
	STANDARD OPERATING PROCEDURE	Document ID:	TNCL-OHS-SOP-0020
		Document Owner:	OHS Manager
	PERSONAL PROTECTIVE EQUIPMENT PROCEDURE (PPE)	Revision:	02
		Approval Date:	25 <sup>th</sup> August 2023









# PERSONAL PROTECTIVE EQUIPMENT PROCEDURE (PPE)


## TNCL-OHS-SOP-0020



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## 1. DEFINITIONS


Table: 1

<b>Personal Protective Equipment:</b>	Any clothing, equipment and substance designed. a) To be worn by a person; and/or b) To protect the person from risks of injury or illness.
<b>International standards:</b>	International standards: European, American or Australian Standards

## 2. ABBREVIATIONS

Table: 2

TNCL	Tembo Nickel Corporation Limited
OHSA	Occupational Health and Safety
OHS	Occupational Health and Safety
HOD	Head of Department
MSA	Mine Safety Appliances
PPE	Personal Protective Equipment
SOP	Standard Operating Procedures
REP	Respiratory Protective Equipment
HV	High Voltage

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### 3. INTRODUCTION

#### 3.1 Scope

This document establishes a procedure for the selection, provision, and use of Personal Protective Equipment (PPE) and clothing for TNCL employees and contractors.

#### 3.2 Purpose

To provide a procedure for Personal Protective Equipment (PPE) that includes any item of clothing, equipment or a device designed to protect a person from risks of injury or illness and the operation is conducted in a safe and effective manner to achieve our goal of ZERO HARM.

#### 3.3 Legislation

Reference to the Occupational Health and Safety Act, No 5 of 2003; section 62,


"Where in any factory or workplace, workers are employed in any process involving exposure to any injurious or offensive substance. Or environment, effective protective equipment shall be provided and maintained by the employer for the use of the persons employed".

It is an obligation of a person in the project area to correctly wear and or use personal protective equipment, in accordance with the requirements of this procedure, appropriate to the location and type of work.

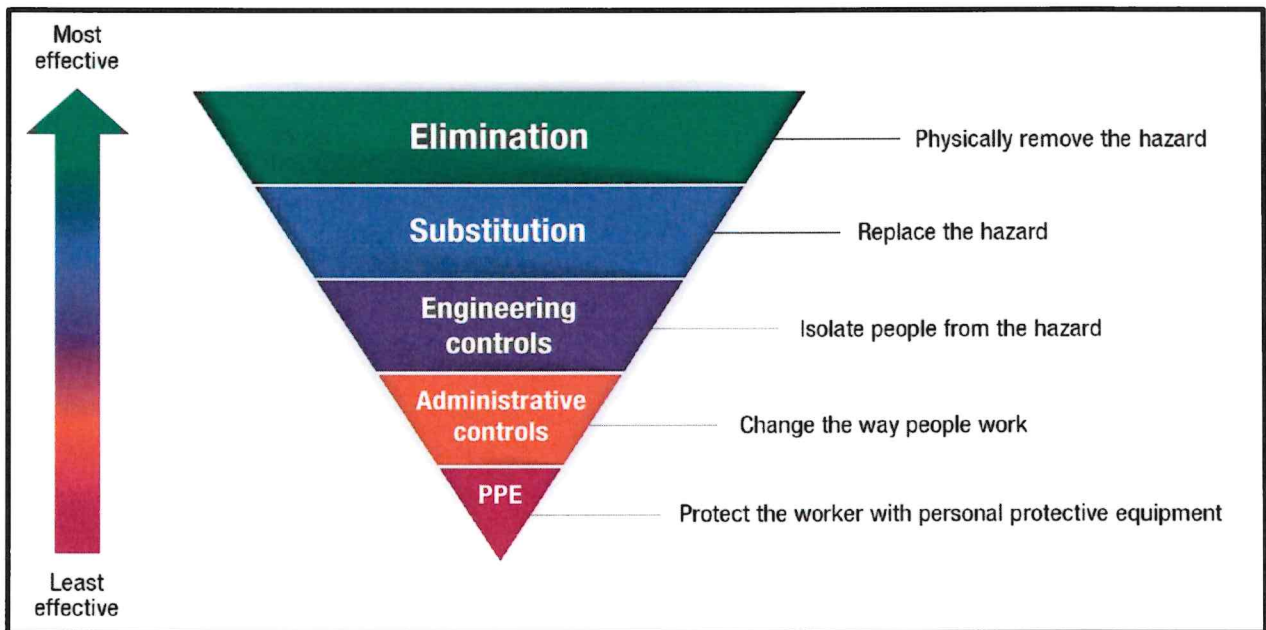
The use of PPE should be the last option as per the Hierarchy of controls. Other effective control measures should be engaged, including elimination, substitution, engineering and administrative controls.

