
	STANDARD OPERATING PROCEDURE	Document ID	TNCL-ENV-SOP-0007
	HYDROCARBONS MANAGEMENT PROCEDURE	Document Owner	Environmental Manager
Revision		02	
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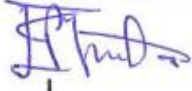
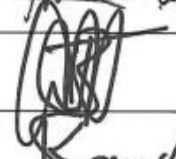


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13. DECLARATION..... 14

1. PURPOSE

This procedure is required to address the management of all hydrocarbons associated with Tembo Nickel Project activities in Tanzania.

2. OBJECTIVES

The objectives of this procedure are:

- To comply with the legal requirements on storage, handling, use and disposal of hydrocarbons.
- To conform to the Tembo Nickel Corporation Limited (TNCL) Environmental Management System.
- To reduce environmental risks associated with the storage, handling, and disposal of hydrocarbons at the TNCL.

3. SCOPE

This procedure outlines the steps involved in the proper storage, handling and disposal of hydrocarbons on site and it applies to all all-Tembo Nickel Corporation Limited (TNCL) employees, contractors, and visitors.


4. RESPONSIBILITIES

4.1 Environmental Manager / Officers

- The contents of this procedure.
- Ensuring that it is distributed, trained, and followed.
- Revision of the procedure as required.

4.2 Other Department Managers

- Ensuring appropriate training is received in relation to this procedure; and
- Ensuring that the information contained in the procedure is disseminated.
- Ensuring that it is followed.
- Responsible for ensuring that hydrocarbon management in their area is consistent with this procedure.

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4.3 Supervisor

- Responsible for the management of hydrocarbons within their individual areas.

5. DEFINITIONS AND ABBREVIATIONS


Word	Meaning
Hydrocarbons	An organic compound or chemical compound consisting entirely of hydrogen and carbon. Hydrocarbon products include all derivatives of oil and Fuel used at the mine including diesel, gasoline, hydraulic oils, lubricating oils and grease.
Bund	Secondary containment structure for hydrocarbon storage (spill containment).
Spill	Refers to any discharge (of hydrocarbon) into an un-bunded / unpaved area.
Waste Oil	Used or old hydrocarbon products that require disposal.
SDS	Safety Data Sheet
GCLA	Government Chemist Laboratory Authority

6. PROCEDURE

6.1 Storage


6.1.1. Bulk Storage

- i. All hydrocarbon storage tanks, and conveyance systems must be designed and constructed above ground. If necessary to install underground piping (e.g., road crossings), it must have a passive system to detect leaks (e.g., leak detection system) or active mechanisms, such as visual inspections.
- ii. Bulk hydrocarbon storage and transfer systems (including temporary bulk storage) must have a secondary containment of at least 110% of the net capacity of the largest tank.
- iii. Piping and pumping facilities must be arranged so that no leaks can escape the confines of the bund, and that the pumps still operate when the bunds are full of liquid. All pipe work must go over the bund walls, not through them.

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- iv. Hydrocarbon storage areas are to be clearly marked to identify stored hydrocarbon material (oil, diesel, etc) and located in an area that minimises the risk of damage to personnel or the environment.
- v. Where practical, different liquids should be stored in separate bunds to maximise the collection and re-use of uncontaminated spilled liquid should a spill occur.
- vi. Bunds are to be regularly maintained and kept clean. This allows for the salvaging and possible re-use of any spilt liquid and for clean rainwater to be extracted from the bunds.
- vii. Safety Data Sheets (SDS) shall be available and accessible at all areas where the hydrocarbons are being used or stored.
- viii. All hydrocarbons that are stored in volumes greater than 5 liters shall be contained within a bunded (secondary containment) area.
- ix. The bunded, storage compound or secondary containment area for hydrocarbons shall:
 - a) Be impermeable ($<10^{-9} \text{ ms}^{-1}$).
 - b) Be able to contain $>110\%$ of the volume of the largest storage vessel or inter-connected system, and at least 25% of the total volume stored.
 - c) Be graded and include a sump to allow recovery of liquid.
 - d) Be chemically resistant to the substances stored.
 - e) Include valves, pumps and meters associated with transfer operations. Otherwise, the equipment shall be adequately protected (e.g., bollards) and contained in an area designated to permit recovery following accidents or vandalism.
 - f) Be designed such that jetting from any storage vessel or fitting will be captured within the bounded area.
 - g) Be controlled such that the capacity of the bund is always maintained. Be roofed wherever practicable.

