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Project Number 031357.000.001

Draft Hazardous Substances Management Plan

Bendigo Ophir Gold Project, Thompson Gorge Road, Bendigo, Otago

Submitted to:
Matakanui Gold Limited
Postal Address
Postal Suburb
Postal City

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ENGEO Document Control:

Report Title	Draft Hazardous Substances Management Plan – Bendigo Ophir Gold Project, Thompson Gorge Road			
Project No.	031357.000.001	**Doc ID**		
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Revision	Date	Prepared By	Approved By	Comment
Draft 1	19/06/2026	VP	LL	To support consenting

To ensure this Hazardous Substances Management Plan (HSMP) is kept up-to-date and that the most recent version is used by employees and contractors, its distribution and revision will be controlled by the Environmental Manager, who will:

- Manage the master copy and any other paper or electronic copies of the HSMP.
- Keep a summary of updates, versions, dates and distribution lists.
- Ensure HSMP updates are distributed to all relevant employees as controlled copies.
- Ensure any uncontrolled copies are marked as uncontrolled copies.
- Ensure any out-of-date copies are discarded when updates are distributed.

A copy of this HSMP must be kept at the site office and be available to all employees and any authorised inspectors upon request.

1 Introduction

ENGEO Ltd was requested by Matakanui Gold Limited (MGL) to prepare this draft Hazardous Substances Management Plan (HSMP) for the Bendigo Ophir Gold Project, Thompson Gorge Road (herein referred to as 'the site'). This work has been carried out in accordance with our signed agreement dated 5 June 2026 and a subsequent variation dated 10 June 2026.

The Bendigo Ophir Gold Project (BOGP) is a staged open pit and underground mine in the Dunston Mountains, Central Otago. The mining and gold processing operations are supported by offices, electrical substations, vehicle maintenance workshops, fuel and process chemical storage facilities.

This HSMP has been prepared to:

- Document the measures that are implemented at the site to meet the requirements of:
    - The Health and Safety at Work (Hazardous Substances) Regulations 2017 (HSW(HS)R); and
    - The Environmental Protection Authority Consolidated EPA Notice: Hazardous Property Controls) Notice 2017, EPA Consolidation 30 April 2021 (EPA HPC).

1.1 Document Review

As a minimum, the HSMP will be reviewed annually and revised as appropriate. As this HSMP is a working document, it will also be reviewed and revised if:

- There are significant changes to the site's activities, facilities, or pollution control measures;
- There are significant changes to the type or volume of hazardous substances stored or the control measures implemented to manage risks associated with hazardous substances storage;
- There are changes to the company or contractors used;
- Corrective action is required as a result of an incident (spill) or near miss;
- Public complaints have been received.

1.2 Document Status

This EMP forms part of the environmental management documentation for the site. It should be read and implemented in conjunction with the documents listed in Table 1.

Table 1: Environmental Management Documentation

Title	Storage Location
Hazardous Substances Inventory	https://hazardoussubstances.govt.nz/calculator#BF8A37 Appendix 2
Safety Data Sheets (SDS)	Appendix 3

Training Records (with respect to Hazardous Substances)	TBC
Explosive Atmosphere Plans	XXX
Location Compliance Certificates	TBC
Stationary Container Certificates	TBC
Emergency Response Plan (ERP)	TBC
Site Evacuation Scheme	XXX

1.3 Important Contact Details

Important contact numbers for the site are included in Table 2.

Table 2: Important Contact Phone Numbers

Person / Organisation	Contact Telephone No.
General Manager (TBC)	TBC
Senior Site Executive (TBC)	TBC
Environmental Manager (TBC)	TBC
Health and Safety Manager (TBC)	TBC
Spill Response Co-ordinator (TBC)	TBC
Department Managers: • (TBC)	TBC
Purchasing and Logistics Supervisor (TBC)	TBC
Superintendent (TBC)	TBC
Foreman (TBC)	TBC
Supervisors: • (TBC)	TBC
Plant Metallurgist (TBC)	TBC
Process Maintenance Supervisor (TBC)	TBC

Person / Organisation	Contact Telephone No.
Otago Regional Council Pollution Hotline	0800 800 033
Environmental contractor for spill response	TBC

1.4 Roles and Responsibilities

The roles and responsibilities of employees with respect to hazardous substances are listed in Table 3.

Table 3: Roles and Responsibilities

Role	Responsibilities
General Manager or Site Senior Executive	• Ensure that the HSMP is understood by all personnel and used as the primary tool to manage risks / hazards associated with hazardous substances. • Ensure that a system is in place and functioning for approving the use of all hazardous substances prior to the substance arriving on site. • Ensure there is a system for training all people to access and understand Safety Data Sheets (SDS). • Ensure there is a training plan to achieve competency in handling hazardous substances and potential emergency situations. • Final approval of any new hazardous substances.
Health and Safety Manager (or delegate)	• Ensure all hazardous substances used are able to be handled safely at all times. • Manage the approval process for introducing new and sample hazardous substances onto site. • Monitor the training plan for achieving competency in handling hazardous substances and potential emergency situations. • Monitor the expiry of Certified Handler's certificate for employees. • Ensure a SDS is available for all hazardous substances used on site, or if appropriate, the risk assessment. • Monitor storage of all hazardous substances to ensure they are kept in approved storage areas. • Maintain a hazardous substances register. • Ensure H&S audits and reviews are completed in line with company protocols.

