



SHWE TAUNG CEMENT COMPANY LIMITED

Biannual Environmental Monitoring Report

(May 2024 to October 2024)

This page is a record of all revisions of this document. All previous issues are hereby superseded and are to be destroyed.

0	November 2024	Bi-annual reporting to ECD			
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Rev	Date	Description	Prepared by	Checked by	Approved by



	SHWE TAUNG CEMENT COMPANY LIMITED	
	Bi-Annual Environmental Monitoring Report	

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အကျဉ်းချုပ်အစီရင်ခံစာ

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီလီမိတက် (STC) သည် မြန်မာနိုင်ငံရှိ စီးပွားရေးကဏ္ဍအသီးသီးတွင် လုပ်ငန်းမျိုးစုံကို လုပ်ကိုင်ဆောင်ရွက်နေသော ရွှေတောင်ကုမ္ပဏီအုပ်စု၏ လုပ်ငန်းတစ်ခုဖြစ်ပြီး မန္တလေးတိုင်းဒေသကြီး သာစည်မြို့နယ်၊ ပြည်ညောင်ကျေးရွာရှိ ဘိလပ်မြေစက်ရုံ စီမံကိန်းသည် STC ၏ clinker ထုတ်လုပ်မှုစွမ်းရည်ကို တစ်ရက်လျှင် တန်ချိန် ၁,၅၀၀ မှ တန် ၅,၅၀၀ နှင့် ဘိလပ်မြေပမာဏ တစ်နေ့လျှင် ၂,၈၀၀ တန် မှ ၇,၂၀၀ တန် အထိ တိုးချဲ့ရန် ရည်ရွယ်ပါသည်။ စီမံကိန်း၏တည်နေရာကို ပုံ (၁) တွင် ဖော်ပြထားပါသည်။

STC သည် ဘိလပ်မြေစက်ရုံတိုးချဲ့စီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) ကို ဆောင်ရွက်ရန် အတွက် Environmental Resources Management (ERM)-Hong Kong, Limited အား တာဝန်ပေးအပ်ခဲ့ပါသည်။

ဘိလပ်မြေစက်ရုံ ဧရိယာသည် ၂၀၁၆ ခုနှစ် မတ်လ ၃၁ ရက်နေ့တွင် သစ်တောဦးစီးဌာနမှ နှစ် ၅၀ သဘောတူညီချက်အရ ငှားရမ်းထားသော ဧက ၄၀၀ အတွင်း တည်ရှိပြီး ဘိလပ်မြေစက်ရုံ ပထမလိုင်းမှ အသုံးပြုသည့် ၄၅ ဧက အပါအဝင် ဒုတိယလိုင်းမှ ၁၅ ဧက၊ ရေအရင်းအမြစ် ဧက ၅၀၊ ဝန်ထမ်းအိမ်ရာနှင့် စားသောက်ဆောင်အတွက် (၈) ဧက ခွဲဝေပေးထားပြီး ကျန် ၂၈၂ ဧကကို လမ်းပန်းဆက်သွယ်ရေးနှင့် သစ်ပင်စိုက်ပျိုးခြင်းအတွက် အသုံးပြုပါသည်။ ၂၀၁၆ ခုနှစ် မတ်လ ၃၁ ရက်နေ့တွင် သစ်တောဦးစီးဌာနမှ နှစ် ၅၀ သဘောတူညီချက်အရ ငှားရမ်းထားသော ၅၅ ဧကကို ဝန်ထမ်းများ၏ မိသားစုအိမ်ယာနှင့် အပန်းဖြေနေရာများအတွက် ခွဲဝေပေးထားပါသည်။

မန္တလေးတိုင်းဒေသကြီး သာစည်မြို့နယ် ကူပြင်ကျေးရွာတွင် တည်ရှိသော ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီ လီမိတက်၏ ဘိလပ်မြေ ၂၈၀၀ တန်မှ ၇၂၀၀ တန်အထိ တိုးချဲ့ထုတ်လုပ်မည့် စီမံကိန်းအတွက် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာသည် ၂၀၁၉ ခုနှစ်၊ နိုဝင်ဘာလ၊ ၂၂ ရက်နေ့တွင် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်၊ သယံဇာတနှင့်သဘာဝ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန (MONREC) ၏ အတည်ပြုချက် ရရှိခဲ့ပြီး ၂၀၂၃ ခုနှစ်၊ ဩဂုတ်လ၊ ၂၅ ရက်နေ့တွင် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ်ကိုလည်း ရရှိခဲ့ပြီးဖြစ်ပါသည်။ သို့ဖြစ်ပါ၍ STC သည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ဖော်ပြထားသော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် (EMP) နှင့်အညီ ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးမှု ကိစ္စရပ်များ (Environmental & Social Monitoring Program) ကို လိုက်နာဆောင်ရွက်ခဲ့ပြီး ယခုအခါတွင် ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဥပဒေနှင့် နည်းဥပဒေများ၊ ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဦးစီးဌာနမှ ချမှတ်ထားသော လုပ်ထုံးလုပ်နည်းများ အတိုင်း ၂၀၂၄ ခုနှစ် မေလမှ ၂၀၂၄ ခုနှစ် အောက်တိုဘာလအထိ ဆောင်ရွက်ခဲ့သော ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးခြင်းအစီရင်ခံစာကို တင်ပြခြင်းဖြစ်ပါသည်။

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1. Introduction

1.1 Executive Summary

Shwe Taung Cement Company Ltd. (STC), part of the Shwe Taung Group (STG) which owns and operates a variety of businesses across various sectors in Myanmar, is planning a brownfield expansion of cement production at its existing cement plant in Pyi Nyaung Village, Thazi Township in the Mandalay region of Myanmar. The Project aims to expand STC's clinker production capacity from 1,500 tonnes per day (tpd) to 5,500 tpd and cement capacity from 2,800 tpd to 7,200 tpd. The location of the Project is shown in Figure-1.