All employees who may be required to wear personal protective equipment should be instructed and trained to ensure that they understand when it should be used, how it should be maintained and its limitations.

Visitors to the project area must also comply with this personal protective equipment procedure and will be issued with appropriate PPE on arrival to the site to be signed for by respective departments and returned on departure from the site.

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**Figure 1: Hierarchy of controls**



#### 4. PPE ZONES

##### **Offices and Accommodation- Green zone:**

Areas where no mining or construction activities occur. No PPE is needed for these areas, however all employees and visitors must adhere to the basic dress code of the mine environment when on site as outlined below.


The following may not be worn in the Green areas:

- a) Any open shoes
- b) High heels
- c) Sandals
- d) Short trousers
- e) Short skirts
- f) Sleeveless vest
- g) Gym clothes
- h) Any other revealing clothes

If any construction work is conducted in the green area, then full PPE must be worn as per the SOP and risk assessment for the specific job will be worn.

##### **Project area - red zone**

All active working sites outside the camp area, workshops, drilling sites, construction sites and powerhouses- General PPE and job-specific PPE must be worn according to the risk profile.

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## 5. GENERAL PROCEDURE

### 5.1 Selection of PPE

Personal Protective Equipment shall be selected based on the risk assessment. When selecting Personal Protective Equipment, the following general principles should be considered by persons conducting risk assessment:

1. Be familiar with the nature of the work and associated risks.
2. The PPE must provide an adequate level of protection against the risks and not create other hazards.
3. If several types of PPE are required, they should be compatible and able to be worn together.
4. Adequate and fitting correctly.
5. Comfortable.
6. The selection of PPE shall be determined in accordance with the appropriate, acceptable International Standard.


#### 5.1.1 Women in Mining Related PPE

The following minimum requirements must be provided for female employees and adhered to at all times:

- a) Approved and appropriate overalls for Females
- b) Sanitary pouches for Ladies
- c) Hair protection.
- d) Underground Ladies T-shirts.
- e) Ladies' safety boots and footwear

### 5.2 Issue of PPE

1. All TNCL employees will receive PPEs as per the operational requirement.
2. Each employee will be required to sign their issue.
3. Replacement of items will be strictly on an exchange basis only (Old for new).
4. A loss report must be produced by the HOD before a new PPE can be issued for those who have lost their PPE for any reason, e.g., theft, misplacement, etc.
5. A special PPE will be issued as per the Risk profile of the task conducted.
6. All specific PPE issues and exchanges shall be countersigned by the HODs and OHS managers or their designers.
7. Refer to TNCL-OHS-FRM-0004 PPE issue form.

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**Table 3: Distribution of PPE per employee**

General PPE	Quantity
Safety Boot	One every two years
Shirts	Two Per annum
Reflective vest	One Per annum
Safety Glasses	One Per annum
Hard hat	One every three years

\*\*For specific PPE will be distributed as per the risk profile and operational requirements.