Role	Responsibilities
Environmental Manager (or delegate)	• Identify environmental risks associated with hazardous substances. • Monitor storage of all hazardous substances from an environmental perspective to ensure they are kept in approved storage areas, and in line with environmental requirements (i.e. secondary containment). • Ensure environmental audits and reviews are completed in line with company protocols. • Ensure regulatory compliance with HSNO, RMA, and other relevant regulations. • Ensure compliance with local government regulations (CODC and ORC). • Ensure resource consent compliance. • Work with H&S Manager to ensure risk controls are environmentally sound. • Ensure spill response training is delivered to all relevant mine employees, and spill kits are available at relevant locations throughout the mine. • Develop and monitor a procedure for the safe disposal of hazardous substances.
Department Managers	• Ensure all hazardous substances used are able to be handled safely at all times. • Manage the site location Compliance Certificates, and stationary container test certifications in their work area. • Keep the BOGP approved hazardous substances list current. • Ensure the approval process for introducing new and or sample hazardous substances onto site is followed. • Supervise the environmental aspects of the mining operation in relation to hazardous substances. • Notifiable events are investigated, recorded, and reported.
Purchasing and Logistics Supervisor	• Ensure all people involved in procurement understand: • Correct procedures for accepting delivery of hazardous substances; • Relevant emergency procedures; • Not to accept unlabelled hazardous substances containers; and • Ensure hazardous substances delivered are placed into approved storage areas upon delivery, with correct segregation. • Ensure all hazardous substances supplied and/or stock managed by a vendor is approved for use at BOGP. • Manage the stationary container test certification for diesel tanks.
Superintendent, Foreman and Supervisors	• Ensure all hazardous substances are used according to the requirements of the SDS and any particular Standard Operating Procedures that may exist for the work being undertaken. • Ensure all hazardous substances used are able to be handled safely at all times.
Plant Metallurgist	• Provide technical advice to site personnel on specific hazardous substances and hazardous substances commonly used within the process plant where and when requested.
Process Maintenance Supervisor	• Manage the stationary container test certification for processing tanks.

Role	Responsibilities
All Employees and Contractors	• Follow instructions on SDS for all hazardous substances. • Do not bring any unapproved substances onto site. • Do not use unapproved substances. • Follow all MGL hazardous substances procedures. • Comply with the requirements of this plan and legislative requirements

1.5 Management Structure

The site management structure is illustrated in Figure 1.

Figure 1: Site Management Structure (*to be inserted*)

2 The Site

2.1 Site Description and Operations

The majority of the mining activities, ancillary facilities and associated infrastructure are located in Shepherds Valley, with an additional general and administration area located on the adjoining Bendigo / Ardgour terraces.

Site Plans are included in Appendix 1.

The site can be considered to consist of the following parts:

Upper Shepherds Valley

This part of the site contains the mine operations constructed engineered landforms and the tailings storage facility. A heavy vehicle workshop, temporary equipment servicing infrastructure and a refuelling facility are located on the Shepherds Engineered Landform (ELF).

Processing Plant Area

The processing area is located in the lower part of the Shepherds Valley and Comprises:

- Reagent Area. Individual reagents are stored separately in dedicated bunded areas. The area also includes a dry reagents storage shed.
- Processing Area - A hard rock gold processing plant using Carbon-in-Leach (“CIL”) technology.
- A Run-of-Mine (ROM) pad, sized to contain up to one month of stockpiled ore to provide a buffer between the mines and the processing plant.
- Supporting infrastructure including offices and employee amenity areas.
- A cement paste plant and a mobile concrete batching plant

Surface water runoff at the processing plant site from outside the bunded area will be captured by sediment retention pond(s) located immediately downstream of the received goods warehouse.

Ardgour Terrace Site

This area is located on agricultural land outside the the Shepherds Valley and contains supporting infrastructure for the project, including a double skinned self-contained fuel storage and refuelling facility (i.e. fuel farm).

Explosives Magazine and Emulsion Mixing Facility

Also on the Ardgour Terrace but at some distance from the Ardgour Terrace Site is a fenced and secured explosives magazine and separate explosive emulsion mixing facility.

2.2 Hazardous Substances

2.2.1 Storage Locations

The locations at the site where hazardous substances are present are summarised in **Table 4**.

Table 4: Equipment Containing Hazardous Substances and Storage Locations

Location	Location Storage Details	Hazardous Substances Present
Ardgour Terrace	Insulating medium in the transformer	Transformer oil
Emulsion Mixing Facility	Storage shed 1 and 2	Ammonia nitrate
	ISO tanks	Ammonia nitrate emulsion (ANE)
	Above ground double skinned storage tank	Diesel fuel
Environmental Shed	Lockable shed	Herbicides/ sprays, lubricants
	Petrol store	Petrol (unleaded)
Explosives Magazine	High explosives magazine	High explosives
	Initiating explosives magazine	Initiating explosives
Fuel Farm	Above ground double skinned storage tanks	Ad-blue, diesel fuel
Heavy Vehicle Workshop	Various locations inside the workshop	Brake cleans, penetrating sprays, coolant, grease, lubricants, parts cleaning (degreaser/ detergent), waste oil
	External Gas Cages	Ethyne (acetylene), oxygen, liquified petroleum gas (LPG)
	Reserve Store	Lubricants
Inwards Goods/ Stores Warehouse	Various locations inside the warehouse	Aerosols, vehicle wash
Process Area	On the bunded concrete slab by the flocculant mixing plant	Polyaluminium chloride (flocculant)
Reagent Area	Reagent storage shed	Copper sulphate, flocculant, sodium metabisulphite
	Individually bunded tanks	Caustic soda (sodium hydroxide), copper sulphate solution (12%), ferric chloride, hydrated lime solution (20%), hydrochloric acid, sodium cyanide (30% w/w solution), sodium metabisulphite solution (15%),