STC commissioned Environmental Resources Management (ERM)-Hong Kong, Limited to undertake the Environmental Impact Assessment (EIA) for the cement plant expansion Project.



The cement plant area covers 400 acres leased under a 50-year agreement from the Forest Department on 31 March 2016 (following three lease agreements renewed annually) including 45 acres used by the cement plant first line, 15 acres to be used by the second line (the Project) and 50 acres of dedicated water resources. Eight (8) acres are allocated for employee housing and catering services and the remaining 282 acres are planted or used for access roads. An adjacent area of 55 acres leased under a 50-year agreement from the Forest Department on 31 March 2016 is allocated to employees' family housing and recreation activities.

Shwe Taung Cement Co., Ltd (STC) received the approval from Ministry of Natural Resources and Environmental Conservation (MONREC) for the project of cement production and expansion of cement capacity from 2800 tpd to 7200 tpd per day in Ku Pyin Village Tract, Thazi Township, Mandalay Region on 22nd November 2019 and received Environmental Compliance Certificate on 25th August 2023. Therefore, STC conducted environmental monitoring program in line with Environmental Management Plan and comply Environmental Conservation Law and Rules, the Procedure of ECD and submit this biannual environmental monitoring report for May 2024 to October 2024.

1.2 Purpose of Environmental Monitoring

Monitoring is a means of verifying the effectiveness of the management and mitigation measures contained within the management plans listed in STC EIA for Cement Plant.

- 1) The Environmental Engineers from HSE department of Cement Plant shall do the following:
 - Monitor and implement the this ESMP at site;
 - Conduct Environmental monthly inspection checklist audit;
 - Monitor laboratory personnel while conducting their water sampling and testing method;
 - Assist and monitor the implementation of Waste Management; and
 - Monitor and review the air emission test result for compliance recommendation.
- 2) All inspection checklist audit finding that needs rectification shall be recorded in Environmental and Social tracker and will be assigned by Environmental Manager to concerned department head for rectification.
- 3) All water, effluent and air emission test results will be compiled for review and analyses by Environmental Manager and approved by Head of HSE.
- 4) All generated waste according to their classification and final disposal will be entered to waste management matrix for monthly report.
- 5) The Environmental Executive will be implementing and monitoring within the project area, new infestation and according to BAP.

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1.3 Health, Social and Environment (HSE) Department

Shwe Taung Cement Co., Ltd. established HSE Department and responsibility of HSE Department are as follows.



- 1) Implementation of Environmental Management Plans of approved EIA report of STC Cement Plant, Comply Rules and Regulations of Environmental Conservation, report Environmental Monitoring
- 2) Supervise third party stakeholders, contractors and other organizations for environmental monitoring program
- 3) Monitoring environmental impact and report the relevant documents
- 4) Promote the ability of employees by conducting knowledge sharing training and awareness on environmental conservation.

1.4 Environmental Performance Indicators and Monitoring Schedule

Physical, biological and social environmental management components of particular significance have been identified as performance indicators. A comprehensive monitoring plan for each performance indicator has been prepared for all phases of the Project, presented in Table -1.