Area Lead / Managers shall be responsible for ensuring all hydrocarbons management facilities are constructed in compliance with these requirements. Where this is not possible, the Environmental department shall determine what should constitute an appropriate facility.

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6.1.2: Storage of Hydrocarbon Containers less than 5L

Where the storage is less than 5liters, the containers shall be stored in an upright position on approved spill trays or containment pallets. The spill trays or containment pallets shall be capable of collecting all accidental spillages and drips.


6.2 Bunds

All hydrocarbon storage facilities must be bunded in accordance with the following requirements:

- i. Tanks - The net capacity of the bund must be 110% of the largest tank.
- ii. All interconnected tanks are to be treated as a single tank of equivalent volume for the purposes of bund design.
- iii. If the material is to be stored in drums (or other small containers) bunding capacity must be a minimum of 25% of the **total** volume of stored products.
- iv. All valves, filters, sight gauges, vent pipes and other ancillary equipment must be situated within the bund and arranged so that discharges are contained.

Bund design must incorporate the following:

- i. The bund floor and wall must be constructed of materials impervious to the contents of any tank or container within the bund.
- ii. The bunded area must be capable of preventing the migration of any spillage or leakage to the surrounding environment.
- iii. The bund must be built out of materials that can resist attack by any toxic substances that are to be placed in that bund.
- iv. The bund must have a typical water permeability equivalent to untreated concrete.
- v. A collection sump must be provided in the bund floor to ensure the easy remove of liquids, and the floor must be graded so that material drains to the sump.
- vi. Bund sumps must not contain a drain plug.
- vii. If a roof is provided to stop rainwater ingress, ensure the roof will not cause a build-up of dangerous or poisonous gases, or restrict the application of water in an emergency.

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6.2.1: Inspections of Bund (Secondary Containment) Areas

Supervisors responsible for the management of chemicals and hydrocarbons within their individual areas shall ensure the following:

- a) Trapped rainwater does not compromise the availability of the compound storage. If the compound storage is compromised by rainwater, then action shall be taken to reduce the volume of water within the compound. Where possible, the bunded (secondary containment) area should be roofed to prevent any accumulation of rainfall.
- b) If a visual inspection of the bunded area (together with the Environment team) shows the water to be uncontaminated with hydrocarbons, the water may be released to surrounding stormwater drains. If the water is contaminated with hydrocarbons, it shall be directed to the oil-water separators for hydrocarbons removal prior release to the drainage system.
- c) Hydrocarbons may be removed with the aid of absorbent oil sheets or alternatively, the contaminated water may be pumped out and treated in an oil/water separator.
- d) The bunds do not contain rubbish or combustibles (paper, rags, wood, etc).
- e) Collection sumps are kept free of material. The collection of solids via sweeping and shoveling (dry methods) from inside bounded (secondary containment) areas shall be encouraged over water use.
- f) Sump drainage valves are to be kept locked in the closed position. A sign stating “Drain valve to be kept closed and locked always” is to be positioned by the drain valve.

6.3 Generators and Pumps


All generators and pumps shall be positioned on a containment bund capable of collecting all discharges, accidental spillages and drips associated with operations and re-fueling.

6.4 Transporting around site

6.4.1 Drums

Once drums are delivered and placed in the appropriate storage areas, they may then be required to be transported around site to an alternative storage area or maintenance location. In this case the following steps are to be taken:

- i. Load full drums onto transport vehicle in the upright position using appropriate equipment and secure.

