extinguishers of appropriate types and capacities are carried in all vehicles.
First aid equipment		
First aid	First aid trauma kits shall be maintained in all vehicles. Systems shall be in place to periodically check first aid equipment with a record of which must be maintained.	All vehicles
Pollution control equipment		
Spill kit	Spill kit and absorbent matting to be used in the event of a mechanical failure resulting in a hydrocarbon spill.	Adjacent the ore pad and process water dam.

The locations of safety equipment on site are shown in Figure 5.1.

5.6 Minimising harm to persons on the premises

The following actions and arrangements are in place to minimise the risk of harm to persons on the premises should a pollution incident occur:

- Emergency evacuation procedure.
- Emergency isolation and shutdown systems for all plant machinery.
- Clearly signposted emergency assembly point.

6 Incident management

6.1 Implementing the PIRMP

If a pollution incident occurs at the activity site during the activity so that material harm to the environment is caused or threatened, the person carrying out the activity must immediately implement this PIRMP.

In the event of unpredicted impacts, reporting and investigation will be in accordance with Schedule 5, Condition 6 of the development consent and Iluka's *Incident Reporting & Investigation Standard*.

Schedule 5, Condition 6 of the development consent requires reporting to relevant agencies and external stakeholders as follows:

- Iluka shall immediately notify the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment.
- For any other incident associated with the development, Iluka shall notify the Secretary and any other relevant agencies as soon as practicable after the Applicant becomes aware of the incident.
- Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Reporting and investigation of incidents will be in accordance with Iluka's Incident Reporting & Investigation Standard. The objective of this standard is that EHS incidents and near hits are reported and appropriately investigated to establish root cause and identify contributing factors, to enable preventive and corrective actions to be implemented to prevent recurrence, and to share learnings. Key elements of the Incident Reporting & Investigation Standard include:

- reporting, using Iluka's system of LCC;
- classification of incidents based on outcome and risk, according to Iluka's EHS risk matrix;
- investigation based on the classification of the incident from the previous step. This determines level of investigation and internal stakeholder notifications;
- records management using Iluka's Incident Management System (Cintellate); and
- training in the Incident Reporting & Investigation Standard to ensure it is implemented correctly by employees and contractors.

6.2 Actions to be taken during or immediately after a pollution incident

6.2.1 Responding to a pollution incident

On detection of a pollution incident which may endanger personnel, property or the environment and cannot be immediately controlled by the observer, the observer shall:

- alert Iluka Site Manager to the location and nature of the pollution incident; and
- commence appropriate action as detailed in this PIRMP (without compromising their own safety).

6.2.2 Responding to alerts

All pollution incident responses will be responded to as an emergency alert in accordance with the Balranald Project *EH&S Plan* and *Emergency Control and Response Plan*.

When an emergency alert is received, the person receiving the report shall:

- assume the role and responsibilities of the Emergency Response Team Leader until relieved or instructed otherwise;
- ensure the emergency is responded to, commensurate with the skills and qualifications of the workgroup;
- ensure the appropriate persons are notified in the event of incident including the Site Manager, local neighbours and other workgroups working in the area;
- ensure the incidents are managed in accordance with the Project *Emergency Control and Response Plan*;
- ensure all persons are evacuated to the designated muster point and accounted for;
- notify the Emergency Services as required; and
- handover control to Emergency Services on arrival and assist as directed.

Iluka's incident response structure is shown on Figure 6.1.