Location	Location Storage Details	Hazardous Substances Present
	Lime Silo	Hydrated lime
Shepherds Engineered Landform	Various locations inside the workshop	Oil, grease, waste oil
	Above ground double skinned storage tank	Diesel fuel
Shepherds Service Corridor	Insulating medium in the transformers	Transformer oil
Water Treatment Works Area	Drums	Polyaluminium chloride (flocculant)

The hazardous substances inventory (refer Section **Error! Reference source not found.**) provides a full listing of the hazardous substances stored at the site and their associate hazard classifications. It is noted that New Zealand adopted the Globally Harmonised System (GHS 7) for classifying hazardous substances on 30 April 2021. As the regulations relating to hazardous substances in New Zealand still refer to the pre-April 2021 HSNO classifications these pre-April 2021 classifications are referenced in this HSMP.

2.3 Site Drainage and Receiving Environment

Drainage and surface water runoff from the site is discharged to the Rise and Shine Creek or the Shepherds Creek.

The Rise and Shine Creek joins the Bendigo Creek within 100 metres of the western site boundary. The Bendigo Creek flows into the northern end of Lake Dunstan approximately one kilometre west of the site.

The Shepards Creek catchment drains north to the Lindis River approximately one kilometre from the site boundary. The Lindis River which in turn flows to Lake Dunstan one kilometre to the south.

3 Hazardous Substances Inventory

Regulation 3.1 of the HSW(HS)R requires that a person conducting a business or undertaking (PCBU) with management or control of a workplace must ensure that an inventory of hazardous substances used, handled, manufactured, or stored at the workplace is prepared and kept at the workplace, kept up to date, and includes the following information:

- The product or chemical name and UN number (if available) of each hazardous substance at the workplace.
- The maximum quantity of each hazardous substance likely to be at the workplace.

- The location of those hazardous substances.
- Any specific storage and segregation requirements relating to those hazardous substances.
- The current safety data sheet (SDS) or a condensed version of the key information from the safety data sheet.

The master version of the inventory of the hazardous substances held at the site, named "BENDIGO OPHIR GOLD" is available online at https://hazardoussubstances.govt.nz/calculator#BF8A37. A copy of the latest version of this inventory included in Appendix 2.

4 Generic Controls

4.1 Safety Data Sheets (SDS)

Regulation 2.11 of the HSW(HS)R requires that the PCBU must have an SDS for all substances listed on the inventory and that these SDS must be readily accessible to workers and emergency workers. The SDS should be less than five years old and should include the name and contact details of the New Zealand importer or manufacturer and New Zealand emergency contact details in Section 1 of the SDS.

Copies of relevant SDS are included in Appendix 3.

4.2 Hazardous Substances Labelling, Handling, and Management

All hazardous substances should be appropriately packaged and labelled. Containers delivered to site should be labelled in accordance with the Environmental Protection Authority (EPA) Consolidated Hazardous Substances (Labelling) Notice 2017 (EPA Consolidation April 2021), which includes the requirement that labels must be durable, in English, easily read by a person with normal eyesight, and readily comprehensible. The labels must, in all cases include:

- A product identifier that clearly identifies the hazardous substance (i.e. its product common name, chemical name, or registered trade name) and is the same as is used on the safety data Sheet (SDS) for the substance.
- The name and telephone number of the New Zealand importer or manufacturer (unless the substance is imported from overseas directly into a workplace for use) and emergency contact details.
- A hazard pictogram, signal word, and hazard statement consistent with the correct classification of the substance.
- One or more appropriate and achievable disposal methods for the hazardous substance and disposal methods that must be avoided (if applicable).

Additional information may be required for some substances as listed in the Notice.

If a substance is transferred or decanted from its original container at the workplace into a portable container with a capacity of 40 L or less, and will not be supplied to a person outside the workplace, the label must, as a minimum:

- Be in English;

- Include the product common name or chemical name;
- Include a hazard pictogram and hazard statement consistent with the correct classification of the substance.

If a label ceases to be legible the container must be re-labelled (preferably using a copy of the original label).

Where possible, substances should be stored in the containers in which they were supplied, however if decanting or transferred to another container is required, the new container must:

- Be made of material that is compatible with, and will not be adversely affected by, the hazardous substance it will be used for;
- Be in sound condition;
- Not usually contain food or beverages and cannot be mistakenly identified as containing food or beverages;
- Have all the information from the labels on the original container recorded on it (e.g. by affixing a copy of the original label).

Containers must only be used for the use, handling, or storage of the hazardous substance for which it is labelled.

Procedures for storing and handling hazardous substances have been developed for the site and are included in Appendix 4. A laminated copy of these procedures must be clearly displayed in all relevant hazardous substance storage areas and areas where hazardous substances are used / decanted.

All employees who handle hazardous substances must be trained in these procedures (refer Section 4.5).

