




STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
	Document Owner	OHS Manager
MALARIA CONTROL PROGRAM	Revision No	01
	Approval Date	08 th April 2024







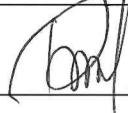
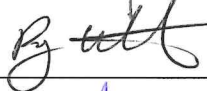

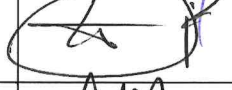

STANDARD OPERATING PROCEDURE MALARIA CONTROL PROGRAM

TNCL-OHS-SOP-0009



	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
	MALARIA CONTROL PROGRAM	Document Owner	OHS Manager
Revision No		01	
Approval Date		08 th April 2024	

APPROVALS:

Title	Name	Signature	Date
Author	Dr Fredrick J Weinand		08/04/2024
Chairperson Standard Committee	PP Walterblanca Mellows		08/04/2024
Worker's Representative	Beatha Kisaka		08/04/2024
SHE Representative	VIVIAN OTIENO		08/04/2024
Finance Team	PP MARTHA JOSEPH		08/04/2024
Procurement Team	MARTHA JOSEPH		08/04/2024
Environment Manager	Florence Nyuki		08/04/2024
Geology Manager	Ray Kohlsmith		12/04/24
Engineering Manager	Sarahi Ally		8/4/2024
OHS Manager	PP Dr. Fredrick		08/04/2024
General Manager	PP. Turwo Mswya		12/04/24


	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM	Revision No	01
		Approval Date	08 th April 2024

Table of Contents

1. INTRODUCTION 5

2. DEFINITION AND ACRONYMS 5

3. RESPONSIBILITIES 5

3.1 Occupational Health and Safety Manager (OHS Manager) 5

3.2 Environmental Manager 5

3.3 Vector Control Officers 5

3.4 Human Resources and Facilities Manager (HR Manager) 6

3.5 Engineering Leads 6

3.6 Contractors 6

3.7 Room occupants and employees 6

4. PROCEDURE 6

4.1 Background: 6

4.2 Causes of Malaria 7

4.3 How is malaria transmitted or spread? 7

4.4 Behaviour of Mosquito 7

4.5 The life cycle of a Mosquito 7

4.6 The incubation period of malaria: 9

4.7 Symptoms and signs: 10

4.8 Treatment 10

4.9 Malaria Prevention Program 10

 4.9.1 Vector control: 10

 4.9.2 Early diagnosis 12

 4.9.3 Malaria chemoprophylaxis 12

 4.9.4 Malaria Travel Pack 13

 4.9.5 Training 13

5. SYSTEM EVALUATION 13

6. DISTRIBUTION 13

7. CONTRAVENTION 13


8. DOCUMENT CHANGE PROCESS 14

8.1 Reason for Change 14

8.2 History of Change 14

9. RECORD CONTROL 14

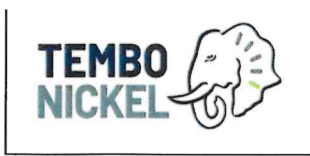
10. DECLARATION 15

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM	Revision No	01
		Approval Date	08 th April 2024

List of Figures

Figure 1: Life cycle of the Mosquito..... 8

Figure 2: Malaria transmission cycle..... 9



STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
	Document Owner	OHS Manager
MALARIA CONTROL PROGRAM	Revision No	01
	Approval Date	08 th April 2024

1. INTRODUCTION

The purpose of this procedure is to provide a step-by-step malaria control process to protect people from malaria and provide awareness of the malaria control program in place on-site.

2. DEFINITION AND ACRONYMS

Terms	Definition
TNCL	Tembo Nickel Corporation Ltd
OHS	Occupational Health and Safety
SP	Sulfadoxine Pyrimethamine
ITN	Insecticides mosquito treated nets
IRS	Indoor residual spraying
PV	Plasmodium Vivax
PF	Plasmodium falciparum

3. RESPONSIBILITIES

3.1 Occupational Health and Safety Manager (OHS Manager)

The OHS manager must ensure the program is up and running by providing necessary support, including ensuring that the clinic is equipped with personnel, equipment, medications, and other resources necessary for the program.