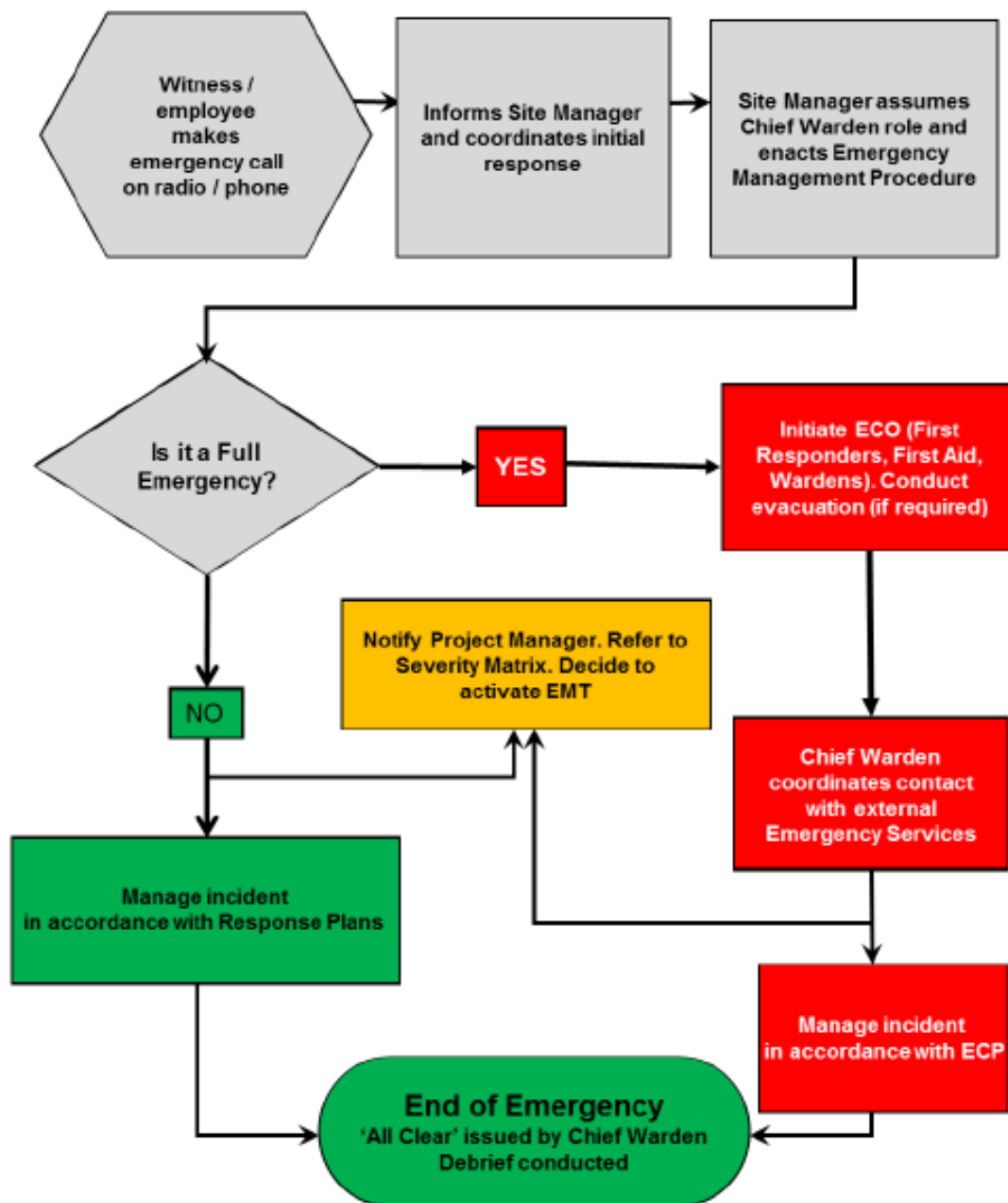


Figure 6.1 Incident response structure

6.2.3 Emergency response team leader

i Emergency and Crisis Management System

The Iluka Emergency and Crisis Management System (ECMS) is a tiered response based on the severity of an actual or potential event or issue that occurs when existing risk management controls fail. It enables appropriate resources to respond in a timely manner so that strategies can be defined, and actions undertaken to contain an event or issue and prevent the escalation of adverse consequences.

ECMS provides a corporate-wide, common and tested procedure that will allow an appropriate response to any circumstance, in any geographic location, in a predictable and measurable manner.

ii Management Priorities

Throughout any response, Iluka has the following protection priorities (P.E.A.R.L.):

- **People** – protect the health, safety and wellbeing of those involved (eg staff, contractors, visitors, landholders and the community).
- **Environment** – protect, preserve and restore the environment.
- **Assets** – repair property and assets and offset business losses to the extent practical.
- **Reputation** – preserve and, where possible, enhance Iluka’s reputation.
- **Livelihood** – return to safe operating conditions as quickly as possible.

These priorities, referred to as P.E.A.R.L are dynamic and will change during the lifecycle of an event.

iii Emergency management approach

Emergency management at Iluka is based on the principles developed by Emergency Management Australia. Iluka has made some adaptations for application of these principles to their emergency management organisation and documentation.