4.3 Personal Protective Equipment

Standard safety rules on-site require the following personal protective equipment (PPE) to be used:

- TBC

When additional PPE is needed (e.g. chemical resistant gloves, face shield, hearing protection etc.), this is communicated through employee training and signage, and the additional PPE is either allocated to those employees using it or stored close to where it is needed. The SDS for each substance (Appendix 3) includes the specific PPE required when handling or using that substance.

All employees who may encounter hazardous substances held on-site or who may require additional PPE for any reason should be trained in the use of the relevant PPE (refer Section 4.5).

The use of proper PPE is not a control against risk. No employee should assume that by wearing PPE they are safe from the risks associated with the hazardous substances on-site.

4.4 Spill Kits

Spill kits are maintained in locations that can be easily accessed from areas where spills may occur.

Spill kits are available in the following locations (shown on the site plans in Appendix 2):

- TBC

The spill kits are clearly signposted, easily accessible and kept current.

Each spill kit should, as a minimum, contain:

- Absorbent pads;
- Absorbent socks / booms;
- Mineral sponge / peat or similar absorbent material;
- Protective gloves;
- Safety goggles;
- Protective coveralls;
- Dustpan and brush;
- Heavy duty disposal bag and ties; and
- Instructions.

All site personnel should know where the spill kits are located and should be trained in their use.

If the spill kit container itself is not watertight, a watertight disposal bin large enough to hold all the equipment in the spill kit is stored directly next to the spill kits.

4.5 Training and Supervision

All employees are provided with basic hazardous substances awareness training. A checklist for general employee training is provided in Appendix 5.

In addition to the information, supervision, training, and instruction required to be provided to all employees under the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, Regulation 4.5 of the HSW(HS)R requires that employees who use, handle or store hazardous substances (including hazardous waste) are provided with information and training before they are allowed to carry out or supervise work involving those substances.

The following information that should be provided to the employee:

- Details of any operations in the employee's work area where hazardous substances are present.
- the location and availability of known reference material on the hazards, safe handling, and storage of the hazardous substances present at the site.
- The location(s) in which Safety Data Sheets can be found on site.

The training provided to employees must include:

- Instruction relating to the physico-chemical and health hazards associated with the hazardous substances the worker uses at the site.

- Training in procedures for the safe use, handling, storage, and disposal of the hazardous substances that they may encounter.
- Training and practice in the safe use of plant and equipment necessary to manage the hazardous substances:
- Training and practice in the safe use, maintenance and storage of personal protective equipment.
- Training in what the employee's obligations are under the HSW(HS)R
- Training in the actions the employee should take in an emergency involving the hazardous substances

Following training employees should be provided with an appropriate period of practical experience of the matters described above, under direct supervision in the workplace.

If the PCBU can demonstrate, by documentation or certification, that an employee's previous experience or training (or both) has resulted in training equivalent to that listed above, they are not required to provide the training again unless the PCBU considers refresher training to be necessary. The employee must however receive a site-specific induction and be provided with appropriate supervision whilst they gain experience at the new workplace.

The PCBU must keep a record of training and instruction provided for each worker and ensure these records are available for inspection by an inspector or compliance certifier. Training records are kept in the location specified in Table 1.

4.6 Routine Inspections of Hazardous Substances Storage Areas

A routine inspection of all the hazardous substances storage areas on-site (as listed in **Table 4**) should be carried out weekly. At each inspection the checklist in Appendix 6 should be completed.

Completed inspection checklists are kept in TBC. If any issues of concern are noted during the inspection, they should be immediately raised with the Environmental Manager, and the incident form in Appendix 7 should also be completed to provide details of the remedial action(s) that have been, and will be, taken. A copy of the completed incident report should be kept with the relevant routine inspection checklist.

5 Site Specific Storage and Handling Protocols

5.1 Designated Storage Areas and Secondary Containment

In order to assist in appropriate management and control of hazardous substances, these substances are stored in designated locations at the site. The locations where hazardous substances are present are summarised in **Table 4**.

Some of the pooling hazardous substances stored at the site trigger the requirement for secondary containment under the HSW(HS)R and EPA HPG. These locations are listed in Table 5 together with the secondary containment provided.

In addition, it is good practice for all environmentally hazardous substances and pooling hazardous substances to be provided with secondary containment to reduce the risk of spills or leakages from

being discharged to the environment. The secondary containment should have a volume equal to or greater than 110% of the largest container stored therein.

If the secondary containment devices / systems are located externally, consideration must be given to how rainwater will be managed / prevented from entering the secondary containment or stormwater ingress.

