Riskcon engineering

Emergency Response Guide

Dugald River Wind Farm and BESS Project, QLD

Environmental Resources Management Australia Pty Ltd
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Dugald River Wind Farm and BESS Project, QLD

Environmental Resources Management Australia Pty Ltd

Prepared by

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Quality Management

Rev	Date	Remarks	Prepared By	Reviewed By
A	27th February 2026	Draft issued for comment	Zia Bohm	Renton Parker
B	31st March 2026	Revised draft issued for comment		
0	7th April 2026	Final issued		

Executive Summary

Background

Environmental Resources Management Australia Pty Ltd (ERM) is assisting MMG Dugald River Pty Ltd (MMG) in developing a Wind Farm comprised of a maximum 24 wind turbine generators and is well underway in the application process. MMG are also adding a Battery Energy Storage System (BESS) Project to store excess energy. The Wind Farm and associated BESS Project are located adjacent to the Dugald River Mine, although it is not directly attributed to the Mine. The Mine will benefit from the renewable energy Project.

The proposed BESS component will proceed in two stages: Stage 1 will consist of 18 BESS units and 9 Medium Voltage Power Stations (MVPSs) connections via a 220/33 kV switchyard to an existing substation. Stage 1 will have the capacity of 45 MW/ 90 MWh and will provide power to the Mine.

Stage 2 proposes to expand the BESS component of the Project to a total of 48 BESS units and 24 MVPSs, with an additional 220/33 kV switchyard connecting to the existing substation. Stage 2 will have the capacity of 120 MW/ 240 MWh. Stage 2 will supplement the local grid with energy, being the North West Power System. In both stages, the BESS site will be comprised of BESS units, electrical transformers and inverters, electrical cabling, telecommunications equipment, an electrical control room, connection to the substation/s and perimeter fencing.

ERM is gathering the required documentation for BESS facilities according to the recently published State Code 27 by the State Assessment and Referral Agency (SARA) on MMG's behalf, which includes a Risk Management Assessment Report (RMAR), a Fire Safety Study (FSS) and an Emergency Management Plan (EMP) for both construction and during operations, as conditions for approval. MMG have an existing EMP for the Mine site. Thus, this document represents an Emergency Response Guide (ERG) which will be referenced in the existing EMP. This is deemed sufficient to meet State Code 27 requirements. This document covers regular operations of the facility, and also during construction, as the construction risks differ based both on the number of people on site and the activities being conducted.

There is particular concern regarding the risk of the Li-ion batteries and regarding fires on-site, so care has been made to address these risks. The contents of this document are to be read and understood by all MMG personnel at the site and contractors involved with the site.

It is a requirement that all those with emergency responsibilities as defined in this plan have a copy of this ERG and receive the appropriate level of training needed to allow sufficient response to the incidents identified in the ERG.

The guidelines in this document are simple, but if you are in doubt about any aspect of safety or procedures you must consult the company supervisor in charge immediately.

This document has been prepared in accordance with AS 3745-2010 (Ref. [1]).

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Abbreviations

Abbreviation	Description
ADG	Australian Dangerous Goods Code
AFAC	Australasian Fire and Emergency Service Authorities Council Limited
BESS	Battery Energy Storage System
CA	Combat Agency
CBD	Central Business District
DM	Duty Manager
DA	Development Application
DGs	Dangerous Goods
EMP	Emergency Management Plan
ERG	Emergency Response Guide
ERM	Environmental Resources Management Australia Pty Ltd
ERP	Emergency Response Procedure
ERT	Emergency Response Team
ESO	Emergency Services Officer
FSS	Fire Safety Study
HIPAP	Hazardous Industry Planning Advisory Paper
LFP	Lithium Iron Phosphate
Li-NMC	Lithium Nickel Manganese Cobalt Oxide
MMG	MMG Dugald River Pty Ltd
MVPS	Medium Voltage Power Station
NSW	New South Wales
PBP	Planning for Bushfire Protection
PCUs	Power Conversion Units
PG	Packing Group
PHA	Preliminary Hazard Analysis
PPE	Personal Protection Equipment
QFD	Queensland Fire Department
QLD	Queensland
RFSQ	Rural Fire Service Queensland
RMAR	Risk Management Assessment Report
SARA	State Assessment and Referral Agency
WHS	Work Health and Safety

1.0 Introduction

1.1 Background

Environmental Resources Management Australia Pty Ltd (ERM) is assisting MMG Dugald River Pty Ltd (MMG) in developing a Wind Farm comprised of a maximum 24 wind turbine generators and is well underway in the application process. MMG are also adding a Battery Energy Storage System (BESS) Project to store excess energy. The Wind Farm and associated BESS Project are located adjacent to the Dugald River Mine, although it is not directly attributed to the Mine. The Mine will benefit from the renewable energy Project.

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There is particular concern regarding the risk of the Li-ion batteries and regarding fires on-site, so care has been made to address these risks. The contents of this document are to be read and understood by all MMG personnel at the site and contractors involved with the site.

It is a requirement that all those with emergency responsibilities as defined in this plan have a copy of this ERG and receive the appropriate level of training needed to allow sufficient response to the incidents identified in the ERG.

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This document has been prepared in accordance with AS 3745-2010 (Ref. [1]).

1.2 Aim of the Emergency Response Guide

The purpose of this document is to:

a) Provide a clear understanding of how to handle and react to any emergency at the BESS site during construction and regular operation (including non-dangerous and dangerous goods).

b) Prevent or minimise the impact of an emergency.

c) Facilitate a return to normal operations as soon as possible.

1.3 Definition of an Emergency

An emergency is defined as an abnormal and dangerous situation needing prompt action, which cannot be provided by the personnel on duty using the available local resources to control, correct and return to a safe condition. All product spillage and fires are to be treated as emergencies. If there is any doubt, an event should be treated as an emergency.

1.4 Levels of an Emergency

The three levels of an emergency are defined as:

1) Local Alert: any situation which threatens life, property or the environment at one location on site, but may not spread to other areas on site.
2) Site Alert: where effects may spread to other areas on the site.
3) External Alert: where effects may spread and impact on people, property or the environment outside the site.

Each of these three levels of emergency may be further classified as:

a) Minor Emergency: Where the emergency can be handled entirely on site and no assistance is required from the public emergency services.
b) Major Emergency: Where the situation requires the assistance of the public emergency services, i.e., ambulance, fire brigade or police.

An External Alert is automatically a Major Emergency, as action cannot be taken outside the site boundary independently of the public emergency services.

1.5 Authorisation

The Site Manager (O&M or Construction) for the BESS Facility is responsible for distributing and updating the EMP. It is under the Site Manager's authority/delegation that the plan is distributed and executed. To maximise its usefulness, the Site Manager encourages controlled copyholders and all other interested parties to suggest potential improvements. **Table 1-1** contains the contact details for the Site Senior Executive.

Table 1-1: Site Senior Executive Contact Details (TBD)

Name	Position	Contact
XXX	XXX	XXX

The Emergency Services Officer for the site will be responsible for the implementation of the emergency requirements under the direction of the Duty Manager. It will be the Emergency Services Officer's responsibility to monitor the emergency response elements (hardware and software) and to raise issues to the notice of the Site Senior Executive for corrections, change or update. The Duty Manager may then delegate responsibility for corrections, changes and updates to the Emergency Services Officer as required.

Section 11.4.3 gives details on review and updating this ERG.

This ERG has been developed using the guidelines published in the Hazardous Industry Planning Advisory Paper (HIPAP) No. 1 as Queensland does not have equivalent planning documents. The

ERG fulfils the requirements of the Work Health and Safety (WHS) Regulation which requires an emergency plan to be prepared for a facility storing and handling dangerous goods (DGs) in excess of the threshold quantities listed in the WHS Regulation.

2.0 Objectives

2.1 Purpose

The purpose of an EMP is to prevent or minimise the impact of an emergency and to facilitate a return to normal operations as soon as possible, by providing effective:

- Emergency Response.
- Incident Management.
- Training.
- Updating and reviewing of the emergency procedures.

2.2 Objectives

This EMP provides guidance on response actions to be taken in an emergency which may occur within all areas of the site, to minimise the potential for loss of life, injury to people, damage to the environment, and damage to property.

The objectives of the EMP (in order of priority) are:

1) Protection of human life and rescue of people.
2) Protection of the environment.
3) Protection of property, equipment and products.
4) Restoration of safety to affected areas.
5) Restoration of facilities.
6) Resumption of normal operations.

3.0 Site Description

3.1 Site Location

The proposed site for the BESS component of the Dugald River Wind Farm and BESS Project is approximately 2 km East of the Dugald River Mine on Knapdale Range. **Figure 3-1** shows the regional location of the proposed site in far north Queensland, while **Figure 3-2** shows the proposed location relative to the Dugald River Mine site. **Figure 3-3** shows the conceptual BESS Layout with the existing substation. It is acknowledged that the designs are preliminary at this stage; however, any changes to the design are unlikely to be significant to the hazards present.

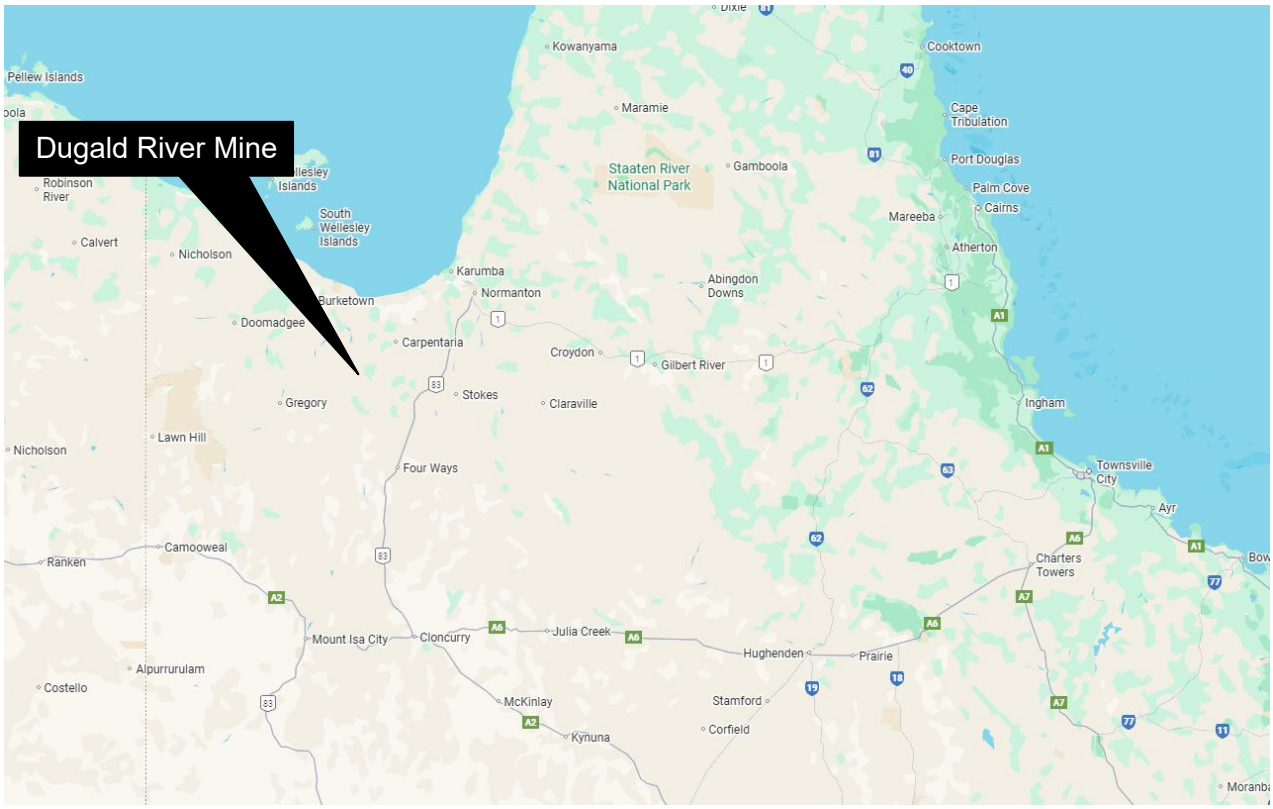


Figure 3-1: Site Location (Source – Google Maps)

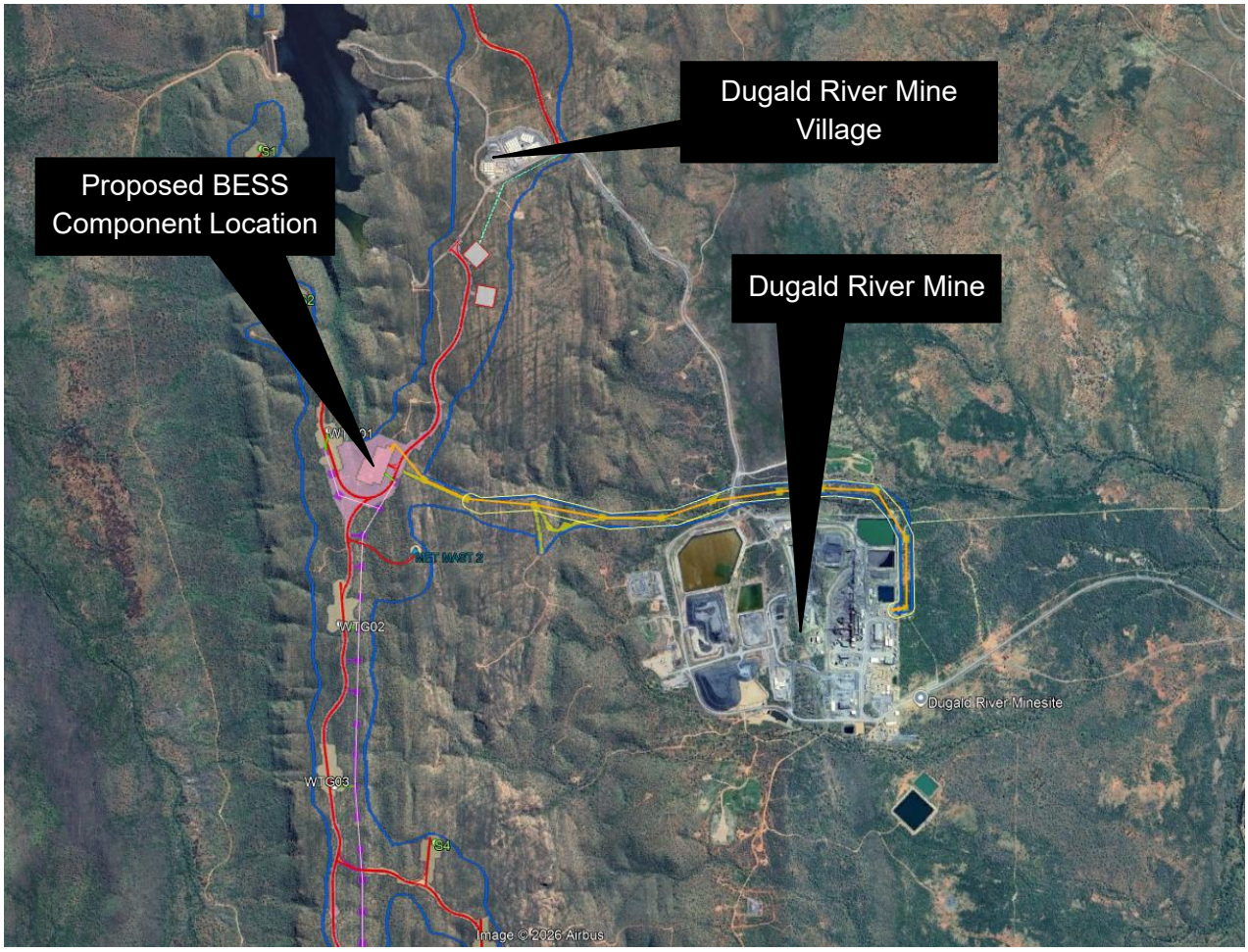


Figure 3-2: Proposed BESS Project Location Relative to Dugald River Mine

3.2 Adjacent Land Uses

The land for both proposed sites is located in a regional/rural area surrounded by the following land uses which are adjacent to the sites:

- North – Rural vacant land
- South – Rural vacant land
- East – Rural vacant land
- West – Rural vacant land

There are no sensitive receptors within 1 km of the assumed site boundaries of the proposed site. The Dugald River Mine is approximately 2 km East of the proposed BESS site, and the Dugald River Village is approximately 2 km North of the proposed BESS site.

3.3 General Description

The BESS component of the Wind Farm Project will store dispatchable energy generated from the Wind Farm, the development application for which is already well underway. The BESS component is an addendum to the Wind Farm and forms part of MMG's commitment to decarbonisation. The Project will operate to provide electricity during peak energy consumption. The BESS will be managed by personnel during standard working hours.

The BESS component will proceed in two stages: Stage 1 will consist of approximately 18 BESS systems and 9 Medium Voltage Power Station (MVPSs), which contain Power Conversion Units (PCUs). Stage 1 provides power to the Mine.

Stage 2 will expand to a total of 48 BESS units and 24 MVPSs. The BESS will occupy land adjacent to the existing 220/33V substation with 1 High Voltage (HV) transformer. In Stage 2, a second HV transformer will be added. The infrastructure is anticipated to contribute to a power output of approximately 45 MW at the point of connection and an energy storage ability of 90 MWh over 2 hours during Stage 1. This capacity will increase to 120 MW and 240 MWh respectively. Stage 2 is intended to provide power to the local grid, being the North West Power System. The BESS component will be comprised of BESS units, electrical transformers and inverters, electrical cabling, telecommunications equipment, an electrical control room, connection to the substation and perimeter fencing.

The stored electricity will be exported through an underground or overground transmission line to existing substation, which will be adjacent to the BESS site.

The BESS component of the Project comprises the construction, operation and decommissioning of a BESS facility and associated infrastructure. The BESS site is projected to include the following items (approximate quantities):

a) BESS Infrastructure
   - 18 (Stage 1) or a total of 48 (Stage 2) x BESS containers with a total capacity of up to approximately 35 MW/ 70 MWh (Stage 1) or a total of 120 MW/ 240 MWh (Stage 2).
   - 1 x Medium Voltage Power Stations (MVPSs) with Power Conversion Units (PCUs) and per every 2 BESS units transformers up to 4,200 kVA.

b) Electricity infrastructure:
   - 1 x Transformer (220/33 kV) (with a second to be added during Stage 2)
   - Electrical cabling between BESS units and transformers.
   - Underground transmission line connection to substation.
   - Switching station.

c) Onsite permanent supporting infrastructure:
   - Site access road and entry.
   - Internal access roads.
   - Operations and Maintenance (O&M) Facility including workshops, amenities, equipment sheds, storage and parking areas, fire water tank and fire hydrants.
   - HV/LV switch room building with VESDA model smoke detectors

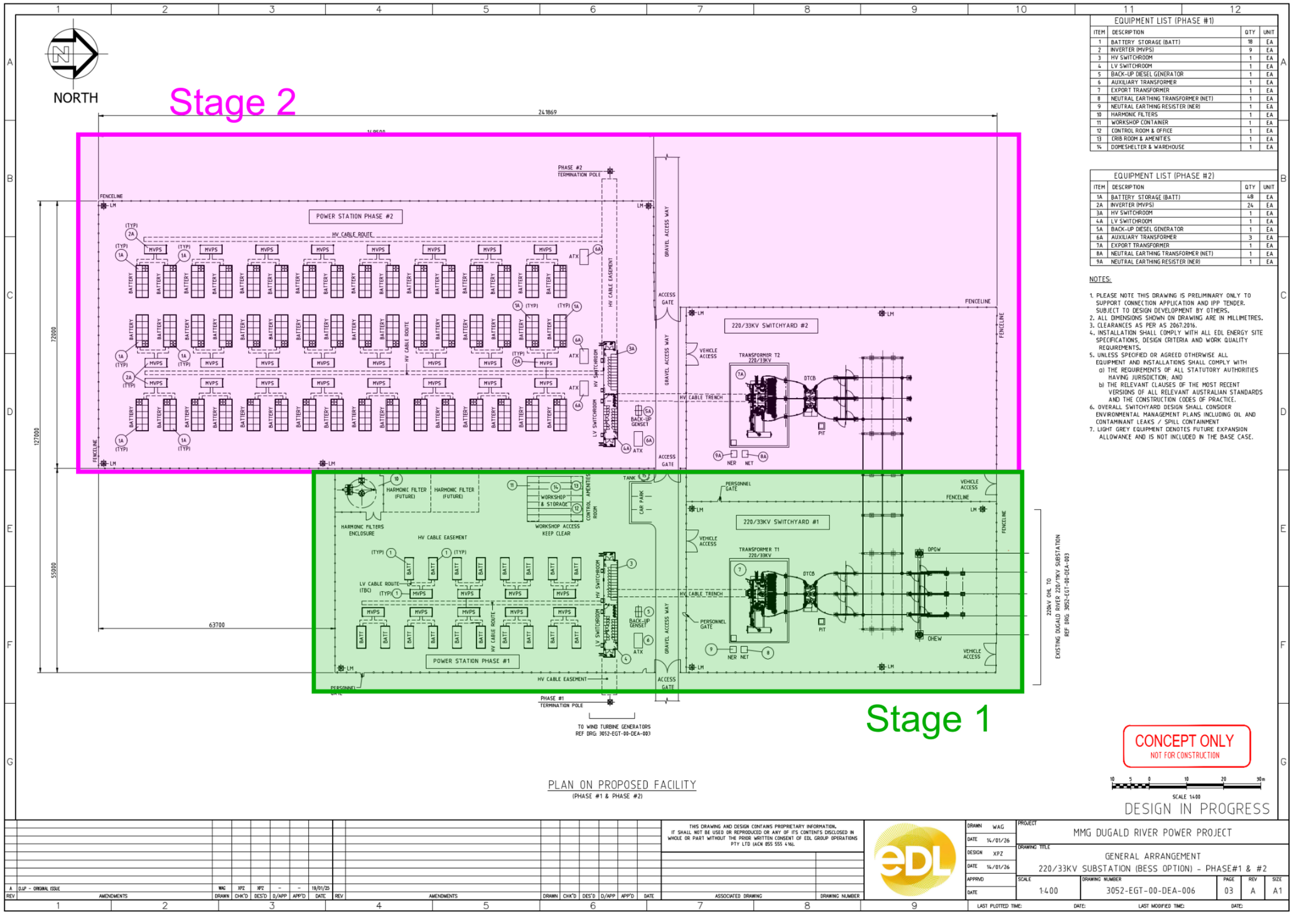
d) Off-site supporting infrastructure:

e) Existing public road and communications network; and

f) Temporary supporting infrastructure:
   - Fencing works.
   - Delivery of project components, such as battery modules.
   - Installation of underground and overhead cabling.