Iluka’s ECMS framework is based on a comprehensive approach, as defined by Emergency Management Australia:

- **Prevention** – strategies include hazard and community risk assessment aiming to prevent or mitigate the effects of an accident.
- **Preparedness** – development of strategies including actions plans, exercising and reviewing plans, training and awareness campaigns to ensure staff and the community are prepared to deal with any incident.
- **Response** – a coordinated implementation of action plans, systems and processes, including issuing warnings, communications and deploying resources in a timely and effective manner.
- **Recovery** – reconstruction of assets, restoration of systems and services to a position where activities revert to ‘business as usual’ and can be managed by normal business processes and resources. Recovery operations occur concurrently with response efforts but can continue for a protracted period.

iv Risk-based approach

Iluka adopts a risk-based approach which emphasises the importance of assessing hazards to address vulnerabilities thereby increasing resilience.

v 'All hazards' approach

Specific counter measures often vary with different hazards or emergencies. Iluka seeks to establish a set of management arrangements capable of encompassing all hazards, emergencies and crises. These arrangements are complimented by specific plans for dealing with high risk incidents such as those identified through risk assessment processes.

vi 'All-agencies' approach

Iluka envisages partnership arrangements and active involvement of multiple responders in all facets of dealing with an incident. 'All-Agencies' includes but is not limited to emergency services, government agencies, statutory authorities and other industry participants.

vii Prepared community

During an incident, an informed community can play a vital role in crisis and emergency management. Where the event has a public dimension, Iluka will endeavour to keep the community informed of potential threats and where applicable, the recovery process in a timely fashion.

6.2.4 Iluka emergency and crisis management system

Iluka's ECMS structure is based on several tiered teams, each with a different focus aligned with their capability, the severity of the event and the affected part of the company. The elements of the ECMS structure are shown in Figure 6.2. Some or all of these teams may be activated to deal with an event, depending on its specific outcomes and severity.

The tiered structure allows an appropriate level of response while also allowing each team to focus on a specific aspect of the response that is most relevant to their membership. The different teams and the focus of each is outlined in the following sub-sections.

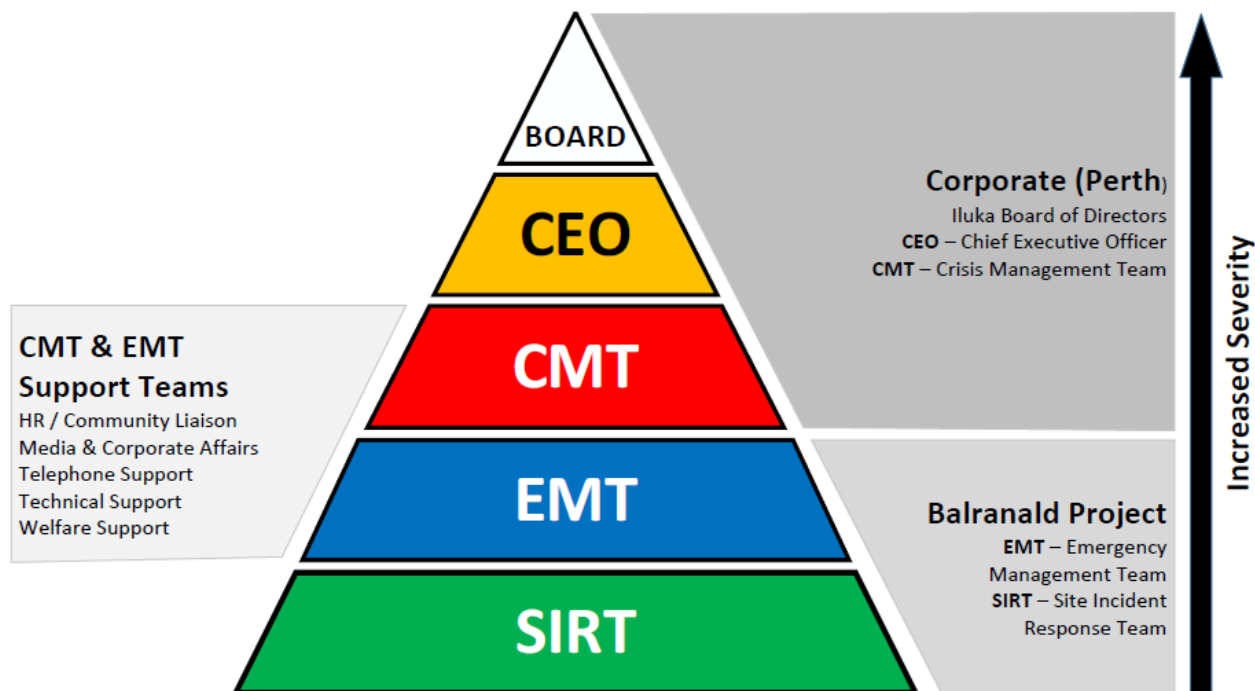


Figure 6.2 Iluka ECMS framework

i Crisis management team (CMT)