Table -1: Environmental Monitoring Program

Item No.	Project Stage Component	Potential Impact	Parameters to be monitored	Location	Measurement	Procedure	Frequency	Operation Responsibility	Environment Responsibility
1	Construction and Operation/ Cement Plant	Inspection of mitigation compliance	General compliance with mitigation measures presented in the ESMP	Project activity areas	Visual inspection of all active work areas and inspection of records	1.Daily & Weekly inspection Checklist 2. WMP Inspection Checklist	Weekly	STC Operation Team	Environmental Engineers
2	Operation/ Cement Plant	Stack emission from kiln system.	NO _x , SO ₂ , PM _{2.5} , PM ₁₀ and O ₂	Discharge to kiln stack at new and existing plant	Real-time monitoring system	Data Result from real time monitoring	Continuous monitoring	STC Operation/ Control room	Environmental Engineers
3	Operation/ Cement Plant	Stack emission from kiln system.	Check compliance with Myanmar National Environmental Quality (Emission) Guidelines (2015) for Cement and Lime Manufacturing (for NO _x , SO ₂ , PM _{2.5} , PM ₁₀)	Stack emission from existing and new kilns	Standard analytical methods	Data result from ECD monitoring report	Monthly	STC Operation/ Control room	Environmental Engineers
4	Operation/ Cement Plant	Dust impact	Dust deposition	Cement Plant, Kubyin and Pyi Nyaung Village	Dust deposition gauge	Data result from STC Laboratory from different sampling points	Monthly	STC Laboratory	Environmental Engineers
5	Operation/ Cement Plant	Discharge of treated wastewater	Check compliance with Myanmar National Environmental Quality (Emission) Guidelines (2015) for site runoff and wastewater discharges (for BOD, COD, TSS, Oil and Grease, pH, total coliform bacteria, total nitrogen, total phosphorus)	Treated wastewater discharged points at: 1. Coal Storage Area and Materials Handling Yards 2. Fuel Storage Area 3. Treated sanitary wastewater treatment facility and 4. Reservoir	Standard analytical methods	Data result from sampling points (Private Laboratory)	Monthly	STC Laboratory	Environmental Engineers
6	Operation/ Cement Plant	Discharge of treated wastewater and runoff	Check compliance with Myanmar National Environmental Quality (Emission) Guidelines (2015) for Cement and Lime Manufacturing (for NO _x , SO ₂ , PM _{2.5} , PM ₁₀)	Treated industrial wastewater discharge point from cement manufacturing process	Standard analytical methods	Data result from sampling points (STC Laboratory compare to from ECD monitoring result)	Monthly	STC Laboratory	Environmental Engineers

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7	Biodiversity	Habitat	Monitoring of invasive species is to occur within the project area on an annual basis. New infestations identified are to be controlled	Project activity areas	Visual inspection of all active work areas and inspection of records	Visual inspection or as plan to install camera trap	Monthly	Security / Social community	Environmental Engineers
8	Air Quality	Cement Plant – Stack emission	An occupational exposure monitoring programme for workers will be put in place to monitor indoor air quality	Inside office area	Standard analytical methods	Data result from ambient air monitoring inside the offices (Private Laboratory)	Monthly	Private Laboratory	Environmental Engineers
9	Waste management	Waste management	Generated waste for operation and construction	All sites: 1.Plant Area including Accommodation	Accumulations of generated waste	Consolidation of Waste management log sheet from all waste collection points	Monthly	Area in-charge of waste collection points	Environmental Engineers

This includes the parameters to be measured, methods to be utilized, sampling locations, frequency of measurements, detection limits and responsibilities for implementation and supervision.

Impact monitoring will be undertaken during the life of the Project to verify the predicted levels of residual impacts from the Project and the effectiveness of the various management plans and mitigation measures.

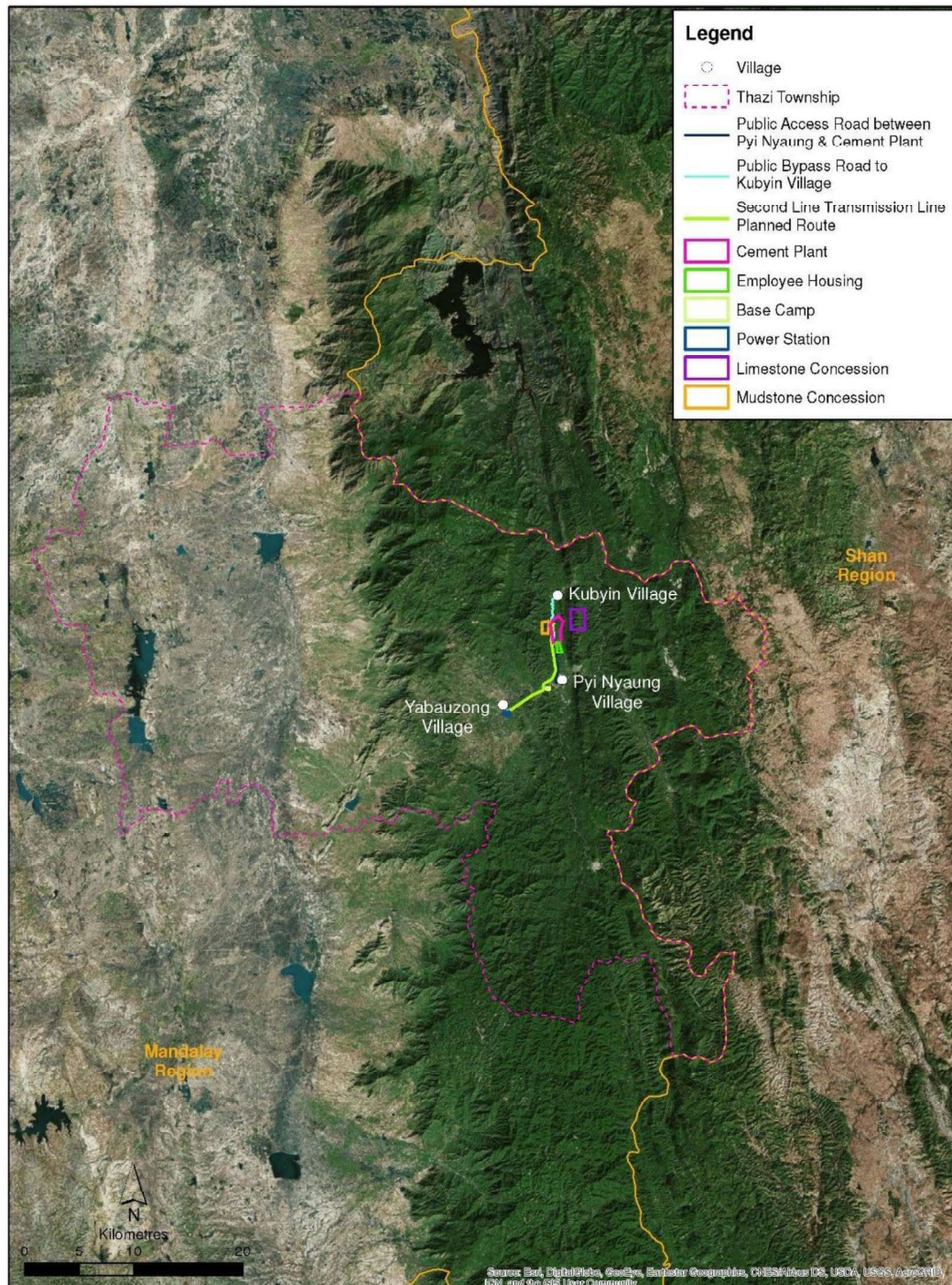
Shwe Taung Cement Co., Ltd. will prepare an environmental monitoring report and submit to the Ministry of Natural Resources and Environmental Conservation, MONREC in every six months as per the EIA Procedure requirements.