- Installing maintenance and environmental management processes and equipment.

g) An Asset Protection Zone surrounding the BESS facility as measured from the inside of the security fence line, with a distance as determined by qualified bushfire consultants. This space should allow unobstructed vehicle access to aid emergency services in the event of a nearby fire.



EQUIPMENT LIST (PHASE #1)			
ITEM	DESCRIPTION	QTY	UNIT
1	BATTERY STORAGE (BATT)	18	EA
2	INVERTER (MVPS)	9	EA
3	HV SWITCHROOM	1	EA
4	LV SWITCHROOM	1	EA
5	BACK-UP DIESEL GENERATOR	1	EA
6	AUXILIARY TRANSFORMER	1	EA
7	EXPORT TRANSFORMER	1	EA
8	NEUTRAL EARTHING TRANSFORMER (NET)	1	EA
9	NEUTRAL EARTHING RESISTER (NER)	1	EA
10	HARMONIC FILTERS	1	EA
11	WORKSHOP CONTAINER	1	EA
12	CONTROL ROOM & OFFICE	1	EA
13	CRIB ROOM & AMENITIES	1	EA
14	DOMESHELTER & WAREHOUSE	1	EA

EQUIPMENT LIST (PHASE #2)			
ITEM	DESCRIPTION	QTY	UNIT
1A	BATTERY STORAGE (BATT)	48	EA
2A	INVERTER (MVPS)	24	EA
3A	HV SWITCHROOM	1	EA
4A	LV SWITCHROOM	1	EA
5A	BACK-UP DIESEL GENERATOR	1	EA
6A	AUXILIARY TRANSFORMER	3	EA
7A	EXPORT TRANSFORMER	1	EA
8A	NEUTRAL EARTHING TRANSFORMER (NET)	1	EA
9A	NEUTRAL EARTHING RESISTER (NER)	1	EA

NOTES:

1. PLEASE NOTE THIS DRAWING IS PRELIMINARY ONLY TO SUPPORT CONNECTION APPLICATION AND IPP TENDER. SUBJECT TO DESIGN DEVELOPMENT BY OTHERS.
2. ALL DIMENSIONS SHOWN ON DRAWING ARE IN MILLIMETRES.
3. CLEARANCES AS PER AS 2067.2016.
4. INSTALLATION SHALL COMPLY WITH ALL EDL ENERGY SITE SPECIFICATIONS, DESIGN CRITERIA AND WORK QUALITY REQUIREMENTS.
5. UNLESS SPECIFIED OR AGREED OTHERWISE ALL EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH
   a) THE REQUIREMENTS OF ALL STATUTORY AUTHORITIES HAVING JURISDICTION; AND
   b) THE RELEVANT CLAUSES OF THE MOST RECENT VERSIONS OF ALL RELEVANT AUSTRALIAN STANDARDS AND THE CONSTRUCTION CODES OF PRACTICE.
6. OVERALL SWITCHYARD DESIGN SHALL CONSIDER ENVIRONMENTAL MANAGEMENT PLANS INCLUDING OIL AND CONTAMINANT LEAKS / SPILL CONTAINMENT
7. LIGHT GREY EQUIPMENT DENOTES FUTURE EXPANSION ALLOWANCE AND IS NOT INCLUDED IN THE BASE CASE.

CONCEPT ONLY
NOT FOR CONSTRUCTION

SCALE 1:400

DESIGN IN PROGRESS

PLAN ON PROPOSED FACILITY
(PHASE #1 & PHASE #2)

REV	AMENDMENTS	DRAWN	CHK'D	DES'D	D/APP	APP'D	DATE
A	D.I.P - ORIGINAL ISSUE	WAG	XPZ	XPZ	-	-	19/01/25

DRAWN	WAG
DATE	14/01/26
DESIGN	XPZ
DATE	14/01/26
APPRVD	
DATE	

PROJECT: MMG DUGALD RIVER POWER PROJECT

DRAWING TITLE: GENERAL ARRANGEMENT 220/33KV SUBSTATION (BESS OPTION) - PHASE#1 & #2

SCALE	DRAWING NUMBER	PAGE	REV	SIZE
1:400	3052-EGT-00-DEA-006	03	A	A1

LAST PLOTTED TIME: DATE: LAST MODIFIED TIME: DATE:

Figure 3-3: Indicative Conceptual BESS Layout. Stage 1 is in Green and Stage 2 is in Pink

3.4 Activities Phase

3.4.1 Construction

Construction works will include the construction of the BESS in its two Stages and the construction of the substations. The commencement of construction is dependent on receiving approval from Cloncurry Shire Council. During the peak construction period, the number of workers on site may range from 10 to a maximum of 90 personnel. Construction is anticipated to occur during normal business hours (9am-5pm, Monday-Friday) until completion. This means personnel will be present on site regularly during construction.

The BESS construction works include:

a) Clearing/grubbing and contouring.

b) Laying and compacting access tracks.

c) Unloading components.

d) Drilling and piling.

e) Assembling BESS units.

f) Trenching and laying collector group cables

The collector substation construction works include:

a) Laying earth-grid and placing crushed rock for the collector substation bench.

b) Foundation construction for the collector substation elements.

c) Installation of control/switching rooms, transformer and associated ancillaries.

d) Cable terminations.

e) Commissioning.

3.4.2 Regular Operation

During regular operation, the site will be remotely monitored. Personnel will only need to attend the site for maintenance and inspections, in which case a maximum of 3 – 5 people may be present.

In the first few years, more regular maintenance trips and/or visual inspections are anticipated to take place up to once per week. In the following years, inspections and maintenance will occur on an as-needed basis. Alarms, faults and/or security breaches that occur will be relayed to a remote manned control centre, which will be staffed 24/7. This will allow a response to occur from a service crew and/or emergency services as required.

The key activities that would be undertaken during operation include:

a) Visual inspections, maintenance and general housekeeping of panels.

b) Vegetation management.

c) Repair and replacement of equipment.

d) General operational requirements.

3.5 Bushfire Risk

There is the potential for an external fire event to impact the BESS component of the Project such as a bushfire incident. The proposed BESS site is within the bushfire-prone land with a Medium Potential Bushfire Intensity, as indicated in Figure 3-4**.** As such, the site shall maintain good housekeeping procedures to prevent the accumulation of combustible loads; hence, in such an event any escalation would be expected to be a minor grass fire. Grass fires can move quickly; however, they tend to be short-lived as the combustible load is exhausted. Subsequently, sustained radiant heat impacts at the site would not be expected and would be unlikely to result in sufficient heat to impact the BESS or other infrastructure such that incident propagation occurs.

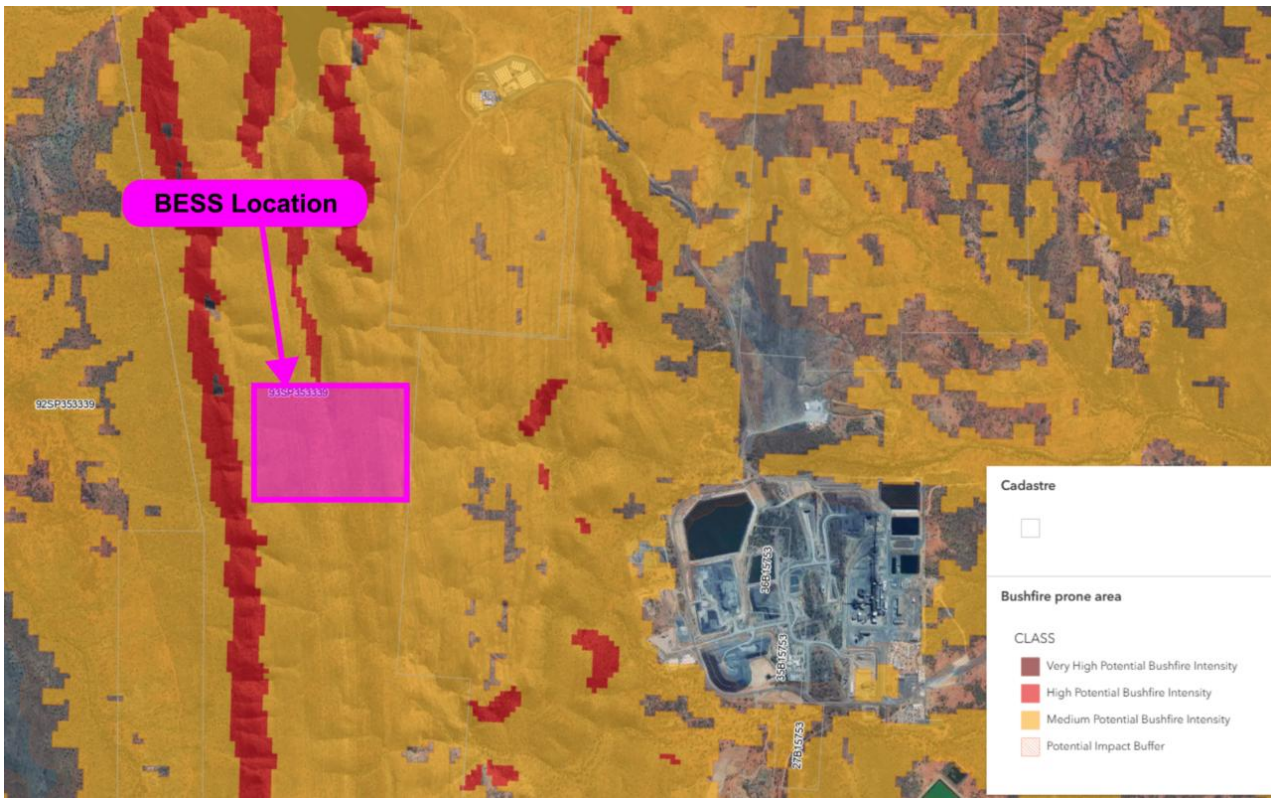


Figure 3-4: Bushfire Prone Land (According to QLD State Planning Policy Mapping)

Furthermore, it is determined that in the event fires originate on site, they are unlikely to propagate to a bushfire that threatens developments surrounding the facility, as there is minimal vegetation at the site to sustain this type of escalation. All electrical equipment on site will be on non-combustible hardstands and sufficiently separated to avoid incident propagation, thus limiting the spread of bushfire.

Assuming the additional protection measures described in **Section 3.5.1**, it is estimated that fires originating on-site will pose a greater threat to the Dugald BESS site than fires originating off-site. Any small-scale vegetation fire originating onsite (i.e. from flying sparks or hot debris) will be handled in the same manner as other small fires onsite.

Fires may be caused by ignition sources that will be present at the proposed site during construction and operation, including the following:

a) Machinery movement

b) Hot work

c) Storage of combustible and flammable liquids and waste

d) Electrical faults

e) Lightning strikes

f) Lithium-ion battery storage

The BESS site will be a non-smoking site, meaning the ignition source of cigarette butts will be eliminated. Furthermore, during the construction of the site, the only DGs present will be diesel in storage or in vehicles. This is a significant safety feature as the risk of BESS fires is substantially higher during construction periods.

The nature of these fires is discussed in greater detail in **Section 4.1.**

3.5.1 Protection Measures

There are several protective measures the Dugald River BESS site can adopt to further reduce the risk of bushfires. These measures were cross-checked against the New South Wales Planning for Bushfire Protection 2019 (PBP 2019), as Queensland does not have an equivalent document.

Table 3-1 outlines the protection measures are being provided in line with PBP 2019 (Ref. [2]).

Table 3-1: Summary of Mitigation Strategies and Actions

Protection Measure	Description
Create and maintain an Asset Protection Zone (APZ) around the Development Footprint	NSW PBP 2019 prescribes a minimum APZ distance of 10 m. However, QLD accepts less conservative distances with evidence of consultation with qualified individuals and Bushfire Attack Level (BAL) assessments. For Dugald BESS, BAL29 and BAL40 were deemed to be appropriate for establishing the APZs around the wind turbines and BESS, respectively. The APZ shall be constructed as per the recommendations of the bushfire consultants. The APZ is to be maintained from the commencement of construction in perpetuity in accordance with the QFD (2019) APZ requirements for an Inner Protection Area.
Construction and Design	Electrical equipment is to be installed in accordance with relevant Australian Standards and vulnerable components are to be shielded or buried where required. Dangerous goods are to be stored in accordance with relevant Australian Standards. All electrical equipment, including BESS units are to be located on hardstands, meaning there is limited vegetation on the site to fuel bushfires. Furthermore, all equipment is to be housed in individual metal housing with suitable IP ratings, providing heat and fire resistance and protection from embers.
Construction and Operation During High Fire Danger Periods	The Bushfire Management and Operation Plan will identify works that shall be ceased to avoid a potential ignition source. During Very High or worse fire danger days, the QLD Fire Department website and/or the QLDFires app is to be checked hourly for the occurrence of any fires likely to threaten the Site; and all plant, vehicles and earth moving machinery are cleaned of any accumulated flammable material (e.g. soil and vegetation). Should construction take place during a declared Bushfire Danger Period, the following measures are recommended to control the risk of grassfire ignitions: • The APZ is constructed as one of the first stages of development

Protection Measure	Description
	• A suitable fire appliance is present on site with at least two personnel trained in fire fighting
Maintain emergency access/egress for fire fighters and site personnel	The site is to incorporate access roads, established and maintained in accordance with QFD requirements, including provisions for passing bays and turn-around points. The NSW Planning for Bushfire Protection (PBP) 2019 was consulted due to there being no QLD equivalent.
Fire preparedness and response	The Mine site possesses documentation that covers the following: • Ignition reduction strategies • Fire suppression equipment details • Flammable materials storage requirements • Fire preparedness procedures • Fire reporting and response to formal emergency alerts • A standalone ERG (this document): detailing firefighting restrictions, potential hazards, specialised Personal Protective Equipment (PPE) requirements, shutdown/isolation procedures, evacuation zone distances, aerial suppression considerations and availability of the ERG.
Separation of electrical equipment	Electrical equipment, particularly BESS units, shall be sufficiently separated to comply with NFPA 855 and supplier requirements. This will limit the potential for incident propagation. The current proposed site layout situates BESS units with a separation of at least 3 m from other BESS units and other pieces of electrical equipment. Such separation distances ensure compliance with NFPA 855.

3.6 Quantities of Dangerous Goods Stored and Handled

Lithium-ion batteries are considered Class 9: Miscellaneous Dangerous Goods. These will be the majority of DGs stored on site. Other DGs that are expected to be stored onsite include oil in the MVPS and transformers. The majority of MVPS' and transformers are proposed to use natural esters as the internal cooling medium, which have a very high flash point and are not DGs. However, the main Power Transformer associated with the substation is proposed to use 34,310 L of uninhibited mineral oil complying with AS 1767. The precise quantities of DGs are to be confirmed, however **Table 3-2** contains the expected quantities of DGs onsite for a project of this scale.

The threshold column in **Table 3-2** indicates placard threshold, at which there are certain legal requirements to comply with Work Health and Safety Regulation 2011 (Ref. [3]). The detailed description of these requirements is beyond the scope of this report.

Table 3-2: Maximum Quantities of Dangerous Goods Stored & Preliminary Risk Screening

Area	Class	Description	Quantity	WHS 2011 Placard Threshold
BESS Units	9	Li-Batteries (Stage 1)	800 T*	N/A
		Li-Batteries (Stage 2)	2,110 T*	
Substation transformer oil	C2	Combustible Liquids (Stage 1)	34,310 L	N/A
		Combustible Liquids (Stage 2)	68,620 L	
MVPS and transformer natural ester medium	N/A	Cooling medium (Stage 1)	26,000 L*	N/A
		Cooling medium (Stage 2)	70,000 L*	

*TBC. Estimated quantity based on similar projects

4.0 Types of Emergencies

The following emergency scenarios were identified during the hazard identification process as being credible threats to people, the environment and property both during construction and regular operation. Where an emergency scenario requires a procedure within the Emergency Management Plan, a reference to corresponding procedure section of this document has been provided.

The classification of an emergency according to the levels described in **Section 1.4** is necessary to confirm the most appropriate action to take. All emergencies have the potential to be categorised to any level as the context and extent of the emergency must be considered.

4.1 General Fire and Explosion

There are several sources where a fire or explosion might occur at the site, including:

a) Transformer internal arcing, resulting in an oil spill, possible ignition and bund fire.

b) Electric sparks and arcs (from electrical circuits, motors, switches etc.).

c) Grass fire caused by hot works during construction.

d) Vehicular accident resulting in a release of fuel as a result of the collision, ignition of released fuels including construction vehicles.

e) Monitoring house fires from electrical faults, sparking, etc.

The required response to fires or explosions at the site is given in procedure **Emergency Response Procedure (ERP)-01**.

4.1.1 Substation Fires

Substation fires can result from several sources including arcing causing ignition of the oil (combustible liquid) present, switchgear failure, power surge, damage from pests or malicious attacks. A substation fire may occur while the site is attended either during modification works or during maintenance, however the substation will be primarily unattended. If a fire is present at the substation, emergency services will be required to respond, and the substation will require evacuation.

4.1.2 Workshop and Construction Site Office Building Fire

In the workshop and temporary construction site buildings, an electrical fire (computers, servers, printers, photocopiers, etc.) may propagate quickly due to fuel in the form of paper, furniture (wood), carpet, etc. During construction and operations, these types of fires should be quickly identified and may be able to be mitigated by the trained personnel on-site.

However, during periods when the office is unattended (i.e., after normal working hours) a fire will likely continue until it has either burned out or emergency responders arrive.

4.1.3 Combustible Liquids Fires

Transformers contain oil (combustible liquid) which is used to cool the units during operation. If arcing occurs within the transformer, there is the potential for pressure build up, resulting in rupture of the oil reservoir and spill into the bund. This, coupled with the heat within the reservoir, may cause an ignition and fire within the transformer and bund, which would need to be dealt with by the fire brigade with the fire contained within the bunded area encompassing the transformers.

4.1.4 Vehicular Collisions Leading to Fires

The site will have vehicle access for employees and any visitors. If a collision occurred, there is potential for fuel within the vehicles to ignite resulting in a fire. In such an event, personnel are present and can initiate first attack firefighting using extinguishers and hose reels. In the event these firefighting systems fail to control the fire, the fire brigade will be required.

It is noted that vehicular movements around the site would be very limited after construction is complete as staffing requirements at the BESS facility are minimal.

4.2 Lithium-Ion Battery Fire

4.2.1 Background

Lithium-ion batteries contain flammable substances which present as a unique hazard upon ignition. Lithium-ion batteries can ignite if overcharged, overheated, or because of mechanical damage. The vapours released by a fire can be flammable themselves or toxic. Lithium-ion battery fires are particularly dangerous as they cannot be extinguished using water. The BESS facility will require evacuation and emergency services will be required to respond.

The following list details potential causes of the BESS fire. The chances of these initiating events developing into a full BESS fire is minimal due to the inherent safety features of a BESS unit.

a) Chemical reduction of the electrolyte at the anode

b) Thermal decomposition of the electrolyte

c) Chemical reduction of the electrolyte at the cathode

d) Thermal decomposition by the cathode and the anode

e) Internal short circuit by charge effects

f) BESS cooling system error

The BESS units to be implemented in the Dugald River Mine BESS site shall be compliant with UL 9540, the Standard for Energy Storage Systems and Equipment, which is the nationally adopted standard in the US and Canada, and the globally adopted standard for BESS manufacturers. The associated UL 9540A test aims to demonstrate the improbability of thermal runaway, as well as the inherent safety features designed into BESS units to reduce the consequences if a BESS fire is to occur. BESS units that are compliant with this test are considered the safest in industry.

While there have been cases of lithium-ion BESS fires in Australia, the fires from initiating units were contained to no more than two (2) units, which indicates compliance with UL 9540. The causes of these events were attributed to coolant leaks and issues on the power side of the BESS units.

The following sections explain more about the chemistry of lithium-ion batteries, the testing procedure for UL 9540A, the gases potentially released during a lithium-ion battery fire and the safety features to be implemented for the Dugald River Mine BESS site to minimise the risk of BESS fires.