The role of the CMT is to provide support to Iluka’s operations in the event of a major incident/issue that has the potential to affect the company’s commercial position or shareholder value and to ensure the issues are managed in a way that protects Iluka’s business. The CMT manages all corporate wide issues, outcomes and stakeholders to ensure good corporate citizenship and business continuity for Iluka Resources. The CMT is based in Perth, Western Australia.

The CMT is responsible for ensuring the development, implementation and maintenance of an *EH&S Plan*, emergency procedures and related training and exercises. The CMT will also establish an Emergency Management Team (EMT) and Site Incident Response Team (SIRT) with the authority to implement these emergency procedures.

In accordance with AS 3745-2010, *Planning for Emergencies in Facilities*, the Project Manager and Health & Safety Manager from the Balranald EMT shall be responsible for establishing and maintaining the *EH&S Plan* and the appointment of adequately trained SIRT personnel with the authority to override normal management during an emergency.

ii Site incident response team (SIRT)

The role of the Balranald SIRT is to be able to respond safely and effectively manage a range of emergency incidents that could reasonably be expected to occur on site. The SIRT is made up of functions including Chief Warden, Communications Officer, Wardens and First Aiders.

iii Emergency services

The Emergency Services (police, fire brigade, ambulance, State Emergency Service) should be contacted immediately by the Chief Warden when an emergency requires external support. In these circumstances, SIRT will act in a support role under the overall command of the Emergency Services Incident Controller. The Chief Warden will be the main contact with the responding Emergency Services Incident Controller.

iv Emergency management team (EMT)

The role of the Balranald EMT is to oversee the site emergency response and the wellbeing of people involved in, or affected by, an incident or issue. They must do this whilst liaising with the CMT, if activated, to develop plans to return operations to normal as quickly as possible. The EMT is based in Perth, Western Australia.

6.2.5 Escalation process

If an incident or issue threatens or affects the activity site, its personnel or assets, the response will be escalated to include the appropriate teams according to the process illustrated in Figure 6.3.