2. Project Information

2.1 Project Location

Shwe Taung Cement Co., Ltd. Located in Kupyin Village Tract, Tharzi Township, Meikhtila District, Mandalay Region. The cement plant area covers 400 acres leased under a 50-year agreement from the Forest Department on 31 March 2016 (following three lease agreements renewed annually) including 45 acres used by the cement plant first line, 15 acres to be used by the second line (the Project) and 50 acres of dedicated water resources. Eight acres are allocated for employee housing and catering services and the remaining 282 acres are planted or used for access roads. An adjacent area of 55 acres leased under a 50-year agreement from the Forest Department on 31 March 2016 is allocated to employees' family housing and recreation activities. The cement plant is situated in a valley surrounded by a mudstone quarry to the west and a limestone quarry to the east, which falls within the Tha Pyae mountain range (*Figure -1*).

Figure-1: Location of STC Cement Plant



2.2 Project Description

STC manufactures cement with clinker, gypsum and limestone (additive). Clinker is produced from limestone, mudstone, laterite and other materials. The clinker production and cement grinding capacity of the existing plant are 1,500 tpd and 2,800 tpd, respectively. The Project involves expanding the clinker production capacity to 5,500 tpd and 7,200 tpd of cement through the construction of a new rotary kiln and associated facilities. A dry process is used for the cement production and the second line will adopt a similar dry process as the first line, with additional facilities installed to achieve the increased capacity. These additional facilities will be installed within the existing 455-acre site.

All land leased to date by the company is state-owned forest land. With the exception of a small amount of land to accommodate the new transmission line, no new land is required to accommodate the expanded facilities.

Project components of the existing and expanded cement plant are shown in Figure-2. These include raw materials crushing area, handling area, clinker production area, cement grinding area, cement packing and dispatch area, coal staging area and office building.

During the reporting period, cement plant is operating stage.

Figure – 2: Project Components of the Existing and Expanded STC Cement Plant



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 Existing Cement Line Facilities	 Expansion Cement Line
1 - Raw Materials Crushing Area	1 - Raw Material Crushing Area
2 - Handling Area	2 - Handling Area
3 - Clinker Production Area	3 - Clinker Production Area
4 - Cement Grinding Area	4 - Cement Grinding Area
5 - Cement Packing and Dispatch Area	5 - Cement Packing and Dispatch Area
6 - Coal Staging Area	 - Expansion Conveyor Line
7 - Office	 - Boundary Line

3. Environmental Monitoring Program

3.1 Air Quality Monitoring

Cement industry is a potential anthropogenic source of air pollution. Cement manufacturing is a highly energy intensive process in other word intensive fuel consumption for clinker making and resulting in emissions. The cement dust produced by cement manufacturing unit i.e. calcining, crushing, grinding, packing, loading/unloading are considered one of the most pollutants such as PM10, PM2.5, SO2 and NO2 which affect the surrounding environment.

Stack Emission monitoring from Kiln System is measured with Testo PG-350 Portable Combustion and Emission Analyzer. Ambient Air Quality monitoring is measured with portable HAZ-SCANNER™ EPAS device.

Continuous Emission Monitoring System (CEMS) was ordered in July 2019 and arrived to cement plant in November 2019. There was a flood disaster at manufacturing factory of CEMS at India, and that manufacturing delay issue was reported to ECD, MONREC. Sampling gases were not included in the CEMS procurement package and there was no supplier available in Myanmar. So STC has applied the import permit to Ministry of Commence, Myanmar with the recommendation of MONREC in March 2020, and those gases were arrived to cement plant in July 2020. The supplier from India couldn't come to Myanmar for installation, testing and commissioning of CEMS due to COVID19 situation in India and travel restriction in Myanmar. STC plant operation team was progressively installing the CEMS with the remote support of supplier from India. It took months to install as some of CEMS associated accessories such as piping system, electrical cables of sampling gases were not available in local market as those sampling gases are special gases and not many local suppliers are kept in-stock in Myanmar. So, we have ordered from China and some were still not arrived to cement plant and STC cement plant has been own locked down to prevent COVID19 situation during the reporting period. STC has lifted the lockdown on middle of March 2022 and is planning to complete the Testing & Commissioning within 2022.