Table 5: Hazardous Substances Storage Locations

Storage Location	Substances Stored	Secondary Containment Provided
Emulsion Mixing Facilities	Diesel fuel (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
Environmental Shed	Petrol (unleaded) (6.7B, 9.1B)	Proprietary bunded storage container
Fuel Farm	Diesel fuel (Tank 1) (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
	Diesel fuel (Tank 2) (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
	Diesel fuel (Tank 3) (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
	Diesel fuel (Tank 4) (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
Heavy Vehicle Workshop	Brake Cleans, Penetrating Sprays, Etc (9.1B)	Proprietary bunded storage containers
	Lubricants (6.1D, 6.5B, 9.1B)	Proprietary bunded storage containers
	Parts Cleaning (Degreaser/ Detergent) (9.1B)	Proprietary bunded storage containers
	Waste Oil (6.1D, 6.5B, 9.1B)	Bund with volume at least 110% of tank volume
Process Area	Polyaluminium chloride (flocculant) (8.3A)	Bund with volume at least 110% of tank volume
Reagent Area	Caustic Soda (Sodium hydroxide) (6.1D, 8.2B, 8.3A)	Bund with volume at least 110% of tank volume
	Copper Sulphate solution (12%) (6.1D, 6.5B, 9.1A)	Bund with volume at least 110% of tank volume

Storage Location	Substances Stored	Secondary Containment Provided
	Ferric Chloride (6.1D, 8.2C, 8.3A)	Bund with volume at least 110% of tank volume
	Hydrochloric acid (6.1B, 8.2B, 8.3A)	Bund with volume at least 110% of tank volume
	Hydrated lime solution (20%) (8.2C, 8.3A)	Bund with volume at least 110% of tank volume
	Sodium metabisulphite (15%) (6.1D, 6.5A, 6.5B, 8.3A)	Bund with volume at least 110% of tank volume
	Sodium Cyanide (30%) (6.1A, 6.5B, 6.9A, 8.1A, 9.1A)	Bund with volume at least 110% of tank volume
Shepherds Engineered Landform	Diesel fuel (Tank SEL1) (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
	Diesel fuel (Tank SEL2) (3.1D, 6.7B, 9.1B)	Above ground double skinned storage tanks
	Oil and Grease (6.1D, 6.5B, 9.1B)	Proprietary bunded storage containers
	Waste Oil (6.1D, 6.5B, 9.1B)	Bund with volume at least 110% of tank volume

5.2 Incompatible Substances

Different types of hazardous substances have different requirements for safe storage. Some types of substances are incompatible with others so they must not be stored together. These incompatibilities are listed in the inventory in Appendix 2.

5.3 Certified Handlers

Substances with a HSNO classification 6.1A or 6.1B and all class 6.1 substances which require a controlled substance license must be:

- be under the personal control of a certified handler, or
- be appropriately secured from access by people other than a certified handler, or being handled by a person who has been trained in the handling of that substances and who is in the presence of a certified handler who is able to provide assistance, as necessary, to the person while the substance is being handled.

The substances requiring certified handlers and the certified handlers on-site are listed in Table 6.

Table 6: Substances Requiring Certified Handlers

Storage Location	Substance	HSNO Trigger Class	Certified Handler	
			Name	Certificate Number
Emulsion Mixing Facility	Ammonia Nitrate Ammonia nitrate emulsion (ANE)	1.1D	TBC	TBC
Explosives Magazine	High explosives	1.1B	TBC	TBC
	Initiating Explosives	1.1D	TBC	TBC
Reagent Area	sodium cyanide (30% w/w solution)	6.1A	TBC	TBC

5.4 Secured Substances

For some hazardous substances on-site, access is restricted to those that the Environmental Manager has specifically nominated. Table 7 lists these substances, and the measures in place to limit access.

Table 7: Substances Needing Secured Access and / or Certified Handlers

Storage Location	Substance	Secured Access Requirements	Security Detail
Environmental Shed	Petrol	Must be appropriately secured from access by persons other than those permitted by the PCBU to access the substance	Proprietary bunded storage container is locked
Explosives Magazine	Initiating Explosives		Stored in locked bunker

5.5 Hazardous Areas

Depending on the volume and type of substances with HSNO classification 2.1.1A, 2.1.1B, 2.1.2A, 3.1A, 3.1B, or 3.1C within a workplace, Hazardous Areas may need to be established around the locations where these substances are stored. The size and extent of the hazardous areas, if required, are defined in AS/NZS 60079.10.1:2022 (Explosive atmospheres, Part 10.1: Classification of areas – Explosive gas atmospheres).

The substances at the site which may require a hazardous area to be established are listed below with the relevant HSNO classification provided in parenthesis:

- Brake Cleans, Penetrating Sprays, Etc. (3.1B)
- Ethyne (acetylene) (2.1.1A)

- LPG (liquified petroleum gas) (2.1.1A)
- Parts Cleaning (Degreaser/ Detergent) (3.1C)
- Petrol (unleaded) (3.1A)

The hazardous areas are shown in the Explosive Atmosphere Plans which are available in the location listed in Table 1.

The hazardous areas should only be accessed by those authorised by the Environmental Manager to do so. No sources of ignition shall be brought into or used in the Hazardous Areas. Any electrical equipment required to be in this area must be intrinsically safe.

5.6 Hazardous Substance Location and Location Compliance Certificate(s)

Depending on the volume of substances stored within a location in a workplace, a hazardous substance location (HSL) may need to be established for that area.

A location compliance certificate (LCC) is required if substances with certain HSNO classifications are located in an HSL. The LCC certifies that the hazardous substances are stored and managed in accordance with the HSW(HS)R. The substances which trigger a requirement for a location compliance certificate are listed in Table 8 and copies of the certificate(s) are available at the location specified in Table 1.