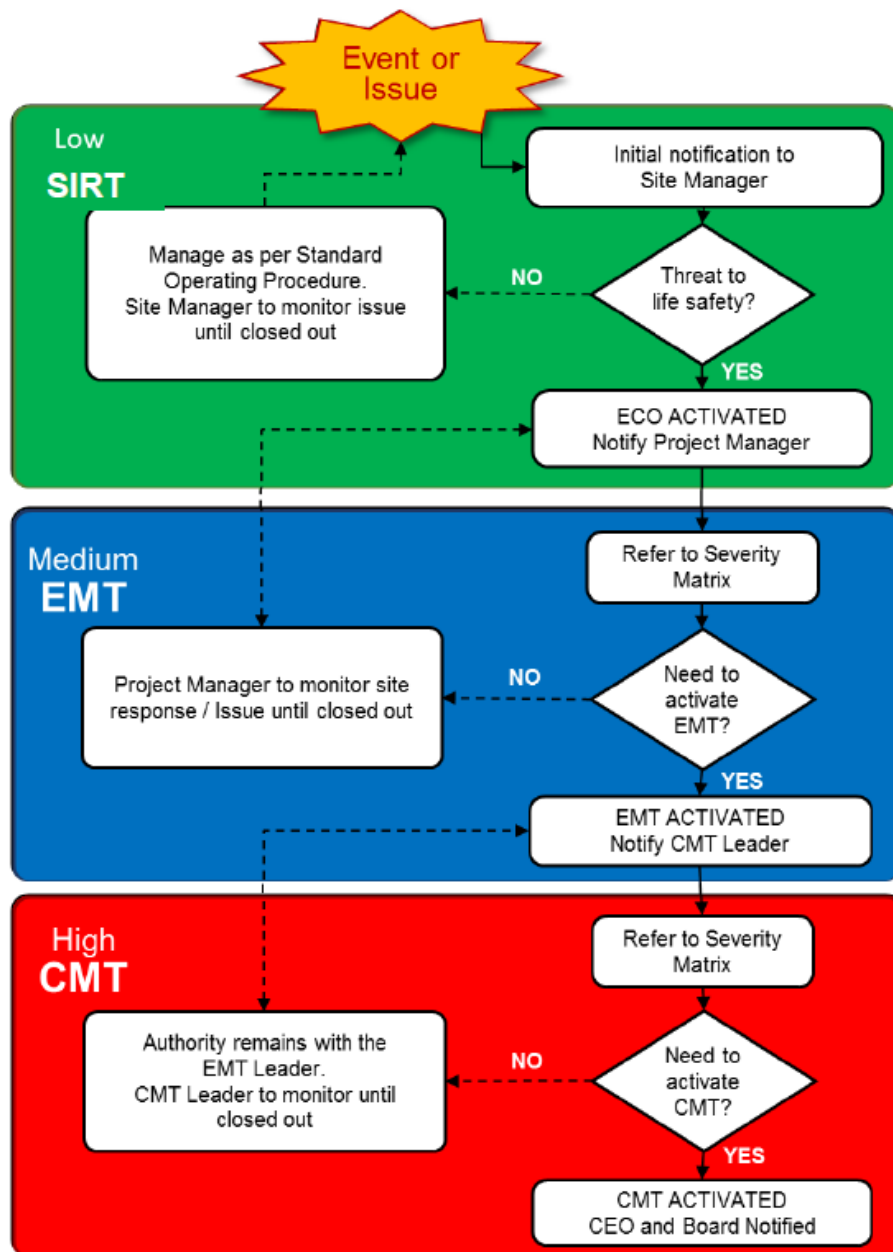


Figure 6.3 Notification and escalation pathway

The SIRT will implement the *Emergency Control and Response Plan* whenever there is a required response to threats to safeguard site occupants, property or the environment. This includes the evacuation or shelter-in-place of site occupants and the allocation of specific duties dependent on the threat. SIRT takes precedence over normal management at the affected site during an emergency.

6.2.6 Internal emergency services

The remaining personnel on site shall constitute the Internal Emergency Services. They shall operate under the direction of the Chief Warden and shall be responsible for performing the following tasks - in accordance to everyone's training, skill, competency and qualification and **ONLY IF SAFE TO DO SO:**

- Provide appropriate emergency services in accordance with the detailed emergency procedures outlined in Iluka's *Balranald Project EH&S Plan* and *Emergency Control and Response Plan*. This may include extinguishing fires, temporary repairs or spill containment as examples.
- Perform search and rescue and administer first aid to any person requiring assistance.

They shall continue to act in this capacity until the emergency is cancelled or they are relieved by outside emergency services.

6.2.7 Site incident response team

i First responders

This role is filled by site staff. Duties include:

- being prepared to take on the role and responsibilities of a First Responder;
- knowing the fire response procedure;
- wearing the correct Personal Protective Equipment;
- maintaining competency by participating in First Responder training and exercises;
- being familiar with the site layout, including exits, paths of travel and the location of any site hazards;
- acting under the direction of the Chief Warden and emergency services;
- being ready to take control of a designated incident scene (eg fire suppression);
- prevent unauthorised access to nominated areas;
- control access to nominated areas;
- providing assistance and safeguard anyone in danger;
- being able to operate the methods of communication used at the site;
- referring all media comment to the Balranald Project Manager; and
- participating in post-incident debriefs.

ii Chief Warden

The Site Manager will fulfil the role of Chief Warden. As the Chief Warden, the Site Manager shall:

- Pre-Incident:
 - Be fully conversant with the requirements of this PIRMP.
 - Communicate the requirements of the PIRMP to employees and contractors during pre-shift and toolbox meetings.
 - Ensure there is an adequate number of first respondents available.
 - Ensure emergency response facilities such as fire response and first aid are available.
- During Incident:
 - Ensure the emergency is responded to, commensurate with the skills and qualifications of the workgroup.
 - Ensure the appropriate persons are notified in the event of incident including the Project Emergency Management Team Leader, local neighbours and other workgroups working in the area.
 - Ensure incidents are managed in accordance with the Project Incident and Hazard Management Procedure.
 - Ensure all persons are evacuated to the designated muster point and accounted for.
 - Notify the Emergency Services as required.
 - Handover control to Emergency Services on arrival and assist as directed.
- Post Incident:
 - Ensure a debrief if conducted and recorded.

iii First responders

- Pre-Incident:
 - Update and maintain emergency response skills and qualifications.
- During Incident:
 - Apply emergency assistance commensurate with skills and qualifications.
 - Assist Emergency services as directed.
- Post Incident:
 - Attend emergency response debrief.