3.2 Environmental Manager

The manager must ensure the vector control team is equipped with chemicals, Personal Protective Equipment (PPE) and expertise needed for Indoor residual spraying. Also, he must ensure the larviciding chemicals are in place. The environmental manager must also ensure all of the mosquito breeding sites are effectively controlled.

3.3 Vector Control Officers


Ensure that the pumps and related equipment for the IRS are available and functional.

Ensure the IRS schedule is developed, communicated and implemented as per schedule.

Work with engineering, camp facilities or any other relevant department to eradicate the mosquito breeding areas around the camp and working areas.

Update and re-stock the inventory of the IRS, larvicide, and herbicides and advise the environmental manager of any deficit upfront.

Work with the Malaria control committee to conduct monthly inspections for malaria control.

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
	MALARIA CONTROL PROGRAM	Document Owner	OHS Manager
Revision No		01	
		Approval Date	08 th April 2024

3.4 Human Resources and Facilities Manager (HR Manager)

The HR manager must ensure that the minimum requirement of the room regarding the malaria control program is met. This includes having effective insecticide mosquito-treated nets (ITNs) and mosquito repellents.

3.5 Engineering Leads

They must ensure that all rooms meet the minimum requirements for the malaria control program, including having mosquito wire meshes on the windows and ensuring there are no spaces under the doors that will allow the mosquitoes to enter the room.

3.6 Contractors

Each site manager must ensure that they adhere to the malaria control program. For their employees who are staying in the camps outside the TNCL camp, the site manager must adhere to the recommendations of this malaria control program SOP.

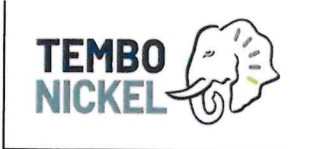
3.7 Room occupants and/or employees

The employees must make sure they sleep under ITNs during the night and also must adhere to the malaria dressing code when they are in camp. They are advised to do the same when they are at home or away from the camp. Employees must also follow all instructions given to them by the employer regarding all measures for malaria prevention. Finally, they must report any incident regarding the malaria control measures.

4. PROCEDURE

4.1 Background:

- Malaria is an acute febrile illness caused by Plasmodium parasites, which are spread to people through the bites of infected female Anopheles mosquitoes.
- According to the latest World Malaria report, there were 247 million cases of malaria in 2021 compared to 245 million cases in 2020. The estimated number of malaria deaths stood at 619,000 in 2021 compared to 625,000 in 2020.
- Tanzania recorded more than six million malaria cases in 2020. According to the local statistics at Tembo Nickel, the incidence of malaria by December 2023 was 3.20% compared with 4.65% in 2022.



STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
	Document Owner	OHS Manager
MALARIA CONTROL PROGRAM	Revision No	01
	Approval Date	08 th April 2024

4.2 Causes of Malaria

- Malaria is caused by a parasite called Plasmodium. Five species of Plasmodium malaria parasites infect humans, but only two are the most common ones in Tanzania. They are *Plasmodium falciparum* (PF) and *Plasmodium vivax* (PV).
- *Plasmodium vivax* can cause relapse or stay in the body and become active again.
- *Plasmodium falciparum* can cause severe malaria, which may result in death.

4.3 How is malaria transmitted or spread?

- Malaria sickness is spread from person to person through the bites of infected female *Anopheles* mosquitoes. See the diagram below:

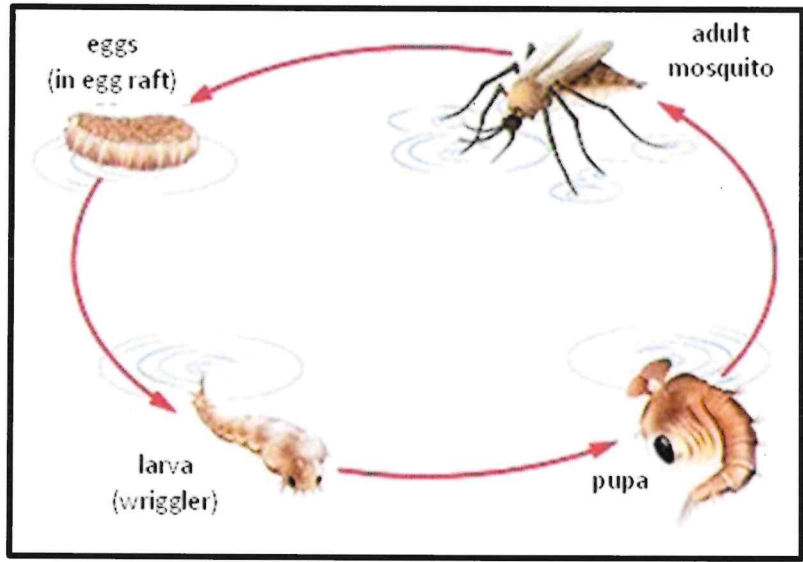
4.4 Behaviour of Mosquito


- Mosquitoes bite between dusk (5:00 – 7:00 in the evening) and dawn (5:00 – 6:00 in the morning).
- After a mosquito bite in the house, it flies and rests on the wall in a dark corner.
- Mosquitoes' flight range is from fifty meters to two kilometres.
- The *Anopheles* mosquito can live up to two months.
- Only female *anopheles* bite humans to obtain blood to produce eggs; thus, they can spread malaria.

4.5 The life cycle of a Mosquito

- The female *anopheles* mosquito lays eggs in pools of water in the blocked drains, coconut shells, tin cans, buckets, old tyres, old canoes and so forth.
- Female mosquitoes can produce 100-300 eggs at one time.
- It grows through four stages in its life cycle: egg, larva, pupa, and adult.
- The first three stages (egg, larva, and pupa) are aquatic (in water), and together they last 7 –14 days to become a young adult mosquito.
- A mosquito egg, larva, pupa and the new young adult do not carry malaria parasites.
- Mosquito breeding places can be found anywhere in our village and communities.

Figure 1: Life cycle of the Mosquito.