4.2.1.1 Li-ion Battery Chemistry

A review of the batteries proposed to be used as part of this project indicates the battery chemistry is anticipated to be lithium iron phosphate (LiFePO4, or simply LFP) which are one of the safest battery chemistries within the industry.

The thermal rise of LFP batteries at peak is 1.5ºC/min, compared to the 200-400ºC/min thermal rise experienced by other lithium-ion batteries. Thus, the use of LFP batteries significantly decreases the risk of ignition and propagation of fires to other batteries. The stability of the batteries is due to the cathode not releasing oxygen, therefore preventing violent redox reactions resulting in rapid temperature rise as the oxygen oxides the electrolyte. Lithium Nickel-Manganese-Cobalt batteries (Li-NMC) were also considered viable for BESS facilities due to their high energy density relative to LFP batteries. However, operation of Li-NMC does result in oxygen release, potentially increasing fire risks. For this reason, LFP batteries are advised as the industry standard for safety in lithium-ion battery technology, and most new BESS units contain LFP chemistry. Further details on thermal runaway experienced by different battery chemistries can be found in **Appendix A.**

Additional testing for shock and damage to batteries (i.e. nail puncture test) has been shown that LFP batteries when punctured through membranes which typically results in a shorting of the battery does not result in ignition of the battery demonstrating that the battery chemistry is protected against shock damage.

In the event that LFP chemistries do ignite by artificial means, the combustion by products release carbon dioxide which reduces the oxygen concentration within a confined space reducing the combustion rate.

4.2.1.2 UL 9540 A Testing Procedure and Criteria

The units selected for the Dugald River BESS site are the BYD - MC Cube-T ESS, which may be upgraded to BYD XN in Stage 2. These units are compliant with UL 9540. A UL9540A report is a test standard report with a systematic evaluation of thermal runaway and propagation in energy storage system at cell, module, unit, and installation levels. The components are each subjected to induced thermal runaway with the battery management system turned off during these tests.

The UL9540A criteria for each level of testing are available in **Appendix B.** The BESS units to be installed shall be subject to this test prior to selection for installation at the facility, with the UL9540A test results for fire development and propagation available upon request.

Based on data shown from UL9540A reports for similar systems, the results demonstrate that when thermal runaway is triggered in one cell in a BESS container, the heat generated would neither be transferred to all cells within one battery module, nor from the test module to adjacent ones, indicating compliance at the cell and/or module level. This is attributed to the nature of LFP technology as well as the sheer mass of the battery module (heavier objects have higher thermal capacity).

Although the LFP technology does not typically cause fire, there can be circumstances where battery modules catch fire due to leaking coolant or electrical faults. In those cases, fire will be constrained by the stainless-steel enclosure. Similar systems show that generally the container wall remains intact after sustaining heating in a furnace to over 900ºC. Furthermore, each container should also have multiple built-in fire protection devices that work collaboratively, including smoke and thermal sensors, combustible gas detector, pressure relief system, an aerosol extinguishing system and E-stop buttons. Therefore, a container is expected to automatically detect and control an internal fire in the first instance, preventing escalation to other battery units as per UL 9540A.

Testing for shock and damage to batteries (i.e. nail puncture test) has shown that LFP batteries when punctured through membranes typically results in a shorting of the battery, and fire does not result in ignition of the battery, demonstrating that the battery chemistry is protected against shock damage. However, the plans for the Dugald River Mine BESS site indicate that the units will be

located within a fenced area; therefore, there is a low potential for damage to occur to the batteries which may initiate an incident.

In conclusion, the LFP technology single cells have a low possibility of catching fire during thermal runaway. If a fire were to develop within one BESS container it would not transfer to nearby containers due to the fire safety design features that would prevent a system-wide fire event.

4.2.1.3 Li-ion Battery Fire and Toxic Gas Dispersion

If a BESS failure occurs, resulting in a fire, toxic byproducts of combustion may form. A literature review was conducted on LFP battery fires to identify the toxic gases that may be generated in the event of a fire. The review identified the following gases or classes of gases that can form:

a) Carbon dioxide;

b) Carbon monoxide; and

c) Fluorine gases.

Each of these have been discussed in further detail in the following subsections.

Carbon Dioxide

Carbon dioxide is a colourless, odourless, dense gas which is naturally forming and is present in the atmosphere at concentrations around 415 ppm (0.0415%). At low concentrations carbon dioxide is physiologically impotent and at low concentrations does not appear to have any toxicological effects. However, as the concentration grows it increases the respiration rate of exposed persons. The Short Term Exposure Limit (STEL) is 30,000 ppm (3%) as established by SafeWork Australia; thus, levels above 50,000 ppm (5%) will induce a strong respiration effect, along with dizziness, confusion, headaches, and shortness of breath. Concentrations more than 100,000 ppm (10%) may result in coma or death.

Carbon dioxide is a by-product of combustion where hydrocarbon or carbon-based materials are involved. A typical combustion reaction producing carbon from a hydrocarbon has been provided in **Equation 4-1**. This reaction proceeds when there is an excess of oxygen to the fuel being consumed and is known as complete combustion as it is the most efficient reaction pathway.

$$C_3H_8(g) + 5O_2(g) \rightarrow 3CO_2(g) + 4H_2O(g) \qquad \textbf{Equation 4-1}$$

The lithium-ion batteries are predominantly composed of metal structures. However, during a fire event ancillary equipment and materials within the batteries will be involved in the fire including wiring, plastics, anodes, etc. which will liberate carbon dioxide. However, a review of the toxicological impacts indicates high concentrations would be required to result in injury or fatality. Based upon a review of the sensitive areas, and the similar BESS fires (i.e. Victoria BESS fire), it is not considered that the formation of carbon dioxide in a fire would be sufficient to result in downwind impacts sufficient to cause injury or fatality. In other words, there would be insufficient production of carbon dioxide to generate a plume of sufficient concentration to displace the required oxygen for a significant downwind consequence to occur.

Carbon Monoxide

Carbon monoxide is an odourless, colourless gas which is slightly denser than air and occurs naturally in the atmosphere at concentrations around 80 ppb. Carbon monoxide is a toxic gas as it irreversibly binds with haemoglobin which prevents these molecules from carrying out the function

of oxygen / carbon dioxide exchange. The loss of 50% of the haemoglobin may result in seizures, coma or death which can occur at concentration exposures of approximately 600 ppm (0.06%).

Carbon monoxide is by-product of combustion if there is insufficient oxygen to enable complete combustion. The reaction pathway for the formation of carbon monoxide is provided in **Equation 4-2**.

$$2C_3H_8(g) + 7O_2(g) \rightarrow 6CO(g) + 8H_2O(g)$$ **Equation 4-2**

The is the small potential for a fire to occur with the BESS units which could form carbon monoxide if there is insufficient oxygen to sustain complete combustion. However, it is noted that the combustible load within the BESS which could result in the formation of carbon monoxide is relatively low compared to the available oxygen in the surrounding atmosphere. Thus, carbon monoxide is unlikely to form.

Fluoride and Toxic Gases

LFP batteries contain fluoride in the form of $LiPF_6$. In the event of a thermal runaway, the electrolyte will expand and be vented from the battery. In the event of a fire, the vented gas and other components such as the polyvinylidene fluoride binders may form gases such as hydrogen fluoride (HF), phosphorous pentafluoride (PF_5) and phosphoryl fluoride (POF_3) (Ref. [4]), which are toxic. Note that Li-NMC batteries do not release fluoridated or toxic gases, although their greater propensity to thermal runaway means they are nonetheless considered more dangerous.

The decomposition of $LiPF_6$ can be promoted by the presence of water / humidity according to reactions **Equation 4-3** to **Equation 4-5**.

$$LiPF_6 \rightarrow LiF + PF_5$$ **Equation 4-3**

$$PF_5 + H_2O \rightarrow POF_3 + 2HF$$ **Equation 4-4**

$$LiPF_6 + H_2O \rightarrow LiF + POF_3 + 2HF$$ **Equation 4-5**

Of the fluorine gases formed, PF_5 is a short-lived gas while POF_3 is a reactive intermediate. Thermal destruction of a several battery chemistries, configurations and State of Charge (SOC) indicated the vast majority of the batteries did not produce observable POF_3 with the condition that a specific battery chemistry was at 0% SOC (Ref. [4]). Therefore, the main fluorine gas of concern in an LFP battery fire is HF.

HF gas is hydroscopic and readily dissolves into water vapour / humidity or moisture in airways, forming hydrofluoric acid. Although hydrofluoric acid is a weak acid, it is highly corrosive and may result in chemical burns. In addition, it has calcium scavenging properties. Hence, it will readily bind with calcium in cells and tissues disrupting the nerve signalling. The immediately dangerous to life or Health (IDLH) for HF is 30 ppm and the 10-minute lethal concentration is 170 ppm. However, UL9540A testing typically shows only trace amounts of HF gas released for LFP fires 1 m away from the fire.

For a toxic gas dispersion, a battery container fire is necessary as the initiating event. As discussed in **Sections 4.2.1.1 and 4.2.1.2**, the potential for a fire to occur for LFP batteries is considered negligible due to the highly stable and safe battery chemistries used. By ensuring the BESS units implemented at the facility are compliant with the UL 9540A test criteria, the presence of toxic gases released in the unlikely event of thermal runaway will be negligible.

4.2.1.4 *Previous Li-ion Battery Fires*

There have been two major instances of BESS fires in Australia: The Victorian Big Battery fire in 2021 and the Bouldercombe Battery Project fire in 2023.

The Victorian Big Battery (VBB) experienced a fire in July 2021 which also has a back-to-back layout. According to the independent investigation report on its fire incidence, the back-to-back layout was not the cause for propagation. The main reason for fire propagation was strong wind blowing flames from one BESS into the unprotected vent atop of an adjacent BESS which resulted in the ignition of the plastic fan which was able to impact the battery modules directly beneath the fan. This fire can also be partially attributed to the battery chemistry being Li-NMC, which is more likely to experience thermal runaway.

The Bouldercombe Battery Project fire (BBP) fire in 2023 occurred due to an issue on the AC side and occurred during construction of the facility. The batteries at this facility were LFP. Upon ignition, the BESS unit withstood the fire and demonstrated the inherent safety features that made it compliant with UL 9540A testing; the fire was contained to the single BESS unit and no external water was required to contain the fire. The BESS unit was subsequently removed and tested, and the BBP is in operation as of April 2024.

4.2.1.5 *Application to Dugald River Mine BESS*

The following safety precautions are applied to BESS units that will be implemented at the Dugald River Mine BESS site:

- Use of Lithium-Iron-Phosphate (LFP) battery chemistry, which is less prone to thermal runaway than Lithium Nickel Manganese Cobalt oxide (Li-NMC) battery chemistry. LFP batteries have a higher temperature of thermal runaway, meaning they will not spontaneously combust until much higher temperatures are reached. LFP batteries also have a milder thermal reaction, with less heat being produced, thus reducing the risk of propagation to adjacent BESS units.
- Proven compliance with UL 9540A Test, which requires the design of the BESS unit to prove the following:
  - Prevention of propagation of fires from the initiating cells
  - Prevention of flaming and flying debris or explosive discharge of gases
  - Appropriate temperature sensing
  - Appropriate air or liquid cooling systems
  - Negligible concentration of toxic gases emitted from any BESS fires

Although the risk of lithium-ion battery fires is reduced, a small risk remains. The required response to a lithium-ion battery fire is given in procedure **ERP-02.**

4.3 Bushfires

4.3.1 Originating On-Site

Due to the risk mitigation strategies detailed in **Section 3.5**, the risk that a substantial bush or grassfire would occur from the BESS site is low. It is acknowledged that a low-level grassfire has the potential to damage transformers and BESS units resulting in a subsequent electrocution risk or lithium-ion battery fire.

Even though it is unlikely due to the existence and upkeep of the APZ, and the sparse vegetation of the surrounds, a low-level grass fire still has potential to impact on neighbouring properties.

The goal of the procedure to deal with a bushfire originating on-site is to ensure the safety of personnel and prevent spread to surrounding properties, then to control and prevent damage to assets which would create subsequent risks. These risks are considered equivalent to those posed by other fires originating onsite. Thus, bush or grassfires originating onsite are considered as part of **ERP-01.**

4.3.2 Originating Off-Site

The majority of the surrounding area is considered bushfire-prone with a Medium risk (see Figure 3-4). The protection measures outlined in **Section 3.5.1** will reduce the risk of off-site bushfires being of significant risk to the BESS facility.

Nevertheless, there remains a risk of bushfires to the site, particularly during uncontrollable weather events such as dry weather and high wind that can propagate grass fires. As such the procedure for a bushfire originating offsite focuses on personnel safety and spot fire identification and mitigation.

The required response to a bushfire or grassfire originating offsite is given in procedure **ERP-03**.

4.4 Hazardous and Dangerous Materials Spill

Beyond the BESS units themselves, the DGs stored at the site likely include combustible liquids in the form of oils within the transformers and/or diesel. Due to the infrequent interaction with these DGs, it is unlikely that a spill would occur. Notwithstanding this, a spill procedure has been developed and is to be utilised.

The required response to spillage at the site is given in procedure **ERP-04**.

4.5 Medical Emergency or Personal Injury

Personal injuries can occur as a result of work-related accidents or illnesses. Operations at site such as vehicle movements (particularly during construction), using tools and vegetation management may result in personal injury or illness. In this event it may be necessary to evacuate personnel as a medical emergency.

Emergency Response Procedures for medical emergency or personal injury are found in **ERP-05**.

4.6 Natural Events (Floods/Earthquake)

There is negligible potential for flooding to occur within this region; the area is subjected to flood mapping, as shown in **Figure 4-1**. However, the proposed BESS location is not subject to Annual Exceedance Probability (AEP) 1% mapping. Furthermore, this indicates the potential for flooding to endanger the BESS operations is negligible. In the case of minor flooding, all electrical equipment is encased in metal housing that would protect

Whilst the facility has been constructed using the appropriate earthquake design codes, in the unlikely event of an earthquake, there is a potential for damage to occur to infrastructure at the BESS facility; however, this would be expected to be localised and unlikely to result in escalation. Notwithstanding this, damage to the transformers may result in loss of containment.

Spill clean-up required as a result of natural disasters is covered in **ERP-04**.

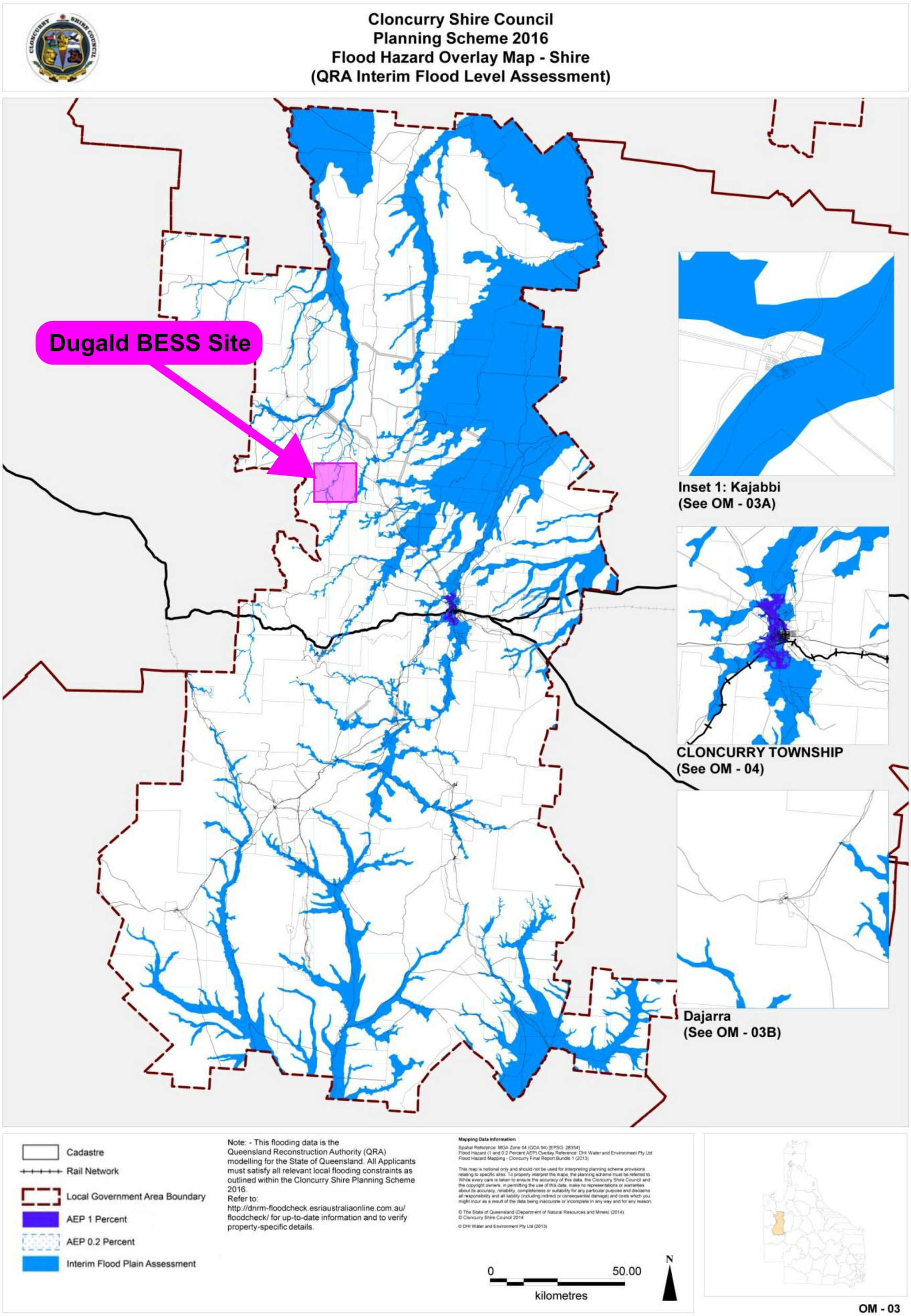


Figure 4-1: Cloncurry Shire Council Flood Mapping. Source: [5]

4.7 Bomb Threat

The potential for bomb threat exists at the site. To assist in controlling this hazard, a bomb threat procedure forms part of this plan, the procedure is included at **ERP-06**.

Bomb threat cards will be located adjacent to each phone and a search procedure has been developed to facilitate rapid location of potential explosive devices in areas allocated as assembly points. Detailed bomb searches will be conducted by Police or other combat agencies.

4.8 Collision of Vehicles

During construction, vehicle/mobile plant collisions are more likely due to the higher traffic load on the site. During regular operation and with the minimal staffing levels the potential for collision of vehicles is low. Whilst there are speed limits placed on all vehicles on site and there will be traffic control during construction, there is still a potential for incidents involving vehicles.

To ensure rapid response to any collision incidents a procedure has been developed. This can be found at **ERP-07**.

4.9 Civil Disturbance, Vandalism or Intruder Onsite

Civil disturbance is unlikely based on the remote location of the site. However, periods of construction create a higher risk for theft as general site security is often not as strict and many valuable materials and tools are stored.

The main hazard associated with a civil disturbance arises when personnel approach an unauthorised person. A procedure for handling civil disturbance, vandalism and/or intruders has been developed as part of the site emergency plan in **ERP-08**.

5.0 Emergency Response Structure

The Emergency Planning shall be coordinated by the Emergency Services Officer (ESO), the Duty Manager (DM) and Emergency Response Team (ERT). Emergency Planning shall include establishing and implementing an emergency plan, ensuring that personnel are appointed to all positions in the Emergency Organisation, arranging for their training, arranging to conduct evacuation exercises and emergency response drills, reviewing the effectiveness of exercises and drills, and arranging for procedural improvements.

The site emergency response structure, shown in **Figure 5-1**, will be implemented in emergency situations. It is noted that each role may be filled by a solitary person due to the low staffing levels at the site.

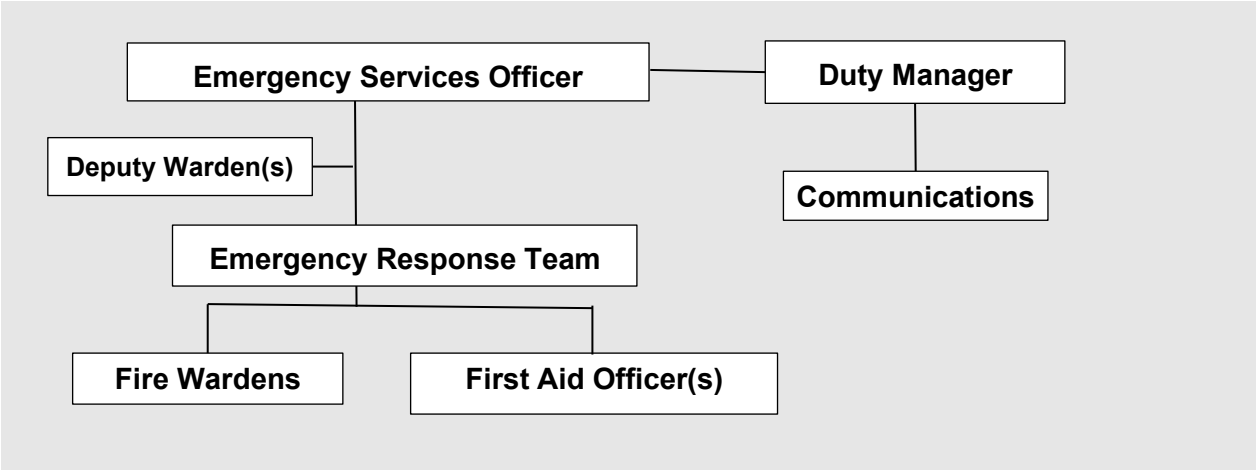


Figure 5-1: Emergency Response Team Structure

5.1 Emergency Command Structure General Notes

5.1.1 Immediate Response and Alarm Initiation

Any person discovering an emergency situation or a situation, which is likely to give rise to an emergency, shall:

a) Isolate the affected area (if on site)

b) Alarm - raise the alarm by contacting the Duty Manager who shall decide on the level of alert and details of the emergency.

c) Consider controlling the situation alone (if offsite, consider if the situation can be mitigated remotely).

d) Control it (only if safe to do so).

e) Rescue - assist or alert persons in immediate danger.

f) Enact the specific Emergency Response Procedures described in **Section 9.0** if appropriate.