At 16.9.2022, Continuous Emission Monitoring System (CEMS) was started to install both Line-1 and Line-2. The installation of the Continuous Emission Monitoring System (CEMS) was completed in September 2023. During the testing phase, several issues were identified: the data output cable is malfunctioning, and there is a need to change the sampling gas. STC has already notified the service provider. Currently, we are in the process of importing calibration/sampling specialty gases from overseas and awaiting resolution of licensing issues related to importing.

3.1.1 Monitoring Location

3.1.1.1 Stack Emission

Figure 3 and 4 show the location of Kiln Stack Emission Monitoring and Ambient Air Monitoring monthly by Myanmar National Environmental Quality (Emission) Guidelines (2015) for cement and lime manufacturing (for NOx, SO2, PM2.5, PM10 etc.) are the parameters measured.

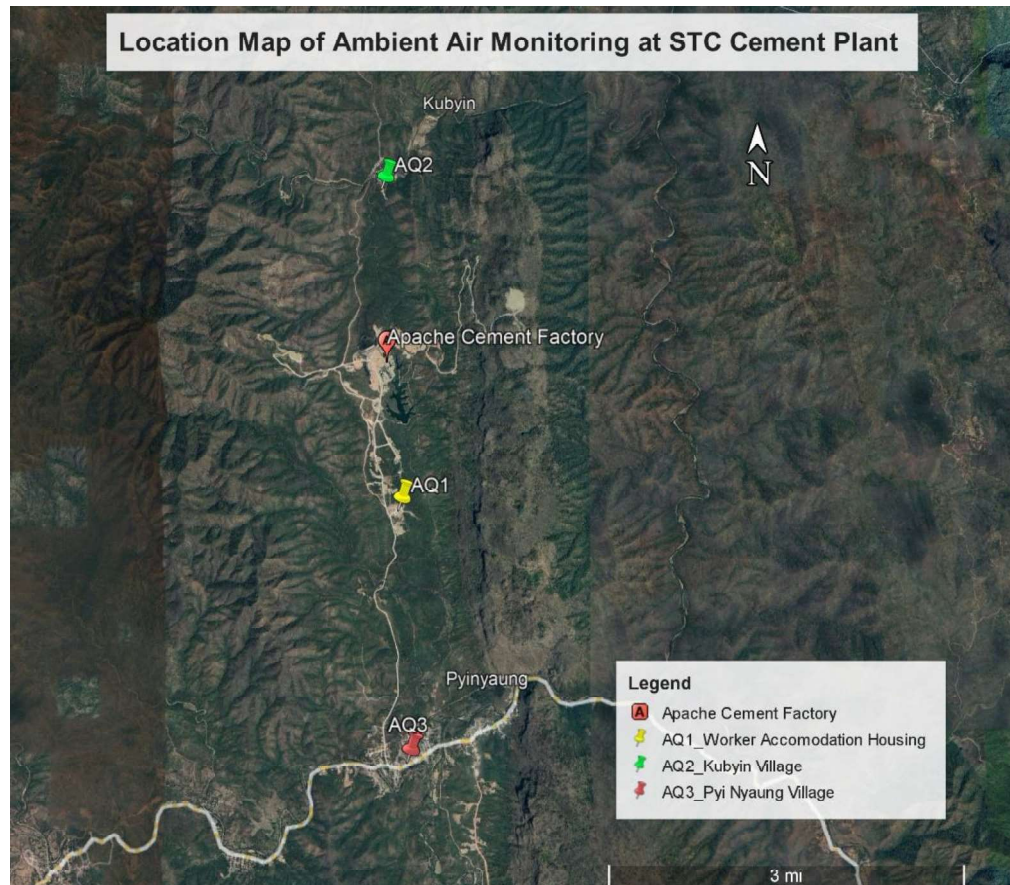
Figure – 3: Location of Kiln Stack Emission Monitoring



3.1.1.2 Location Map for Ambient Air Monitoring

Ambient air quality monitoring location had been selected by identifying potentially affected with consideration given to the prevailing wind conditions through Operation and Construction activities.

Figure – 4: Location Map of Ambient Air Monitoring at STC Cement Plant



3.1.2 Monitoring Method

Stack emission monitoring is measured by Testo PG-350 Portable Combustion and Emission Analyzer. The instrument consists of the control unit (control unit for displaying readings and controlling the analyzer box) and the analyzer box (measuring instrument). Plug-type contacts, data cable or Bluetooth (option) are used to connect the control unit to the analyzer box.

Web link: <https://www.manualslib.com/manual/1284324/Testo-350.html>

The portable HAZ-SCANNER™ EPAS wireless environmental perimeter air station is easily deployed as an ambient air quality monitor to measure and document critical U.S. EPA criteria pollutants including nitrogen dioxide, sulfur dioxide, ozone, carbon dioxide, particulates, VOCs, and more. The EPAS provides direct readings in real time with data logging capabilities.