**Table 4: Identifies the required PPE for all Workplaces at TNCL**

WORKPLACE	PPE
<b>Job specific</b>	General PPE plus the following: Coveralls or - Reflective Gloves; Earmuffs; Ear Plugs; Welding Gloves; HV Gloves (Electrical); Safety Harness; Lanyard; Goggles; Welding Helmet; Reflective Vest; Rubber Gloves, RPE, chemical suits
<b>General/Mandatory</b>	Safety boots, Safety Glass, Hard Hat, high visibility vest/ shirts

### 5.3 Purchase of PPE


All PPE purchased must conform to acceptable international standards. PPE items must be purchased from suppliers who ensure that only Internationally approved PPE will be provided.

### 5.4 Use of PPE

Personal Protective Equipment shall be used in accordance with the manufacturer's instructions and per onsite HIRA. Employees shall inspect her/his PPE **before use** to check the equipment is in standard condition. The employees should ensure that they adhere to the PPE use as per onsite recommendations and per OHS. Failure to comply will be defined as a breach of our company's core values, of which, Safety is our top priority.

In summary, the following must be adhered to:

1. Only appropriate pants must be worn together with the reflective shirt or reflective vest. No loose clothing is allowed to be worn onsite.
2. All persons on traffic duty are to always wear reflective vests (an appropriate man-machine interactions barrier must be in place).

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### 5.5 Storage and maintenance of PPE

Provide separate containers or storage facilities for protective equipment and protective clothing when not in use. Take steps to ensure that all protective equipment and protective clothing not in use are stored in a demarcated area with proper access control. Provide sufficient hazardous waste containers for disposal of used personal protective equipment. Damaged or defective PPE **SHALL NOT BE USED** and should be reported to the supervisor and returned to the supply chain department for replacement as described in this procedure.

## 6. SPECIFIC REQUIREMENTS FOR PPE

### 6.1 Head Protection

#### 6.1.1 Hard hat

Hard hats must be worn as per the PPE zones described above, section 4.0. Attachments such as earmuffs, visors, lamp brackets and cable clips can be fitted to safety helmets.

**Table 5: Examples of Hard hats**

Surface	Underground	Sun Protection
		


#### 6.1.2 Hair

Employees with long hair that could be caught in machines must tie their hair back or wear protective hair nets.

### 6.2 Eye Protection

Safety glass with side shields should be used in all areas where there is the possibility of eye damage from flying particles. Goggles should be used when extra eye protection is required, for example, grinding or splashing. Dark-tinted glasses shall not be worn inside buildings.

The prescription glass that doesn't qualify as safety glass will not replace the safety glass.

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**Table 6: Examples of safety glasses**



### 6.3 Hearing Protection

Hearing protection must comply with International Standards: The control of noise at work should comply with the onsite Hearing Conservation Program SOP  
The following are examples of hearing protection devices.

**1 Earmuffs:**


The earmuffs must be fitted to the hardhat with the provided clips that will fit most designs.

**2 Ear Plugs:**

Foam ear plugs are for single use only and must be replaced daily.

**Table 7; Examples of Hearing protection devices**



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#### 6.4 Respiratory Protection

Respiratory protection must comply with International Standards. The control of airborne respiratory hazards must comply with the onsite Respiratory Equipment Protective Program SOP:

**Table 8: Examples of Respirators**


3M N95 Dust Mask	3M Shaped FFP2 Dust	3M 9320A+
		

#### 6.5 Cap lamp

Cap lamps must provide sufficient lighting in underground conditions for a minimum period of 12 hours every day. Consists of light-focusing technology using an LED source that provides spare capacity for auxiliary systems. Cap lamps must be worn and switched on by all employees always conducting work underground.

**Table 9: Examples of Camp lamp**

MSA Litepak	
	

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### 6.6 Miner Belt

Miner belts must comply with international standards for underground mines. The MSA Miner's Belt is a utility belt designed to carry emergency equipment. The Miner's Belt is also fitted with a metal D-ring for connecting a safety line or lanyard for restraint to prevent the user from reaching a hazard zone. The load-bearing portion of the belt is constructed of nylon webbing, 1 inch (44 mm) wide. Some versions of the Miner's Belt include a nylon body pad sewn to the inside of the belt. The miner's belt may be equipped with either a metallic turn buckle or friction buckle clasp.