If in doubt, the alarm shall be activated first and then the doubt will be clarified.

5.1.2 Criteria for the Selection of Emergency Response Personnel

Persons appointed to deal with emergencies will in general:

a) be physically capable and willing to carry out the respective function.

b) have leadership qualities and command authority.

c) have maturity of judgement, good decision-making skills and be capable of remaining calm under pressure.

d) have clear diction and be able to communicate with the majority of persons in their care.

These points shall be considered when selecting personnel for the emergency response tasks.

5.2 Principle Roles and Responsibilities

It is necessary for personnel to be allocated key emergency response duties. Key positions and duties are listed below. **Appendix C** provides a summary of the roles and responsibilities of key personnel in emergency response positions on site. Secondary roles and responsibilities are also described in **Appendix C**, although it may be decided that these responsibilities are absorbed by personnel who hold the essential emergency management roles.

Each of these roles will be selected by the Site Senior Executive or delegate.

5.2.1 Duty Manager and Deputy DM(s)

The Duty Manager (DM) and Deputy DM(s) will be pre-selected by the Site Senior Executive. If the DM is unavailable at the time of the emergency, Emergency Control will be the responsibility of the Deputy DM. It is assumed the DM or Deputy DM will be the Incident Controller in the case of an emergency.

As the Incident Controller, the DM manages decisions and communications around an incident but does not personally respond to the incident. The DM will collaborate with the Emergency Services Officer to assess and classify the emergency according to the levels described in **Section 1.4**. It is the DM's responsibility to make the final call regarding the level of emergency. All emergencies have the potential to be classified to any level, and thus the context and impact of the event must be assessed. The DM will provide instructions to the ESO to respond to the emergency accordingly.

5.2.2 Emergency Services Officer and Deputy ESO(s)

The Emergency Services Officer (ESO) and Deputy ESO(s) will be pre-selected by the Site Senior Executive. If the ESO is unavailable at the time of the emergency, Emergency Control will be the responsibility of the Deputy ESO. It is assumed the ESO or Deputy ESO will be the On Scene Commander in the case of an emergency.

Upon detection and notification of an emergency situation, the ESO will assist the DM in assessing and classifying the emergency according to the levels described in **Section 1.4**. All emergencies have the potential to be classified to any level, and thus the context and impact of the event must be assessed. The ESO will take the appropriate actions as per the instructions from the DM. The ESO will provide regular updates to the DM and be prepared to escalate the incident's response level should the Emergency Response Team's span of control is exceeded.

The ESO will take responsibility for control of onsite emergencies and direct the emergency response until the arrival of combat agency (CA), if necessary. The ESO will then hand control over to the Combat Agency (CA) Commander. The ESO will brief the CA Commander and remain close to the CA Commander to provide advice on site-specific issues as required.

The ESO will also regain control of the emergency situation upon release by the CA. It is the responsibility of the ESO to terminate the emergency.

5.2.3 Communications

5.2.3.1 Internal

The Communications Officer will be a Team Leader. It will be his/her task to monitor communication and facilitate the effective exchange of information between the site and the CA.

5.2.3.2 External

The Communications Officer is the only person responsible for relaying information to the media and other public bodies. Staff will be instructed not to discuss issues with any persons outside the site as this is the role of the Communications Officer only.

When a significant incident occurs, a media statement should be prepared as quickly as possible, and include:

a) A description of the nature of the emergency.

b) The corrective action taken, and its effectiveness.

c) When the emergency is expected to be over.

d) The investigative action that is to be taken.

e) Any assistance that can be given by the media.

Only facts should be stated. Statements as to the cause and effects of the emergency should be avoided until a thorough investigation has been conducted.

5.2.4 Emergency Response Team

The Emergency Response Team (ERT) is primarily responsible for managing the emergency response, led by the ESO, until the emergency exceeds the capabilities of the ERT. It consists of Fire Wardens and First Aid Officers.

5.2.4.1 Fire Wardens

Fire Wardens are one part of the ERT. It is an overarching category for emergency response personnel. They are the primary emergency team which encompasses the following.

a) Traffic management.

b) Evacuation Control/Co-ordination

c) Emergency Response Co-ordinator

Fire Wardens will be allocated duties (i.e., traffic management, evacuation control, etc.) by the Emergency Services Officer as required during the emergency situation.

5.2.4.2 First Aid Officer(s)

The site first aid officer (for emergency response) will be responsible for attending any emergency where personnel are injured. The site first aid officer will be directed by the site emergency commander as required.

The site emergency first aid officer will also be responsible for ensuring the emergency response first aid kit is well stocked and any items with “use-by” dates are regularly replenished as required.

The site first aid officer will also be responsible for ensuring their first aid qualifications and certification are valid at all times. This will involve regular refresher training as required.

5.3 Site Command Centre

In the event of an emergency, on scene control will be taken by the ESO, while the incident will be externally managed and assessed by the DM. He/she will be located in the site command centre. During construction this should be located at the construction compound site office and during regular operation this will occur from the Mine site.

5.4 Emergency Response Positions and Roles

All emergency positions will be allocated to specific staff on site and regular exercises conducted to monitor the effectiveness of the EMP. A list of emergency response roles and contact information is given in **Appendix C**.

5.5 Principles of Emergency Response

The principles of response will be based on prevention, containment, rescue and first aid. These have been summarised below:

5.5.1.1 Prevention

a) Maintenance and testing of all detection and protection equipment on a regular basis (e.g., in accordance with the requirements of AS 1851-2012, Ref. [6]).

b) Inspection of all plant and storage facilities on a regular basis.

c) Regular emergency response drills to ensure site readiness (biennially).

5.5.1.2 Detection and Notification

d) The systems shall have in-built detection mechanisms and employees shall be trained to identify emergency situations as part of initial training.

e) Upon detection of an emergency situation, an alarm (automatic or from personnel) shall be raised to alert employees of the emergency, so that the appropriate response can be taken.

5.5.1.3 Containment

a) Switch off any operating equipment (dock levellers, etc.).

b) Isolate electrical supplies at the main switchboard.

c) Take any operating equipment (e.g., forklifts) outside.

d) Co-ordinate with ESO.

5.5.1.4 First Aid

a) First aid is to be given only by trained first aid officers.

6.0 Evacuation Details

6.1 Evacuation of Personnel Located Onsite

In the event an emergency escalates to the point that personnel must evacuate, it is critical that they are aware of the emergency assembly points. These locations will allow fire wardens to identify if all personnel are in attendance or if personnel may be trapped within the facility.

The procedure for managing an evacuation has been developed as is located in **ERP-09.**

During construction, the site will be manned during regular business hours. During regular operation, the site will typically be unmanned with regular monitoring occurring in a remote control centre. This centre will be staffed 24/7. Nevertheless, some of the hazards present mean evacuation may be necessary in an emergency event.

The order to evacuate the site shall be issued by the DM or the responsible CA.

All personnel, during construction and normal operation, are to move quickly to the emergency assembly area via the emergency egress point. The emergency egress point is the site entrance as shown in **Figure 6-1**. Staff are to warn others as they go.

a) Report to the Evacuation Officer (nominated Fire Warden), this person will mark names off the evacuation list.

b) Do not move or leave assembly area without permission from Evacuation Officer or responsible Combat Agency unless the area is under direct threat.

c) Priority that must be observed during a building evacuation are:

- those who are able to walk without assistance leave first.
- those who require some assistance leave next; and
- those who must be carried leave last.

Mobility impaired persons should be assembled in a safe area away from immediate danger.

6.1.1 Events Requiring Evacuation of Onsite Persons

The following events may require evacuation as part of the response procedure, if there are staff onsite. Further details can be found in the individual ERPs, as indicated.

a) Uncontrollable fires or explosions (as per **ERP-01**)

b) Lithium-Ion Battery fires (as per **ERP-02**)

c) Off-site bushfires (as per **ERP-03**)

d) Bomb threats or bomb placement onsite (as per **ERP-06-01** and **ERP-06-02**)

If evacuation is required, the procedure in **ERP-09** shall be carried out.

6.2 Evacuation of Personnel Located Offsite (Adjacent Properties)

The businesses and residential properties in proximity of the BESS facility that may need to be notified in the event of a spreading emergency are listed in **Table 6-1**. The locations of these sites are indicated in **Figure 6-2**.

Table 6-1: List of Contacts - Neighbouring Sites

Neighbour	Site Contact	Contact Number
Businesses		
Dugald River Mine	Mine Control	0477 315 011
Dugald River Village	Mine Control	0477 315 011

The emergency operations flow chart, shown at **Figure 6-3**, indicates actions to be taken by persons responsible for undertaking actions and how they will be performed.

6.2.1 Events Requiring Evacuation of Offsite Persons

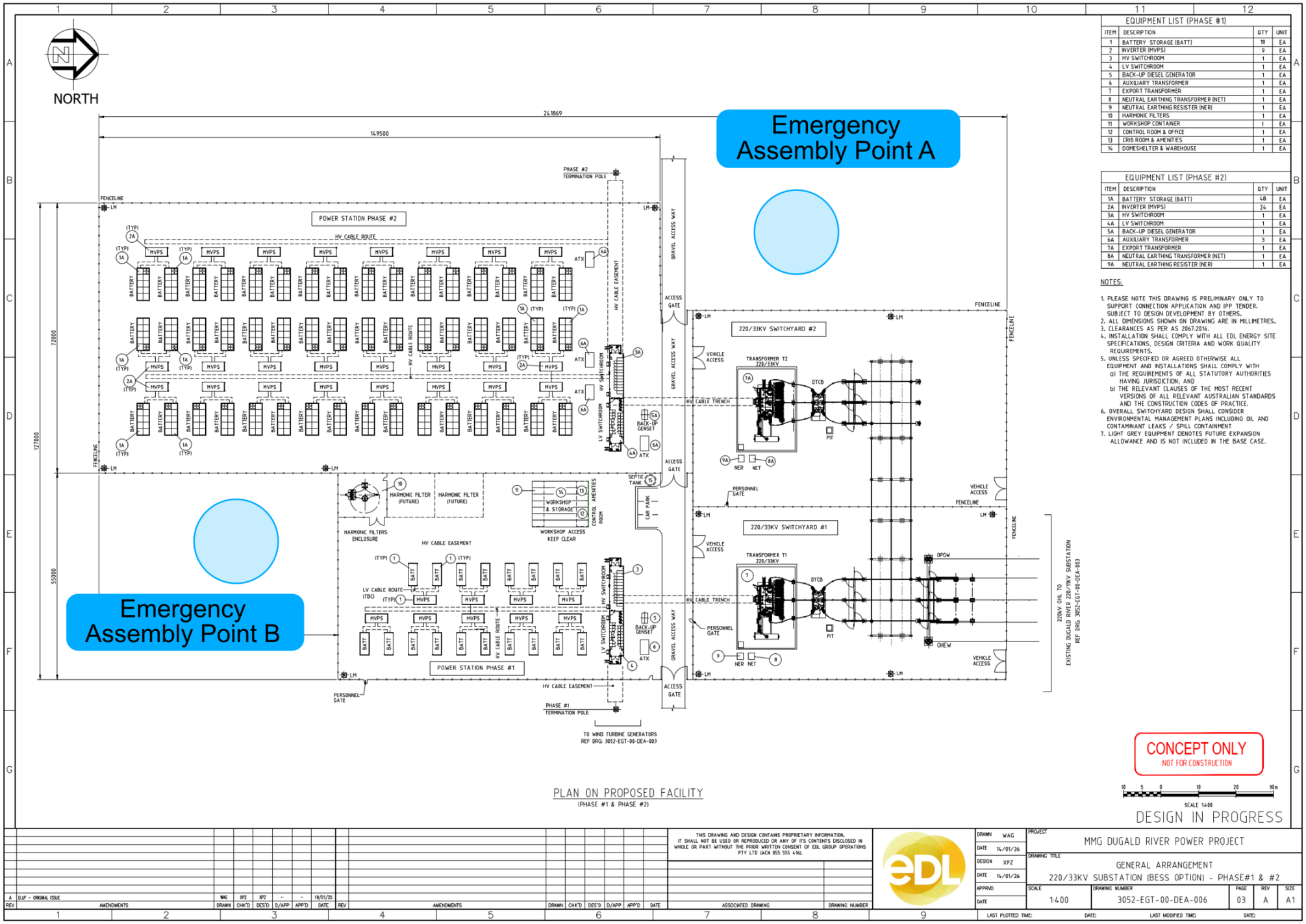
The following events may require evacuation for offsite persons as part of the response procedure. Further details can be found in the individual ERPs, as indicated.

a) Uncontrollable fires or explosions (as per **ERP-01**)

b) Off-site bushfires (as per **ERP-03**)

c) Bomb threats (as per **ERP-06**)

It is assumed in the case of spreading emergency that emergency services will be able to assist in evacuations. It is also assumed neighbouring properties will have their own established evacuation assembly point; they should not use that for the Dugald River Mine BESS facility as this may put them in closer proximity to the emergency incident.



PLAN ON PROPOSED FACILITY
(PHASE #1 & PHASE #2)

CONCEPT ONLY
NOT FOR CONSTRUCTION

SCALE 1:400

DESIGN IN PROGRESS

EQUIPMENT LIST (PHASE #1)

ITEM	DESCRIPTION	QTY	UNIT
1	BATTERY STORAGE (BATT)	18	EA
2	INVERTER (MVPS)	9	EA
3	HV SWITCHROOM	1	EA
4	LV SWITCHROOM	1	EA
5	BACK-UP DIESEL GENERATOR	1	EA
6	AUXILIARY TRANSFORMER	1	EA
7	EXPORT TRANSFORMER	1	EA
8	NEUTRAL EARTHING TRANSFORMER (NET)	1	EA
9	NEUTRAL EARTHING RESISTER (NER)	1	EA
10	HARMONIC FILTERS	1	EA
11	WORKSHOP CONTAINER	1	EA
12	CONTROL ROOM & OFFICE	1	EA
13	CRIB ROOM & AMENITIES	1	EA
14	DOMESHELTER & WAREHOUSE	1	EA

EQUIPMENT LIST (PHASE #2)

ITEM	DESCRIPTION	QTY	UNIT
1A	BATTERY STORAGE (BATT)	48	EA
2A	INVERTER (MVPS)	24	EA
3A	HV SWITCHROOM	1	EA
4A	LV SWITCHROOM	1	EA
5A	BACK-UP DIESEL GENERATOR	1	EA
6A	AUXILIARY TRANSFORMER	3	EA
7A	EXPORT TRANSFORMER	1	EA
8A	NEUTRAL EARTHING TRANSFORMER (NET)	1	EA
9A	NEUTRAL EARTHING RESISTER (NER)	1	EA

NOTES:

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   b) THE RELEVANT CLAUSES OF THE MOST RECENT VERSIONS OF ALL RELEVANT AUSTRALIAN STANDARDS AND THE CONSTRUCTION CODES OF PRACTICE.
6. OVERALL SWITCHYARD DESIGN SHALL CONSIDER ENVIRONMENTAL MANAGEMENT PLANS INCLUDING OIL AND CONTAMINANT LEAKS / SPILL CONTAINMENT
7. LIGHT GREY EQUIPMENT DENOTES FUTURE EXPANSION ALLOWANCE AND IS NOT INCLUDED IN THE BASE CASE.

REV	AMENDMENTS	DRAWN	CHK'D	DES'D	D/APP	APP'D	DATE
A	D.I.P – ORIGINAL ISSUE	WAG	XPZ	XPZ	–	–	19/01/25

ASSOCIATED DRAWING	DRAWING NUMBER

DRAWN	WAG
DATE	14/01/26
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PROJECT: MMG DUGALD RIVER POWER PROJECT

DRAWING TITLE: GENERAL ARRANGEMENT
220/33KV SUBSTATION (BESS OPTION) - PHASE#1 & #2

SCALE	DRAWING NUMBER	PAGE	REV	SIZE
1:400	3052-EGT-00-DEA-006	03	A	A1

LAST PLOTTED TIME: DATE: LAST MODIFIED TIME: DATE:

Figure 6-1: Emergency Assembly Points for Dugald River Mine BESS

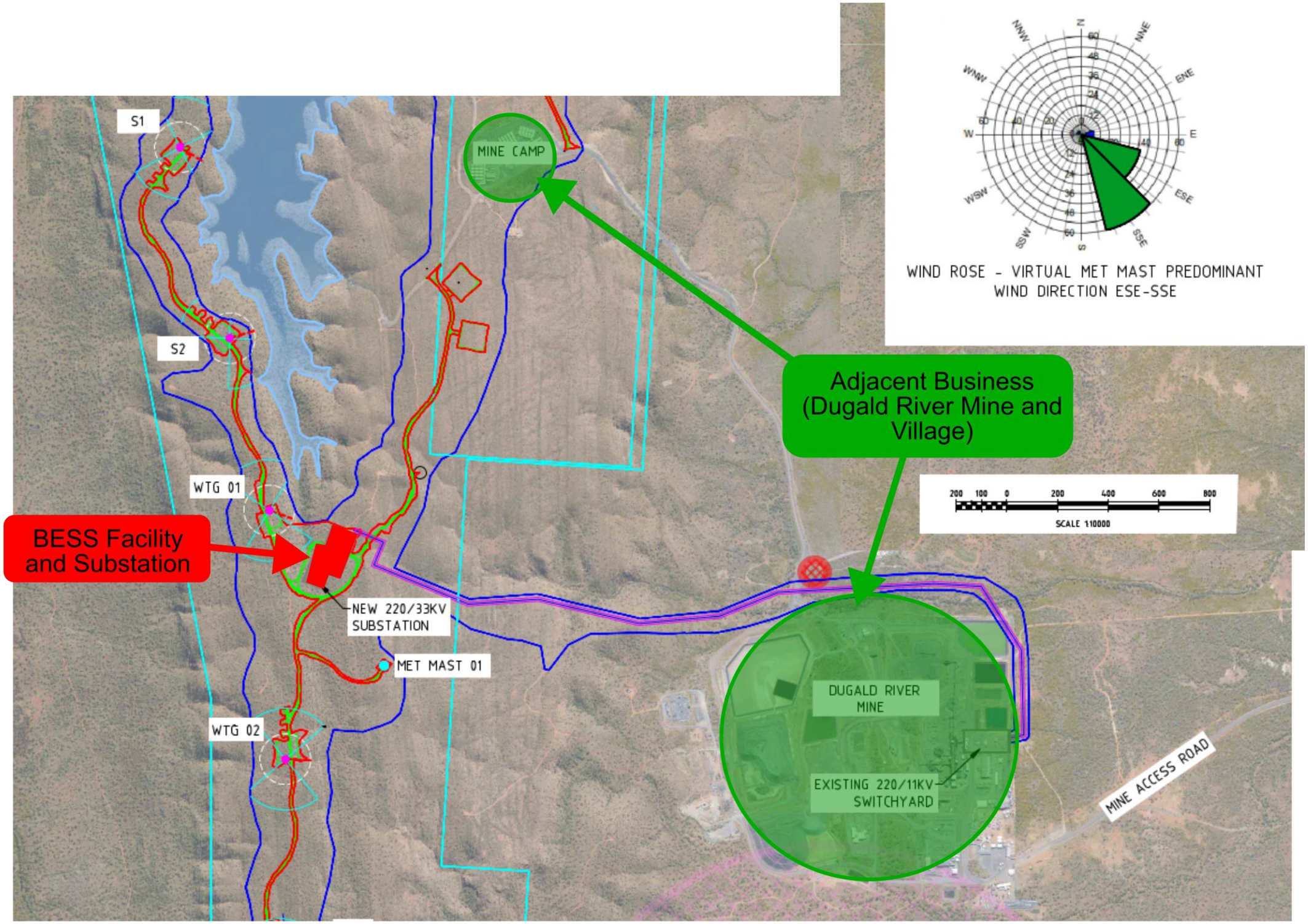


Figure 6-2: Neighbouring Businesses and Residential Properties

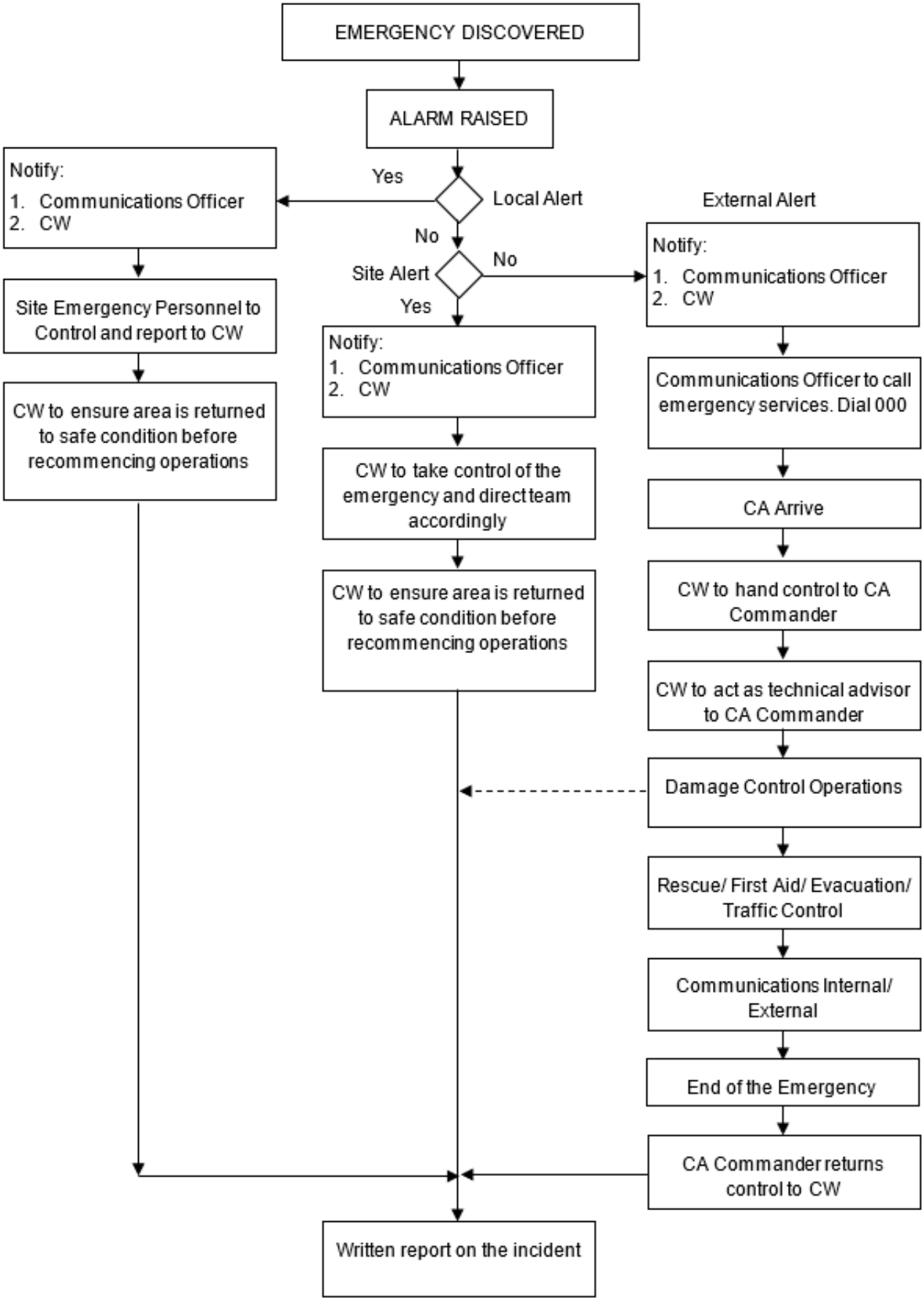


Figure 6-3: Emergency Operations Flow Chart

7.0 Emergency Equipment and Alarms

Equipment has been installed around the site for use in response to emergencies. It shall be maintained and accessible for immediate use, and its location appropriately sign posted. The range of equipment installed at the site includes the following.

7.1 Extinguishers

Fire extinguishers are provided for first attack firefighting, when safe, by employees trained in their use. Procedures for the use of extinguishers are given in **ERP-01**.

Note that it can be hazardous to use the incorrect extinguisher on some types of fires (e.g., water extinguisher on electrical fires). Extinguishers and hose reels will be tested in accordance with the relevant Australian Standard (e.g., AS 1851-2012, Ref. [6]). Note also that lithium-ion battery fires cannot be extinguished and attempting to use water on these batteries will only result in contaminated water.

The proposed locations of the site extinguishers during construction and during regular operation are shown in **Figure 7-1.**

7.2 First Aid Kits

First aid kits are to be provided in the monitoring office during regular operation and in the site offices during construction. First aid kits will be regularly checked and maintained (quarterly) and any components used between review periods will be replaced immediately to ensure equipment in the kit is serviceable and available when required. The proposed locations of the first aid kits during construction and during regular operation are shown in **Figure 7-1**.

7.3 Spill Equipment

Safety Data Sheets (SDS) detailing action to be taken to safely control spills of hazardous materials and Dangerous Goods shall be made available at the monitoring office. Only trained persons in spill control procedures will engage in spill response. Spill kits are to be located in a HAZMAT container adjacent to the monitoring office. The proposed locations of the spill kits during construction and during regular operation are shown in **Figure 7-1**.

7.4 Emergency Firefighting Water Supply

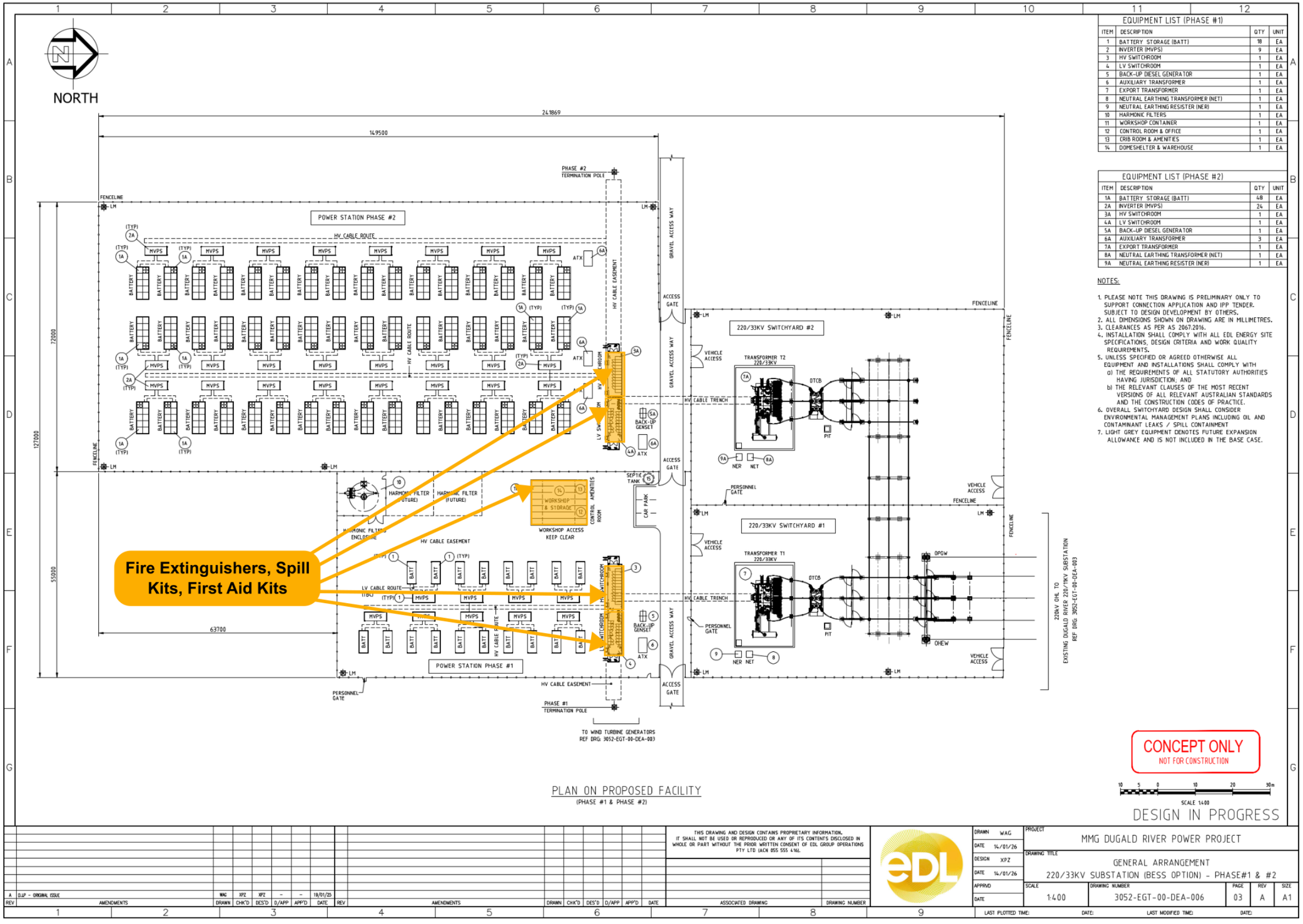
Due to the inherent fire resistant features of the BESS units and electrical equipment, as well as the proposed bushfire prevention measures, no additional fire water is proposed to be provided to the BESS site. A temporary water tank, with a capacity of approximately 20 kL, will be available approximately 1.5 km north-east of the BESS site during construction, but not during normal operation.

It is proposed instead that the BESS site be protected by the fire water supply available at the Dugald River Mine site, 2 km east of the BESS site. In the case of a fire requiring attention from the QFD, it is proposed that a fire engine from QFD will use the available water in its tanker and then refill from the tanks on the Mine site. Dugald River Mine also possess a 2 kL fire truck and a 10 kL water cart, which will be able to supplement fire water in the case of a fire.

The fire water tanks on the Mine site contain a total of 1,000 m^3 water. The BESS facility site falls under the requirement of storing at least 80,000 L onsite, or 120 mins worth of firefighting water at a flow rate of 10 L/s. Thus, the fire water capacity at the mine is sufficient. The water tank on the

water cart and Mine-operated fire trucks shall possess QRT fittings and the appropriate suction pump for firefighting uses. The firefighting use of these tanks is only to be engaged by the CAs (i.e. QFD) or otherwise specifically trained personnel under specific direction by the Emergency Services Officer.

In the case of a fire, fire extinguishers will be used by first responders, as described in **Section 7.1**.



PLAN ON PROPOSED FACILITY
(PHASE #1 & PHASE #2)

CONCEPT ONLY
NOT FOR CONSTRUCTION

SCALE 1:400

DESIGN IN PROGRESS

EQUIPMENT LIST (PHASE #1)

ITEM	DESCRIPTION	QTY	UNIT
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12	CONTROL ROOM & OFFICE	1	EA
13	CRIB ROOM & AMENITIES	1	EA
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EQUIPMENT LIST (PHASE #2)

ITEM	DESCRIPTION	QTY	UNIT
1A	BATTERY STORAGE (BATT)	48	EA
2A	INVERTER (MVPS)	24	EA
3A	HV SWITCHROOM	1	EA
4A	LV SWITCHROOM	1	EA
5A	BACK-UP DIESEL GENERATOR	1	EA
6A	AUXILIARY TRANSFORMER	3	EA
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8A	NEUTRAL EARTHING TRANSFORMER (NET)	1	EA
9A	NEUTRAL EARTHING RESISTER (NER)	1	EA

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SCALE	DRAWING NUMBER	PAGE	REV	SIZE
1:400	3052-EGT-00-DEA-006	03	A	A1

LAST PLOTTED TIME: DATE: LAST MODIFIED TIME: DATE:

Figure 7-1: Proposed Locations for Emergency Equipment

8.0 Notification of Incident to Authorities and Adjacent Businesses

8.1 Combat Agency (Police, Ambulance, Fire Brigade, etc.)

Some emergency events cannot be sufficiently contained or managed by the Dugald River Mine ERT. In such events, external authorities shall be contacted via the following procedure:

a) Raise vocal alarm (directly or via UHF) and make sure it is acted upon and/or phone 000.

b) Advise: Neighbours of the incident and inform of potential evacuation.

c) Type of emergency:

- Casualties
- Assistance required
- Hazards
- Telephone Contact Number
- Name

8.2 Adjacent Businesses

The operators at the Dugald River Mine site will be notified of any incidents, as the DM, ESO and ERT will be on site. If someone is on site of the BESS facility, Mine Control shall be immediately contacted via the emergency phone **0477 315 011.**

No other businesses are adjacent to the site to require notification.

8.3 Authorities

Contact with authorities in relation to the consequences of the emergency is covered in more detail in the individual ERP sections in **Section 9.0**, with **Section 9.14** detailing terminating an emergency.

9.0 Emergency Response Procedures – Specific Emergencies

9.1 General

In many industries, safe and efficient operation depends upon the observance of basic safety principles, which have been developed through experience, and careful analysis of the nature of potential hazards associated with the processes carried out at a site.

In any emergency that arises, clear and explicit communications are essential to maintain control. All staff are expected to maintain a thorough knowledge of emergency procedures and therefore there should be no need for reference to this material during the actual emergency.

It is acknowledged that the site will be unmanned for the majority of time during regular operation. If an emergency event occurs, it will be detected and reported to an offsite monitoring station, which will be manned 24/7.

9.2 Communication Onsite

Communication with onsite personnel, contractors, and visitors in the event of an emergency will be via UHF radio on **channel 11** and mobile phones. In the event of an emergency requiring evacuation, an evacuation alert ('EVACUATE, EVACUATE, EVACUATE') will be made over the radio.

Note that on the mine grounds, the automated evacuation notice sounds as follows:

**Whoop, whoop, whoop*.' Emergency, all personnel are to make their way to the nearest assembly point and wait for further instructions'*

If MMG proceed with automated evacuation notices at the BESS facility, the notice will be identical to that above.

9.3 Emergency Contact Numbers

The telephone numbers, which should be used in an emergency, as appropriate, are listed in **Appendix D.**

9.4 Emergency Procedures

This section details the responses to specific emergencies as listed below in **Table 9-1**. A general flowchart of an emergency procedure is given in **Figure 6-3**.

Each emergency response procedure follows the following general process:

a) Detection and notification

b) Response (as per the appropriate Emergency Response Procedure (ERP))

c) Deactivation of emergency action (on instruction of ESO and DM)

Table 9-1: List of Emergency Response Procedures

Procedure	Emergency Procedure Number
Fire and Explosion	ERP-01
Lithium-Ion Battery Fire	ERP-02
Bushfire Originating Offsite	ERP-03

Procedure	Emergency Procedure Number
Loss of Containment (Spill)	ERP-04
Medical Emergency/Personal Injury	ERP-05
Bomb Threat	ERP-06
Collision of Road Vehicles	ERP-07
Intruder(s) on site	ERP-08
Evacuation (Emergency action)	ERP-09

9.5 ERP-01 Fire and Explosion

9.5.1 General

It is imperative that, for all fires and explosions, the alarm be raised as early as possible.

Incidents occurring outside site hours or during regular operation would initiate site detection systems and alarms. The BESS facility will be unmanned in these circumstances; however, personnel will be available at the Mine site or at the Village to attend the site in an emergency situation.

When the alarm is raised of a fire at the BESS facility, the ESO (or deputy) and the Fire Brigade shall be notified. The site will then be attended by the ESO (or deputy) and the Emergency Response Team. The ERP and emergency procedures will be located at the site entrance emergency box. If appropriate, the Fire Brigade may be called. The Fire Brigade shall have access to the site emergency box on entry to the facility.

9.5.2 Procedures

9.5.2.1 Fire

Person Discovering the Fire

a) If onsite at the BESS facility, warn personnel close by or those who may be in immediate danger. Typically, a fire will be detected and transmitted to the offsite monitoring station.

b) Immediately notify the ESO. If the ESO cannot be located, notify the deputy.

c) If appropriate, the ESO will notify the Fire Brigade (000).

Duty Manager

Upon notification, the DM will assume the role of Incident Controller until the fire brigade arrives at the BESS facility or until the emergency is sufficiently managed. The procedure for the DM is as follows:

a) The DM will assess the emergency (remotely or if onsite) in collaboration with the ESO and categorise it according to the levels described in **Section 1.4**. Particular care shall be taken if the emergency has the potential to extend beyond the site boundaries. Fires that cannot be controlled by the Emergency Response Team shall be considered a major emergency and the Fire Brigade must be notified.

b) If appropriate, the DM will notify the Fire Brigade (000). The ESO will communicate the emergency from the BESS site.

    a. Small fires (e.g. in a rubbish bin in a non-hazardous area and not in danger of spreading) may be extinguished if deemed safe to do so. In this case, the Fire Brigade need not be notified. If they were, the DM must notify the QFD that the fire was extinguished. While the QFD may still arrive to the site to ensure no re-ignition occurs, there will be less urgency on their behalf.

    b. If the fire is unlikely to be controlled, a suitably qualified electrician should be called to the site. For the CA to fight the fire, the BESS units need to be de-energised and this can only be confirmed by a qualified electrician.

c) If the emergency was assessed and determined to be major and external alert, or if the emergency event is detected to be spreading, the businesses in the vicinity shall be notified of the event by the DM.

Emergency Services Officer

Upon notification, the ESO will assume the role of On Scene Commander take charge of the emergency until the fire brigade arrives at the BESS facility. The procedure for the ESO is as follows:

a) The ESO will communicate with the DM to help assess the emergency and categorise it according to the levels described in **Section 1.4**.

b) Turn off power at the main switchboard.

c) The ESO will manage the fire-fighting response by engaging the ERT.

d) The ESO will instruct members of the ERT to commence evacuation as per the instructions of the DM (as per **ERP-09**).

e) If the emergency was assessed and determined to be major and external alert, or if the emergency event is detected to be spreading, the businesses in the vicinity shall be notified of the event by the ESO.

f) The ESO will direct emergency response personnel (e.g., Fire Wardens) to ensure clear access for Fire Brigade (i.e. remove trucks off site).

g) The ESO will advise the Fire Brigade of the situation and be prepared to assist as required.

h) Secure records and make visitors book available.

Fire Wardens/Emergency Response Team

a) If onsite, Emergency Team (Fire Wardens) shall attempt to extinguish the general fire if it is feasible and rescue personnel casualties if involved in fire area, but only where a rescue can be accomplished without undue risk to the rescuer. Use fire extinguishers or hose reels as required. Take care to select the correct firefighting medium based on the fire type (i.e., care must be taken with electrical fires and water).

b) Only low-level spot fires should be attempted to be contained by the Emergency Team, if any infrastructure becomes engulfed or the fire is unable to be controlled by an extinguisher, evacuation should be initiated as per **ERP-09**.

c) If the Fire Wardens are not on the BESS facility site, they may be required to travel to site under the instruction of the ESO to assist in fire-fighting or to allow access to the fire by the CA.

Drivers

Stop loading or unloading operations. If possible, move vehicles to a safe area. Assemble at the emergency evacuation assembly point shown in **Figure 6-1**.

Staff

If onsite, upon instruction by the ESO or ERT, proceed to “Safe Assembly Areas”. Ensure free access to roadway for vehicles leaving site. Prevent entry of vehicles other than the Fire Brigade, Ambulance, etc.

If staff are not onsite, no action is required.

9.5.2.2 Explosion

Person Detecting the Explosion

a) If onsite, remove personnel in the vicinity who may be injured, without endangering yourself. During regular operation, an explosion will be detected and transmitted to the offsite monitoring station.

b) Regardless of being onsite or off-site, immediately notify the ESO and DM. If the ESO or DM cannot be located, notify the deputies.

c) The DM will notify the Fire Brigade (000) and the ESO will attend the site.

Staff are expected to be familiar with and be prepared to carry out the following Action Plan.

Duty Manager

Upon notification, the DM will assume the role of Incident Controller until the fire brigade arrives at the BESS facility or until the emergency is sufficiently managed. The procedure for the DM is as follows:

a) The DM will assess the emergency (remotely or if onsite) in collaboration with the ESO and categorise it according to the levels described in **Section 1.4**. Particular care shall be taken if the emergency has the potential to extend beyond the site boundaries.

b) If appropriate, the DM will notify the Fire Brigade (000). The ESO will communicate the emergency to the DM from the BESS site.

c) If the emergency was assessed and determined to be major and external alert, or if the emergency event is detected to be spreading, the businesses in the vicinity shall be notified of the event by the DM. An explosion should be assumed to be a major event.

Emergency Services Officer

Upon notification, the ESO will take charge of the emergency until the fire brigade arrives at the BESS facility. The procedure for the ESO is as follows:

a) The ESO will attend the site with the ERT, understanding that fires can form as a result of an explosion.

b) The ESO will communicate with the DM to help assess the emergency and categorise it according to the levels described in **Section 1.4**.

c) Turn off power at the main switchboard.

d) If appropriate, the ESO will notify the Fire Brigade (000). The ESO will attend the site to assess the event and assist the QFD in person if deemed safe to do so.

e) The ESO will direct CA to commence evacuation if people are onsite.

f) The ESO will direct the ERT to ensure clear access for Fire Brigade (i.e. remove trucks off site).

g) The ESO will advise the Fire Brigade of the situation and be prepared to assist as required.

h) Secure records and make visitors book available.

Fire Wardens

a) If fire has occurred as a result of an explosion, the fire wardens or members of the ERT shall attempt to extinguish the general fire if it is feasible and rescue personnel casualties if involved

in fire area, but only where a rescue can be accomplished without undue risk to the rescuer. Use fire extinguishers or hose reels as required. Take care to select the correct firefighting medium based on the fire type (i.e., care must be taken with electrical fires and water).

b) Only low-level spot fires should be attempted to be contained by the Emergency Team, if any infrastructure becomes engulfed or the fire is unable to be controlled by an extinguisher, evacuation should be initiated as per **ERP-09**.

c) If offsite, under the instruction of the ESO, Fire Wardens may be required to travel to site to assist in fire-fighting or allowing access to the fire by the CA.