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- ii. The temporary storage of drums when carrying out maintenance does not require bunding however, the drums should be stored such that:
- a) Storage must not be in proximity of an ignition source.
 - b) Drums must be kept sealed when not in use.
 - c) The transfer of liquid from storage to the point of use must be carried out to minimise the possibility of spillage and necessary precautions must be taken (e.g., drip trays are to be used).
 - d) Spill kits, SDS and absorbent materials are readily available.

NOTE: Storage for more than 24hours is not considered temporary.

6.4.2 Mobile tanks


Mobile fuel tanks are to be used on site under the following circumstances:

- i. The mobile fuel tanks are only used to transfer fuel not to store fuel – e.g. from a bunded storage tank to a machine.
- ii. Mobile fuel tanks when not transporting fuel are stored empty and on the paved area.
- iii. All transfers must take place over bunded concrete areas capable of containing a minimum the capacity of the transfer hose.
- iv. Drip trays are to be used during transfer from fuel truck to machine.
- v. Spill kits or absorbent materials must be readily available.

6.5 Waste Products

6.5.1 Waste Oil & Oil Contaminated products

- i. When transporting and storing waste oil, personnel must only use drums that have been checked for leaks and are clearly marked “**WASTE OIL**”.
- ii. Waste oils are to be stored and transported in the same manner as any liquid hydrocarbon and in accordance with the procedures outlined above.
- iii. The transfer of waste oil must be carried out in a manner that minimises the possibility of spillage. Drip trays shall be used to capture all hydrocarbon drops.
- iv. Waste oil storage facility should be clearly identified and well Labelled; and should meet all requirements for hydrocarbon storage.
- v. Waste oil products are to be transported offsite by an Authorised waste oil recycler.

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- vi. Prior to removal waste oil products from site, the quantity must be registered, and records maintained by Environmental department.

6.5.2: Bund Water

Contaminated bund water can be pumped directly out of the bund into a bund water storage drum that has been checked for leaks and clearly labelled “**Bund water**”, for removal later. Alternatively, bund water may be removed by truck.

If contaminated bund water is to be stored or transported in a drum, it is to be treated in the same manner as any liquid hydrocarbon and in accordance with the procedures outlined above.

6.5.3 Oil Filters, Rags and Used Absorbent Materials

- i. Filters, hydrocarbon-contaminated rags and used absorbent materials should be stored in labelled leak proof drums/skip bins.
- ii. Oil Filters after partial incineration will be removed by Scraps Removal contractor for recycling.
- iii. Rags and absorbent materials should be incinerated.

6.6 Contaminated Soil


All hydrocarbon-contaminated soil must be taken to the SOIL BIOREMEDIATION FACILITY.

6.7 Wash Bays

Washing of any light vehicles, trucks or heavy machines must be conducted in the designated wash bays. All soils / mud from wash bays must be disposed of at the soil bioremediation facility.

6.8 Hydrocarbon Spills Management

- i. All spills shall be cleaned up as soon as they happen. Spills outside bounded areas shall not be left for periods greater than 24 hrs. Spills within bounded areas shall not be left for periods greater than 48 hrs. All spills must be cleaned up immediately. Clean-up refers to the removal of all the spill material, contaminated water, and soil.
- ii. Spills more than 10 liters shall be reported to the Environmental Department immediately and an incident report raised within a 24-hour period.

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- iii. Spill kits shall be located near chemicals and hydrocarbons storages. The kits shall be used in the event of accidental discharges.

6.9 Drainage

- i. Run-off from all wash-down pads, workshops, re-fueling areas and all other areas of likely hydrocarbon contamination shall be directed to an oil/water separator to allow appropriate separation of hydrocarbons from the stormwater.
- ii. Drainage works shall be present to divert all uncontaminated stormwater around areas where it is likely that contamination may result, and to prevent contaminated stormwater from leaving the area without appropriate treatment.


