



Oyu Tolgoi LLC

Health, Safety and Environment Management System Procedures

Hazardous Materials Management Procedure

Hazardous Materials Management Procedure		
Effective Date: 2012.08.15	Document Number: OT-10-E5-PRC-0001-E	Version: 2.0

1 PURPOSE

To define the requirements for effective management and use of Hazardous Materials (including Dangerous Goods) in order to minimise Hazardous Material impacts to personnel and the environment, and to ensure compliance with legislative and project requirements (including requirements of Rio Tinto Standards and the Environmental and Social Impact Assessment).

2 SCOPE

This Procedure is applicable to all work areas managed by or on behalf of Oyu Tolgoi LLC (OT).

3 ROLES AND RESPONSIBILITIES

Role	Accountability
Health, Safety and Environment Managers	<ul style="list-style-type: none"> • Provide technical support on Hazardous Materials management to OT Departments and contractors. • Ensure resources are available to periodically audit and inspect operational areas to monitor performance against the Hazardous Material management requirements of this procedure. • Approve and make this procedure available to all employees and contractors. • Define the Hazardous Materials approvals process to ensure substances are effectively assessed and approved prior to use at OT. • Ensure OT standards, plans and procedures address the requirements of legislative and project requirements.
Oyu Tolgoi Department and Contractor Managers	<ul style="list-style-type: none"> • Manage Hazardous Materials in accordance with the requirements outlined in this procedure. • Ensure Hazardous Materials are approved, transported, stored, used and disposed of in accordance with the requirements of this procedure. • Ensure MSDSs are current and available at the Hazardous Material storage location. • Contractor HSE management plans shall be consistent with the requirements of this procedure as part of the contractor management process.
Workplace HSE supervisors / Superintendents	<ul style="list-style-type: none"> • Conduct routine inspections in work areas exhibiting a significant risk of Hazardous Material storage or use. • Ensure MSDSs are available and current at Hazardous Material locations in Mongolian and English.
Training Department Managers	<ul style="list-style-type: none"> • Provide training in Hazardous Materials management practices to applicable personnel.
Procurement Department Managers	<ul style="list-style-type: none"> • Procure Hazardous Materials in accordance with the requirements of <i>OT-E5-GDL-0001-Hazardous Material Approval Procedure</i>, which involves the assessment of approvals, risks, use, storage and disposal of such materials prior to their procurement.
All staff and	<ul style="list-style-type: none"> • Ensure incidents involving Hazardous Materials are reported as HSE

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contractors	incident reports. <ul style="list-style-type: none"> • Manage Hazardous Materials in accordance with the requirements outlined in this procedure.
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4 PROCEDURE

4.1 General

The following general requirements apply to Hazardous Material management:

- All permits for the use and handling of Hazardous Materials have been obtained from the appropriate Mongolian authorities. Also refer to: *OT-E5-GDL-0001-E Hazardous Material Approval Procedure* for approvals to bring chemicals to site;
- Prioritised material-specific handling procedures and training requirements will be developed as necessary according to the risk assessment; and
- Departments using toxic and hazardous chemicals shall nominate an officer to manage and advise on Hazardous Materials management.

4.2 Handling of Hazardous Materials

The following requirements apply to handling of Hazardous Materials at OT:

- All equipment used to transfer Hazardous Materials shall be nominated by the Department Manager, and risk assessed to ensure control measures are sufficient to control the risks associated with transferring these materials;
- Spill kits, protective equipment, and other necessary equipment will be available wherever bulk hazardous liquids are stored or used in significant volumes;
- Personal Protective Equipment (PPE) and fire protection equipment as specified in the relevant MSDS and in Hazardous Material approvals, shall be used at all times when handling Hazardous Materials;
- Avoid handling and ensure no storage of Hazardous Materials in close proximity to watercourses or wells; and
- For detailed guidance on spill response please refer to *OT Spill Response Procedure ref. OT-ENV-PR-045*.

