FUEL MANAGEMENT PROCEDURE

TNCL-PRO-SOP-0002

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1. INTRODUCTION

This procedure aims to provide a safe environment for unloading fuel at the TNCL sites to ensure that the activities are conducted safely and effectively to achieve our goal of ZERO HARM. During the Unloading of fuel, there is a potential for a release, fire, explosion, environmental event, damage, or injury. As with all potentially hazardous activities, specific material and activity risk assessments must be completed and appropriate control measures implemented.

The precautions and controls in place should be based on as many different variables as possible. It is unrealistic to assume that unloading activities will always run normally, or that systems will not fail or break down.

This procedure is intended to address and mitigate all risks associated with Unloading diesel fuel into TNCL diesel storage tanks, safely and securely.

2. DEFINITION AND ACRONYMS

Table 1: Definition and Acronyms

Term	Definition
Diesel	Is any liquid fuel specifically designed for use in a diesel engine, a type of internal combustion engine in which fuel ignition takes place without a spark as a result of compression of the inlet air and then injection of fuel
ERT	Emergency Response Team
Fuel Attendant	Is responsible for providing service at the fuel station and performing other related duties. He must ensure the accuracy of all transactions and provide a safe and clean environment for their customers
OHS & S Manager	Occupational Health, Safety and Security Manager
Procedure	Approved document with detailed sequential steps describing HOW a specific task is performed. The procedure should either contain the content of the supporting Standard document or refer to the standard.
Safety	The state of being safe or protected from or unlikely to cause danger, risk, or injury.
TNCL	Tembo Nickel Corporation Limited

3. RESPONSIBILITIES

3.1 Procurement Manager

Ensuring that this procedure is being followed and corrected and ensuring all contractors, vendors, and suppliers are complying with this procedure.

3.2 Supervisors, Fuel Attendant are responsible for

a) Implement this procedure
b) Ensuring that workers are trained and understand this procedure.
c) Ensuring that spill kits, Fire Extinguishers, and signages are in place
d) Ensuring that all spill incidents are reported as required.

4. PROCEDURE REQUIREMENTS

4.1 Ordering Fuel and Payments

a) TNCL Procurement Officer prepares a Fuel estimation report showing the following information on a per-site basis:
   - The previous month's estimate of fuel required
   - Previous month's quantity of fuel consumed.
   - Estimate of the coming month's quantity of fuel required
   - Total consumption of the moths.

b) The estimation report will reflect what was used in the previous month and TNCL will hold some in reserve with each contractor in case of ANY unexpected changes.
c) The TNCL Procurement Officer then submits the Fuel Monthly Report to the Management team and then to the Procurement Manager.
d) The Procurement Officer raises an order through the PRONTO System two weeks before the final consumption. The order is approved by the Procurement Manager and the General Manager.
e) Finance reviews the Fuel Estimation Report and addresses any queries they may have with the Procurement Officers.
f) Within 7 days, the Fuel Suppliers shall deliver the fuel to the site with the quantity of fuel allocated.
g) Fuel consumption can be monitored through the monthly fuel consumption report and the monthly fuel expenses Report. These reports should be prepared by the TNCL Procurement Officer at the end of each month.

4.2 Onsite Fuel Delivery

When the fuel tanker arrives on site, the supplier truck driver will call before arriving, the following must be observed:

a) Obtains a Site Access after the inspections of Fuel Truck
b) Provide and collect all required information

c) Fuel level reading before unloading takes place.
d) Quantity delivered.
e) Fuel level reading after unloading has taken place.
f) Storage tank levels.
g) Utilizes Flow meter reading.
h) Completes the Site Logbook with the relevant information.

4.3 Reconciliation and Verification of Fuel Delivery

a) The fuel supplier will submit a Fuel Supplier Delivery Note at the end of the fuel delivery.
b) Each fuel shipment will be accompanied by copies of the Fuel Suppliers Delivery Note.
i) Verify security seals to ensure are intact and not tempered.