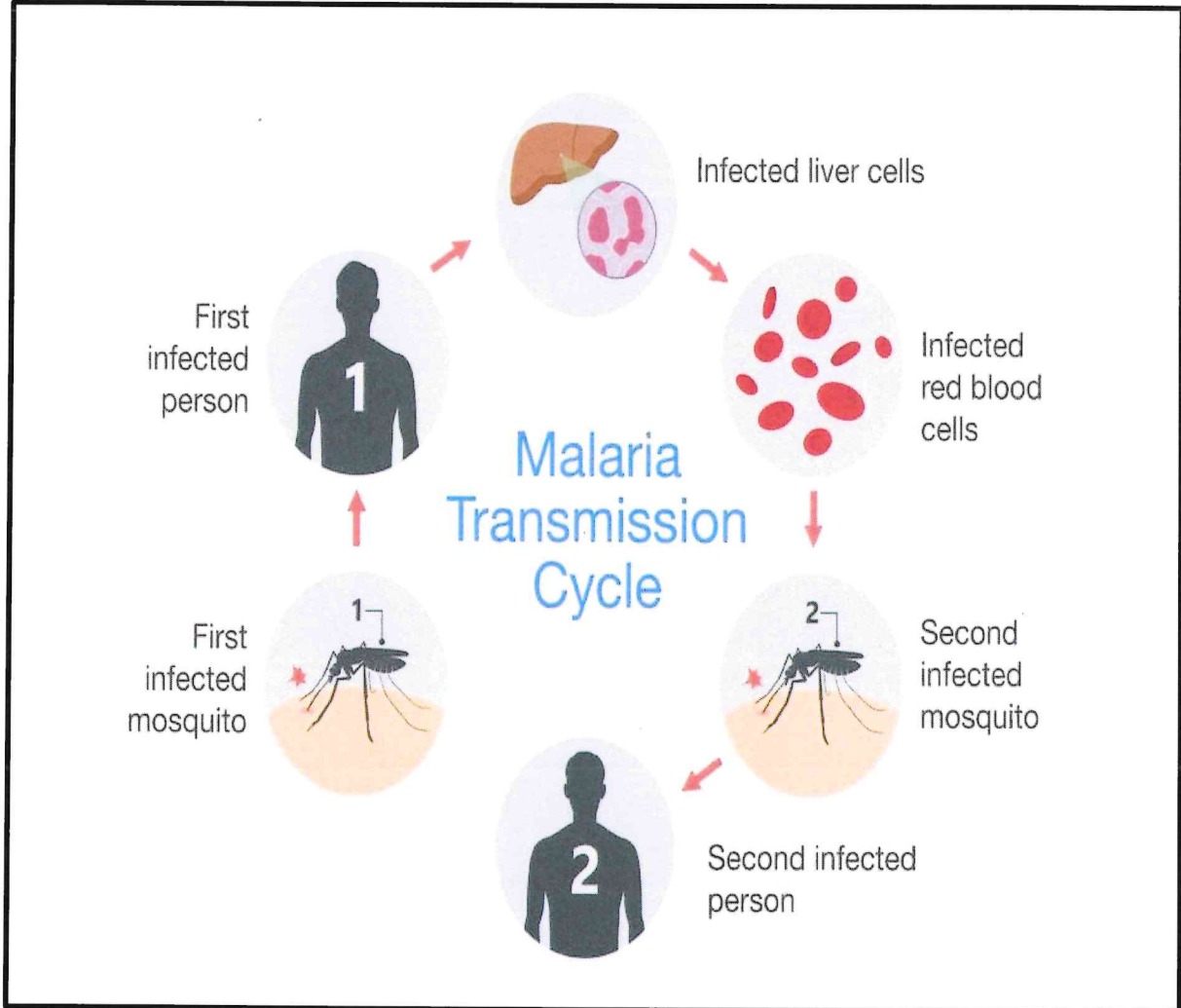


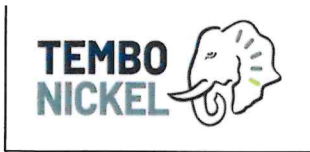
	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
MALARIA CONTROL PROGRAM	Revision No	01	
	Approval Date	08 th April 2024	

4.6 The incubation period of malaria:

The symptoms usually appear ten to fifteen days after the infective mosquito bite.

Figure 2: Malaria transmission cycle.





STANDARD OPERATING PROCEDURE	Document ID	INCL-OHS-SOP-0009
	Document Owner	OHS Manager
MALARIA CONTROL PROGRAM	Revision No	01
	Approval Date	08 th April 2024

4.7 Symptoms and signs:

The first symptoms are fever, headache, and chills. Other symptoms are headache, vomiting, diarrhoea, joint pain, abdominal pain, and loss of appetite. If left untreated, it can develop into severe malaria within twenty-four hours.

4.8 Treatment

Malaria is preventable and curable. Once you develop the above symptoms, report to the clinic as soon as possible.

4.9 Malaria Prevention Program

4.9.1 Vector control:


The vector control program is a vital component of malaria control and elimination strategies as it is highly effective in preventing infection and reducing disease transmission. The two core interventions are insecticide-treated nets (ITNs) and indoor residual spraying (IRS).

4.9.1.1 Indoor Residual spraying (IRS)

- It will be conducted by the environmental office through the Environment department.
- IRS will be conducted every three months (Once per quarter).
- The chemical that will be used is Actellic 500EC or other organophosphate insecticides for mosquito control that have a residual impact.
- All environmental officers doing the IRS will be under medical surveillance.
- The environmental manager must ensure that the SDS of the chemicals that are used will be submitted to the clinic before the commencement of the program.
- The environmental manager will ensure that all employees who are involved in the IRS receive proper training by a competent person and that they are certified to conduct the job annually.

4.9.1.2 Insecticides treated nets (ITN):

- The human resources manager, through the camp management, must ensure that each camp bed within the camp has a viable ITN.
- The ITN must be changed if washed more than twenty times or a lifespan of three years has lapsed.
- All damaged ITNs must be changed as soon as possible, regardless of when they were distributed.
- Non-camp residents who cannot afford ITNs should be eligible to receive ITNs annually whenever is reasonably practicable.

