



# Toms Gully Underground Project Hazardous Materials Management Plan

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## 1 Purpose

The purpose of this document is to describe the method for Primary Gold to manage hazardous materials on site at Tom’s Gully Mine. Furthermore this “management plan” provides guidance for management of risks to personnel, assets and the environment from effects of exposure to hazardous materials.

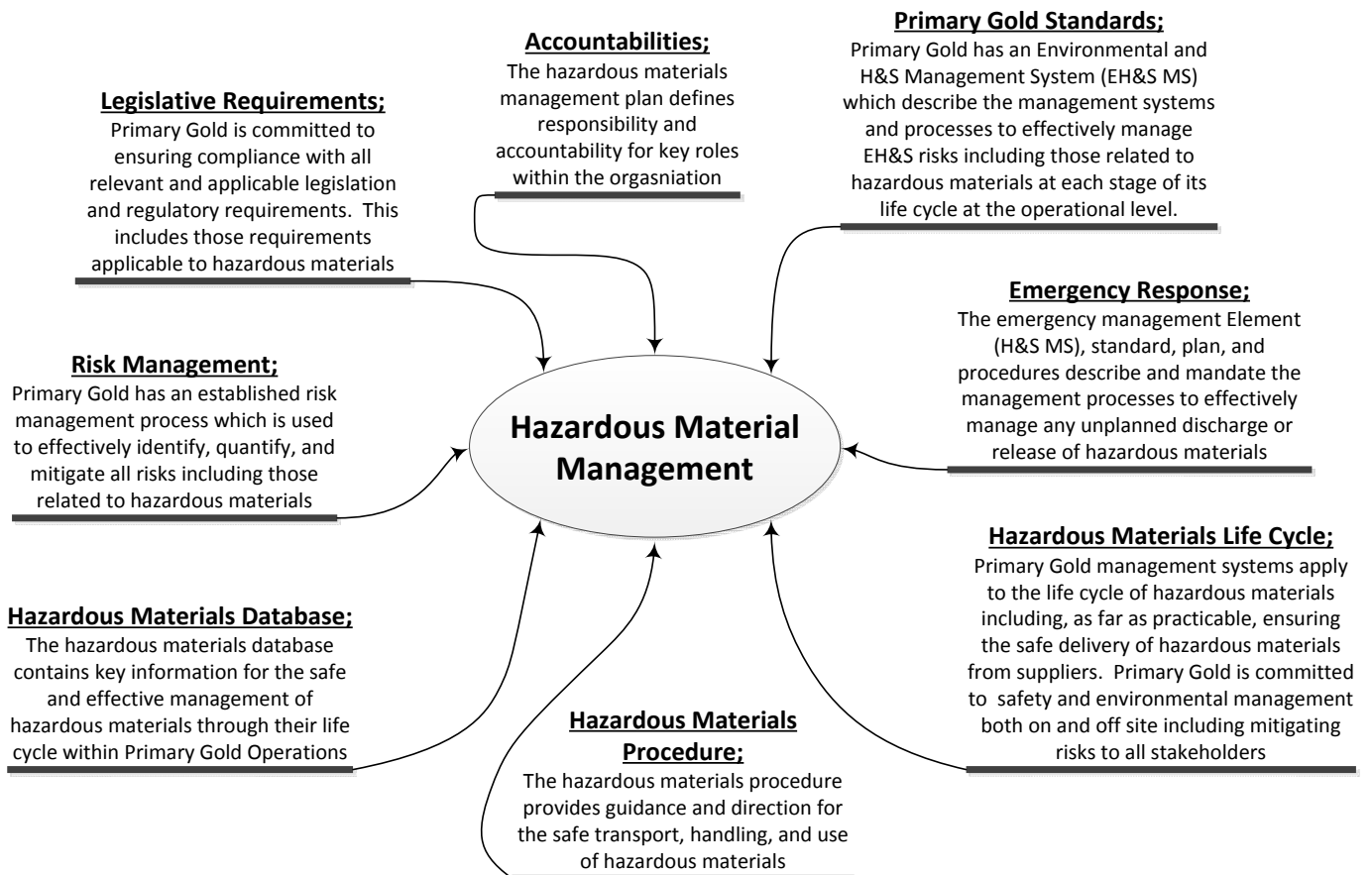
## 2 Scope

This Management Plan applies to purchasing, selecting, storing, using, moving, decanting and disposing of hazardous materials. It also includes the management of spills and requirements for containment bunds.