Table 8: Hazardous Substances that Require a Location Compliance Certificate

Storage Location	Substance	HSNO Trigger Class	Location Compliance Certificate	
			Reference	Expiry Date
Emulsion Mixing Facilities	Ammonia Nitrate Emulsion (ANE)	1.1D	xxx	xxx
	Ammonia Nitrate Storage	1.1D	xxx	xxx
Environmental Shed	Petrol (unleaded)	3.1A	xxx	xxx
Explosives Magazine	High Explosives	1.1B	xxx	xxx
	Initiating Explosives	1.1D, 6.1C	xxx	xxx
Heavy Vehicle Workshop	Brake Cleans, Penetrating Sprays, Etc	3.1B	xxx	xxx
	Parts Cleaning (Degreaser/ Detergent)	3.1C	xxx	xxx
Reagents Area	Sodium cyanide (30% w/w solution)	6.1A	xxx	xxx

Storage Location	Substance	HSNO Trigger Class	Location Compliance Certificate	
			Reference	Expiry Date
	Caustic Soda (sodium hydroxide)	8.2B	xxx	xxx
	Hydrochloric acid	6.1B, 8.2B	xxx	xxx

Where a hazardous substance is required to be in an HSL, and to support the LCC, a site plan must be prepared and be available for inspection. The site plan must be to scale and must show:

- The legal boundary of the site in which the HSL is situated;
- The physical location of all HSLs within the workplace that contain the substance;
- All distances from the HSL to protected places, public places, and other HSLs within the boundary of the site required under the HSW(HS)R.

The site plan is included in, together with copies of the LCC(s), at the location specified in Table 1.

5.7 Stationary Container Systems

A stationary container system is a fixed tank or process container and its associated pipework and fittings. Stationary container system compliance certificates are required for stationary container system containing certain gaseous or liquid hazardous substances at volumes exceeding the relevant thresholds in the HSW(HS)R. The following substances at the site trigger a requirement for a stationary container system compliance certificate:

- Caustic Soda (Sodium hydroxide)
- Diesel fuel (at the Emulsion Mixing Facilities, Fuel Farm and Shepherds Elevated Landform)
- Ferric Chloride
- Hydrochloric acid
- Hydrated Lime solution
- Sodium cyanide (30%)
- Sodium metabisulphite (15%)
- Waste Oil (at the Heavy Vehicle Workshop)
- Polyaluminium Chloride (flocculant) (at the Process Area)

Copies of these certificates will be prepared by TBC and are available at the location specified in Table 1

5.8 Fire Extinguishers

In addition to fire extinguishers required for general firefighting, fire extinguishers are required in the locations where certain hazardous substances are stored. Table 9 lists these substances and details the appropriate fire extinguisher requirements. The fire extinguishers must be clearly visible at all times and readily accessible in an emergency.

If fire extinguishers need to be provided in more than one location to ensure that they are readily accessible from all locations in the storage area the numbers of extinguishers listed in Table 9 must be provided in **each** location.

Fire extinguishers are checked and serviced on a six monthly basis by TBC.

Table 9: Fire Extinguishers

Storage Location	Substance	No. of Fire Extinguishers	Type of Fire Extinguishers
Emulsion Mixing Facilities	Ammonia Nitrate Storage (1.1D) Ammonia Nitrate Emulsion (ANE) (1.1D) Diesel fuel (3.1D)	2[1]	TBC
Fuel Farm	Diesel fuel (3.1D)	2[1]	TBC
Shepherds Engineered Landform	Diesel fuel (3.1D)	2[1]	TBC
Explosives Magazine	High Explosives (1.1B)	1[1]	TBC
	Initiating Explosives (1.1D)	1	TBC
Heavy Vehicle Workshop	Parts Cleaning (Degreaser/ Detergent) (3.1C)	1	TBC
Environmental Shed	Petrol (unleaded) (3.1A)	1	TBC

5.9 Signage

Signs must be clearly visible and easily understood. Lettering on signs must be large enough to be legible from at least 10 m under varying conditions (for example, rain or poor light). Signs must also be located so that they can be easily seen from all applicable directions. This may require more than one sign to be posted at a given location or signs to be posted at more than one location (e.g. if there is more than one approach direction / entryway.

Signs are needed to show the following locations (of relevance to this HSMP):

- Spill kit locations.
- Locations where hazardous substances are present.

Areas where hazardous substances are present must have the word “HAZCHEM” prominently displayed, as per Regulation 2.6 of the HSW(HS)R. In addition, each location should have the signage listed in Table 10. The signs should include information regarding any personal protective equipment

(PPE) requirements and access restrictions to areas and health warnings, as appropriate. Signs must be prominently displayed at every entrance to an area where hazardous substances are present within a building. For outdoor areas, the signs should be placed immediately next to the area where hazardous substances are present.

Table 10: Hazardous Substances Signage Requirements

Location	Signs Required			
Emulsion Mixing Facilities	 H201 - Mass explosion hazard	 H227 - Combustible Liquid	 H302 - Harmful if swallowed H312 - Harmful in contact with skin H332 - Harmful if inhaled	 H410 – Very toxic to aquatic life with long lasting effects
Explosives Magazine (all entrances)	 H201 - Mass explosion hazard	 Acute Toxicity	 H318 - Causes serious eye damage	 H413 - May cause long lasting harmful effects to aquatic lifedamage
Fuel Farm (all entrances)	 H227 - Combustible Liquid	 H411 - Toxic to aquatic life with long lasting effects		
Heavy Vehicle Workshop (all entrances, including reserve store entrances)	 H220Extremely flammable gas	 H302 - Harmful if swallowed H312 - Harmful in contact with skin H332 - Harmful if inhaled	 H411 - Toxic to aquatic life with long lasting effects	

