

HAZARDOUS SUBSTANCES MANAGEMENT PLAN

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1 COMMITMENT AND POLICY

1.1 Purpose

The purpose of the Hazardous Substances Management Plan (HSMP) is to reduce the risk of ABM Resources NL (ABM) personnel on site being exposed to substances that may adversely affect their health or safety.

This plan outlines the requirements for the management of hazardous substances including reception, transport, storage, handling, reuse/recycling and disposal.

1.2 Scope

This plan applies to all activities undertaken by employees and contractors at the Twin Bonanza Mine and exploration sites outside of the Mineral Lease.

This HSMP is a requirement of the following legislation:

- *Work Health and Safety (NUL) Act 2011* (NT).
- *Dangerous Goods Act 2012* (NT).
- *Work Health and Safety (NUL) Regulations 2012* (NT).

2 DEFINITIONS

Competent person:	A person assessed as competent by the site general manager for the tasks they shall perform and who has acquired, through training, qualification or experience or a combination of those things, the knowledge and skills required to perform the required task competently.
Hazardous substance:	A chemical, substance or material used in the workplace, which has the potential to cause injury or have an adverse effect on a person's health. Hazardous substances are listed in the Code of Practice for Managing Risks of Hazardous Chemicals in the Workplace (Appendix C) and are classified only on the basis of immediate or long term health effects.
Dangerous goods:	A dangerous good is any hazardous substance declared under Section 6 of the <i>Dangerous Goods Act 2012</i> (NT). They are classified on the basis of immediate physical or chemical hazards, such as fire, explosion, corrosion and toxicity that may affect life, health, property or the environment.
Risk:	Measures of likelihood of harm arising from exposure to hazardous substances.
Hazardous Substances Register:	A comprehensive listing of the hazardous substances on site (Appendix 2).
Hierarchy of controls:	A defined order which is based on effectiveness for implementing controls to mitigate risk (e.g. elimination, substitution, isolation, engineering, administration and personal protective equipment).

RESPONSIBILITIES

2.1 Employees and contractors

- Assess the workplace and work task for hazardous substances before commencing any work.
- Ensure that, when applicable, engineering and administrative controls and Personal Protective Equipment (PPE) shall be in place during handling of hazardous substances.

2.2 Supervisors / area managers

- Ensure that employees have the knowledge and proper training in handling of hazardous substances that will be encountered during the execution of work.
- Ensure that Safety Data Sheets (SDS) are available to the workers in the work area throughout each work shift.
- Submit 'Request to bring hazardous substance on site' form (Appendix 1) and seek approval from the site general manager prior to mobilising new chemicals to site.
- Update as required the SDS Register for their respective areas.
- Forward a copy of the updated register to the safety coordinator to be included in the site wide chemical register (SDS Register)

2.3 Safety / environmental coordinator

- Provide guidance for the assessment of hazardous substances and recommendations for controls.
- Facilitate hazardous substances assessments as and when required.
- Periodically audit and verify the adequacy and effectiveness of implemented control measures.
- Site wide hazardous substances register custodian.

3 STANDARD

3.1 Risk assessment

A documented risk assessment shall be conducted prior to working with hazardous substances and repeated any time the scope of work changes or any surrounding conditions change. The risk assessment shall be compliant with ABM's risk management protocols (refer chapter 5: Risk assessment in ABM's Environmental Impact Statement (EIS) and include as a minimum:

- the potential for personnel to be adversely affected by the hazardous substances
- other work occurring simultaneously in adjacent areas
- selection of appropriate control measures using the hierarchy of controls
- the potential for weather or other external conditions to influence the work with hazardous substances (e.g. wind, rain, dust, gases, poor lighting, temperature etc.)
- selection of appropriate equipment
- selection of appropriate PPE
- disposal of waste and unused hazardous substances
- environmental procedures for incidents such as spill
- emergency procedures in the event of an incident.

The completed risk assessment shall be provided to the site general manager for approval prior

to any work with hazardous substances commencing.