Web link: <https://www.skinc.com/catalog/pdf/instructions/EPAS%20manual%20v.3.1.pdf>

3.1.3 Monitoring Result for Kiln Stack Emission

Stack emission monitoring device was sent to Thailand since December 2023 for calibration. All results are within Myanmar National Environmental Quality (Emission) Guidelines (2015).

Line 1 Kiln Stack

Table – 2: Summary of Stack Emission Monitoring for Line 1 Kiln Stack

STACK EMISSION AIR QUALITY MONITORING								
ECD/WHO/IFC/SGN Guideline			Production Line 1 Kiln Stack					
Parameter	Averaging Period	Value	Test Result					
			May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
Carbon dioxide	1 hour	%	Testo-350 was sent to Thailand for maintenance.		4.67	11.9	Shut down	9.62
Oxygen	1 hour	%			12.76	0		4.02
Carbon monoxide	1 hour	625 mg/Nm3			31.25	1.25		65
Nitrogen oxides	1 hour	600 mg/Nm3			41.54	1.34		88.44
Sulphur dioxide	1 hour	400 mg/Nm3			0	0		2.86

Line 2 Kiln Stack

Table – 3: Summary of Stack Emission Monitoring for Line 2 Kiln Stack

STACK EMISSION AIR QUALITY MONITORING								
ECD/WHO/IFC/SGN Guideline			Production Line 2 Kiln Stack					
Parameter	Averaging Period	Value	Test Result					
			May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
Carbon dioxide	1 hour	%	0.05	Testo-350 was sent to Thailand for maintenance.	0.05	10.78	11.9	11.89
Oxygen	1 hour	%	19.94		20.02	1.98	0	0
Carbon monoxide	1 hour	625 mg/Nm3	1.25		0.25	1.25	58.75	97.5
Nitrogen oxides	1 hour	600 mg/Nm3	1.34		0.26	1.34	101.84	97.82
Sulphur dioxide	1 hour	400 mg/Nm3	2.86		0.85	2.86	2.86	2.86

3.1.4 Monitoring Result for Ambient Air Quality Monitoring

Table – 4: Summary of Ambient Air Quality Monitoring at Plant Site

Ambient Air Monitoring by Haz-scanner								
Machine Name: Haz-scanner (EPAS)			Operator: Nay Hlaing Oo					
			Location: Plant Site					
	ECD/ WHO / IFC Guideline		Test Result					
Parameter	Averaging Period	Guideline Value in µg/m3	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
Nitrogen dioxide	24 hours	200	82.09	34.32	43.48	75.87	71.98	40.89
Ozone		100	61.42	23.77	26.26	45.04	47.88	24.97
PM10		50	28.69	13.86	14.49	8.08	12.04	17.21
PM2.5		25	7.07	6.56	5.18	3.2	5.72	7.06
Sulphur dioxide		20	51.77	9.74	9.95	0.28	5.7	4.34
Carbon dioxide		-	0	0.006	20.79	0	0	0.07
Carbon monoxide		10 ppm	0.18	0.07	0.79	0.07	0.09	0.07

Table – 5: Summary of Ambient Air Quality Monitoring at Pyi Nyaung village

Ambient Air Monitoring by Haz-scanner								
Machine Name: Haz-scanner (EPAS)			Operator: Nay Hlaing Oo					
			Location: Pyi Nyaung Village					
	ECD/ WHO / IFC Guideline		Test Result					
Parameter	Averaging Period	Guideline Value in µg/m3	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
Nitrogen dioxide	24 hours	200	85.08	38.87	61.21	32.93	30.16	66.96
Ozone		100	25.97	25.18	34.53	20.93	24.44	40.98
PM10		50	40.61	7.85	17.89	19.10	20.58	28.78
PM2.5		25	9.58	2.74	6.37	6.3	7.95	9.21
Sulphur dioxide		20	82.32	27.30	9.35	11	19.59	31.96
Carbon dioxide		ppm	0	0	32.35	0.01	0.60	10.14
Carbon monoxide		10 ppm	0.24	0.11	0.10	0.13	0.30	0.14

Table – 6: Summary of Ambient Air Quality Monitoring at Ku Pyin village

Ambient Air Monitoring by Haz-scanner								
Machine Name: Haz-scanner (EPAS)			Operator: Nay Hlaing Oo					
			Location: Ku Pyin Village					
	ECD/ WHO / IFC Guideline		Test Result					
Parameter	Averaging Period	Guideline Value in µg/m3	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
Nitrogen dioxide	24 hours	200	64.46	165.21	37.44	65.27	71.60	41.79
Ozone		100	50.07	71.30	24.24	34.98	40.65	28.28
PM10		50	25.62	55.69	8.17	11.43	18.44	12.63
PM2.5		25	10.97	7.27	3.52	5.97	9.93	4.80
Sulphur dioxide		20	82.32	17.81	2.98	5.44	13.15	4.97
Carbon dioxide		ppm	0	0	30.41	0	0	0.00
Carbon monoxide		10 ppm	0.18	0.10	0.07	0.05	0.07	0.07

*Note: This data submitted to ECD on a monthly basis

Ambient air quality results are attached in Appendix-C.