As a minimum requirement Primary Gold will comply with relevant statutory requirements including those applicable within the NT of Australia, Dangerous Goods Regulations and the requirements of the Environmental Protection Act as the minimum. Primary Gold will also, as far as reasonably practicable, comply with relevant Australian Standards, and will use these Management Plans for control and handling of dangerous goods.

This hazardous materials management plan does not apply to radiation (Gamma Radiation) Sources, Asbestos and Explosives. These hazardous materials are covered by other Management Standards.

## 3 Hazardous Material Management System



## 4 Accountabilities

The following outlines the key accountabilities to ensure the effective management of hazardous materials at Tom's Gully Operation;

### **The General Manager Operations is required to:**

- Provide sufficient resources to enable compliance with this Management Plan.

### **Environmental, Health and Safety (EH&S) Manager is required to:**

- Approve all new hazardous materials before they are purchased;
- Arrange for the purchase and provision of spill kits;
- Review and provide advice on location of spill kits;
- Ensure adequate training is provided to ensure effective spill prevention, management and clean-up;
- Ensure that relevant system documentation, including this plan and related plans, are made available, promoted and implemented;
- Provide advice regarding response to spills of highly toxic hazardous materials
- Provide advice on remediation of contaminated areas;
- Manage disposal of contaminated soils; and
- Maintain appropriate Environment registers and management processes.

### **Hazardous Materials Coordinator**

Primary Gold requires the appointment of a hazardous materials coordinator which is an assignment in addition to the usual role of the assignee. This assignment is not related to a specific role but considers the skills and experience of individuals in related roles such as EH&S, procurement, or processing and will typically be a Supervisor or Superintendent. Responsibility includes but is not limited to;

- Oversight of the hazardous material management system;
- Routine auditing of compliance to systems and procedures related to the safe transport, storage, handling, and disposal of hazardous materials;
- Provide advice to line management regarding the safe transport, storage, handling, and disposal of hazardous materials; and
- Assist with evaluation, assessment, testing, and approvals of new hazardous materials required on site.

### **Area Managers are required to:**

- Effectively communicate requirements of this Management Plan to personnel in their department;
- Provide adequate resources to allow for the effective management of hazardous materials;
- Ensure that no new chemicals are appropriated or used without approval; and
- Provide appropriate storage facilities for hazardous materials.

**Area Supervisors are required to:**

- Ensure access to the site MSDS register for all personnel;
- Ensure the development and maintenance of a hazardous materials management register for their area and MSDS for all hazardous materials used or stored in their area of responsibility;
- Ensure that the hazardous materials management plan and register are readily available for emergency use; keep copies near the location where hazardous materials are stored, used; and a copy (copies), are available to users;
- Train people in the Hazardous Material Database, MSDS interpretation and in the use, handling and storage of hazardous materials;
- Ensure management of hazardous materials is in accordance with this procedure;
- Ensure pre-start inspections include checking for hydrocarbon leaks and that leaking equipment is repaired;
- Regularly monitor and review storage and handling of hazardous materials in their area of responsibility;
- Identify the need for spill kits and maintain them in areas that are at high risk regarding hazardous substance spillage; and
- Manage all bunded facilities in their area of responsibility in accordance with this procedure.

**Area Supervisor – Projects and Procurement is required to:**

- Ensure no chemical is purchased through the supply system or added to the supply stock register without required approval;
- Check the Hazardous Material database before issuing any chemicals to ascertain if the chemical is on the site register and approved for use;
- Notify the relevant Manager if any product arriving through the supply system is not on the site register. Hold the product in a secure location until a decision on the product is made and the person ordering the chemical has completed the correct paper work requesting Chemical Approval; and
- Manage the purchasing of hazardous materials to ensure the minimum volumes are stored on site.

