

Handling and Storage of Hazardous Substances

Potential Impacts:

- Release of contaminated water from contact with spilt chemicals;
- Fuel source for on-site fires; and
- Generation of contaminated wastes from used chemical containers.

Controls:

- The storage of flammable and combustible liquids such as oils will comply with all relevant legislation and regulations;
- Any spills will be rendered harmless and arrangements made for appropriate collection and disposal including cleaning materials, absorbents and contaminated soils;
- Ensure that spill kits are available on site to clean up spills and leaks;
- Obtain any storage and disposal permits/approvals necessary and comply with the conditions attached to such permits and approvals;
- Ensure that any delivery drivers are appropriately supervised by an individual familiar with all procedures and restrictions on site. This is of particular importance during off and on-loading of materials;
- Ensure that only designated areas are used for the handling or storage of mining and construction materials;
- All materials must be stored at one location, to be approved by the ECO;
- The Contractor must comply with all national, regional and local legislation with regard to the storage, transport, use and disposal of chemicals, harmful and hazardous substances and materials;
- The Contractor will furthermore be responsible for the training and education of all personnel on site who must be handling the material about its proper use, handling and disposal as well as spill response;
- The Contractor must be responsible for establishing an emergency procedure for dealing with spills;
- Storage of all hazardous materials is to be safe, tamper proof and under strict control;
- Fuels, solvent and other wastes must be stored in vessels equipped with secondary containment structures and must be moved from the mining and construction areas being disposed of in compliance with the relevant legislation and regulations;
- The containers in which the products are kept must, in compliance with hazardous material management procedures, be removed from the site once empty. Hazardous products must otherwise be stored on adequately bunded surfaces in the designated hazardous material storage areas;
- All manufactured and/or imported materials must be stored in an appropriate manner in the construction camp. Depending of the type of material, storage areas will be roofed with impervious material (e.g. cement and chemicals);
- Fluids must not be stored together with solids; instead fuels, lubricants, transmission and hydraulic fluids must be stored in a designated area for fluids;
- Cement, building sand, topsoil and subsoil must also be stockpiled separately in their designated areas;

- Separate material delivery and storage, and lay-down areas must be demarcated as needed.
- All material storage areas must be sited away from ecologically sensitive areas;
- Hazardous chemicals used during construction must be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) must be available on site;
- The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and situated with the intention of preventing pollution of the surrounding area and environment;
- Identify and maintain a register of all activities that involve the handling of potentially hazardous substances, as well as devise and supervise the implementation of protocols for the handling of these substances. This will include all fuels, oils, lubricants and grease;
- Ensure that all hazardous substances are handled in accordance with the manufacturer's specifications and legal requirements; and
- Store all hazardous substances (including oils, fuels, chemicals, tar etc.) in a manner prescribed in the relevant Acts and Regulations.

Maintenance:

- Any accidental chemical/fuel spills to be corrected immediately;
- Keep MSDS records of chemicals in use up to date;
- Waste records must be kept available for review; and
- Implement appropriate actions and measures to reduce or prevent contamination of the ground and surface water as a result of a spill of potentially hazardous substances.

Corrective Actions

- Observation and supervision of chemical storage and handling practises and vehicle maintenance throughout the construction phase;
- Arrange and supervise the implementation of cleanup operations and appropriate disposal of contaminated materials at the hazardous waste disposal site;
- A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon;
- Keep written records detailing the type of spill, the corrective and remedial measures implemented in the stopping or reduction of the spill, and the clean up of the spill. Such progress reporting is important for monitoring and auditing purposes and the written reports may afterwards be used for training purposes in an effort to prevent similar future occurrences;
- Report the nature and extent of the spill to the ECO or Project Manager, as soon as reasonably possible, but within 24 hours; and
- The ECO will prescribe measures to be implemented in order to prevent spills of potentially hazardous substances.

1. Cement and Concrete

Controls:

- Concrete must be mixed only in an area demarcated for this purpose. All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. After all concrete mixing is complete all waste concrete must be removed and disposed of at an approved waste disposal site;
- Operators must wear suitable safety clothing;
- All runoff must be strictly controlled. Cement contaminated water must be collected, stored and disposed of at a site approved by the Project Manager;
- Appropriate measures for overflow, e.g. during heavy rains, must be put in place;
- Waste concrete and cement sludge must be scraped off the site daily and removed to an approved landfill site. (To prevent pollution during rain);
- Solidified concrete can be disposed of at a registered general waste landfill site; and
- Concrete must not be mixed directly on the ground. Plastic liners or mixing trays are to be used. (Martin, 2007)

2. Fuel Storage

- • All legal compliance requirements with respect to fuel storage and dispensing must be met;
- All fuel storage tanks (temporary or permanent) and associated facilities must be designed and installed in accordance with the relevant oil industry standards, SANS codes and other relevant requirements;
- The Contractor must ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and under lock and key at all times;
- Areas for storage of fuels and other flammable materials must comply with standard fire safety regulations and may require the approval of the Municipal Fire Prevention Officer;
- Flammable fuel and gas must be well separated from all welding workshops, assembly plants and loading bays where ignition of gas by an accidental spark may cause an explosion or fire;
- The tank must be erected at a safe distance from buildings, boundaries, welding sites and workshops and any other combustible or flammable materials;
- Symbolic safety signs depicting “No Smoking”, “No Naked Flames” and “Danger” are to be prominently displayed in and around the fuel storage area;
- The capacity of the tank must be clearly displayed and the product contained within the tank clearly identified;
- There must be adequate fire fighting equipment at the fuel storage and dispensing area or areas
- The storage tank must be removed on completion of the construction phase of the project;
- All such tanks to be designed and constructed in accordance with a recognised code (international standard);
- The rated capacity of tanks must provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during

storage;

- Tanks must be situated in a bunded area, the volume of which must be at least 110% of the proposed volume of the tank;
- The floor of the bunded area must be smooth and impermeable, constructed of concrete or plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The floor of the bunded area will be sloped towards an oil trap or sump to enable any spilled fuel and/or fuel – soaked water to be removed;
- Any water that collects in the bund must not be allowed to stand and must be removed and the hydrocarbon digestion agent within must be replenished;
- Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks must be sealed and stored on an area where the ground has been protected;
- Any electrical or petrol driven pump must be equipped and positioned so as not to cause any danger of ignition of the product;
- If fuel is dispensed from 200 litre drums, the proper dispensing equipment must be used
- The drum must not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank must be stored in a waterproof container when not in use;
- All waste fuel and chemical impregnated rags must be stored in leak proof containers and disposed of at an approved hazardous waste site;
- The amounts of fuel and chemicals stored on site will be minimised; and
- Storage sites will be provided with bunds to contain any spilled liquids and materials.

Maintenance:

- Regular inspections will be carried out to detect leaks and spillages. All storage facilities will be maintained as regularly as is necessary to ensure they meet the original specification. Inspections will be carried out on a weekly and/or monthly basis by the ECO;
- All equipment that leak oil or fuel must be repaired immediately or removed from the construction site.

Corrective Actions:

Absorbent material must be available at tanks to absorb any spills.