**Table 10: Examples of miner belt**


Norguard miners' belts	Miners back support tool belt - CSEB
	

### 6.7 Self-Rescuer

W65 Self Rescuer MSA 455299 Oxygen Self Rescuer/ Oxygen Self Rescuer K-SB60. Belt mounted with a service time of 20 minutes at a consumption rate of 35LPM and a maximum storage life of 10 years.

**Table 11: Examples of Self-Rescuer**

Oxygen Self Rescuer K-SB60	W65 Self Rescuer MSA 455299
	


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## 6.8 Hand Protection

Hand protection must comply with International Standards on Occupational Protective Gloves. Gloves are available in many different materials, depending on the protection required. The selection must be based on the protection required for the hazards involved.

**Table 12: Examples of Gloves**







General safety Hand Gloves	Nitrile Chemical Hand Gloves	Hand Gloves for Mechanics & Tradesman
		
Electrical Safety Hand Gloves	Household rubber cleaning gloves	Disposable Nitrile Gloves
		
Latex powdered gloves	Cut Resistant Gloves	
		

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**6.9 Foot Protection**

Foot protection must comply with International Standard for Occupational Protective Footwear. All footwear must have steel toe protection. Different brands are available on the market, Blundstone 992 Zip Safety Boots, Jonson, Bova Safety boots, and Safety Girl Steel Toe Work Boots; a few samples have been indicated below as reference.

**Table 13: Examples of safety footwear**

<p><b>Jonsson Safety boots</b></p> 	<p><b>Bova Safety boots</b></p> 	<p><b>Safety Girl Steel Toe Work Boots</b></p> 
<p><b>Safety men Steel Toe Work Boots</b></p> 	<p><b>Shosholoza – Orange Dot-underground</b></p> 	<p><b>Shosholoza – Green Dot</b></p> 


### 6.10 Clothing

Clothing must comply with International Standards on Occupational clothing. The following are available clothing depending on the nature of work to be performed in the project area:

- 1 Shirt and Pants
- 2 Coveralls
- 3 Reflective vest
- 4 Hazmat Suit (Chemical suit)
- 5 Raincoats
- 6 The wader must be worn in areas where the pumping of water is done and when entering the water.

**Table 14: Examples of protective clothing**

<b>Shirt</b> 	<b>Pants</b> 	<b>Reflective vest</b> 
<b>Coverall</b> 	<b>Chemical suit</b> 	<b>Wader</b> 
<b>Disposable chemical suit</b> 	<b>Raincoat</b> 	<b>Rain suit</b> 