Drivers

Stop loading or unloading operations. If possible, move vehicles to a safe area. Assemble at the emergency evacuation assembly point shown in **Figure 6-1**.

Staff

If onsite, on the instruction by the ESO, proceed to “Safe Assembly Areas”. Ensure free access to roadway for vehicles leaving site. Prevent entry of vehicles other than the Fire Brigade, Ambulance, etc.

If staff are not onsite, no action is required.

9.6 ERP-02 Lithium-Ion Battery Fire

9.6.1 General

Lithium-ion batteries present a unique hazard due to their containing highly flammable materials that cannot be extinguished if ignited. The alarm must be raised for any lithium-ion battery fire, including if the BESS equipment begins smoking. In the event a lithium-ion battery fire is discovered, the person detecting the incident shall notify others in the immediate facility and contact the ESO. The ESO will then make further decision regarding fire response. Where the ESO cannot be immediately located, the Site Senior Executive shall be contacted, and the location of the ESO identified so that the incident details can be relayed. Lithium-ion battery fires should not be attempted to be extinguished by untrained personnel.

Incidents occurring outside site hours would initiate site detection systems and alarms, however, no personnel will be on-site to attend to the incident. In this case, the alarm will be raised at the control room of the site security company who will relay the alarm to the Fire Brigade and then to the ESO (or deputy). The site will then be attended by the Fire Brigade and the ESO (or deputy). The ERP and emergency procedures will be located at the site entrance emergency box. The Fire Brigade will have access to the site emergency box on entry to the facility. The ESO (or deputy) will attend the site and assist the CA as required.

9.6.2 Procedure

Person Discovering the Battery Fire

a) Warn personnel close by or those who may be in immediate danger (if people are onsite).

b) Immediately notify the ESO. If the ESO cannot be located, notify the deputy.

c) If appropriate, the ESO will notify the Fire Brigade (000).

Duty Manager

Upon notification, the DM will assume the role of Incident Controller until the fire brigade arrives at the BESS facility or until the emergency is sufficiently managed. The procedure for the DM is as follows:

a) The DM will assess the emergency (remotely or if onsite) in collaboration with the ESO and categorise it according to the levels described in Section 1.4. Particular care shall be taken if the emergency has the potential to extend beyond the site boundaries. A Li-ion battery fire shall be automatically assumed to be a major emergency event.

b) The DM will notify the Fire Brigade (000) or will instruct a Communications team to do so. The ESO will communicate the emergency to the DM from the BESS site.

c) If the emergency was assessed and determined to be major and external alert, or if the emergency event is detected to be spreading, the businesses in the vicinity shall be notified of the event by the DM. A Li-ion battery fire shall be automatically assumed to be a major emergency event, although the consequences are typically contained within the site boundaries of the BESS facility.

Emergency Services Officer

a) The ESO will assess the emergency (remotely or if onsite) and categorise it according to the levels described in **Section 1.4**. Particular care shall be taken if the emergency has the

potential to extend beyond the site boundaries. A Li-ion battery fire shall be automatically assumed to be a major emergency event.

b) Turn off power at the main switchboard.

c) The ESO will direct the ERT to commence evacuation if people are onsite as per **ERP-09**.

d) The ESO will direct emergency response personnel (e.g., Fire Wardens) to ensure clear access for Fire Brigade (i.e. remove trucks off site).

e) The ESO will advise the Fire Brigade of the situation and be prepared to assist as required.

f) Secure records and make visitors book available.

Fire Wardens

Emergency Team (Fire Wardens) shall attempt to rescue personnel casualties if involved in fire area, but only where a rescue can be accomplished without undue risk to the rescuer.

Water shall not be applied to BESS fires as it does not extinguish a BESS fire and instead generates contaminated water.

When instructed to do so by the ESO, Fire Wardens are to initiate evacuation as per **ERP-09**.

Drivers

Stop operations. If possible, move vehicles to a safe area. Assemble at the emergency evacuation assembly point shown in **Figure 6-1**.

Staff

If onsite, on the instruction by the ESO, proceed to “Safe Assembly Areas” shown in **Figure 6-1**.. Ensure free access to roadway for vehicles leaving site. Prevent entry of vehicles other than the Fire Brigade, Ambulance, etc.

Fire Brigade – QFD Firefighters

a) The Fire Brigade will be notified by ESO to arrive to site.

b) Upon arrival, firefighters shall access the emergency fire-fighting water in the tanks via the QRT fittings.

c) Water shall not be applied directly to the BESS units; instead, they shall be allowed to burn out.

d) The Fire Brigade shall monitor the BESS fire and control any spot fires in the surrounding area to prevent propagation.

9.7 ERP-03 Bushfire Originating Offsite

9.7.1 General

MMG has an existing Bushfire Response Guide for the main Mine site. The Guide describes the following levels of bushfires to assist the ESO or Incident Controller in determine the appropriate response actions:

a) **Level 1** – Bushfire location 10 km from Mine site

b) **Level 2** – Bushfire location 5 km from Mine site

c) **Level 3** – Bushfire location 2 km from Mine site

The BESS site will operate with the same bushfire event levels.

In the event a bushfire or grassfire is discovered outside of the APZ, the person detecting the incident shall raise the alarm by immediately notifying others in the immediate vicinity and then contacting the ESO. The ESO will then contact the CA and inform them of the fire.

The role of the CA in this scenario is to contain the spread of the fire to adjacent properties and businesses and the role of the Fire Wardens and Emergency Response teams on site is to monitor for spot fires and maintain communication with the CA.

9.7.2 Procedures

Person Discovering the Fire

a) If onsite, warn personnel close by or those who may be in immediate danger.

b) Whether onsite or in the remote monitoring centre, immediately notify the DM. If the DM cannot be located, notify the deputy.

c) The DM will notify the Communications Team to notify the Fire Brigade (000) or will do so themselves. For a bushfire, the ESO shall not attempt to attend the site while the bushfire is ongoing.

d) Emergency Team (Fire Wardens) shall notify all on site to halt work (if safe to do so) and will establish teams to monitor the site.

    a. As far as is reasonably practicable, personnel should be spread out and be equipped with UHF radios and extinguishers.

e) The CA will operate from the outside of the site to fight the fire and prevent spreading to the site; personnel will remain on site unless instructed otherwise by the DM (if applicable).

Duty Manager

a) The DM will assess the emergency (remotely or if onsite) and categorise it according to the levels described in **Section 1.4**, as well as the levels described above, in accordance with MMG's existing Bushfire Response Guide. A bushfire is only anticipated to already be an external event.

b) The DM will notify the Fire Brigade (000). For a bushfire, the ESO shall not attempt to attend the site while the bushfire is ongoing.

c) The DM will maintain communication between the Fire Brigade and the personnel on site.

d) The DM shall inspect the site once the bushfire has been deemed under control by the CA.

e) The businesses and residents in the vicinity shall be notified of the bushfire by the DM.

Emergency Services Officer

a) If the ESO is already on site, they shall commence evacuation of the BESS site, according to the level of bushfire classified by the DM:

b) **In the case of a Level 1 bushfire event (10 km away):**

    a. The bushfire is to be monitored.

    b. Review QLD Fire Alerts

    c. Turn off power at the main switchboard.

d. Mobilise people (if on site) to Dugald River Mine main site to await further instructions (if this does not result in the people coming closer to the fire).

c) **In the case of a Level 2 bushfire event (5 km away):**

a. Turn off power at the main switchboard.

b. Commence evacuation to Emergency Assembly Point A (or B if A is impacted).

c. Consider mobilising non-essential personnel off-site (to Dugald River Mine site if safe to do so).

d) **In the case of a Level 3 bushfire event (2 km away):**

a. Turn off power at the main switchboard (if safe to do so).

b. Notify personnel onsite to seek protection indoors in the Warehouse (which is 2 hr fire-rated).

c. If a spot fire does eventuate on site, it should be attempted to be contained and the ESO and CA should be notified. If any non-BESS unit becomes engulfed or the fire is unable to be controlled by an extinguisher, then **ERP-01** should be initiated along with evacuation as per **ERP-09**. If the BESS units are impacted by an incident bushfire, **ERP-02** should be initiated, and evacuations should be carried out as per **ERP-09.**

Fire Wardens

a) **In the case of a Level 1 or 2 bushfire event:**

a. If onsite, Emergency Team shall prepare the site for a potential bushfire by removing any flammable sources and clearing combustible material. Emergency Team shall assist in the evacuation of personnel, either to the Mine site (Level 1) or to the Assembly Point, under the direction of the ESO and the CA.

b. If a small spot fire occurs, the Emergency Team shall use fire extinguishers to contain it.

c. If offsite, under the instruction of the ESO, Fire Wardens may be required to travel to site to assist in fire-fighting or allowing access to the fire by the CA.

b) **In the case of a Level 3 bushfire event:**

a. If onsite, Emergency Team (Fire Wardens) shall attempt to extinguish the general fire if it is feasible and rescue personnel casualties if involved in fire area, but only where a rescue can be accomplished without undue risk to the rescuer. Use fire extinguishers as required. Take care to select the correct firefighting medium based on the fire type (i.e., care must be taken with electrical fires and water).

b. Only low-level spot fires should be attempted to be contained by the Emergency Team, if any infrastructure becomes engulfed or the fire is unable to be controlled by an extinguisher, evacuation should be initiated as per **ERP-09**.

c. If off-site, no action to be taken.

Staff

Follow instructions of the ESO or DM. Ensure free access to roadway for vehicles leaving site. Prevent entry of vehicles other than the Fire Brigade, Ambulance, etc.

9.8 ERP-04 Loss of Containment

9.8.1 Product Spills Onsite

9.8.1.1 General

While spills are not expected to occur at the site, in the event of spill, the following procedure should be followed. Spills should not be attempted to be recovered and shall be disposed of responsibly.

9.8.1.2 Procedures

Person Discovering the Spill

This procedure applies to the detection of a spill whether people are on-site or offsite.

a) Warn any personnel in immediate danger.

b) Report the spill to the DM.

c) If the DM cannot be located, notify the DM deputy, the ESO, or the O&M / Site Senior Executive. If an incident occurs after hours, the identification of the spill would be made by the first supervisory staff attending the site.

d) Unless appropriately trained or competent in spill clean-up, evacuate the area and contact the DM.

Note: Do not use water to wash down spills

Duty Manager

a) Assess the incident against the emergency levels described in **Section 1.4** in collaboration with the ESO and formulate a first attack response.

b) Ensure CA are called as required (Call 000).

c) Contact tenants on adjacent sites if required and notify of potential evacuation if required.

d) Arrange for evacuation of on-site personnel and offsite facilities if required.

e) Provide advice to CA as required and liaise with CA commanders.

f) Coordinate the contact of a hazardous waste disposal company, if not already completed by CA. An example of such a company can be located in **Appendix D.**

Emergency Services Officer

a) Attend the site for in-person inspection if off-site.

b) Communicate with the DM and co-ordinate emergency actions, including permitting the Fire Wardens to attempt spill containment. The site spill kit(s) located as per **Figure 7-1** shall only be used by personnel if they are appropriately trained.

c) Maintain communication with DM and escalate if required.

Communications Officer

a) If instructed by the DM call the Fire Brigade (Call 000).

b) Notify site emergency response personnel (Fire Wardens) of the incident by phone, UHF radio or message (e.g., via runners).

Fire Wardens

a) Evacuate areas (if onsite), or under the direction of the ESO.

b) Conduct personnel count and account for all personnel on site.

c) Perform duties as required by ESO.

d) Upon notification by the ESO and if safe, protected (i.e., PPE) and trained (e.g. Fire Wardens) individuals may contain the spill using the site spill kit(s) located as per **Figure 7-1**.

If not onsite, Fire Wardens may be instructed by the ESO to make their way to the site to attempt spill containment using spill kits.

9.8.2 Product Spills Outside of Site

9.8.2.1 General

Spills off-site constitute a serious incident and must be responded to immediately. An off-site spill would be classified as an external alert requiring the response of CA. Spills off-site should not be attempted to be recovered.

In the event of spill, the following procedure should be followed.

9.8.2.2 Procedures

Person Discovering the Spill

a) Warn any personnel in immediate danger (if personnel are onsite).

b) Contact the DM (or the deputy of the DM cannot be located). If an incident occurs after hours, the site security company are to notify the DM of the incident.

c) If no answer, notify the ESO or the O&M / Site Senior Executive to physically report the incident.

Note: Do not use water to wash down spills

Duty Manager

a) Ensure CA are called immediately (Call 000).

d) Assess the incident against the emergency levels described in **Section 1.4** in collaboration with the ESO and formulate a first attack response (i.e., instruct trained personnel to attempt containment using spill kits). An external spill is automatically considered a major external emergency requiring CA attendance. Attend the site for in-person inspection if off-site.

e) Contact landowners on adjacent sites if required and notify of potential evacuation if required.

f) Coordinate the contact of a hazardous waste disposal company, if not already completed by CA. An example of such a company can be located in **Appendix D.**

g) Provide advice to emergency services as required and liaise with CA commanders.

Emergency Services Officer

a) Attend the site for in-person inspection if off-site.

b) Communicate with the DM and co-ordinate emergency actions, including permitting the Fire Wardens to attempt spill containment. The site spill kit(s) located as per **Figure 7-1** shall only be used by personnel if they are appropriately trained.

c) Maintain communication with DM and escalate if required.

d) Arrange for evacuation of on-site personnel and offsite facilities of required.

Communications Officer

a) Call the Fire Brigade (Call 000) under instructions of the DM.

b) Notify site emergency response personnel of the incident by phone or message (via runners).

Fire Wardens

a) Evacuate areas (if onsite), or under the direction of the ESO.

b) Conduct personnel count and account for all personnel on site.

c) Perform duties as required by ESO.

d) If deemed safe and under the instruction of the ESO, trained personnel may attempt to contain the spill from spreading further using the spill containment kits on site.

If not onsite, Fire Wardens may be instructed by the ESO to make their way to the site to attempt spill containment using spill kits.

9.8.3 Notification

For any suspected pollutions, written notification must be made to the QLD Environment Protection Authority (EPA), within 24 hours at: 1300 130 372.

9.9 ERP-05 Personal Injuries

9.9.1 General

If an injury occurs to a person while on or off site, the following procedure shall be followed. The emergency services contact details can be located in **Appendix D.**

9.9.2 Procedures

If injured, seek first aid/medical treatment immediately. If a person is severely injured, has collapsed or is in distress, do not panic, the following procedure shall be carried out. Note that this procedure is applicable whether on or off-site.

Person Discovery Casualty

a) Advise the supervisor of the injured person.

b) Contact the O&M / Site Senior Executive and advise of the casualty.

c) If qualified, apply first aid, if not qualified await arrival of first aid officer or qualified first aid person.

d) Prevent unqualified persons from attempting to assist or treat the casualty.

Duty Manager

a) Assess the injury according to the levels of emergency described in **Section 1.4** and call assistance from ambulance service as required.

b) Direct the ESO to attend the site as required, and maintain communication with the ESO.

c) If escalation is required, call the ambulance (call 000) or direct the communications officer to do so.

d) Arrange for the accident/incident investigation and completion of the appropriate forms.

Emergency Services Officer

a) Direct personnel wo are appropriately trained to deliver first aid.

b) Assist on site response (first aiders) as required.

c) If applicable, guide the ambulance to the scene of the casualty in person.

Communications Officer:

a) Alert the duty first aiders and notify of the casualty location.

b) Notify the DM and, under his/her direction call the ambulance (call 000).

- Describe the nature of the emergency
- Say how many are injured, if known
- Give your name and where you are telephoning from

First Aid Officers

a) Treat the casualty as required

Notes:

1) Where an accident occurs involving loss of life or serious personal injury, or is an accident involving plant and equipment, written notice of this accident is to be forwarded to the relevant Government Authorities, which include WorkSafe QLD, Dangerous Goods and WHS, Police.

2) Where an accident or incident occurs with actual or potential significant off-site impacts on people or the biophysical environment, a report shall be submitted to the Department of State Development, Infrastructure and Planning (DSDIP)/Environmental Protection Agency (EPA), within 24 hours of the incident, outlining the basic facts. A further detailed report shall be submitted following investigation of the causes and identification of necessary additional preventative measures.

Company incident reporting procedures should be followed.

9.10 ERP-06 Bomb Threat

9.10.1 General

The BESS site will be operated remotely under normal operations, apart from regular inspection and maintenance trips. The risk of a bomb threat is considered very small, as the site is not populated under normal conditions. Nevertheless, the following section describes the appropriate response to a bomb threat.

Threats of this nature are usually made:

1) By telephone to a location.
2) By telephone through the local police, who may have received the message direct, or who may be repeating a communication to the press, radio, television or authorities.
3) By anonymous letter.

Letters received containing information on the alleged placing of a bomb should be handed to the police for any action they consider desirable. They should be handled as little as possible and by a minimum number of persons.

An emergency of this nature need not be assessed against the levels of emergency as described in **Section 1.4** as it should be considered a major emergency automatically.

9.10.2 Planning

The objectives of the guidelines, which follow, are:

1) To ensure maximum safety of personnel.
2) To protect Company property.
3) To minimise interference with normal production, business etc.
4) To enable an early appreciation of the situation to be made and to arrive at the correct decisions without anxiety and confusion.

9.10.3 Procedures

9.10.3.1 Initial Response

The initial response is identical regardless of whether there are people on-site or only in the remote monitoring office.

Threats by mail or other published media should be passed immediately to the supervisor and then to the DM. Staff receiving phone threats should:

a) Remain calm (or appear to be) and do not hang up; let the caller finish message.
b) Obtain information and record on the nearest paper; wording is a priority. Keep answers to one or two words.
c) Warn others if possible.
d) Listen to background noises and voice mannerisms.
e) When caller hangs up, complete checklist.
f) Inform Supervisor or site emergency response personnel.

g) Await interview by Site Emergency Commander.

A bomb threat checklist is provided in **ERP-06-01**.

Person Discovering the Bomb Threat

a) Notify the DM of the incident, regardless of whether onsite or offsite.

b) Act under instructions from the DM as directed.

Duty Manager

a) The DM shall notify police of details, ask them for their recommendation for immediate action, and ask them to attend site to assess further required actions with management input.

b) On Police advice, take action to safeguard personnel (i.e., possible evacuation if personnel are onsite).

c) If instructed by Police, instruct the ESO to initiate searching procedures.

d) Consult with the site management and provide advice to the Police on site-specific issues.

9.10.3.2 Search Procedures

A search team shall be established under the direction of the ESO and DM. The following general procedures will apply:

The ESO shall nominate and search a safe area to be used for evacuation (if people are onsite). A search procedure is given in **ERP-06-02**.

a) Search of area(s) for bomb; the search to be organised by the police if they deem it necessary with management advice. All personal effects must be removed before search.

b) If a potential bomb is found by an employee, it should be reported to the ESO, who will report it to the DM. The device/object shall not be handled or disturbed. The DM shall notify police and bomb squad.

A search checklist is provided in **ERP-06-02**, to assist with the search if required.

9.10.3.3 Evacuation

If the site is manned when a bomb threat is made or a bomb is identified, the following actions shall be made:

a) Where a bomb is identified in other areas of the site and there are people onsite, the area is to be evacuated immediately in accordance with **ERP-09**. It is noted that explosions in open air have less impact than when enclosed. If an explosion does occur, exposed persons away from the immediate area will be impacted by an overpressure wave with damage a function of distance from the bomb source. The chosen emergency assembly point is sufficiently distanced from infrastructure to avoid incident propagation.

b) On instruction to evacuate, evacuate the nominated area of all personnel not required for the safe running of the facility, to the safe area as shown in **Figure 6-1.**

c) Those remaining shall bring the facility to a safe condition and then immediately evacuate to the safe area.

d) The evacuation time shall be for a period instructed by the police or DM.

9.10.3.4 All Clear

The police shall declare when the bomb threat no longer exists to the DM, or their representative who shall declare it to all personnel.

9.10.4 ERP-06-01

9.10.4.1 Preamble - Bomb Threat and Search Checklists

This section is designed to give information on how to respond to bomb threats. **Figure 9-1** provides a call sheet with specific instructions to respond appropriately to bomb threats.

Bomb threats, and other similar types of threats, may arise from several causes. They may simply be made for harassment purposes, as a diversion, or as a 'party prank'. Alternatively, they may be a part of an extortion attempt (with or without an actual explosive device), part of the operations of a terrorist group, or an individual's malicious attempt to inflict injury or damage.

The threat may be specific or non-specific. In a specific threat the caller is prepared to give detailed information about the bomb; why it has been placed, when it will explode etc. Non-specific threats are more common and typically consist of the caller simply stating a bomb has been placed and hanging up.

Most threats are hoaxes, but this is of little consolation when you are faced with deciding how you will respond to one. It may appear that evacuation of people is the best response, but there are several options open to you, and you have to decide which, in these circumstances, will be the safest. For example, if an explosive device has been set in a car park you would be placing people at greater risk by evacuating them to or through such an area. However, if the location of the bomb is given, or the bomber is thought to be genuinely motivated, evacuation of the known danger area may be the best response. A check of the evacuation route and the assembly area should be made prior to the evacuation. Note: Do not use the fire assembly area in a bomb threat situation if there is the likelihood that the area may be a target. Direct people to the nearest alternative emergency assembly point.