3.1.5 Air Quality Index

The HAZ-SCANNER™, ambient air quality monitoring system, provides a comprehensive data of current air contaminants in a project location. Then, air monitoring data of pollutants is processed into a dimensionless unit called the “Air Quality Index” (AQI); it serves as an information medium for the people to know the air quality health of their location and takes preventative steps accordingly (public participation). As instructed from Meiktila ECD to HSE Department in September 2023, STC has updated this bi-annual monitoring report and verified with Meiktila ECD on the reporting format during last quarter of 2023. Meiktila ECD accepted the updated report during January 2023. Therefore, STC has updated the AQI results in all bi-annual monitoring reports of STC Cement Plant.

The AQI is divided into six categories. Each category corresponds to a different level of health concern. Each category also has a specific color. Thus, the AQI is a beneficial tool for the company, public, stakeholders, and regulators to understand the current state of air quality. The color makes it easy for people to quickly determine whether air quality is reaching unhealthy levels in their communities.

Figure – 5: AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Table – 7: Summary of AQI at Plant Site

Air Quality Index (AQI)									
Machine Name: Haz-scanner (EPAS)			Operator: Nay Hlaing Oo						
			Location: Worker Accommodation						
			AQI Results						
Parameter	Averaging Period	Unit	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Sensitive Group
PM ₁₀	24 hour	ug/m3	26	12	13	7	11	16	People with respiratory disease are the group most at risk.
PM _{2.5}	24 hour	ug/m3	39	36	28	18	32	39	People with respiratory or heart disease, the elderly and children are the groups most at risk.
Carbon monoxide	8 hour	ppm	1	0	0	0	0	0	People with heart disease are the group most at risk.
Ozone	8 hour	ppb	28	11	16	21	22	11	Children and people with asthma are the groups most at risk.
Nitrogen dioxide	1 hour	ppb	41	17	22	38	36	20	People with asthma or other respiratory diseases, the elderly, and children are the groups most at risk.
Sulphur dioxide	1 hour	ppb	10	4	1	0	3	1	People with asthma are the group most at risk.

Table – 8: Summary of AQI at Pyi Nyaung Village

Air Quality Index (AQI)									
Machine Name: Haz-scanner (EPAS)			Operator: Nay Hlaing Oo						
			Location: Pyi Nyaung Village						
			AQI Results						
Parameter	Averaging Period	Unit	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Sensitive Group
PM ₁₀	24 hour	ug/m3	37	6	16	18	19	26	People with respiratory disease are the group most at risk.
PM _{2.5}	24 hour	ug/m3	52	15	35	35	44	51	People with respiratory or heart disease, the elderly and children are the groups most at risk.
Carbon monoxide	8 hour	ppm	2	1	0	1	3	1	People with heart disease are the group most at risk.
Ozone	8 hour	ppb	12	12	15	9	11	19	Children and people with asthma are the groups most at risk.
Nitrogen dioxide	1 hour	ppb	42	19	30	16	15	33	People with asthma or other respiratory diseases, the elderly, and children are the groups most at risk.
Sulphur dioxide	1 hour	ppb	44	14	4	6	10	17	People with asthma are the group most at risk.



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Table – 9: Summary of AQI at Ku Pyin Village

Air Quality Index (AQI)									
Machine Name: Haz-scanner (EPAS)			Operator: Nay Hlaing Oo						
			Location: Ku Pyin Village						
			AQI Results						
Parameter	Averaging Period	Unit	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Sensitive Group
PM ₁₀	24 hour	ug/m3	23	51	7	10	17	11	People with respiratory disease are the group most at risk.
PM _{2.5}	24 hour	ug/m3	54	40	19	33	52	27	People with respiratory or heart disease, the elderly and children are the groups most at risk.
Carbon monoxide	8 hour	ppm	1	1	0	0	0	0	People with heart disease are the group most at risk.
Ozone	8 hour	ppb	27	33	10	16	19	13	Children and people with asthma are the groups most at risk.
Nitrogen dioxide	1 hour	ppb	32	86	18	32	36	21	People with asthma or other respiratory diseases, the elderly, and children are the groups most at risk.
Sulphur dioxide	1 hour	ppb	40	9	1	3	7	1	People with asthma are the group most at risk.

3.1.6 Monitoring Result for Dust Deposition

STC monitored dust deposition with 15 points at cement plant and limestone quarry, cement plant housing/ accommodation area, Ku Pyin and Pyi Nyaung village. The use of fabric/bag filter system and electrostatic precipitator to collect and control fine suspended particulate emissions are implemented in both lines of cement plant. Water suppression was also undertaken on the roads by using the water from sedimentation ponds to mitigate dust emission on surrounding area in plant site, quarries and plant accommodation area.

Please refer the table 7 for dust deposition monitoring results from May 2024 to October 2024.