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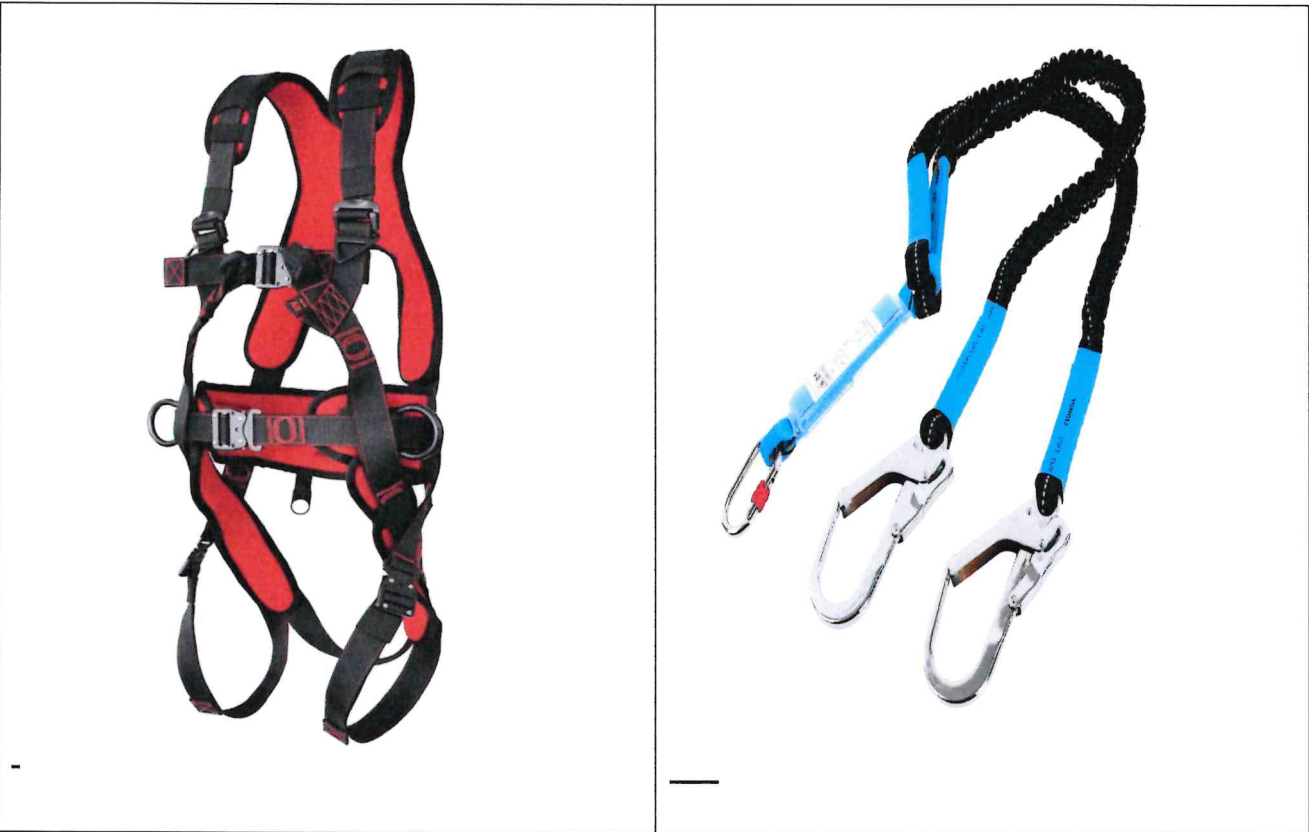
**6.11 Fall-arrest Devices.**


**Fall arrest devices must comply with International Standards:**

Fall-arrest equipment should be designed and used to reduce the possibility of injury if a worker falls. Thorough training in the use of these devices is essential, as serious injury can result if they are incorrectly used. The Full body harness shall consist of a miner's belt, trauma strap and two lanyards which is the only approved harness that complies with international safety standards.

All employees working at heights or near open holes must always wear a full-body harness. Mandatory when working at heights and open holes.

**Table 15: Example of Safety Harness (Spiderweb double Lanyard)**



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## 6.12 Welding Protection

Face shields provide additional protection against high temperatures, high density/impact particles or chemical splashes, for example, washing concrete trucks with diluted hydrochloric acid. Eye-protection equipment should comply with international standards. The hazards associated with welding require special protection for employees, including:

- 1 Welding helmets incorporating a shade filter cover lens.
- 2 Face shields when grinding.
- 3 Leather aprons.
- 4 Spats, leggings.
- 5 Gloves; and
- 6 Respiratory protection when necessary

**Table 16: Examples of welding protection PPE**



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### 6.13 Body Protection

Employees working close to machinery must wear close-fitting and close-fastened garments that cannot get tangled in machinery. Do not wear jewellery or personal ornaments near machinery. Polyester/cotton blend uniforms should be avoided whenever employees must perform welding or flame-cutting tasks where there is a potential risk of fire.

Cotton uniforms should be provided in the above situations, and, if necessary, flame-retardant material should be used. Coveralls are required to protect people when engaged in dirty tasks and may be cotton or disposable.


Aprons may be made from rubber, PVC, or leather and may be heavy or lightweight. They are required when extra body protection is needed (for example, welding and handling chemicals).

### 6.14 Aluminized Jacket

Employees working in the refinery must wear an Aluminised jacket with heat-protected gloves and a face shield when working in high temperatures.