In some cases, it may be best to tell people the reason for the evacuation and ask them to check their area for any suspicious objects and report, but do not touch them as they leave. In other circumstances it may be possible to safely conduct a discrete search while the building is still occupied, or the building may be evacuated as a 'fire drill' and then discretely search. The point is, there is no standard response to a bomb threat which will give the best (safest) result in every situation. Each threat must be individually evaluated. **Figure 9-1** provides a checklist for detailing bomb threat information.

9.10.4.2 Things to Consider When Assessing a Threat

a) How did the threat sound? Was the caller familiar with the premises? Were they familiar with the nature and location of the alleged explosive device?

b) Was the tone of the call consistent with a genuine threat? Was the call related to a current bomb threat climate? (Company pursuing a controversial policy, significant visitors on site, recent sacking etc.)

c) How much time you have? When is the device set to go off?

d) What options do you have open to you? Is a specific area under threat, or the whole site? What is the best way of safely and quickly conducting a search?

e) What is the safest place for people on the site; where they are, in standard evacuation areas, or in some other area? Are your actions likely to encourage other threats?

The basic rule is to look at the threat and, given the known details, decide what should be done that will minimize the risk to human life.

The police must always be advised of any threat, and their advice considered in working out your response. As they are unfamiliar with your site, the job of searching for an explosive device may fall largely to Company personnel.

If an evacuation is implemented as per **ERP-09**, ask occupants to take personal effects with them and report any suspicious objects noticed. If a suspicious device is found, it should not be touched or interfered with in any way. It shall be immediately reported to the police who will take charge of disposal operations.

If it appears that the threat is a hoax, a decision must be made about re-occupation of the area. People will need reassurance that there is no further danger, and a reasonable criterion is how comfortable you personally feel about going back in the area. In some circumstances, re-occupation may be better left to the next day, or shift.

9.10.4.3 Summary of the Duty Manager's Duties During a Bomb Threat

a) Decide what action should be immediately taken in response to the threat. Take charge of this response.

b) Ensure that the police are notified as soon as possible.

c) If appropriate, and in consultation with the police, form a bomb search team and brief them on their duties. Arrange for temporary relocation of any evacuated person.

d) In consultation with the Police, advise neighbouring properties of the situation, if required.

e) If any suspicious device is located, do not touch it, and hand over disposal operations to the police.

Note: You should also familiarize yourself with the bomb threat call sheet visible in **Figure 9-1** and other instructions in this section.

9.10.4.4 Explanation of Bomb/Extortion Threat Call Sheet

Copies of the call sheet (**Figure 9-1**) should be kept out of sight, but readily available to DM and O&M / Site Senior Executive and other persons likely to receive such calls. The purpose of the call sheet is to enable the call recipient to extract as much information as possible from the caller, so that the safest response to the threat can be worked out. To this end, the layout of **Figure 9-1** follows the logical sequence of such a call.

9.10.4.5 The Instructions

The Instructions are in a brief form at the top of the sheet in **Figure 9-1** to remind the recipient what to do, rather than give any detailed explanation. Some call tracing may be possible, even if one of the parties have already hung up, hence Instruction 3 in **Figure 9-1** is not to hang up. The police will action this if appropriate. The exact wording of the threat should be recorded. The time and date may be added later.

9.10.4.6 Questions to Ask

If the caller has not already given these details, ask specifically the questions listed. If the call is genuine, they will probably give straight answers to them. Extensive hesitation may tend to indicate a hoax. In Point 7 is the question, “Why are you doing this?” this question gives some scope for delaying tactics and for narrowing down the psychological make-up and identity of the caller. Following this is a request for the caller to give a name and address. These are unlikely to be given, even if the call is a sympathetic warning. Leave these questions till last, as they may well cause the caller to hang up.

9.10.4.7 Notification of Call

As soon as possible, the DM should be advised of the threat. If another person can do this while the call is in progress, well and good. If not, do it immediately after the caller has hung up.

9.10.4.8 Analysis of Call

Tick the appropriate squares. Add any details as necessary.

Bomb Threat Check List

Instructions: Use this sheet while receiving the call, complete as soon as possible
Obtain as much information as possible, ask questions
Do not hang up at the end of the call

Questions to Ask:	Caller's Voice ☑	
When is the bomb going to explode?	☐ Man	☐ Woman
.....	☐ Child	Age:.....
Where is the bomb right now?	☐ Calm	☐ Angry
.....	☐ Excited	☐ Uneducated
What does the bomb look like?	☐ Talking Slow	☐ Talking Fast
.....	☐ Soft	☐ Loud
What kind of bomb is it?	☐ High	☐ Deep
.....	☐ Clear	☐ Clearing Throat
What will cause the bomb to explode?	☐ Nasal	☐ Stuttering
.....	☐ Lisp	☐ Raspy
Did you place the bomb?	☐ Ragged	☐ Slurred
.....	☐ Laughing	☐ Crying
Why did you place the bomb?	☐ Deep Breathing	☐ Drunk
.....	☐ Distinct	☐ Disguised
What is your name?	☐ Foreign	☐ Familiar
.....	Whom does it sound like? (someone you know/movie star/radio personality)	
What is your address?	.....	
.....		

☐ Well spoken	☐ Taped	BACKGROUND NOISES	
☐ Foul	☐ Incoherent	☐ Street Sounds	☐ Factory/Machines
☐ Irrational	☐ Message Read	☐ Crockery/Plates	☐ Animal Noises
TELEPHONE CALL		☐ Other voices	☐ PA System
☐ Local	☐ Private	☐ Static	☐ House Noises
☐ Trunk/Toll	☐ Extension	☐ Short echoes	☐ Long Echoes
☐ STD	☐ Public Phone	☐ Traffic	☐ Aeroplanes
☐ Mobile		☐ Office Sounds	☐ Train Sounds
		☐ Boat Sounds	☐ Music (type) .....

REPORT THE CALL IMMEDIATELY TO YOUR SUPERVISOR OR CHIEF WARDEN

Did the caller appear familiar with plant/buildings by their description of the bomb location?

☐ Yes ☐ No

Call Recipients details:

Name - ..... Location - ..... Phone - .....

Date - ..... Time - .....

Figure 9-1: Bomb Threat Call Sheet

9.10.5 ERP-06-02

If it has been established that a bomb may have been placed on site, a search should be conducted whenever it is considered that it is safe. The search team will consist of responsible people who normally work in the area, and will therefore be familiar with what is, and is not, out of place. As the police will not have this familiarity, they will need this assistance in the search. As a general rule it is advisable to secure the co-operation of potential searchers in advance of a threat being received.

If a bomb is suspected to have been placed, this emergency qualifies as a major emergency with necessity for external alert.

The ESO, under the instructions of the DM, shall carry out the following procedure:

1) Organise a search team/s

a) Only organise a search team under the instruction of the CA. If deemed unsafe, the site shall not be attended by employees, including the ESO.

b) Select responsible volunteers to carry out the search.

c) Determine the exact area to be searched by the team/s.

d) Determine a deadline for completing the search, including a safe margin before the threatened detonation time, if given.

2) Brief the Searchers

a) Advise the type of explosive device, if known; and any other details given by the caller, which may be relevant.

b) Tell them to look for out-of-place items in the open, or in hidden, but accessible spots. Tell them to search in a methodical manner (See attached sheets).

c) Tell them not to touch or tamper with any suspicious device.

d) If there is the possibility of a booby-trap device, tell them to avoid any action which might trigger it. These may include opening doors, cupboards or hatches, or operating equipment or light switches in some circumstances.

e) Tell them to immediately report any suspicious devices found.

3) Carry out Search

a) Conduct the search in accordance with the briefing and in co-operation with the police. (In some cases, the Police may provide specialist assistance, e.g., sniffer dogs etc.)

b) If a suspicious device is found, withdraw from the area and allow Police/ Military Bomb disposal units to handle the situation. If a suspicious device is not found, a decision on re-occupying the building should be made. When people are permitted to re-enter the area, they should be briefed so as to reassure them that no further danger exists and be accompanied back into the area by management personnel.

4) If applicable, notify adjacent properties.

a) If the bomb may harm adjacent properties, the DM shall inform adjacent properties to execute an evacuation according to their own procedures.

Note: When people have been evacuated from an area due to a bomb threat, they should be kept well clear of the danger area, and only the minimum number of people required for the purpose should be in the area during the search.

9.11 ERP-07 Collision of Road Vehicles

9.11.1 General

It is unlikely that a serious accident involving a transport vehicle will occur in the immediate vicinity of the facility. However, during construction a minor collision resulting in product spillage and fire may occur on the roads. Notwithstanding the nature of the incident, the immediate objectives after a vehicle incident are to:

a) Protect life and property.

b) Control and prevent any spillage from spreading.

c) Extinguish any fire if safe and possible.

d) Remove ignition source (to prevent any fuel spills from igniting).

e) Prevent spilt product from entering drains.

f) Contain spilt product for subsequent removal.

g) Prevent or minimise further spillage.

If the accident is serious enough to call the CA (Police, Fire Brigade, etc.) allow the Emergency Service Commander to assume traffic control on their arrival. Make all efforts to stop or divert approaching vehicles, depending on the risk and circumstances. Warn people to remain at a safe distance, taking into consideration the type and likely flow of liquid and vapour (e.g., Fuel, acid, liquefied gas) and prevailing climatic conditions. Vehicle safety triangles are to be used where available.

Note that this emergency can only occur when personnel are onsite. Thus, the distinction between onsite and offsite actions has not been made.

9.11.2 Protecting Watercourses

Make every effort to prevent spilt product from entering drain or watercourses.

The priority actions are:

a) Contain.

b) Minimise spread of the product and prevent water usage, particularly in toxic/bioactive chemical spills.

Avoid hosing down, but the senior fire officer must use his discretion. The senior fire officer's prime concern is for public safety, so he must evaluate the potential risks involved in alternative courses of action. If flammable or combustible liquid is spilled and cannot be prevented from entering drains, foam can be applied to minimise flammable vapour generation.

Block inlets to drains by using drain covers, dirt, sand, paper, rags, old clothing or similar material.

9.11.3 Incident Location Restoration

After an accident any contamination of the incident location is to be restored as soon as possible (in consultation with Management).

Repair damage to the road surface, surroundings or drainage systems. Co-operate with the local authorities. Clean the road surface of spilled materials or oil to prevent subsequent accidents from vehicles skidding or sliding on the chemical residue or oil. Notify public utilities, such as Telecom,

electricity supply authority, water board, etc if their property has been damaged so that they can affect the necessary repairs. Similarly, damage to any signs, notices or hoardings should be made good or those responsible for them notified of the need for repair.

Assure owners of damaged private property such as houses, fences, gardens, motor cars, boats, etc. that their claims for compensation or repair will be promptly and sympathetically handled but no acknowledgment of liability should be made. Any employees on the scene should ensure that the company does, in fact, take appropriate follow-up action promptly.

If land has been polluted by chemicals, flammable/combustible liquids or vehicle oil, it may be necessary to remove soil and replace it with fresh material to restore the area to its original condition. Consult Management and any haulage contractor for advice.

9.11.4 Fire Fighting

If a fire has started, extinguish it (if safe and practicable) using the portable extinguishers from the vehicle or site. Try to limit the use of water until drains have been effectively covered and spill control is in place. See Procedure **ERP-01**.

9.12 ERP-08 Intruders Onsite (Vandalism, Armed Hold-Up, Assault)

9.12.1 General

The infrastructure onsite may be attractive items and can draw particular attention from certain elements of the community. Whilst the site includes security features (perimeter fence, CCTV) there may be times when intruders could access the site and, hence, the products may draw unwanted attention. Site staff should be on the lookout for any suspicious activity by persons or vehicles on site.

Note the description and registration number of suspicious vehicles and/ or persons. Inform the site management personnel, security and Police immediately. Action can then be taken before a crime is committed. The number for contacting the security company is in **Appendix D**.

9.12.2 Objectives

The objective of this procedure is to minimise the contact between site staff and intruders and to ensure the appropriate security forces apprehend the intruders with the minimum impact on the site.

9.12.3 Procedure

9.12.3.1 Armed Hold-Up

Staff involved directly in the incident – onsite

a) During an armed hold-up co-operation is more important than intervention. Remember: No amount of money is worth a human life, don't be heroic.

b) Try to remain calm, control your emotions and avoid any action which may incite violence.

c) Obey the intruder's instructions, do precisely as they say, and nothing more.

d) Tell the intruders what you're doing, make no sudden movements.

e) Observe as much as possible as to the description of the intruders, including clothing and other distinguishing features (i.e., voice, accent, movements). Do not stare at the intruders.

f) Do not touch anything which may be handled by the intruders

After the armed hold-up, as soon as it is safe to do so

a) Call for assistance or activate an alarm – Notify the DM of the incident. If an incident occurs after-hours on-site security are to notify the DM of an incident.

b) Give details to the DM of the incident (DM to use components of the list below to gather details)

Duty Manager

a) Assess the emergency against the levels of emergency as described in **Section 1.4.**

b) Call the site security personnel, they may be able to apprehend the intruders before the escape from the estate.

c) Telephone Police (000) and say "Dugald River Mine BESS Facility has been held up".

d) Give your name, telephone number, exact location of the incident, and description of any person(s) and vehicle(s) involved.

e) State clearly if the person(s) were armed and the type of weapon.

f) Close the premises completely and do not allow unauthorised people to enter.

g) Do not allow any person into the area accessed by the intruders and do not let any personnel to handle objects touched by the intruders.

h) Ask any employee witnesses to remain until interviewed by Police or if they insist on leaving ask for their permission for Police to interview them either at home or a later date.

i) Do not discuss with any persons outside the business the goods or valuable stolen.

j) Ensure staff or witnesses are provided with any trauma counselling if required.

9.12.3.2 Identification of Intruders Onsite

a) Where intruders are identified on site (whether or not there are personnel onsite), be it identification of an armed hold up in progress, identification of an unfamiliar person wandering around the site (i.e., person without a temporary identification badge that should have been obtained from O&M office / Site Demountable Offices), or identification of vandals, the following procedure should be followed:

b) Immediately notify the Site Senior Executive and ascertain whether the possible intruder is a visitor or is authorised on site. If this cannot be verified, notify the DM or a member of the site emergency team (who will locate and notify the DM).

c) The DM will decide on the action to be taken; however, it is not recommended that the intruder(s) be approached, the recommended action is to immediately notify the site security (**Appendix D**) and then the Police (external line - 000). If the DM is offsite, it may be best to remain offsite and to inspect the site after the emergency has been terminated.

d) Lock all entry and exit gates

e) Attempt to keep intruders in view from a safe distance.

f) Write down description of intruders (use the personal description form in **Figure 9-2**).

Note: Do not at any time attempt to confront or arrest intruders. This is not your job!

9.12.3.3 Civil Disorder

It is unlikely that civil disorders (like bomb threats or large sporting crowds) will occur due to the reasonably remote location from residential, sporting or commercial (shops) outlets. Notwithstanding this, disruptive crowds can cause severe damage and major disruption to BESS operations, both directly to the facility and to the infrastructure immediately surrounding the site. It is therefore essential that the site emergency response contains procedures for coping with civil disturbance.

Examples of civil disturbance include:

a) Industrial disputes

b) Unpopular political decisions

c) Emotional international situations

d) Demonstrations and marches that get out of control

e) Clashes of opposing groups (i.e., youth gangs) that spill over into the site

The procedure below is designed to minimise the danger to personnel and the risk of damage to assets.

As soon as the DM is aware of a civil disorder occurring:

a) on the site

b) in the vicinity of the site

c) such that the event is imminent of unauthorised entry to the site by a disaffected person or group

The following action should be taken:

a) Alert members of the CA

b) Initiate action to restrict entry to the buildings on site.

c) Prevent contact between demonstrators and the site occupants (employees)

d) Notify the site security (**Appendix D**) and Police of the incident and request assistance

e) Notify nominated Managers.

f) Restrict entry to the site – site emergency personnel, under direction from the DM, should check security in their area and ensure all external gates and entry points to the site are locked.

The DM shall restrict contact between the site personnel and the demonstrators.

The DM shall contribute in a practical manner by:

a) Withdrawal of staff where necessary

b) Supervising the locking up of offices

c) Securing all records, files, cash, and other valuables

d) Promoting an air of confidence and calmness.

9.12.4 Personal Description Form

Figure 9-2 shows a form to be filled out with the following instructions:

a) Separate form required for each person

b) To be completed immediately after incident by each staff member, also, passers-by if possible

c) Place tick in the box applicable □, if answer is unknown draw a dash “-“

d) Do not consult others during the completion of the form

e) ESO or DM to collect the forms, copy and hand to Police

Name/Nickname Used:			Sex: Male ☐ Female ☐		
Approximate Age:			Nationality:		
Height (feet or metres):			Weight:		
Complexion	☐ Fair	☐ Dark	☐ Pale	☐ Fresh	☐ Pimply
	☐ Ruddy	☐ Suntanned	☐ Dirty		
Build	☐ Thin	☐ Medium	☐ Stout	☐ Nuggetty	
Voice	☐ Clear	☐ Loud	☐ Quiet		
Accent:			Eyeglasses (Colour/shape):		
Stature	☐ Straight	☐ Stooped	☐ Slouchy		
Walk	☐ Quick	☐ Slow	☐ Limp	☐ Springy	☐ Pigeon toed
Disguise:					
Moustache/Beard (Colour/type):					
Hands	☐ Soft	☐ Hairy	☐ Calloused		
Nails:					
Hair (Colour):					
Hair Style	☐ Straight	☐ Bald	☐ Curly	☐ Thick	☐ Thin
	☐ Wavy	☐ Long	☐ Cut		
Eyes (Colour):					
Size	☐ Large	☐ Little/Piggy	☐ Squint	☐ Staring	☐ Sore/irritated
Gloves (type/Colour):					
Scars or Marks					
Ears (Size/Shape)					
Nose (Size Shape)					
Teeth	☐ Good	☐ Bad	☐ Spaced	☐ Blackened	☐ Protruding
	☐ Uneven	☐ Missing			
Weapon					
Other distinguishing features (clothing, hat, tie, coat, shirt, etc.):					
Method and direction of escape (car model, registration, on foot, etc.):					
Method of operation (what did the intruder do, say, touch, take, etc.):					

Figure 9-2: Personal Description Form for Intruders

9.13 ERP-09 Evacuation as Part of an Emergency

9.13.1 Evacuation Procedure and Emergency Assembly Areas

In the event of an emergency while personnel are onsite, the following procedure shall be followed.

On the instruction to evacuate, all personnel will assemble in the Emergency Assembly Point A located in the North-West, just outside the site boundary.

The locations of the Emergency Assembly Point during construction and regular operations are shown in **Figure 6-1.**

9.13.2 Emergency Control Centre

The emergency control centre will be at Emergency Assembly Point A. If this area is affected by the emergency, the emergency control centre will be near at Emergency Assembly Point B.

9.13.3 Alarms

Alarm is raised manually by personnel physically identifying an incident. Personnel will then notify the DM, who will initiate the site emergency evacuation as necessary, with the assistance of the ESO. Notice to evacuate will be relayed by voice to all staff on site.

9.13.4 Procedure

On the instruction to evacuate given by the DM, the ESO or their Deputy, all personnel, including contractors' personnel, shall proceed to the Emergency Assembly Point at A. This assembly area will be used for all staff and contractors on site. The DM will arrange for the mark off of names to ensure all staff have evacuated safely. At the assembly point, staff and contactors will be given instructions on site evacuation or return to work as stipulated by the emergency condition.

In the event that the primary evacuation point is not available (i.e., the emergency is affecting the location), the alternate assembly point (Emergency Assembly Point B) will be used.

9.14 Terminating an Emergency

When the CA Commander's role is complete, control will be handed back to the DM/ESO (if onsite).

The DM should carefully consider the overall situation and review the following:

a) Re-organisation of staff.

b) Re-construction of damaged equipment.

c) Clean-up, safe storage and disposal of all contaminated material.

Once the DM has deemed the emergency to be sufficiently completed, he/she will officially terminate the emergency. Depending on the level of destruction of the emergency, the ESO, in consultation with the Duty Manager, will assess if normal operations can continue.

The DM shall facilitate the immediate removal of contaminated liquids (e.g., firewater or spills) off-site by contacting a hazardous waste removal company, such as that provided in **Appendix D.**

10.0 Training, Drills and Exercises

Providing training, drills and exercises to employees is critical for simulating an emergency situation. This ensures the ERPs detailed above are appropriate and functional.

A general training in emergency preparedness shall be provided to all Employees on the following subjects as a minimum:

a) Definition and types of emergencies.

b) Emergency facilities, their function, location and how to use them.

c) Means of communication and the location of communication facilities.

d) Actions in case of emergency.

e) Evacuation procedures.

f) Different alarm types which may sound at the site.

Specific training shall be provided to the appropriate staff on:

a) First aid.

b) Rescue operations.

c) Use of firefighting equipment.

d) Spill containment and clean up equipment.

The training shall be provided to all new employees at the start of their employment.

e) Retraining shall be provided annually.

f) Evacuation drills shall be carried out biennially.

This Emergency Response Plan shall be evaluated by simulated emergencies. The simulated emergencies and drills involving all emergency functions and all employees shall be performed biennially, proposed to be in March and September.

The training of each employee shall be recorded, and the records of training shall be kept in personnel files.

11.0 Communications

11.1 Actions with Emergency Services

The DM will invoke the provisions of the appropriate emergency plan. The site will ensure that the following occurs:

a) Company DM and ESO to assist the CA Commander whenever possible.

b) All company personnel to assist the local ESO whenever possible.

c) All safety, emergency and firefighting equipment to be made available to emergency services.

d) Any documents to be made available to emergency services (e.g., SDS).

e) All entrances are cleared for emergency vehicles access.

f) All access doors cleared for emergency services access.