Location	Signs Required			
Process Area (accesses to flocculant storage area)	 H318 - Causes serious eye damage			
Reagent Area	 H290 - May be corrosive to metals H314 - Causes severe skin burns and eye damage H318 - Causes serious eye damage	 H300 - Fatal if swallowed H330 - Fatal if inhaled	 H410 - Very toxic to aquatic life with long- lasting effects	
Reagent Storage Shed (all entrances)	 H318 - Causes serious eye damage	 H302 - Harmful if swallowed	 H410 – Very toxic to aquatic life with long-lasting effects	
Shepherds Engineered Landform	 H227 - Combustible Liquid	 H302 - Harmful if swallowed H312 - Harmful in contact with skin H332 - Harmful if inhaled	 H411 - Toxic to aquatic life with long-lasting effects	
Water Treatment Works Area	 H318 - Causes serious eye damage			

5.10 Tracking

Some hazardous substances used at the site are so hazardous they must be tracked. This means that a record must be kept of what happens to them from when they were imported into New Zealand or manufactured, through their distribution and transport, to their final use or disposal.

Tracked substances can only be transferred from one competent person to another competent person i.e. they must be under the responsibility of a competent person or appropriately secured throughout the lifecycle of the substance.

A competent person is either a certified handler, or a person who has received the information, instruction and training required to work with the substance.

The PCBU is responsible for keeping a record of what happens to substances that need tracking from the time they come into their possession until they are used, transferred from the site or disposal. The tracking records must be:

- readily accessible to workers or competent persons who handle the substance i.e. they know where to find it
- readily understandable to a competent person required to have access to the substance. i.e. commonly understood terminology should be used.

The tacking records must contain:

- The name, position and contact details of the competent person in control of the substance, including their physical workplace address.
- If the competent person is a certified handler; the hazard classifications of each phase of the lifecycle of the substance for which the person has a certified handler certificate and the expiry date of the certified handler certificate.
- The product or chemical name and amount of the tracked substance under the control of the competent person at any one time.
- The exact location of the substance, allowing an inspector to locate:
    - the substance location on the tracking record in two minutes, and
    - find the substance or its container at the place stated on the record in one hour or the time specified on the emergency response plan, whichever is shorter.
- Details of any transfer of it to another place, including the product or chemical name, date of transfer and the identity and address of the PCBU it is being transferred to,
- Details of the disposal (including use) of the substance. Disposal information must include how much of it was disposed of, and how, when and where it was disposed.
- The unique identifiers of containers with vertebrate toxic agents (VTAs) containing certain active ingredients.

Records of tracking must be kept for 12 months after the substance has been transferred to someone else. If the substance is discharged into the environment or otherwise used or disposed of, records must be kept for three years

Table 11 lists the substances on site that must be tracked.

Table 11: Substances Requiring Tracking

Storage Location	Substance	HSNO Trigger Class
Emulsion Mixing Facilities	Ammonia Nitrate Storage	1.1D
	ammonia Nitrate Emulsion (ANE)	1.1D
Explosives Magazine	High Explosives	1.1B
	Initiating Explosives	1.1D
Reagents Area	Sodium Cyanide (30% w/w solution)	6.1A

5.11 Magazines

Explosive substances that are not under the personal control of a certified handler must be secured in a magazine that meets the applicable requirements of regulations 9.19, 9.20, and 9.21 of the HSW(HS)R and is designated a hazardous substance location,. The substances and locations at the site that that trigger the need for a magazine are:

- Emulsion Mixing Facilities:
  - Ammonia Nitrate Storage (1.1D)
  - ANE (Ammonia Nitrate Emulsion) (1.1D)
- Explosives Magazine:
  - High Explosives (1.1B)
  - Initiating Explosives (1.1D)

5.12 Controlled Substances Licensing

Explosive substances must be under the control of a licensed person or persons working under their direct supervision, in accordance with the relevant requirements of the Health and Safety at Work (Hazardous Substances) Regulations 2017 (Part 9.5 - Controlled substance license generally required for class 1 substances). There are four substances on site which trigger these regulations:

Some substances used at the site can only be possessed in any quantity by:

- an individual who holds a controlled substance licence that authorises possession of the substance.

- an individual who does not hold a controlled substance licence but is under the direct supervision of an individual who holds a controlled substance licence for that substance.

Whist there are some exceptions to this regulation are provided in regulation 7.9 of the HSW(HS)R. these are not considered to apply at this site.

The substances that trigger the need for a controlled substance licence and the employees holding these licenses are listed in Table 12.

Table 12: Substances Requiring a Controlled Substance Licence

Storage Location	Substance	HSNO Trigger Class	Licence Holder	
			Name	Certificate Number
Emulsion Mixing Facility	Ammonia Nitrate Ammonia nitrate emulsion (ANE)	1.1D	TBC	TBC
Explosives Magazine	High explosives	1.1B	TBC	TBC
	Initiating Explosives	1.1D	TBC	TBC

5.13 Blast Overpressure

PCBUs operating with explosives are required to ensure that any potential adverse effects are managed and minimised.

Class 1 substances (except safety ammunition) must be located and managed so that they are stored sufficiently far away from public traffic routes and places where people may occasionally be present required by Regulation 9.27 of the HSW(HS)R. Worksafe's Blast Overpressure Calculation tool[1] can be used to calculate the controlled zones abutting the hazardous substance location, designated use zone or designated transfer zone where explosives substances are held, manufactured, used or transferred.