4.3 Transport of Hazardous Materials

The following requirements apply to transportation of Hazardous Materials at OT:

- Fire extinguishers, fire prevention materials and spill prevention materials shall be appropriate for the Hazardous Materials being transported, in accordance with the control measures defined in Hazardous Material approvals;
- Use appropriate containers for the material being shipped which have been nominated by Department Managers;
- Ensure containers containing Hazardous Materials are properly secured prior to transportation;
- Ensure that containers and trucks are marked, labelled and placarded in accordance with the MSDS and Hazardous Material approvals;
- Chemical Manifests will be maintained in accordance with Mongolian regulations as described in *OT-E5-GDL-0001-E Hazardous Material Approval Procedure*; and

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- OT will verify during the contractor selection that haulers are appropriately qualified to transport and handle Hazardous Materials. An officer appointed to be in charge of the Hazardous Material transportation safety (procession supervisor) shall arrange the transportation of toxic and hazardous materials along the permitted route in compliance with traffic rules and regulations.

4.4 Storage of Hazardous Materials

4.1.1 Equipment Provision

The following requirements apply to equipment provision in storage areas for Hazardous Materials at OT:

- Spill kits, protective equipment, and other necessary equipment will be available onsite to clean and mitigate spills;
- Damaged containers which present a risk of leakage will not be used and will be taken out of commission by the Workplace Manager or Supervisor;
- Suitable fire-fighting equipment will be located close to Hazardous Material storage areas;
- Emergency equipment outlined in the storage plans must be present in the correct locations at all times;
- First aid kits (including eye-wash as appropriate) will be located close to Hazardous Material storage areas;
- OT will maintain an inventory of Hazardous Materials held or generated, to ensure that these are understood and that appropriate measures are in place to mitigate the potential hazards posed by them both to humans and the environment; this will include provision of Material Safety Data Sheets (MSDSs) for all stored materials and details on the segregation of potentially reactive materials. MSDSs will be held in Mongolian, English and any other languages as appropriate; and
- The storage area shall have a record book, kept all the time, containing information on the type, classification, name and quantity of stored substances.

4.1.2 Hazardous Material Storage Area Design

The following requirements apply to Hazardous Material Storage Area Design:

- Storage of liquid Hazardous Materials (including waste oil and solvents) will be provided with 110% capacity secondary containment OR 25% of the capacity of all the total volume of the stored individual containers within the bund, whichever is larger;
- Storage areas will be designed to store a quantity of Hazardous Materials required for the Project. This will include access control to storage areas (where appropriate) and locating the facility a sufficient distance from accommodation/work areas as determined by risk assessment;
- Storage areas will be designed to provide sufficient space to enable safe access and handling of containers;
- The storage area will be properly designed to contain and prevent contamination of the environment, particularly soil and groundwater;
- Fire prevention systems will be designed to be appropriate and adequate to the material being stored, in accordance with the relevant storage facility risk assessments;
- Surface runoff and storm water drainage from material storage areas will be directed through a drainage system to oil/water separators and sediment traps; and

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- Volatile Hazardous Material storage areas will be designed to ensure adequate ventilation to prevent the build-up of explosive or harmful airborne pollutants.
- Storage areas will use walls, dykes and/or berms to separate incompatible materials.

4.1.3 On-going Storage area management

The following are the operational requirements for hazardous materials being stored at OT:

- Access to hazardous waste storage areas will be restricted to authorised personnel only as defined by the Workplace Manager or Supervisor;
- The overall volume of Hazardous Materials used, purchased and present on site will be minimised as far as possible through careful material selection, stock control and materials inventory. Stock control shall ensure that adequate storage capacity is available for all purchased materials;
- Not more than 500 tonnes of chemicals shall be stored in one chemical depot and not more than 50 tonnes in a compartment inside the depot;
- Waste oils will not be stored for extended periods in underground sumps; tanks and sumps will be emptied and inspected regularly for any signs of cracks or holes. The findings of the inspection will be recorded; any cracks or holes will be repaired, and any repairs conducted will be recorded;
- Incompatible (e.g. bases and acids) materials will not be stored in the same container and will be stored in a safe manner and distance to prevent accidents;
- Incompatible materials as determined through material risk assessments shall be segregated by appropriate means (including area, walls, dykes, berms or separate facilities);
- The capacity and functionality of bunds must be maintained at all times as part of periodic inspections by Workplace Managers or Supervisors;
- Water removed from containment areas will be considered contaminated waste and treated accordingly by Workplace Managers;
- Restriction of ignition sources (including no smoking), appropriate fire prevention and management practices will be developed for Hazardous Material storage areas in accordance with the risk assessments for these areas; and
- Drums, containers, and storage areas for all Hazardous Materials will be properly labelled, MSDS provided (in English, Mongolian and any other languages as applicable), marked, placard and secured. Containers will be stored on pallets within bunds, or other suitable storage structures.