3.2 Hierarchy of controls

The hierarchy of controls outlines the preferred hierarchy of controlling exposures to hazardous substances. In order of preference the hierarchy is: elimination, substitution, isolation, engineering, administration, and PPE. PPE is considered to be the last line of defense in protecting personnel from hazardous substances and must be provided to all personnel at risk of exposure to hazardous substances.

3.2.1 Elimination

Eliminating either the substance or the activity which gives rise to the risk is the most effective form of risk reduction. Examples of eliminating hazardous substances include:

- using a physical rather than a chemical process to clean an object; for example, the use of ultra-sonic, high pressure water or steam cleaning techniques rather than solvent washing
- using water based paints or powder coating rather than solvent based paints
- using clips, clamps, bolts or rivets instead of solvent based adhesives
- using hot melt or water adhesives instead of solvent based adhesives.

Examples of eliminating an activity to reduce risk exposures include:

- preventing the use of the storage and handling areas as a thoroughfare
- prohibiting the carriage of matches, lighters and the use of spark producing tools in the work or storage area.

3.2.2 Substitution

Substituting high risk products or activities with alternative lower risk products or activities will reduce overall risk exposure. Examples of substitution include:

- using non-dangerous goods in place of dangerous goods, such as degreasing with detergent instead of a chlorinated or volatile solvent
- using dangerous goods with a single hazard, rather than goods having one or more subsidiary risks.

Examples of substituting safer activities include:

- using a solid substance in paste, pellet form solution, rather than a dusty powder
- applying paint by brush or roller rather than from an aerosol can
- using non-sparking tools in hazardous areas.

3.2.3 Isolation

Hazards may be isolated by distance or barriers or a combination of both. Factors to consider in determining separation distances include:

- the types of hazardous substances and the risks they pose to adjacent areas
- the quantity of hazardous substances stored and handled in the work area
- the type of installation and the processes applied to the hazardous substances in the work area and the associated hazards and risks
- all other activities in the work area, which may increase the risk
- any control measures in place which will reduce the risk.

Factors to consider when using barriers in place of, in conjunction with distances to isolate hazardous substances include:

- the extent of vapor barrier required and its effectiveness in varied climatic conditions
- appropriate levels of fire resistance to be provided, depending on the potential heat load from internal or external incidents
- structural sufficiency to withstand weather and any overpressure resulting from internal or

external incidents.

3.2.4 Engineering

Engineering controls involve making engineering changes to a process or piece of equipment used to store or handle hazardous substances. Examples include:

- providing adequate ventilation, including local exhaust ventilation, to eliminate flammable or harmful atmospheres
- installing lighting which provides ample illumination for the tasks to be performed
- providing adequate spill control to cope with the largest foreseeable spill
- constructing effective barriers between incompatible goods
- installing detection systems and alarms for fire and hazardous atmospheres
- incorporating suitable devices to protect installations from external hazards.

3.2.5 Administration

Administration controls consist of properly designed and implemented work practices and procedures and may include:

- safe work procedures that describe the correct methods for performing all activities associated with storing, handling and disposing of dangerous goods
- training and supervision to provide the necessary knowledge and skill and ensure correct procedures are followed safely
- good housekeeping, including regular cleaning of contamination from walls and surfaces, dust and drip removal from all work areas, and keeping lids on containers when not in use
- workplace monitoring to ensure safe working conditions is maintained.

3.2.6 Personal Protective Equipment

PPE is considered the last line of defense against hazardous substances. Material Safety Data Sheets (MSDS) normally contain recommendations on the selection and use of PPE for the particular materials being used. Supervisors shall ensure that:

- protective devices are selected which are suitable for the individual and give the required level of protection from the risks associated with the particular task
- all PPE meets relevant Australian Standards
- use of correct PPE is enforced
- PPE is readily available, clean and functional, and employees are individually fitted
- there is a proper instruction on the need for, and correct use of, personal protective clothing
- an effective system of cleaning and maintenance for PPE is implemented.

3.3 Authorisation to bring hazardous substances to site

New hazardous substances required for use must have approval from the safety and environmental coordinators prior to transport and use on site. This ensures that the products are reviewed for potential risks to health and the environment in their use.