There are two locations on site where stored substances trigger these regulations:

- Emulsion Mixing Facilities:
  - Ammonia Nitrate Storage (1.1D)
  - ANE (Ammonia Nitrate Emulsion) (1.1D)
- Explosives Magazine:
  - High Explosives (1.1B)

[1] Available at: https://www.worksafe.govt.nz/topic-and-industry/hazardous-substances/guidance/substances/explosives

- Initiating Explosives (1.1D)

During detonation of explosives as part of mining operations, the PCBU must ensure that the regulations in Part 9 - Subpart 3 of the HSW(HS)R, 2017 are complied with.

The PCBU with management or control of a hazardous substance location must only allow people to be in the hazardous substance location for a Class 1 substance or its abutting controlled zone if

- They are handling the class 1 substance.
- They are carrying out maintenance, inspection, or management activities for a limited period.
- They are site visitors under the direct supervision of a certified handler and only present for a limited period.

The PCBU must exclude all people who are authorised to be there from the Class 1 hazardous substance location and controlled zone.

As both the locations listed above are used solely for securing and holding class 1 substances, the quantity of substances held must be limited to ensure that, in the event of an unintended initiation:

- the interior of any proximate building where a class 1 substance is manufactured would not be subject to a blast overpressure of more than 24 kPa
- the exterior of any proximate building where a class 1 substance is manufactured would not be subject to more than 3 hazardous fragments per 60 m2 of exterior surface area.

5.14 Disposal

No hazardous substances, residues, or spills are to be disposed of by flushing to drainage systems or water bodies on or off the site. In addition, no storage containers are to be cleaned out on-site.

Any used or damaged items from spill kits, empty or damaged containers, or containers that are surplus to requirements are to be disposed of off-site at a suitably licensed disposal facility.

6 Emergency Response

6.1 Spill Response Procedure

The expectation at the site is that leaks and spills are mitigated and cleaned up immediately and that the incident is reported to the Environmental Manager as soon as practicable.

A spill response procedure has been developed for the site, a copy of which is included in Appendix 10. A laminated copy of this procedure should be available in, or adjacent to, the spill kits on-site.

All employees on-site are trained in spill identification and response (refer Section 4.5).

6.2 Emergency Response Plan

In the event of an emergency, including any spill which may be harmful to human health, or which is large enough to migrate off-site or have an adverse effect on the environment, the emergency response plan (ERP) for the site should be followed. A copy of this plan will be available on site at TBC. Additional copies of the ERP will be made available TBC.

The ERP is tested annually (at minimum) to ensure that all employees understand the actions they are required to take in case of an emergency. Following each test, the Health and Safety Manager will revise the ERP to ensure that any issues highlighted by the test are adequately addressed in the ERP. The plan must also be updated if there are any changes to:

- The types or volumes of hazardous substances used and stored on-site.
- Personnel with responsibilities under the ERP or the actions specific personnel are required to take.
- Emergency procedures to be followed or equipment to be used.

If the ERP is updated for any reason, it will be tested within three months of the update. Following any revisions to the ERP, all employees will receive training with respect to the new requirements.

Records of tests will be kept for at least two years.

6.3 Evacuation Scheme

As the total amount of hazardous substances present in buildings at the site exceed one or more of the threshold quantities prescribed in Schedule 3 of the Fire and Emergency New Zealand (Fire Safety, Evacuation Procedures, and Evacuation Schemes) Regulations 2018, an evacuation scheme is required for these buildings. This evacuation plan is available in the location specified in Table 1.

6.4 Incident Response

If an incident occurs (minor spills and emergencies) or almost occurs (near miss), an incident response form (Appendix 7) shall be completed as soon as possible after the incident. The purpose of this form is not to allocate blame, but rather to identify measures that could be implemented to help prevent a similar event from occurring in the future. The preventative measures identified in this form should be incorporated into this HSMP.

The form should ideally be filled out by someone who witnessed the event (first-hand) and will need to be read and signed off by the Environmental Manager so they can consider if an update to this HSMP is required.

Note: This is an environmental incident form, not a Health and Safety form.

7 Limitations

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Matakanui Gold Limited, their professional advisers, and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.

ii. The recommendations and control measures in this report are based on the information provided by the client at the time of our engagement. If the processes on-site, or the substances stored or used at the site, are changed, it will be necessary to review and update this report. No liability is accepted for any changes made to this document after the date of issue of this report unless such changes have been made by ENGEO under a variation to our current brief and the ENGEO Document Control table and Document Revisions table on page iv has been updated in accordance with the requirements of our quality management system.

iii. This Limitation should be read in conjunction with the Engineering NZ / ACENZ Standard Terms of Engagement.

iv. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on (09) 972 2205 if you require any further information.

Report prepared by

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FIGURES

Appendix 1:

Site Layout Plans

Appendix 2:

Hazardous Substances Inventory

Appendix 3:

Safety Data Sheets

Appendix 4:

Procedures for Storing and Handling Hazardous Substances

Appendix 5:

Checklist for General Employee Training

Appendix 6:

Hazardous Substances Routine Inspection Checklist

Appendix 7:

Incident Report Template

Appendix 8:

Spill Response Procedure