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM	Revision No	01
		Approval Date	08 th April 2024

4.9.1.3 Larva control

- This program will be introduced and conducted to control mosquito larvae during the wet season.
- This is because during this season, vector breeding efficiency and risk of infections are very high, and control of stagnant water is considered difficult.
- Larviciding will be done weekly by the environmental team to the areas where the breeding areas cannot be eradicated, e.g. the unsealed septic tanks and ponds.
- The chemical that will be used is **Biolarvicid / Device 2% GR**
- **All the requirements for the IRS will also apply.**

4.9.1.4 Fogging and Fumigation


- Fogging and fumigation have been found ineffective in the vector control program. The site will not implement this method.

4.9.1.5 Environmental clean-up

- Eliminate or destroy all mosquito breeding places and conduct general clean-up of bushes and tall grasses where they live.
- The malaria control program team will conduct the camp inspection monthly to identify all of the mosquito breeding sites and advise on the control measures and actions that should be taken immediately.

4.9.1.6 Mosquito Repellents

- All shift work employees must be given two mosquito repellants (no bite) per month. However, replacement must be done immediately in case the employee misplaces the repellants or in case he/she finishes the repellants before one month.
- For the contractors, their site managers must ensure they buy and distribute the mosquito repellant (no bite) to their employees as per the above schedule.
- The clinic will ensure that other employees who are at higher risk are also distributed for the same.
- The clinic will be responsible for ordering and distributing the repellants.

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM PROCEDURE	Revision	01
		Approval Date	08 th April 2024

4.9.1.7 Personal protection:

- Avoid sitting outside after 18:00 hours or in the dark unless it is necessary.
- For the camp residents, wearing loose- and long-sleeved clothes will reduce the body surface area from 18:00 hours to 06:00 hours or during dark, whichever comes first, is mandatory. This goes together with wearing covered shoes and NOT open shoes with socks.
- **Each room within the camp must have the following:**
 - ITNs
 - **Mosquito spray (Hit)**




4.9.2 Early diagnosis

- Rapid malaria diagnostic test will be used to diagnose malaria (Pf/Pan).
- All employees will undergo temperature and symptoms screening daily as part of the bigger picture of controlling other contagious diseases.
- Report to the clinic immediately once you have any symptoms and signs of malaria.

4.9.3 Malaria chemoprophylaxis

- All pregnant women will receive intermittent preventive therapy chemoprophylaxis (SP) to reduce the severity of malaria.

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM PROCEDURE	Revision	01
		Approval Date	08 th April 2024

4.9.4 Malaria Travel Pack

- All employees who come from non-countries where malaria is not endemic will be eligible to receive a malaria travel pack.
- We highly recommend that employees use Atovaquone/Proguanil (Malarone) one to two days prior to travelling to the malaria-endemic country, e.g., Tanzania. The employee should take one tablet every day and should continue for seven days after leaving the malaria-endemic country.
- All employees leaving the country for malaria-non-endemic countries will be prescribed anti-malaria medications and Paracetamol tabs.

4.9.5 Training

- Malaria awareness sessions will be conducted through the employees' toolbox meetings and departmental meetings.
- The malaria awareness sessions through departmental meetings will be conducted quarterly.

5. SYSTEM EVALUATION

This procedure shall be reviewed at least two years by members of the OHS department and presented to the Standard Committee for approval or when organisational 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.

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.

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM PROCEDURE	Revision	01
		Approval Date	08 th April 2024

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 and ready for use by the end users.

8.1 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

8.2 History of Change

Date of Change	Revision No	Revised Item (paragraph Number reference if required)	Reason Code	Name of Reviewer
08 th April 2024	01	All pages	G & I	Dr. F.Weinand

9. RECORD CONTROL

Document Title:	Document ID:	Responsible for Maintenance:	Responsible for Filling:	Location of Storage:	Retention Period:	Method of Disposal:
Malaria Control Program	TNCL-OHS-SOP-0009	Document Controller	Document Controller	OHS Department	Hard Copy two Years	Hard copy shared file electronic

	STANDARD OPERATING PROCEDURE	Document ID	TNCL-OHS-SOP-0009
		Document Owner	OHS Manager
	MALARIA CONTROL PROGRAM PROCEDURE	Revision	01
		Approval Date	08 th April 2024

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.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					