Application for approval to bring hazardous substances to site shall be made using the 'Request to Bring Hazardous Substances onto Site' request form (Appendix 1) and submitted for approval. This form shall be completed both prior to mobilisation and prior to bringing any new hazardous substances to site post mobilisation.

The SDS for each hazardous substance shall accompany the completed authorisation form.

3.4 Receiving hazardous substances

The personnel responsible for receiving hazardous substances shall ensure that:

- chemical deliveries are labeled in accordance with the Code of Practice for the Labeling of Workplace Hazardous Substances and any damaged packages are returned to the supplier
- risks associated with the hazardous substances and dangerous goods have been identified
- receiving personnel know how to respond to incidents during loading and unloading
- all equipment required, including correct PPE, is available
- delivery and loading are supervised at all times
- acceptance certificates are signed by the supplier, delivery driver and the receiver
- Spillages are immediately contained and reported to the Safety and Environmental Coordinators.
- there are written instructions for deliveries, with special instructions for a delivery tank or container which has been or will be used to carry other products. The written instructions shall include:
 - tank or container cleaning procedures
 - vehicle unloading and site loading procedures
 - emergency response procedures for the vehicle and the site for each product
 - fire protection procedures, including the collection of contaminated waste water
 - bunding and drainage procedures at the delivery site that will satisfactorily contain any spillage
 - checks to ensure the receiving container is fit for purpose, able to hold the volume delivered, and is clean enough for filling with the product being delivered
 - checks to ensure the delivery made was clean and free from contamination.

3.5 Hazardous substances inventory and SDS

All hazardous substances supplied or introduced to the site are required to be accompanied by a SDS, copies of which shall be located both where the hazardous substance is being used and where it is stored.

The area supervisor shall maintain an inventory (Appendix 2—Hazardous Substance Register) for each separate hazardous substance storage area on site. The inventory and accompanying SDS's shall be available for viewing by all personnel.

The safety coordinator shall maintain a separate master inventory of hazardous substances stored on site.

3.6 Solvents, asbestos and synthetic mineral fibres

No asbestos or asbestos containing substances shall be brought onto site.

Paints and polyurethane containing iso-cyanates shall not be used, unless prior written approval is obtained from the site general manager.

Synthetic mineral fibres (glass fiber, rock wool and ceramic fibers) shall be only brought onto site with prior written approval from the site general manager.

3.7 Radioactive substances

No radioactive substances or equipment containing or requiring radioactive sources for operation shall be brought onto site without approval from the site general manager.

3.8 Storage of hazardous substances

3.8.1 General

Storage facilities for all Hazardous Substances and Dangerous Goods shall comply with the *Dangerous Goods Act 2012 (NT)* and *Dangerous Goods Regulations 2012 (NT)*, prior to storing hazardous substances on site to ensure that the necessary licenses or exemptions are clarified.

Where required by the *Dangerous Goods Act 2012 (NT)* storage areas shall be contained within bunds. Bund construction shall comply with *AS1940:1993 The Storage and Handling of Flammable and Combustible Liquids and regulatory requirements*. In the event of inconsistency, regulatory requirements shall be followed.

3.8.2 Separation of dangerous goods

Separation distances for dangerous goods shall comply with the *Dangerous Goods Regulations 2012 (NT)*.

3.8.3 Placarding requirements

Placarding of storage areas shall comply with the *Dangerous Goods Act 2012 (NT)*.

3.9 Labeling

Each area representative is responsible for ensuring that suppliers have correctly labeled all chemical containers according to the *Code of Practice for the Labeling of Workplace Hazardous Substances*. Chemical substances must be kept in their original container and must not be kept in a wrongly marked or unmarked container.

Labels should contain:

- signal words (warning/poison/dangerous poison) and dangerous goods class or schedule
- product name, chemical name, UN number, ingredients and formulation details
- risk phrases - e.g. "flammable", "irritating to skin" or "harmful if swallowed"
- directions for use
- safety information - e.g. "avoid contact with skin" or "do not breathe dust"
- first aid procedures
- emergency procedures - control of leaks, spills or fires
- details of manufacturer/supplier
- expiry date
- reference to the product SDS.

3.10 Training and competency assessment

All personnel required to work with hazardous substances shall, prior to commencing any work, have completed suitable training and have been assessed as competent by the area manager.