6.10 Disposal of Hydrocarbons

- i. Where possible / applicable, chemical containers and residues shall be returned to the supplier for appropriate disposal. If this is not possible or the disposal practice of the supplier is not considered acceptable, then advice should be sought from TNCL Environmental Department regarding an appropriate disposal method. Depending on the chemical type and volume, the disposal methods may vary as will be advised by GCLA. For chemicals owned by contractors, disposal costs will be borne by the contractor himself.
- ii. All spilled hydrocarbons and soils contaminated by spilled hydrocarbons shall be disposed of as per the Bioremediations procedure.
- iii. All waste oil shall be stored in closed vessels such as 200L or 1000L drums and stored in bunded areas. Once the drum is full, it shall be sealed and transferred to the waste oil storage area. Oil filters, oily rags and used absorbent material shall be burnt in the incinerator.
- iv. Waste grease shall be decanted into drums. Once filled, it shall be sealed and kept at the storage area ready for offsite removal by an authorized contractor / recycler.

6.11 Vehicle re-fuelling

The following shall be considered when re-fueling vehicles/machines:

- i. The vehicle shall be attended whilst re-fueling is occurring. The operator shall be in a position of control over all hoses, valves, and fittings.
- ii. Prevent spillage by not overfilling fuel tanks and replace tank caps immediately after filling.

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6.12 Refilling of Fuel Storage Tanks

The fuel attendant is responsible for ensuring that the product is delivered to the correct storage tank and that the receiving tank is not filled above its safe level. The fuel attendant shall not leave the fuel tank area during the re-fueling / re-filling / fuel receiving process. If the pump attendant is required to leave the area during the process, all refueling operations shall cease and all pumps close until the fuel attendant returns to avoid potential fuel spills and other safety risks.

6.13 Storage Tanks

- i. All fuel storage tanks shall be correctly labeled, air vents maintained in a clear state and inspection ladders maintained, in good condition and well positioned.
- ii. Buried tanks shall not be used for the storage of hydrocarbons on site. All surface hydrocarbon piping shall not be buried.

7. LEGAL REQUIREMENTS

- i. Environmental Management Act, 2004
- ii. Industrial & Consumer Chemicals (Management & Control) Act 2003
- iii. Petroleum Act 2008

8. SYSTEM EVALUATION

This procedure shall be reviewed at least after two years by members of Environmental Department and presented to the Standard Committee for approval, or when organizational changes take place or required as part of internal and external audits. The TNCL Document Controller will monitor compliance with the document control system on an ongoing basis.


9. DISTRIBUTION

List physical locations which require a controlled copy of this document.

Copy	Controlled Document Folder Location
Master	Controlled Documents Central Filing System

10. CONTRAVENTION

Any breach of this procedure shall be regarded as refusal/failure to carry out a lawful instruction and will be dealt with as per the disciplinary procedure.

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11. DOCUMENT CHANGE PROCESS

The process of document change starts when the document custodian identifies there is need to make changes within the document. The document custodian/ owner shall complete the document change request form, sign it off and submit it to the Document Controller.

The Document controller shall issue the controlled word copy of the document to the respective document custodian/owner so that changes may be made. The document custodian/owner shall resubmit the updated document to the document controller so that the document can be controlled and updated within the Filing system ready for use by the end users.

11.1: Reason for Change


A	As a result of incidents	F	Change in training requirements
B	As a result of the audit findings	G	Results of risk assessments
C	New / changes in governance documents	H	Change due to spelling or grammatical error
D	Changes in legislation	I	New document format
E	Changes in technology	J	To integrate special instruction into the document control system

11.2: History of Change

Date of Change	Revision No	Revised Item (paragraph Number reference if required)	Reason Code	Name of Reviewer
23.10.2024	01	All document	G, I	Digna Isdory
23.10.2025	02	All document	G, H, I, J	Naziel Eliakimu

12. RECORD CONTROL

Document Title:	Document ID:	Responsible for Maintenance :	Responsible for Filling:	Location of Storage:	Retention Period:	Method of Disposal :
Hydrocarbons management procedure	TNCL-ENV-SOP-0007	Document Controller	Document Controller	OHS Department	Hard Copy two Years	Hard copy shared file electronic

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13. DECLARATION

I hereby declare that I have taken part in the discussion of this procedure, and I understand its contents and do commit that I shall ensure compliance hereto:

	Name and Surname	Company Number	Designation / Role	Signature	Date Signed
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