**All Personnel are required to**

- Only purchase and use hazardous materials that are on the Hazardous Material Database register; and
- Reduce risks associated with hazardous materials by following procedures and controls outlined in the MSDS.

## 5 Procedure

### 5.1 Definitions

**Chemical:** is any solid, liquid or gas that may pose a threat to the health or safety of people, the environment, building/equipment damage due to fire/explosion, or that may become hazardous through misuse or abuse (this includes common hazardous materials such as photocopier toners, solvents, cleaning supplies, disinfectants, insecticides, compressed oxygen and welding flux and includes their containers).

**Hazardous substance:** is a substance that is:

- a) Listed as a hazardous substance in NOHSC’s document entitled “List of Designated Hazardous Substances (NOHSC-10005); or
- b) Meeting the criteria stated in HOHSC’s document entitled “Approved Criteria for Classifying Hazardous Substances (NOHSC:1008).

**Material safety data sheet (MSDS):** is a detailed description of a chemical. An *MSDS* contains the following information.

- Physical Hazards
- Health Hazards
- Environmental Hazards
- Safe Handling Precautions
- Safe Exposure Limits
- Safe Storage
- Disposal
- Emergency Procedures
- Manufacturers’ Contact Details

**Hydrocarbons:** All hydrocarbon and carbon based products including but not limited to fuels, oils, grease, and coolants.

**Regulated waste:** Waste that is required to be tracked under the EPA Waste Guidelines (including but not limited to waste oils, lubricants, batteries and tyres).

**Waste:** Any material whether solid, liquid or gas resulting from an activity, operation or process for which the mine has no further use.

**Hazardous waste:** Waste that has properties that are potentially harmful to people or the environment. Hazardous waste includes acids, solvents, strong alkalis and other chemicals, material contaminated with hazardous materials, and clinical wastes.

## 5.2 Introduction of a New Chemical to Site

### 5.2.1 *Decision to Change Chemicals or Introduce New Chemicals*

Before bringing any new products to site, it should be asked:

- Is the new product necessary?
- Can the task be achieved without the use of a chemical?
- Can we use an existing chemical that is already approved for use on site?

If the new product is to replace an existing one:

- Will the existing product be used up or disposed of?
- If to be disposed of, disposal should be in accordance with regulatory requirements and site procedures.

Contractors shall use products that are approved for use on site.

### 5.2.2 *Check Hazardous Material Database for safer alternative product*

Products listed in the Hazardous Material Database are colour coded according to their toxicity:

- Red – highly toxic
- Amber – moderately toxic
- Green – mildly toxic

Various sources can be used to identify alternate products. H&S and Environmental management will support line management with assistance to identify and evaluate alternate products.

### 5.2.3 *Request Additional Chemical Form*

Once the alternative product is selected, the form “New Chemical Request Application” must be completed and forwarded (together with the supplier/manufacturer’s MSDS) to the Coordinator.

The Coordinator will send the supplier/manufacturer’s MSDS to RMT for assessment and inclusion in the Hazardous Material database file.

If the product is classified as Hazardous, Dangerous, or one of its ingredients is or is suspected of being carcinogenic, teratogenic / mutagenic (reproductive toxicants), a Hazardous Substance Risk Assessment (see Senior H&S Adviser) must accompany this application.

### 5.2.4 *Assessing for Suitability for Use*

The Coordinator and the EH&S Manager (or as assigned) will assess the product(s) by, but not limited to, the following criteria:

1. Can we safely dispose of the product?
2. Do we have the means to control a spill?
3. Do we have the means to control a fire involving the product?
4. Do we have the necessary Personal Protective Equipment to safely use the product?
5. If the product affects a person, do we have the medical facilities to manage the situation?
6. Can we safely store the product?
7. Can we safely transport the product?