7 Training, testing and review

7.1 Staff training

Iluka will hold personnel training to enable implementation and testing of this PIRMP. The objectives of the staff training will ensure:

- that staff have an adequate understanding of incident management and emergency procedures to enable effective implementation of this PIRMP;
- all staff are aware of their responsibilities in the event of a pollution incident; and
- all personnel have a full knowledge and understanding of instructions relating to relevant emergency and pollution incidents with reference to those covering firefighting, and procedures for dealing with spillage.

PIRMP staff training will occur on an annual basis (at least).

7.2 Testing and reviewing plans

This PIRMP will be tested routinely at least once every 12 months. The testing will ensure that the information included in this PIRMP is accurate and up to date, and that the PIRMP is capable of being implemented in a workable and effective manner.

This PIRMP will be tested by Iluka during March 2020 and will be tested by undertaking a desktop review of the information included in this PIRMP.

The PIRMP will be updated within 3 months of testing by the Site Manager, if required.

The PIRMP must also be tested within one month of any pollution incident occurring. Following a pollution incident, the Site Manager will determine whether the information included in this PIRMP is accurate and up to date, and the plan is still capable of being implemented in a workable and effective manner.

8 PIRMP details

8.1 Form of the PIRMP

The purpose of this PIRMP is to improve the management of pollution incidents and facilitate better coordination with the relevant response agencies. They must be able to be provided in written form, be available at the premises and be able to be provided to an authorised EPA officer on request. While plans can be prepared and stored in other forms, a written copy must be available to an authorised EPA officer and to any person who is responsible for implementing the plan.

8.2 Availability of the PIRMP

A copy of the PIRMP must be kept at the activity site, so that it is readily available to those responsible for its implementation and to an authorised officer on request.

Some sections of the plans must be made publicly available within 14 days after they have been prepared by:

- placing them in a prominent position on publicly accessible website of the licensee.

Iluka Resources Limited will make this PIRMP available on their website at www.iluka.com.

The information will be made available to the public will include:

- the procedures for contacting the relevant authorities including the EPA, local council, NSW Ministry of Health, SafeWork NSW, and Fire and Rescue NSW; and
- the procedures for communicating with the community.

8.3 Relationship with other plans

Several of Iluka's other plans and documents were considered in the preparation of this PIRMP, including:

- Balranald Project EH&S Plan (Document No: 2059189, Revision 10, dated 26 November 2019);
- Balranald Emergency Control and Response Plan (Document No: 2056455, Revision 1, dated 26 November 2019); and
- Balranald - Environmental Management Plan - Bulk Sampling Activity (Document No: 1815563, Revision 2, dated 21 October 2019).