4.4 Before Unloading

a) Unloading fuel should always be done during daylight hours, between 06:00hrs to 18:00Hrs
b) Emergency manual shutdown buttons should be always easily accessible and be used in case of an emergency.
c) The storage tank's containment must be at least 110% of the capacity of the largest tank in a bund.
d) Ensure the barrier walls or fire compartment walls of the storage tanks are intact and not damaged.
e) Physical restraints (wheel chocks) to prevent vehicle movement.
f) Visually check all hoses for leaks and wet spots must be checked before commencing fuel unloading.
g) Verify that sufficient volume is available in the storage tanks before commencing fuel unloading to avoid overfilling.
h) Secure the tank vehicles with wheel chocks and interlocks.
i) Verify that the vehicle's parking brakes are set properly.
j) Verify proper alignment of valves and proper function of the pumping system.
k) Establish adequate bonding / Earthing before connecting to the fuel transfer point.
l) Connecting piping of appropriate length and condition.
m) Ensure fire breakers/extinguishers are in good acceptable condition, closer, and accessible during unloading.
n) Ensure weather conditions are clear and safe for unloading. Should never conducted when raining and presents of lighting strike/thunderstorm.

o) Ensure and test all emergency stops/switches are operational and functional as intended for emergencies.

p) Ensure the truck earthing bond is properly clamped and secured to the provided earth point.

4.5 Dipping of Truck

a) Fuel dipping will be performed at staging area. Allow 30 minutes for fuel to settle prior to dipping

b) Pump attendant are in charge to break the supplier seals on the hatch and valves. All seals must be matched to the pre-alert document from the Supply Partner to ensure seals are in place and intact on the delivery box. Any discrepancies must be reported immediately for further investigations.

c) The Pump attendant and driver will complete safety assessment to identify any potential risk and hazards prior to climbing on to the tanker for seal verification and removal. This will include confirming the fuel truck is switched off and isolated. The driver should not sit in the cabin. At least one wheel is properly chocked.

d) If security seals are correctly in place and intact, they will be recorded and removed on the truck by the pump attendant in the presence of the driver.

4.6 Dipping and Water test

a) Dips and water test are to be performed on each compartment by the Fuel Team using the dip sticks for each compartment as numbered. The dipping paste (ullage finder) is applied at the product levels indicated on the bill of loading for each compartment. Water finding paste is also applied to the bottom of the stick. The Fuel attendant will then slowly lower the dipstick in its compartment through the dipstick guide to the bottom and leave it for approximately one minute to get a clear indication mark.

b) The Fuel attendant will then slowly remove the dipsticks and observe the presence of water. Water presence will turn indicator from yellow to red (unacceptable). If the indicator stays yellow (acceptable) the dipstick will be allowed to drip excess fuel and then lowered for measurement at ground level to minimize working at height. If any water is detected in the tank, (Indicator turns red) the truck must be parked and the Supplier will be immediately informed for investigation. Upon communication with all the stakeholders, presence of water will be remedied by flushing out the water from the valves until all the water has been drained. This must be witnessed by the driver, supply chain representative and mine site security. This will be followed by and taking of a new reading on all the compartments. If Indicator stays yellow, then the process will proceed.

c) Compare the dip calculated volume against delivery documentation per compartment and any significant variances noted are to be reported to the Supplier.

d) If for whatever reason the truck could not be offloaded on the same day after breaking the supplier seals, then site security will be informed. The security team will then lock and seal all the compartments manholes and valves using site security seals whose number will be recorded by all the stake holders for verification on the offloading date. The truck must then be parked at the security main gate parking yard.

4.7 During Unloading

a) Driver must stay with the vehicle/truck at all times during unloading activities.

b) The fuel attendant or designee should observe the delivery driver during unloading activities

c) Periodically inspect all systems, hoses, and connections.

d) While loading, keep internal and external valves on the receiving tanks open along with the pressure relief valves.

e) When making a connection, shut off the vehicle engine, unless the engine is used to operate a pump.

f) Maintain communication between the pumping and receiving personnel (fuel attendant and truck driver)

g) Monitor the fuel level in the receiving tanks to prevent overflow.

h) Monitor flow meters to determine the rate of flow

i) When topping off the tank, reduce the flow rate to prevent overflow.

j) If rains fall start during the unloading process the activity must be stopped immediately and secured until rain stops, and the weather is clear then it can be resumed.