Training and/or instruction in the safe use, storage and handling of hazardous substances shall be identified in accordance with the relevant SDS and carried out for all personnel required to work with hazardous substances.

Training may consist of, but not be limited to:

- formal industry or external training
- formal "in-house" onsite training
- "on the job" training.

Assessment of training records to determine whether a person is competent to carry out work with hazardous substances must be made by a competent person.

Records of all such training and competency assessments shall be provided to the safety coordinator prior to commencing any work with hazardous substances on site.

A documented risk assessment shall be conducted prior to any work with hazardous substances commencing as outlined in Section 4.1 above.

3.11 Fire protection

The site general manager is responsible for ensuring that all site amenities, offices, workshops, vehicles, plant and storage facilities shall have a suitable type and number of fire extinguishers available for use in the case of a fire.

Relevant national standards and regulations relating to fire safety shall be complied with at all times including *AS/NZS 1940:1993 The Storage and Handling of Flammable and Combustible Liquids*.

The selection and location of fire extinguishers shall be consistent with *AS/NZS 2444:2001 Portable Fire Extinguishers and Fire Blankets - Selection and Location*.

3.12 Removing and disposing of hazardous substances

The site general manager is responsible for ensuring that all waste and unused hazardous substances are removed from site in accordance with legislative requirements.

Documented details of such disposal shall be forwarded to the site general manager for approval prior to disposal and records of all chemical disposals retained for inspection and audit.

4 REFERENCES

4.1 Legislation

- *Work Health and Safety (NUL) Act 2011 (NT)*, Division 2 Primary Duty of Care.
- *Work Health and Safety (NUL) Regulation 2012 (NT)*, Chapter 7, Hazardous Chemicals.
- *Dangerous Goods Act 2012 (NT)*.
- *Dangerous Goods Regulations 2012 (NT)*.

4.2 Australian standards

- *AS 1940:2004 Storage and Handling of Flammable and Combustible Liquids.*
- *AS/NZS 2444:2001 Portable Fire Extinguishers and Fire Blankets - Selection and Location*
- *AS 4360:1999 Risk Management*
- *AS/NZS 4452:1997 Storage and Handling of Toxic Substances*
- *AS/NZS 3833:1998 Storage and Handling of Mixed Classes of Dangerous Goods in Packages and Bulk Containers*
- *AS 2430.3:1997 Classification of Hazardous Areas – Examples of Area Classification – General*

4.3 Code of practices

- *CP - Managing Risks of Hazardous Chemicals in the Workplace*
- *CP - Labeling of Workplace Hazardous Substances*
- *CP – Control of Workplace Hazardous Substances*
- *CP – Storage and Handling of Workplace Dangerous Goods*

4.4 ABM Resources

Refer to Chapter 5: Risk assessment

4.5 Other Documents

Appendix 1: Request to bring Hazardous Substances to Site

Appendix 2: Hazardous Substance Register

5 CONTROL AND REVISION HISTORY

5.1 Document information

PROPERTY	VALUE
Approved by	Chief Operating Officer
Document Owner	Health & Safety Coordinator
Effective Date	31/10/2013
Keywords	

5.2 Revisions

VERSION	DATE REVIEWED	REVIEW	NATURE OF THE AMENDMENT
1	G. Scells	25/08/2013	Initial Draft
2			
3			
4			

5.3 Read by

	NAME	DATE	SIGNED
1			
2			
3			
4			

APPENDIX 1 –Request to Bring Hazardous Substances to Site



ABM
RESOURCES NL

Request to Bring Hazardous Substance to Site

Project Name:					
Contractor:			Location:		
Date:		Contract No.:			
Product Name:					
Manufacturer / Supplier:					
SDS Provided:	Yes <input type="checkbox"/>		No <input type="checkbox"/>		
HAZCHEM Code:					
A.D.G. Code:					
Quantity:					
Description of Use:					
Reported Health Effects:					
Storage:		Type:		Location:	
Environmental Impact:					
Disposal Details:					
Submitted By (Name):			Position:		
ABM Resources Comments:	Approved / Not Approved				
Approved By:			Signature:		