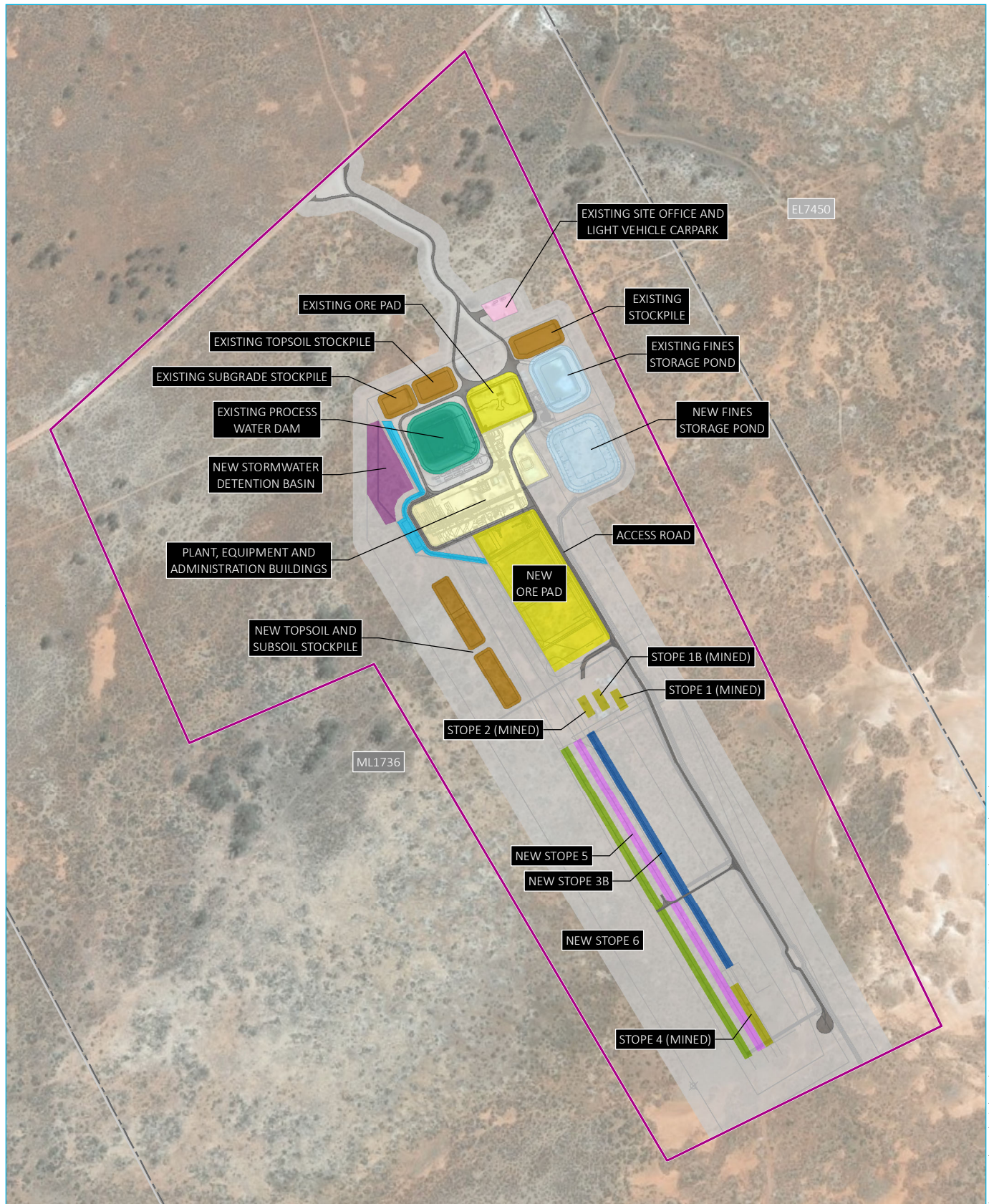
9 Maps

The following maps are attached to this report as appendices:

- Appendix A: Activity site map.
- Appendix B: Activity site layout.

Appendix A

Activity site map



Source: EMM (2019); Iluka (2015); DFSI (2017); GA (2011)

KEY

- Activity area
- Mining Lease 1736
- Iluka mineral tenement

Indicative site layout

- Access road
- Activity footprint
- Existing site office and light vehicle carpark
- Fines storage pond
- Ore pad
- Plant, equipment and administration buildings

- Process water dam
- Spoon drain
- New stormwater detention basin
- Stockpile
- Stope (mined)
- Stope 3B
- Stope 5
- Stope 6

0 100 200
m
GDA 1994 MGA Zone 54

Site map

Iluka Resources Limited
Pollution Incident Response Management Plan
Figure 1.2



Appendix B

Activity site layout

IN THE EVENT OF AN EMERGENCY

1. All personnel to assemble at the emergency assembly point on main access road.
2. Designated Iluka warden to check offices to ensure all offices are vacated if safe to do so.
3. Designated Iluka warden to check to ensure all personnel are accounted for.