4.8 After Unloading

a) Make sure the transfer operations are completed.

b) Close all tanks and loading valves before disconnecting.

c) Securely close all vehicle internal, external, and dome cover valves before disconnecting.

d) Secure all latches.

e) Disconnect bonding/earthing.

f) Make sure the hoses are drained to remove the remaining oil before moving them away from the connection. Use a drip pan.

g) Cap the end of the hose and other connecting devices before moving them to prevent uncontrolled leakage.

h) Remove wheel chocks and interlocks.

i) Inspect the lowermost drain and all outlets on the tank truck before departure. If necessary, tighten, adjust, or replace caps, valves, or other equipment to prevent leaking while in transit.

4.9 Flowmeter

a) The fuel storage tank should use a flow meter for receiving fuel from the fuel truck.
b) All receiving fuel transactions should be based on the flow meter reading.
c) Fuel Pump Attendant has to ensure the flow meter is in good working condition.
d) The reading number of the flow meter should be recorded and signed by relative personnel.
e) This measurement is required to ensure there is no discrepancy between the actual fuel quantity in the fuel truck and the delivery order.
f) Record the initial and final reading at the flow meter and get the signature from both the Truck driver and Fuel Pump Attendant.
g) Fuel Pump Attendant to make sure the flow meter is calibrated and certified by Weight & Measure Authority (WMA) every quarter.

4.10 Refueling Vehicles, Plants & Equipments

Where practical, vehicles and mobile plant should be fuelled at the main fuelling station. Where on-site refuelling is necessary, control measures to be considered for refuelling include:

a) Fuelling away from any creeks, rivers and watercourses.
b) Fuelling away from sensitive vegetation areas.
c) The construction or placement of temporary bund walls to contain any spills.
d) Utilising tanker refuelling.
e) Ensuring all refuelling equipment is in good condition and suitable for the tasks.
f) When refuelling small, powered tools, use pourers or funnels and avoid overfilling.
g) Having a suitable spill kit available and having personnel competent with its use.
h) All petroleum wastes must be stored in appropriately sealed containers before removal from the site.

4.11 Refuelling of Stationary Plant

a) Plants that cannot be readily driven or transported to the refuelling location will be refuelled in situ.
b) Persons responsible for refuelling plants in situ shall ensure that refuelling is carried out in a safe and environmentally conscious manner, with due diligence to issues such as earthing, isolation of ignition sources and the prevention of spills.
c) The owner or operator of the equipment shall arrange for refuelling.

4.12 Storage of Fuel, Lubricants and Chemicals

The following safety precautions must be taken when storing fuel, lubricants, and chemicals:

a) The bulk storage of liquids and chemicals is to be suitably bunded to ensure that any accidental spills or leaks are contained.
b) Any large quantities of hazardous chemicals must be stored in a bunded storage area away from work activities.
c) Storage of bulk fuel and lubricants must have advisory signage and fire protection equipment nearby.
d) Storage of chemicals must be in the manufacturer's packaging whenever awaiting use.
e) No bulk quantities of hazardous chemicals are to be stored on-site without approval from management.
f) Always seek to find a substitute product wherever a chemical is found to be environmentally less than optimal.
d) Safety data sheets must be available for all chemicals stored on site.

4.13 Refueling With a Can

a) Use approved 20L fuel can with nozzle or funnel to avoid splashing fuel on the engine or frame of the equipment.
b) Fill slowly and listen to air coming out of the can as the fuel pours in. As the can nears the full level, air will come out faster, and the pitch will get higher. Stop before the tank is full. Leave 5 percent empty to allow for expansion of the tank.
c) When the tank is full, let the fuelling nozzle drain for a few seconds before removing it from the fuel port to prevent dripping.
d) Replace the filler cap.

4.14 General Safety

a) Unloading activities shall always be completed by trained personnel.
b) Fuel bay attendants must ensure that truck drivers are fully trained, provided with safety instructions, and wearing proper PPE whilst on site and during the unloading process.
c) The engineering department shall ensure appropriate inspection, testing, and maintenance with formal records for all equipment in the process, including the vehicle.
d) Appropriately rated devices, equipment, vehicles, clothing, and footwear for classified areas (with a flammable or explosive atmosphere) must be used.
e) Smoking cigarettes and other sources of heat near the operation is strictly prohibited.
f) Temporary barriers to prevent vehicle or personnel movements must be used during unloading activities.

g) Clearing overhead obstructions.

h) Clear and appropriate safety signages, with relevant information displayed from either side of the unloading point.

i) No other activities are to be completed at the same time as the unloading operation is in progress.

j) Housekeeping, vegetation growth, and waste control shall be maintained to the highest standards.