8. Does the product contain any known and suspected carcinogens (cancer causing agents), reproductive toxicants, or other ingredients hazardous to health, e.g. lead?
9. What will its effect on the environment be?

Where approval for purchase is rejected, the MRU concerned will be notified and reasons for rejection given.

The MSDS will be retained for future reference.

### *5.2.5 Approval for Purchase*

Products can be approved for:

- i. Addition to warehouse stock on hand, i.e. stock item;
- ii. Addition to Hazardous Material Database site master register for approved purchase as required, i.e. non-stock;
- iii. “one-off use only” when required for specialised tasks; and
- iv. “Trial only” of the product to determine suitability for the task.

The preferred option should always be to trial the product for the following reasons:

- i. Determine suitability without committing to bulk supplies; and
- ii. If the product is unsuccessful there is no, or minimal amount, of product to dispose of.

### *5.2.6 Approval for Trial*

In consultation with the MRU concerned, a suitable quantity of the product to allow for a trial is agreed upon. A time frame for trial is also agreed upon. The Purchase Requisition is approved by the Coordinator giving approval for the product. No further purchases of the product will be allowed without approval from the Coordinator.

At the completion of the trial period, the MRU should contact the Coordinator informing if the product is required on a permanent basis. If yes, the Hazardous Material Database STATUS is upgraded to open purchase, or stock item as applicable.

Where a new product is replacing one currently in use, after successful trial of new product, the current product will be removed from the site register and the SAP material listing preventing it from being repurchased.

When a new chemical product is approved, whether stock or non-stock, a stock I.D. number will be allocated.

A “Stock Amendment Form” (from supply) is forwarded to the Supply Superintendent for stock I.D. number will not be considered as approved.

## **5.3 Receiving Hazardous Substances**

Formal contracts will be established with suppliers and transporters of hazardous materials.

Chemical deliveries shall be labelled in accordance with the Dangerous Goods Act, and any damaged packages shall be made safe and then returned to the supplier.

Deliveries of hazardous materials shall only be made to a manned site i.e. a person is on site to receive the order.



The person accepting the delivery shall be aware of how to respond to emergency incidents. Spillages must be cleaned up in accordance with this procedure and reported as an incident.

All necessary equipment including PPE shall be available at the time of unloading.

Person accepting the delivery shall ensure that the correct substance has been supplied and the delivery mode was clean and free from contamination.

Acceptance certificates are signed by the supplier, deliverer and the receiver.

## 5.4 Storing, Handling and Using of Hazardous Substances

Correct storage of hazardous materials must consider:

- Hazardous materials shall be stored in a secure, limited access area until disposal;
- Storage is as per MSDS recommendation;
- The storage area and bunding should be constructed as per Australian Standard AS1940;
- Incompatible hazardous materials must not be stored together;
- Appropriate first aid equipment must be available. For example, emergency shower;
- For carcinogens and reproductive toxicants (known and suspected), meeting the Occupational Exposure Limit (OEL) for that substance is not adequate; exposures must be “as low as reasonably achievable or practicable”.
- There must be an annual documented review of exposure controls for carcinogen and reproductive toxicants; and
- There must be a regular audit of storage practices and physical arrangements for hazardous materials.

When using and handling hazardous materials consider:

- Only transport and use hazardous materials according to relevant regulations and directions given on the MSDS that applies to the substance;
- Suitable signage will be used whenever hazardous materials or dangerous goods are transported;
- Decanting and labelling will be carried out according to the National Code of Practice for the Labelling of Workplace Substances NOHSC (1994); and
- The types of containers to be used for decanting hazardous materials are advised on the MSDS that applies to the substance. All containers holding hazardous materials will be labelled appropriately.

## 5.5 Removing and Disposing of Hazardous Substances

Hazardous materials that are no longer required shall be stored in the salvage yard until disposed of. The substance shall be suitably packaged and include a sealed copy of the MSDS with each container.