**Table 17: Aluminised Jacket**



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### 6.15 Switching Suit

An electrical arc flash is a condition that is created by the sudden release of electrical energy. An electrical arc flash originates from a breakdown in the insulation medium. When an electrical current passes through ionized air, an accidental short circuit links across two conductors (phases), creating conductive plasma, which causes the electrical arc or arc flash.

The heat generated from the arc flash (plasma) is predominantly infrared radiation and can exceed temperatures around 20 000°C. Workers operating on electrical equipment posing an electrical arc flash hazard must wear the switching suit to prevent the burning of the skin if an arc flash should occur.

**Table 18: Examples of Switching suits.**



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## 7. CLEANING AND DISINFECTION OF PERSONAL PROTECTIVE EQUIPMENT

### 7.1 Cleaning

The removal of gross contamination, organic material, and debris from the premises or respective structures via mechanical means like dry cleaning and/or using water and soap or detergent (wet cleaning). The goal is to minimize organic material so disinfection can be effective.

### 7.2 Disinfection

Methods are used on surfaces to destroy or eliminate a specific species of infectious microorganism through physical (e.g., heat) or chemical (e.g., disinfectant) means. A combination of methods may be required.

### 7.3 Prohibition

No personal protective equipment will be used before the cleaning and disinfection. Therefore supervisors/managers must ensure any used PPE must be cleaned and disinfected before it can be issued to another person.

### 7.4 Context

Tembo Nickel Company has a well-established labour policy that also takes into consideration the community around the mine. Some of these community members are employed as casual labour in the mine, and they are rotated after every fourteen days. Therefore, it is not reasonably practicable to invest in buying new PPE after every fourteen days. Thus, the cleaning and disinfection of PPE will be conducted.


#### **Type of PPE that will be reused and therefore subjected to cleaning and disinfection.**

The following PPE will be subjected to cleaning and disinfection before being reused:

- a) Safety boots
- b) Gumboots
- c) Safety glasses
- d) Leather Gloves
- e) Heavy-duty rubber gloves
- f) Reflective vest
- g) Shirts
- h) Hard hat
- i) Respirators

#### **Type of PPE that should NEVER be reused, therefore, should be disposed of.**

- a) Disposable gloves
- b) Disposable mask, e.g., Surgical mask

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## 7.5 Donning (Wearing of PPE that will be reused)

### Safety boots/Gun boots, leather gloves, and hard hat

Cotton socks at the leg height size must be worn before wearing safety boots and gum boots. The employee must have more than two pairs of socks that must be changed daily. For gloves and hard hat, disposable liners must be worn before wearing leather gloves and hard hat.

### Respirators

All respirators that should be reused must be stored properly in clean containers after being cleaned and disinfected. The respirators are prone to wear and tear, especially the rubber that will ensure sealing when wearing them. The respirators must be cleaned immediately after use.

## 7.6 The procedure of cleaning and disinfection of PPE

### Shirts, vests, and socks

Shirts, vests, and socks should be washed with clean, warm water and soap. After washing, they should be sun-dried. For the socks after washing, then they should be soaked in the diluted sodium hypochlorite solution for ten minutes. The dilution concentration should be 150mls of sodium hypochlorite to 1000mls of water (1:7).


### Boots (safety and gumboots)

All gum boots must be cleaned with warm water and soap; then, after being dried, they must be dipped in the diluted sodium hypochlorite solution for ten to thirty seconds.

For the safety boots, the inners of the boots must be cleaned with a clean cloth that has been dipped in the diluted sodium hypochlorite solution. If the safety boot has been soiled, use a regular cleaning procedure to ensure the inners are disinfected, as above.