4.15 Spills / Leaks Management

a) Remove all sources of ignition near the fuel bay and unloading area.

b) Absorb all spills using absorbent, non-combustible materials such as earth and sand.

c) Do not use combustible materials such as sawdust.

d) Do not get water inside containers

e) When a spill occurs approach it from upwind.

f) Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures.

g) Control runoff and isolate discharged materials for proper disposal.

h) Spills are to be contained immediately.

4.16 Potentail Hazard

a) Fire and explosion - No smoking, naked flame, or ignition sources

b) Absorption - Apron, gloves and safety glasses

c) Inhalation of fumes - Ventilate area

d) Splash injuries - Cut off nozzles, PPE

4.17 Fuel Theft Monitoring

a) Accurately Measure and record flow meter readings during the unloading process

b) Daily stock reconciliation of received and dispensed fuel

c) Security Seal inspections and management.

d) Water detection and drainage to detect possible substitution of fuel with water.

e) Physical inspections of Equipment, fuel lines, and seals.

f) Inspection and reporting of defective Equipment's Odometer / Hour meters.

g) Restricted access to fuel dispensing area and storage facilities.

h) End-to-end reconciliations to detect variances.

i) CCTV monitoring of fuel dispensing area.

4.18 Training

All individuals involved in the loading and unloading process must be competent to undertake the role and responsibility required of them. Training for fuel unloading operations involving potential hazards is essential, and should cover:

a) What is normally expected to happen?
b) What could happen in several emergencies?
c) How people are expected to respond.
d) Own personnel and contractors or third parties.
e) Hazards associated with the substances (diesel) being unloaded.

4.19 Emergency Response

Appropriate formal emergency response plans should be in place for unloading activities. These should consider what could fail, what could go wrong, and how it could escalate. The plan should be practiced at least annually and ideally involve the TNCL-ERT and diesel supplier.

5. SYSTEM EVALUATION

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

6. DISTRIBUTION

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

Table 2: Distribution

Copy	Controlled Document Folder Location
Master	Controlled Documents Central Filing System

7. 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.

8. DOCUMENT CHANGE PROCESS

The process of document change starts when the document custodian identifies there is a 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.

8.1 Reason for Change

Table 3: 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

8.2 History of Change

Table 4: History of Change

Date of Change	Revision No	Revised Item (paragraph Number reference if required)	Reason Code	Name of Reviewer

9. RECORD CONTROL

Table 5: Record Control

Document Title:	Document ID:	Responsible for Maintenance	Responsible for Filling:	Location of Storage:	Retention Period:	Method of Disposal:
Fuel Managemet Procedure	TNCL-PRO-SOP-0002	Document Controller	Document Controller	OHS Department	Hard Copy two Years	Hard copy shared file electronic

10. 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
1.					
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11. APPENDIX -1: Unloading Checklist

Location			
Date			
Completed by (name and signature)			
	Truck Loading and Unloading	Y/N	Comments
1.	Have specific hazard and activity risk assessments been completed and are these regularly reviewed?		
2.	Are the physical characteristics of diesel fully understood? a) At the expected temperature and pressures within the tanker or storage vessels? b) If it were released at expected worst- and best-case atmospheric conditions? c) Is it a liquid, gas, or solid? d) Is it explosive, flammable, or toxic? e) Does it create static? f) Is it likely to cause erosion or corrosion to the transfer network? g) Is it water miscible? h) If a gas or a vapor is generated, is it heavier than air?		
3.	Does the nature of the tanker and unloading station increase the risk posed, due to: a) Nature of the surface and its porosity? b) Gradient of the surface? c) Distance from exposed assets including buildings, tanks, and equipment? d) Distance from any pumps or control features associated with the activity itself. e) Other transport passing by or in proximity? f) Being in a roadway? g) Other loading and unloading stations? h) Drains or similar nearby. i) Rivers or streams nearby? j) Nature of the surrounding areas? k) Any overhead obstructions?		
4.	When considering the nature of the material and the location of the activity, do the risk assessments include the maximum and minimum expected: a) Wind conditions? b) Ambient temperature? c) Rainfall? d) Humidity?		