## 5.6 Cleaning Up Spills

### 5.6.1 *Determining the Need for Spill Clean-up*

Employees and contractors will endeavour to clean up all hazardous substance spills, including those that occur within properly bunded areas. However, the following general rules shall apply:

- Small spills (<50L) should be cleaned up where practical and may be reported as environmental incidents (depending on impact of the spill);
- Medium sized spills (50-200L) shall be cleaned up and reported as environmental incidents; and
- All large spills (>200L) that occur shall be cleaned up and reported as environmental incidents. Large spills shall also be reported immediately to the EH&S Manager.

### 5.6.2 *Spill Clean Up Procedure*

#### **If necessary, enact emergency procedures**

If the spill threatens the safety or health of people or creates a fire hazard then the site emergency procedure shall be followed.

Where a chemical spill occurs, consult the MSDS for spill procedures. If the MSDS indicates requirement for containment and clean up then the following steps should also be considered:

#### **1. Stop the source and spread of the spill if safe to do so**

- Check for danger;
- Prevent the spill from getting larger (turn off valves, block damaged tanks or pipes); and
- Use any suitable material or equipment to confine the spill by “damming it off” (e.g. use available spill response equipment such as booms or absorbent or if unavailable then use soil or other suitable material).

#### **2. Clean up the spill**

- Once the spill has been contained, retrieve as much of the spilled liquid as possible and place in an appropriate container (e.g. 20L drum or 1000L pod). The liquid should then be either re-used or disposed of (refer to EMS Procedure 4-06-3-1 Waste Management);
- Absorb remaining spill with absorbent material and place used absorbent in the appropriate waste bin;
- Treat areas of contaminated soil in accordance with “Treatment of Contaminated Soils” (see below); and
- Where applicable, replenish equipment used from Spill Response Kit.

#### **3. Report the spill**

- Report and investigate all spills in accordance with the Project Incident Management System..

## 5.7 Spill Response Kits

Spill Response Kits containing the appropriate spill response equipment in a yellow wheelie bin (labelled 'spill kit') will be available at the locations listed below in Table 1:

*5.7.1 Table 1: Spill Response Kit Locations*

Location	Responsible Superintendent
1 x Light Vehicle Workshop	Superintendent - Projects and Procurement
1 x Fixed Plant Workshop	Fixed Plant Superintendent
2 x Process Plant	Process Plant Superintendent
2 x Mobile Plant Workshop	Mobile Equipment Maintenance Supv.

Equipment contained in spill response kits shall be replenished upon use.

The responsible Superintendent will ensure that Spill Response Kits are inspected regularly and missing items replenished when necessary.

## 5.8 Treatment of Contaminated Soils

Soil that is contaminated by hazardous materials including hydrocarbons shall be treated according to the following:

- For small volumes of contaminated soil (<1.0m<sup>3</sup>), soil shall be collected and disposed of in a brown regulated waste bin; and
- For large volumes of contaminated soil (>1.0m<sup>3</sup>), the EH&S Manager shall be contacted to determine whether the contamination is best treated in-situ or excavated for appropriate disposal.

## 5.9 Contaminated Sites Register

A Contaminated Sites Register will be / is maintained. This register contains information that may include:

- The locations of all land that is contaminated with hazardous materials;
- The locations of all places that have been contaminated with hazardous materials that have been cleaned up and the type of remediation undertaken; and
- The type and quantities of the materials causing the contamination.

## 5.10 Managing Bunds and Bund Water

All bund valves are to be locked at all times. The key to unlock each valve shall be retained and managed by the Supervisor that is responsible for the bunded area. The Supervisor shall ensure the below conditions regarding disposal of liquid contained within bunds are adhered to:

1. Liquid shall be removed from bunds when the level of liquid is above the level of the sump.
2. Liquid contained within the bund shall be assessed for contamination according to the following process:
  - i. If a slick is visible on the surface then assume the water is contaminated and dip the water to determine the depth of the slick. Carefully drain water that underlies the slick through the bund valve while monitoring the level of the slick to ensure that no contaminated water is released.