4.2 Explosive Materials

The following requirements apply to explosive material transport, storage and use:

- Transport, storage, and use of explosives on site will only occur by those trained and qualified to do so. The training and qualification verification process will be defined by the Training Department Manager;
- All personnel involved with explosive handling will also be trained in the use of fire extinguishers and spill response procedures in accordance with processes defined by the Training Department Manager; and
- Specific procedures will be implemented for significant risk activities involving explosives (handling, transport, storage, charging, blasting, and destruction of unused or surplus explosives).

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4.3 Equipment Use and Maintenance

- Oil-filled electrical appliances will be maintained in good and fire-resistant condition;
- All planned equipment, plant and vehicle maintenance will be undertaken in designated service areas with suitable containment to prevent contamination of the environment;
- Drip trays will be placed under all stationary equipment that uses fuel, oil or lubricants that are not self-contained (including generators, mobile lighting towers, pumps); and
- Tanks and machinery will be equipped with measurement devices and overflow protection (e.g. flow and level meters, relief valves, overflow protection valves and emergency shutoff).

4.4 Reporting

Quarterly reports shall be prepared by OT Environmental Department and shall include:

- A summary of activities undertaken during the reporting period;
- Any material deviations or non-compliances to this Management Plan;
- Planned activities during the next reporting period; and
- Any other issues of concern.

Internal reporting of non-conformances identified from inspections, audits and incident reports will occur as part of OT's HSE Performance Assessment procedures.

5 DEFINITIONS

Hazardous Materials: broadly defined as any substance or article (solid, liquid or gas) that poses a significant threat to human health and/or the environment. *See detailed definition in Rio Tinto E5 Hazardous materials and contamination control Guidance Note.*

Material Safety Data Sheet (MSDS): A MSDS is a written document that outlines information and procedures for handling and working with chemicals. Current MSDS documents contain physical and chemical property information, potential hazard information, emergency procedures, and manufacturer contact information.

Bund: A wall or barrier that prevents the escape of hazardous liquids from a contained boundary.

Personal Protective Equipment (PPE): is any clothing, equipment or substance designed to protect a person from risks of injury or illness.

6 REFERENCES AND RELATED DOCUMENTS

Mongolian Hazardous Materials handling standards applicable to the Project are listed below:

- Mongolian law provides for the regulation of Hazardous Materials within the Law on Hazardous and Toxic Chemicals, 2006. In addition, the standard for water quality (MNS 4586:98) is also relevant as water may be a receiving media for any impacts;
- Regulation on export, import, trans-border transportation, production and trade of hazardous and toxic chemicals (Appendix to order # 334/104 of Minister of Nature, Environment and Tourism and Minister of Foreign Affairs);
- Regulation on storage, transportation, use and removal of hazardous and toxic chemicals Appendix 1 to order # 28/40/29 of Minister of Nature, Environment and Tourism and Minister of Health and Chief of National Emergency Management Agency;

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- Regulation on Risk Assessment of Toxic & Hazardous Chemicals Appendix 2 to order # 28/40/29 of Minister of Nature, Environment and Tourism and Minister of Health and Chief of National Emergency Management Agency;
- List of toxic and Hazardous Materials the use of which is banned in Mongolia, Government resolution # 95, 2007, Government resolution # 95, 2007;
- Hazardous materials will be used in accordance with the Law of Mongolia on hazardous and Toxic Chemicals, including reporting requirements (Article 9.1);
- EBRD Performance Requirements (2008) (particularly PR1: Environmental and Social Appraisal and Management and PR3: Pollution Prevention and Abatement)
- IFC EHS Guidelines for Mining, 2007; and
- IFC General EHS Guidelines, 2007.

The primary Rio Tinto Standard that applies to Hazardous Material management is E5 - *Hazardous materials and contamination control*, 2008.

Other relevant Rio Tinto documents include:

- B4 Hazardous substances standard (Occupational Health);
- E2 Air quality control standard.
- E9 Land use stewardship standard; and
- E10 Water use and quality control standard.

7 DOCUMENT CONTROL

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2.0	2013.06.01	Mark Newby	Mark Newby	Changes to the content to reflect lender requirements.