### Respirators

- a) Check the face piece for cracks, tears, and dirt. Be certain the facepiece, especially the face seal area, is not distorted.
- b) Examine inhalation valves for signs of distortion, cracking, or tearing.
- c) Make sure that head straps are intact and have good elasticity.
- d) Examine all plastic parts for signs of cracking or fatigue. Make sure filter gaskets or seal areas are in good condition.
- e) Remove the exhalation valve cover and examine the exhalation valve and valve seat for signs of dirt, distortion, cracking, or tearing. Replace the exhalation valve cover.
- f) Inspect the lens of full facepiece respirators for any damage that may impair their performance or vision. Cleaning is recommended after each use. Use Respirator Cleaning Wipes as an interim method in the cleaning schedule for individually assigned respirators, but this should not be the only method in place.
- g) Remove cartridges and filters.

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- h) Clean the face piece (excluding filters) by immersing it in a warm cleaning solution; the water temperature should not exceed 50° C, and scrub with a soft brush until clean. Add neutral detergent if necessary. Do not use cleaners containing lanolin or other oils.
- i) Disinfect the facepiece by soaking in a solution of quaternary ammonia disinfectant or diluting sodium hypochlorite (30 ml household bleach in 7.5 L of water).
- j) Rinse in fresh, warm water and air dry in a clean, non-contaminated area.
- k) Inspect the respirator components prior to reassembly. A respirator with any damaged or deteriorated components must be repaired or discarded.
- l) Store the clean respirator away from contaminated areas when not in use.

## 8. REGULATIONS / STANDARDS / RELATED DOCUMENTS

- Tanzania Mining Regulations 1998
- TNCL Baseline Risk Assessment
- TNCL-OHS-SOP-0018, Hearing Conservation Program

## 9. SYSTEM EVALUATION

This procedure shall be reviewed at least after two years by members of the OHS 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.

## 10. DISTRIBUTION

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

Copy	Controlled Document Folder Location
Master	Controlled Documents Central Filing System


## 11. 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.

## 12. 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.

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### 12.1 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

### 12.2 History of Change

Date of Change	Revision No	Revised Item (paragraph Number reference if required)	Reason Code	Name of Reviewer
3 <sup>rd</sup> March 2023	01	All pages	H	Akida Waria
25 <sup>th</sup> August 2023	02	Page 7 & 8	I & C	George Norval

## 13. RECORD CONTROL

Document Title:	Document ID:	Responsible for Maintenance:	Responsible for Filling:	Location of Storage:	Retention Period:	Method of Disposal:
Personal Protective Equipment Procedure	TNCL-OHS-SOP-0020	Document Controller	Document Controller	OHS	Hard Copy two Years	Hard copy shared file electronic



**STANDARD OPERATING  
PROCEDURE**


**PERSONAL PROTECTIVE  
EQUIPMENT PROCEDURE (PPE)**

Document ID:	TNCL-OHS-SOP-0020
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#### 14. 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.					
2.					
3.					
4.					
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6.					
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**APPENDICES:**

**Personal Protective Equipment Issue Form**

	STANDARD FORM	Document ID:	TNCL-OHS-ISM-0004
	PPE ISSUE FORM	Document Owner:	OHS Manager
		Revision:	01
		Approval Date:	18 <sup>th</sup> August 2023

**PERSONAL PROTECTIVE EQUIPMENT(PPE) FORM**

<b>Date:</b>	
<b>Employee Name:</b>	
<b>Employee ID:</b>	
<b>Department:</b>	
<b>Company Name:</b>	
<b>Cost center:</b>	

**Reason for PPE issue (Tick the relevant box-)**      **Order Status (Tick the relevant box-)**

NEW     Reissue                       Bulk order     Individual order

**Reason for reissue:**

Description	Quantity Issued	Quantity Received
Chemical Suit		
Coveralls		
Ear muffs		
Ear plugs		
Gumboots		
Hard Hat		
Leather Gloves		
Pants		
Raincoat		
Reflective vests		
Rubber Gloves		
Safety Glasses		
Safety Goggles		
Safety Harness		
Safety/Miner Belt		
Safety shoes/boots		
Shirts		
Welding Gloves		
Welding helmet		

**Other**  
**Items(specify)**.....

**Approvals:**

HOD Name	HOD Signature	Date

Version No: 01

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