- ii. If no slick is visible then smell the water. If there is no odour then assume the water is not contaminated and release the water through the bund valve. If there is an odour then assume the water is contaminated and arrange to have the contaminated water pumped out from the sump and disposed off-site as a regulated waste in accordance with relevant regulations and procedures.
  - iii. Once all clean water has been drained close and lock the bund valve. If the level of liquid within the bund is still above the level of the sump then arrange to have the contaminated water pumped out from the sump. This contaminated water shall be disposed off-site as a regulated waste in accordance with relevant regulations and procedures.
3. Contaminated water shall not be released from bunds.

### 5.11 Inspection and Maintenance

Areas and equipment used to manage and contain hazardous materials shall be regularly inspected and maintained. All areas and equipment will be inspected and maintained according to the detail of Table 2.

Work orders shall be raised or an inspection / action item raised to ensure the inspection and maintenance activities detailed in Table 2 are carried out. Where the inspections identify the need for maintenance this shall be raised as a work order. Superintendents shall be responsible for ensuring the work orders are raised and that the inspections and maintenance occur.

*5.11.1 Table 2: Hydrocarbon area inspection and maintenance activities*

<b>Equipment/area</b>	<b>Inspection Frequency</b>	<b>Responsibility</b>
Main diesel storage tanks; Process Plant Workshop;	Monthly	Area Supervisor
Hazardous Materials storage area Drum storage rack	Monthly	Area Supervisor
UG Mining diesel tank UG Equipment Workshop	Monthly	Area Supervisor

## 6 Communication

All personnel required to purchase, receive or use chemicals shall be trained in the requirements of this Standard Operating Procedure.

## 7 *References*

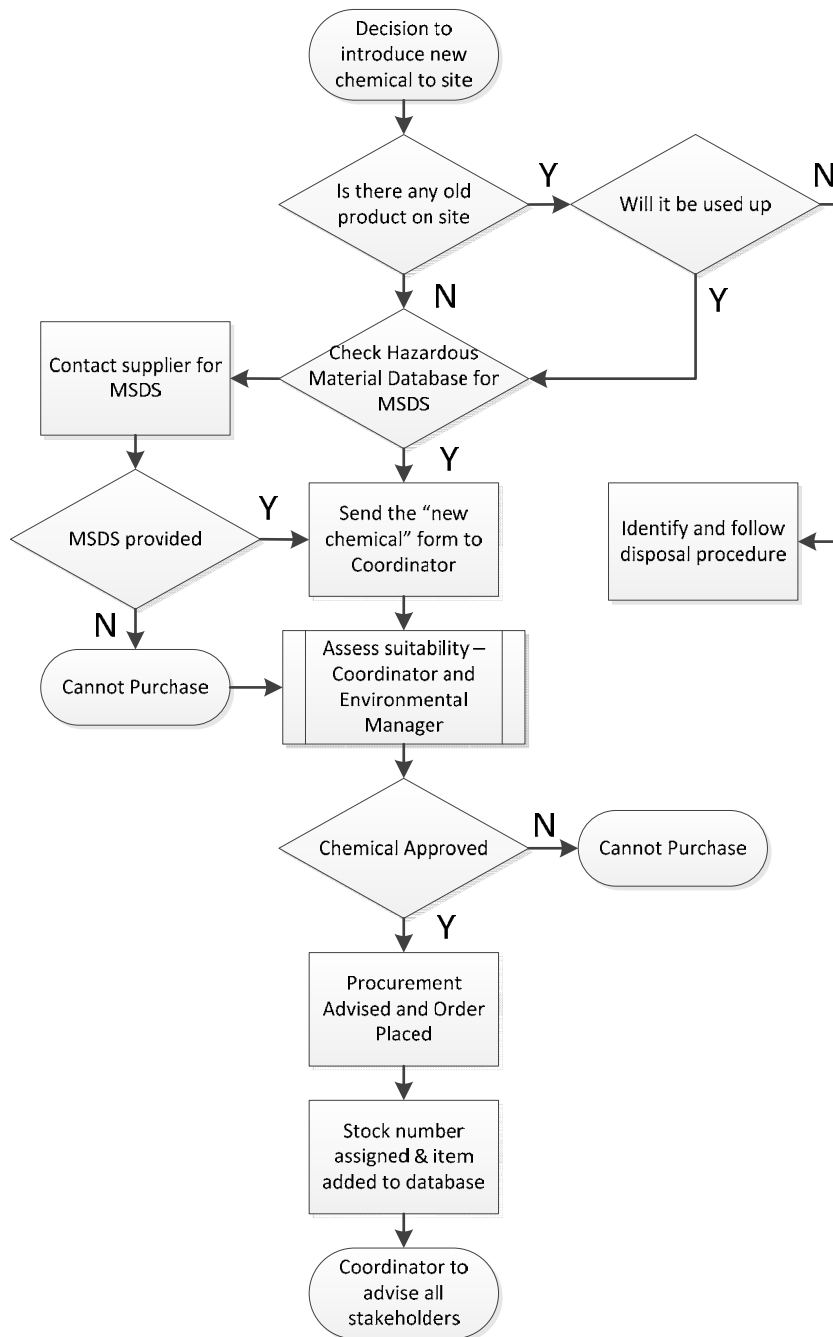
- Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)
- National Occupational Health and Safety Commission (WorkSafe Australia) publications:
  - Guidance Note for Emergency Service Manifests
  - National Code of Practice for the Labelling of Workplace Substances
  - List of Designated Hazardous Substances
  - Approved Criteria for Classifying Hazardous Substances
- AS1596 – LP Gas, storage and handling
- AS1940 – Storage and handling of flammable and combustible liquids
- AS4332 – Storage of gas cylinders
- Hazardous Substances Placarding Regulations
- Hazardous Material Database System