FOR SITE EMERGENCY

CONTACT: RADIO CH 21

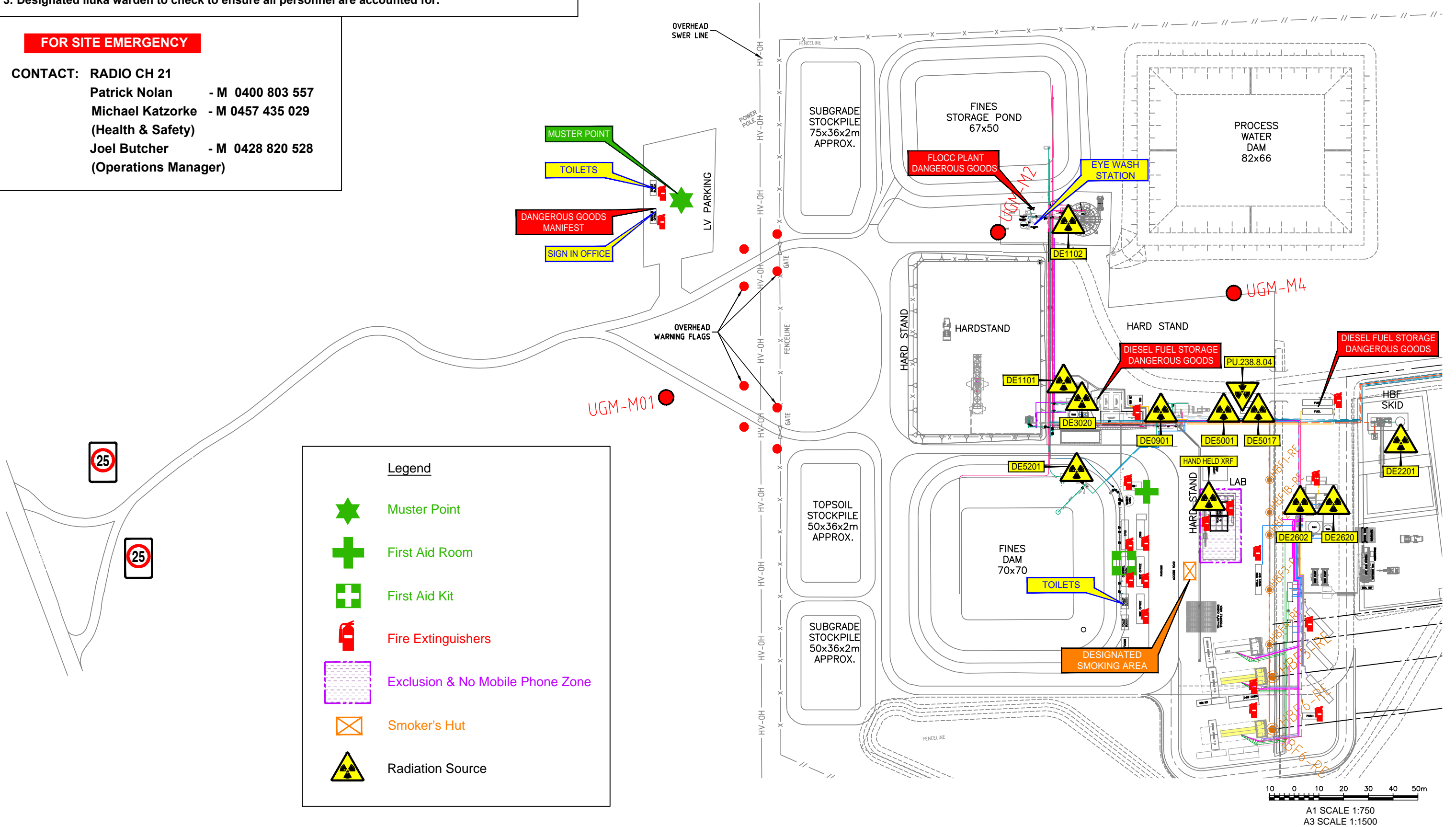
Patrick Nolan - M 0400 803 557

Michael Katzorke - M 0457 435 029

(Health & Safety)

Joel Butcher - M 0428 820 528

(Operations Manager)



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REFERENCE DRAWINGS		DRAWING REVISIONS									
DRAWING No.	TITLE	No.	DESCRIPTION	BY	DATE	CHK	DATE	APP	DATE		
235103	MINE SITE LAYOUT	2	APPROVED FOR USE T3	RB	11.05.20	JG	11.05.20	RBDR	11.05.20		
		1	REVISED FOR T3	RB	29.04.20	JG	29.04.20	RBDR	-		
		0	ISSUED FOR CONSTRUCTION	RB	01.05.16	JG	01.05.16	SE	01.05.16		

SIGNED APPROVAL		
ENG	J. GOODIESON	15.10.15
DRN	R. BEAL	15.10.15
CHK	J. BUTCHER	15.10.15
APP	S. ESTERHUYSEN	15.10.15
ORIGINAL DRG SIZE		A1



WEST BALRANALD MINING REGION NSW				
WEST BALRANALD MINE SITE & SERVICES				
T3				
MINING PLANT				
SITE OH&S SERVICES				
SCALE	PLANT STRUCTURE	DISC CODE	SAP DRAWING No.	REV
1:750	WBAL-G01	G	229593	2