11.2 Public Relations

Company personnel are NOT to speak to the media unless authorised by the DM. DM should also consult MMG prior to communicating with the media.

Any press releases issued to the media will be done so through the DM and are to contain the following information. Releases must be approved by the Site Senior Executive.

a) Description of the nature of the emergency.

b) The corrective action taken and its effectiveness.

c) When the emergency is expected to be over.

d) The investigative action that will or has been taken.

e) Any assistance that can be given by the media.

Note: Only facts should be stated

11.3 Statutory Investigation

There may be a statutory investigation into any emergency depending on the requirements in the various regulations.

A coronial inquiry may be held in the case of fire and will be held in the case of fatalities:

a) Investigating authorities will be:
   - Police
   - Fire Brigade
   - WorkSafe QLD
   - QLD EPA

b) Department of State Development, Infrastructure and Planning

c) The DM and ESO are to ensure no movement of any evidence apart from that necessary to control the emergency.

d) The CA will nominate a senior police officer to take charge of any situation which may later become subject to a coronial inquiry.

11.4 Reports

11.4.1 Incident Reports

As soon as possible after the emergency a full written report on the incident must be compiled. This will be reviewed by the Site Senior Executive and passed to the appropriate authorities within 28 days of the incident.

The report must cover in detail the following items:

a) Objects of the report

b) Summary

c) Conclusions

d) Recommendations

e) Remedial Action Report

11.4.2 Incident Follow-Up

A review will be conducted within 28 days of the emergency in relation to the effectiveness of the ERG. Areas of ineffectiveness or inefficiency will be noted, and the ERG modified to reflect the required actions. The modifications will be tested at the ensuing drills.

11.4.3 Review and Revision of the ERG and Associated EMPs

In addition to review and revision arising from real emergency situations and training exercises, the BESS ERG and site EMP shall be subjected to a periodical review. This review shall be carried out annually to ensure that the Plan is up-to-date, effective and in line with changing community standards.

The amendments to the Plan shall be made by the Workplace and Safety team and approved by the Site Senior Executive.

The ERG, and associated EMP, shall be audited annually by the Site Senior Executive and Emergency Management Team.

Commencing an update, all previously distributed versions of the EMP shall be collected, accounted for and replaced with the updated version.

The BESS ERG shall be evaluated by simulated emergencies. The simulated emergencies and drills involving all emergency functions and all employees shall be performed biennially.

12.0 References

[1] Standards Australia, “AS 3745:2010 - Planning for emergencies in facilities,” Standards Australia, Sydney, 2010.

[2] N. R. F. Service, “Planning for Bush Fire Protection,” NSW Rural Fire Service, Granville, 2019.

[3] Work Health and Safety QLD, “Work Health and Safety Regulation,” Work Health and Safety QLD, 2011.

[4] F. Larson, P. Andersson, P. Blomqvist and B.-E. Mellander, “Toxic fluoride gas emissions from lithium ion battery fires,” Nature: Scientific Reports, 2017.

[5] Cloncurry Shire Council, “Cloncurry Shire Planning Scheme,” Cloncurry Shire Council, Cloncurry, 2016.

[6] Standards Australia, “AS 1851-2012 - Routine service of fire protection systems and equipment,” Standards Australia, Sydney, 2012.

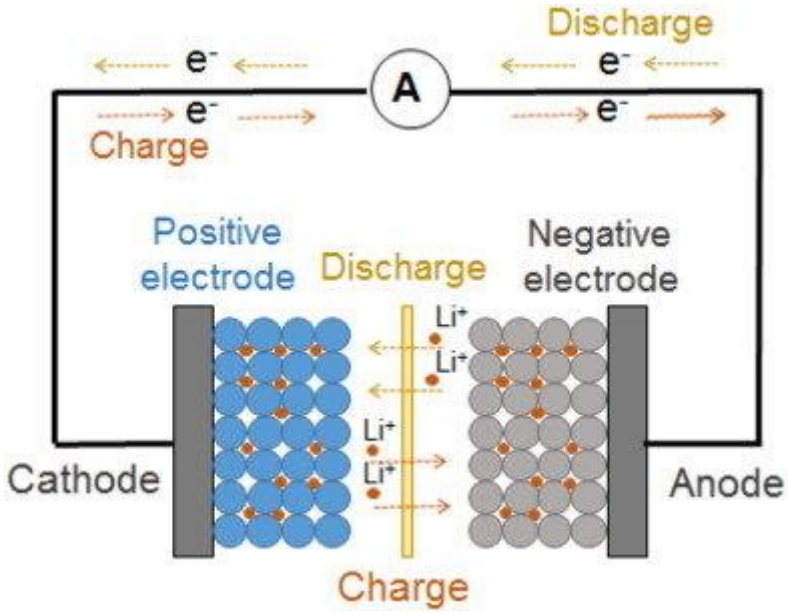
[7] Power Tech Systems, “Safety of Lithium-Ion batteries,” Power Tech Systems, 2022. [Online]. Available: https://www.powertechsystems.eu/home/tech-corner/safety-of-lithium-ion-batteries/. [Accessed 13 April 2022].

[8] Tesla, “UL 9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage System,” Tesla, 2024. [Online]. Available: UL 9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage System. [Accessed 16 April 2025].

Appendix A

BESS Chemistry and Thermal Runaway

Lithium ion (Li-ion) batteries are composed of a metallic anode and cathode which allows for electrons released from the anode to travel to the cathode where positively charged ions in the solute migrate to the cathode and are reduced. The flow of electrons provides the source of energy which is discharged from a battery and used for work. In a Li-ion battery, the lithium metal composites (a composite of lithium with other metals such as cobalt, manganese, nickel, or any combination of these metals) oxidises (loses an electron) becoming a positively charged ion in solution which migrates through the battery separator to the cathode. At the same time, the lost electron travels through the circuit to the cathode. The lithium ions in solution then recombine with the electron at the cathode forming lithium metal within the cathodic metal composite. This process is shown in **Appendix Figure A-1**.



Appendix Figure A-1: Cathode and Anode of a Battery (Source Research Gate)

Initial lithium batteries were designed around lithium metal (i.e. no composite structure) due to the high energy density yielded by the metal. However, when overcharging a battery, lithium ions can begin to plate on the anode in the form of lithium dendrites. Eventually, the dendrites pierce the separator within the battery resulting in a short of the battery which could result in heat, fire, or explosion of the battery. The technology evolved to move away from lithium metal to lithium ions (held within composite materials) which reduced the incidence of lithium dendrites forming resulting in an overall safer battery.

Despite the improvement in battery technology, there are several degradation mechanisms that are still present within the battery which can result in thermal runaway. These include:

- Chemical reduction of the electrolyte at the anode
- Thermal decomposition of the electrolyte
- Chemical reduction of the electrolyte at the cathode
- Thermal decomposition by the cathode and the anode
- Internal short circuit by charge effects

These effects arise primarily as a result of high discharge, overcharging, or water ingress into the battery which results in a host of by-products being formed within the battery during charge and discharge cycles.

As a result, Li-ion batteries are equipped with several safety features to prevent the batteries from charging or discharging at voltages which result in battery degradation, leading to shorting of the battery and thermal runaway. Safety features generally include:

- Shut-down separator (for overheating)
- Tear-away tab (for internal pressure relief)
- Vent (pressure relief in case of severe outgassing)
- Thermal interrupt (overcurrent/overcharging/environmental exposure)

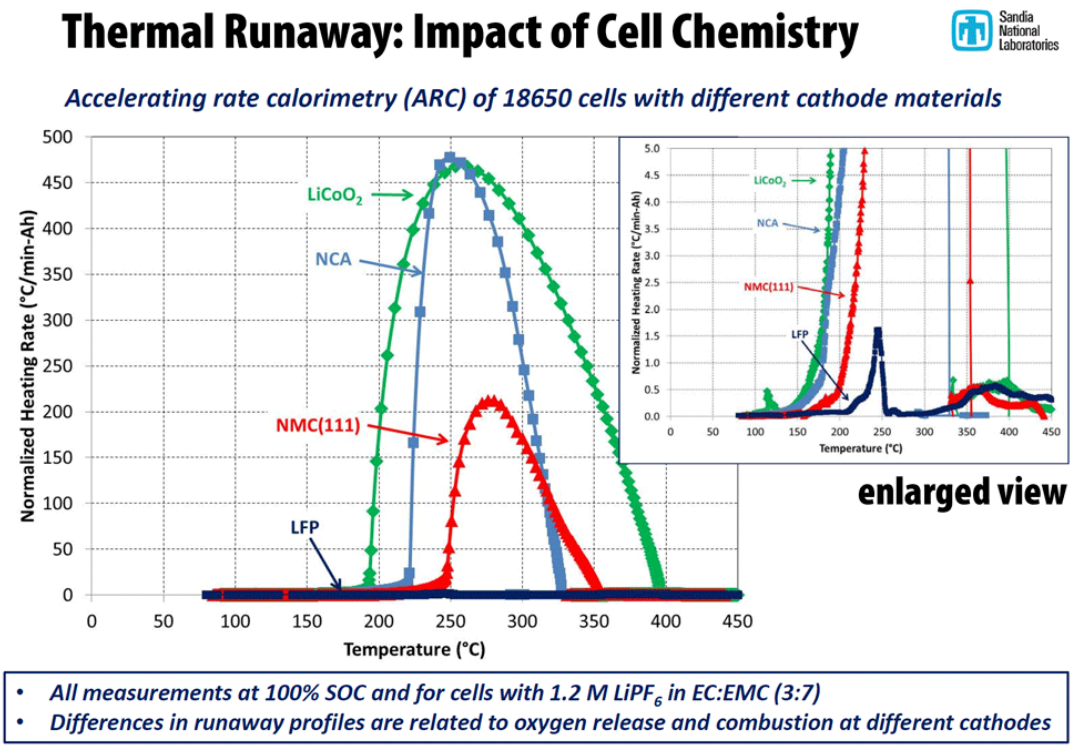
These features are designed to prevent overcharging or excessive discharge, pressurisation arising from heat generated at the anode or from battery contamination. Protection techniques for Li-ion batteries are standard; hence, the potential for thermal runaway to occur in normal operation is incredibly low with the only exceptions being where batteries are manufactured poorly or due to manufacturing faults, or battery damage (i.e. battery cell is ruptured as this can short circuit the battery resulting in thermal runaway).

In terms of physical damage, the batteries are contained within in modules which are located within a fenced area; therefore, there is a low potential for damage to occur to the batteries which may initiate an incident.

A review of the batteries proposed to be used as part of this project indicates the battery chemistry is lithium-Ion phosphate (LiFePO4, or simply LFP) which are considered to be one of the safest battery chemistries within the industry. When exposed to external heat the thermal rise of typical lithium ion battery chemistries is 200-400 ^{o}C/min resulting in thermal run away and fire which can then propagate to adjacent batteries escalating the incident to a full container fire. For LFP batteries, the thermal rise of the batteries at peak is 1.5^{o}C/min which results in a gradual temperature rise and does not result in fire and thus incident propagation to other batteries. The thermal rise of various battery chemistries is provided in **Appendix Figure A-2** with a zoomed in temperature rise for LFP provided in the top right of **Appendix Figure A-2**. The stability of the batteries is due to the cathode which does not release oxygen therefore preventing violent redox reactions resulting in rapid temperature rise as the oxygen oxides the electrolyte.

Additional testing for shock and damage to batteries (i.e. nail puncture test) has been shown that LFP batteries when punctured through membranes which typically results in a shorting of the battery and fire does not result in ignition of the battery demonstrating that the battery chemistry is protected against shock damage.

In the event that LFP chemistries do ignite by artificial means, the combustion by products release carbon dioxide which reduces the oxygen concentration within a confined space reducing the combustion rate. Finally, the containers are fitted with a fire suppression system which will activate to suppress and control a fire preventing escalation to other battery units.



Appendix Figure A-2: Temperature Rise of Lithium-Ion Battery Chemistries (Ref. [7]).

Appendix B
UL9540A Testing Criteria

The UL9540A test criteria for BESS cells are the following:

- Thermal runaway cannot be induced in the cell; AND
- The gases vented by the cell are non-flammable in the air.

If the cell does not meet the cell-level test, the test progresses to the BESS modules. The UL9540A test criteria for BESS modules are the following:

- Thermal runaway is contained by the module design; AND
- The gases vented by the cell are non-flammable in the air.

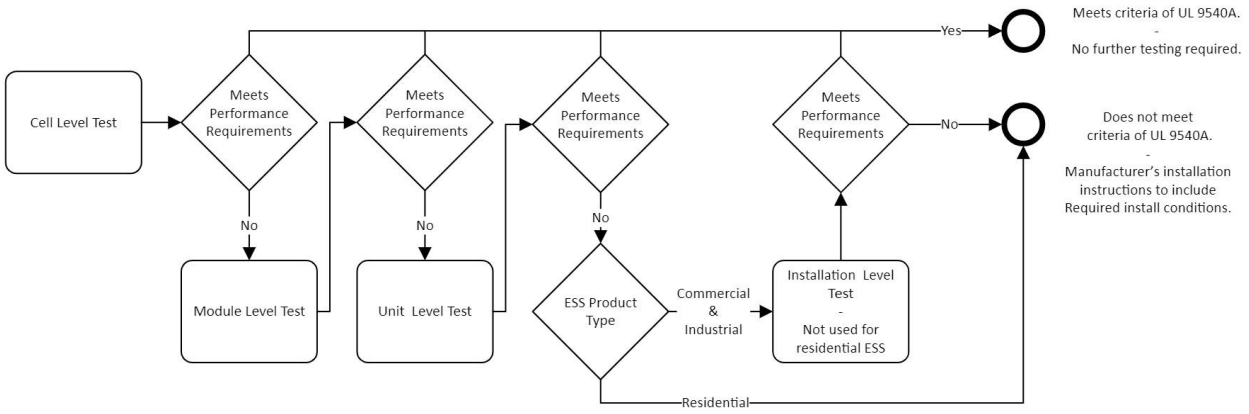
If the cell does not meet the module-level test, the test progresses to BESS units. The UL9540A test criteria for BESS units are the following:

- No flames are evident outside of the BESS; AND
- The surface temperature of adjacent units does not exceed the cell venting temperature; AND
- The temperature of the wall of the BESS unit does not exceed 97 ºC; AND
- No explosion hazards are exhibited.

If the cell does not meet the unit-level test, the test progresses to BESS installation. The UL9540A test criteria for the installation of BESS units are the following:

- Any evident flames do not propagate beyond the width of the unit; AND
- The surface temperature of adjacent units does not exceed the cell venting temperature; AND
- The temperature of the wall of the BESS unit does not exceed 97 ºC.

Appendix Figure B-1 exhibits a flowchart to help understand the UL9540A test at different levels.



Appendix Figure B-1: Flow Chart for UL9540A Testing at Different Levels. Source: [8]

Appendix C
Summary of Emergency Roles

C1. Principal Roles

The principal roles for the management of an emergency as described as follows:

1) Duty Manager (DM)

The DM will be the primary contact at the Mine site to notify about emergency situations. The DM will be responsible for remotely assessing and classifying the level of emergency, in collaboration with the ESO. The DM will provide instructions to the ESO regarding emergency response and will manage communications with the combat agency (CA), if the emergency exceeds the capabilities of the ESO and ERT.

The DM, in collaboration with the ESO, will also be responsible for arranging emergency drills and exercises throughout the year. These will consist of desk top exercises and a full emergency exercise/evacuation at least biennially.

2) Emergency Services Officer (ESO)

The ESO will be the on scene controller of the hazard/emergency response. The ESO will control all response actions and delegate authority as required by the specific situation to members of the ERT. They will control the hazard/emergency response with the ERT and will be assisted by the other members of the ERT as required.

In the event of an emergency requiring attendance at the site of the CA, the ESO will relinquish control to the CA Commander and assist the CA Commander as required.

The ESO will be the control authority for update of the site Emergency Response Plan and will co-ordinate review and update annually.

The ESO, in collaboration with the DM, will also be responsible for arranging emergency drills and exercises throughout the year. These will consist of desk top exercises and a full emergency exercise/evacuation at least biennially.

3) Communications

The communications officer will assist the ESO as required. They will assist in the emergency command centre and field communications (e.g., phones, radios, media, etc.) as required.

The communications officer is to ensure that they are fully familiar with the requirements of speaking with the media (Section 5.2.3).

4) First Aid

Part of the ERT. The site first aid officer (for emergency response) will be responsible for attending any emergency where personnel are injured. The site first aid officer will be directed by the site emergency commander as required.

The site emergency first aid officer will also be responsible for ensuring the emergency response first aid kit is well stocked and any items with “use-by” dates are regularly replenished as required.

The site first aid officer will also be responsible for ensuring their first aid qualifications and certification are valid at all times. This will involve regular refresher training as required.

5) Fire Wardens

Part of the ERT. An overarching category for emergency response personnel. They are the primary emergency team which encompasses the following.

- Traffic management.

- Evacuation Control/Co-ordination
- Emergency Response Co-ordinator

Fire Wardens will be allocated duties (i.e., traffic management, evacuation control, etc.) by the Emergency Services Officer as required during the emergency situation.

C2. Secondary Roles

To assist with the management of an emergency situation, the following roles may be assigned to personnel. Alternatively, the responsibilities of these roles may be absorbed into the aforementioned primary roles.

1) Traffic Management

The site is located in an agricultural / rural area. On arrival at an emergency incident, it may be difficult for the attending QFD response crew to locate the exact source of the incident, where the incident is not immediately evident (i.e., smoke cannot be seen). Hence, it would be necessary for a member of the emergency team to meet the QFD team at the site entrance and direct the crew to the specific emergency location.

Notwithstanding this, the emergency response traffic management officer shall not commence any traffic management operations without the express direction of the ESO.

In the event of an incident on site it will be necessary to ensure a clear traffic path is available for CA vehicles to approach the site. It will be the responsibility of the traffic management emergency response officer to clear the path of vehicles that may block the way into the solar farm. This will include vehicles at the front and rear of the site on the roadways and approaches to the solar farm.

It will also be the responsibility of the emergency response traffic management officer to direct traffic at the front of the site. This may require the establishment of a traffic zone at the front of the site. The emergency response traffic management officer is to wear highly visible clothing at all times during the emergency to ensure he/she is clearly seen, limiting the potential for accident and vehicle impact to the officer.

2) Evacuation Control/Co-ordination

The evacuation control/co-ordinator will be responsible for ensuring all personnel are safely evacuated off-site to one of the assembly points. This position requires the incumbent to be familiar with the main and alternate assembly points and to arrange for communication of the evacuation order under the direction of the ESO or DM. The evacuation co-ordinator shall not instigate an evacuation without the express permission of the ESO or DM.

The evacuation control/co-ordinator will be responsible for obtaining the employees/visitors list of names and marking these names off at the assembly point. Where any person's whereabouts cannot be verified, details shall be passed to the Site Emergency Commander for action.

3) Emergency Response Personnel (DG Co-ordinators)

The emergency response personnel will be under the control of the ESO. They will take direction from the ESO as required, specific to the type of emergency at hand. These personnel must be fully conversant with the emergency response equipment on site and shall have (as a minimum) the following training:

- First Attack Fire Fighting
- Spill Response

- Hazmat Knowledge

List of Contacts

A list of roles, personnel in those roles and contact information is provided in **Appendix Table C-1** and **Appendix Table C-2**.

The list of contacts shall be located in the Emergency Services Information Package (ESIP). This package shall be located in the following areas:

- Office
- Site Emergency Box

Appendix Table C-1: Emergency Personnel - Construction

Position	Name	Contact Number
Duty Manager	TBC	TBC
Emergency Services Officer	TBC	TBC
Deputy Warden	TBC	TBC
Fire Warden	TBC	TBC
First Aid	TBC	TBC
DG Coordinator	TBC	TBC
Communications	TBC	TBC
Traffic Management	TBC	TBC
Waste Management	TBC	TBC
Site Security	TBC	TBC

Appendix Table C-2: Emergency Personnel – Regular Operation

Position	Name	Contact Number
Duty Manager	TBC	TBC
Emergency Services Officer	TBC	TBC
Deputy Warden	TBC	TBC
Fire Warden	TBC	TBC
First Aid	TBC	TBC
DG Coordinator	TBC	TBC
Communications	TBC	TBC
Traffic Management	TBC	TBC
Waste Management	TBC	TBC
Site Security	TBC	TBC

Appendix D

Emergency Contact Numbers

Contact Numbers

Responder	Contact Information
Ambulance	Telephone: 000
Fire Service	
Police	
Medical emergency	
Site Security	TBC
Cloncurry Hospital (52 min)	1 Musgrave St, Cloncurry Qld 4824
	Telephone: 07 4742 4500
Royal Flying Doctor Service (based in Mount Isa)	Telephone: 1300 My RFDS (1300 69 7337)
Poisons Information Centre	Telephone: 13 11 26
Cleanaway Mt. Isa Liquid Waste Services	13 Northridge Rd, Kalkadoon QLD 4825
	Telephone: (07) 4764 0100

Adjacent Sites

Neighbour	Site Contact	Contact Number
Businesses		
Dugald River Mine	Mine Control	0477 315 011
Dugald River Village	Mine Control	0477 315 011