## 8 *Records*

Records generated as a result of this Management Plan are to be maintained for 7 years unless otherwise directed by legislation or Primary Gold Managing Director.

## 9 New Hazardous Material Assessment and Management Process

The following process flow is used to assess approval to use new chemicals on site.



### 10 Hazardous Materials Register

This register is not all inclusive and is subject to change through project restart however does include all hazardous materials which present a material risk.

Area	Hazardous Material	Maximum Volume	Storage Type	Responsible Person	Spill response
Process Plant	Cyanide	18 tonne	Bulk, dry pellets	Processing Manager	<ol style="list-style-type: none"> <li>1. Immediate full emergency response</li> <li>2. Immediate area evacuation</li> <li>3. Notify NT Fire &amp; Rescue</li> <li>4. Follow ER Plan</li> </ol>
	Sodium Iso-Butyl Xanthate	10 tonne	Bulk	Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	Copper Sulphate	10 tonne		Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	Frother	10 tonne		Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	Flocculant	1 tonne		Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	Lime	20 tonne	Bulk	Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	LPG	20 kl	Bulk tanks and cylinders	Processing Manager	<ol style="list-style-type: none"> <li>1. Initiate emergency response.</li> <li>2. Evacuate area</li> <li>3. Follow ER plan</li> </ol>
	Caustic Soda	5 tonne	1000 litre totes	Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	Hydrochloric Acid	5 tonne	1000 litre totes	Processing Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>

<b>Area</b>	<b>Hazardous Material</b>	<b>Maximum Volume</b>	<b>Storage Type</b>	<b>Responsible Person</b>	<b>Spill response</b>
	Fuel	5 kl	Self banded bulk storage	Maintenance Supt	<ol style="list-style-type: none"> <li>1. Follow spill procedures</li> <li>2. Initiate emergency response if required</li> </ol>
	Lubes	5 kl	Drums and smaller cont.	Maintenance Supt	<ol style="list-style-type: none"> <li>1. Follow spill procedure</li> <li>2. Initiate emergency response if required</li> </ol>
Mining	Contractor Fuel	120 kl	Self banded bulk storage	UG Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedure</li> <li>2. Initiate emergency response if required</li> </ol>
	Contractor Lubes	5 kl	Drums and smaller cont.	UG Manager	<ol style="list-style-type: none"> <li>1. Follow spill procedure</li> <li>2. Initiate emergency response if required</li> </ol>