Table – 10: Dust Monitoring Location



No	Monitoring Location	Latitude	Longitude
1	STC Accommodation (Ingyin Hostel)	20°51'23.1"N	96°23'34.7"E
2	STC Accommodation (55acres)	20°50'54.5"N	96°23'34.8"E
3	Ku Pyin (Behind Library)	20°53'26.9"N	96°23'24.8"E
4	Ku Pyin (Primary School)	20°53'25.7"N	96°23'33.6"E
5	Pyi Nyaung (Near Main Road)	20°49'09.5"N	96°23'50.9"E
6	Pyi Nyaung (Information Center)	20°49'03.9"N	96°23'40.6"E

Figure – 6: Dust Deposition Monitoring



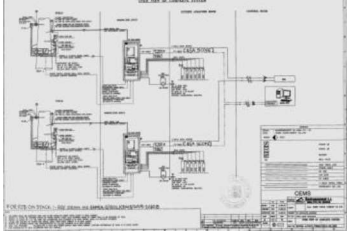



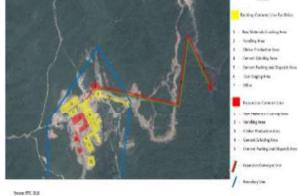


Table – 11: Dust Deposition Monitoring results at Cement Plant Accommodation, Ku Pyin and Pyi Nyaung villages from May 2024 to October 2024



Samplers: Nay Hlaing Oo	Dust Deposition Monitoring						
	Test Result						
Parameter	Australia & New Zealand Guideline (g/m2/Day)	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
STC Accommodation (Ingyin Hostel)	1.191 (g/m2/Day)	1.35	0.36	0.42	0.35	0.35	0.32
STC Accommodation (55acres)		0.63	0.26	0.34	0.21	0.15	0.21
Ku Pyin (Behind Library)		1.21	0.35	0.50	0.24	0.36	0.12
Ku Pyin (Primary School)		0.80	0.36	Damage	Damage	0.40	0.22
Pyi Nyaung (Near Main Road)		0.89	0.36	0.42	0.40	Damage	Damage
Pyi Nyaung (Information Center)		0.58	0.31	0.39	0.28	0.28	0.44











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3.1.7 Air Quality Mitigation Measures

Table – 12: Air Quality Management

Affected Aspect	Mitigation Measures	Action Taken	Photos
Air Quality	<ul style="list-style-type: none"> The discharge to kiln stack at both new and existing plant will be fitted with continuous emission monitoring capable of real-time measurement of NO₂, SO₂, Particulate Matter and O₂ and transmitted to the operator control room. They will not exceed those outlined in Myanmar National Environmental Quality Emission Guidelines (2015) for cement and lime manufacturing and should be further reduced as far as practicable. New kiln stack shall be fitted with sampling platform and two sampling ports at 90 degrees. Sampling ports should be four-inch (minimum) inner diameter threaded pipe connections with a cap. This is primarily to allow calibration of in stack continuous monitoring systems but was also allow for monitoring of additional parameters if needed in the future. 	<p>The Continuous Emission Monitoring System (CEMS) was ordered in July 2019 and arrived at the cement plant in November 2019. A flood at the CEMS manufacturing factory in India caused delays, reported to ECD, MONREC. Sampling gases were not included in the procurement package, and no local supplier was available, so STC applied for an import permit in March 2020. The gases arrived in July 2020. Due to COVID-19 travel restrictions, the Indian supplier couldn't come for installation, which STC's team handled with remote support. Installation was delayed due to unavailable accessories, which were ordered from China. STC lifted its lockdown in March 2022, planning to complete testing and commissioning within the year. Installation of CEMS on both lines started on September 16, 2022, and was completed in September 2023. During testing, issues with the data output cable and sampling gas were identified. STC notified the service provider and is currently importing calibration gases, awaiting resolution of licensing issues.</p>	 
	<ul style="list-style-type: none"> Emission concentrations of NO_x, SO₂ and PM from existing and proposed kiln system and clinker cooler will exceed those outlined in Myanmar National Environmental Quality Emission Guidelines (2015) for cement and lime manufacturing and should be further reduced as far as practicable. 	<p>Regular monitoring (See in Section 3.1.3 for stack emission monitoring results)</p>	
	<ul style="list-style-type: none"> An occupational exposure monitoring program for workers will be put in place to monitor indoor air quality. 	<p>Completed by HR & OHS. Result TBA ECD conducted test for Exposure Limits</p>	
	<ul style="list-style-type: none"> Reduce number of material transfer points by simple, linear layout for material handling operations; 	<p>Completed and installed for line 1 and line 2 design</p>	
	<ul style="list-style-type: none"> Use of enclosed belt conveyors for material transportation and emission controls at transfer points; 	<p>Implementation on line 2</p>	
	<ul style="list-style-type: none"> Regular cleaning of conveyor belt systems; 	<p>Included in PME scope (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)</p>	

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<ul style="list-style-type: none"> Crushed and blended raw materials should be stored in covered or closed bays; 	Additional silo constructed in line 2	
<ul style="list-style-type: none"> Pulverized coal should be stored in silos or closed storage; 	Implemented	
<ul style="list-style-type: none"> Clinker should be stored in covered or closed bays or silos with dust extractions; 	Implemented	
<ul style="list-style-type: none"> Routine plant maintenance to keep air leaks and spills to a minimum; 	Included in PME and PRD scope (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)	 
<ul style="list-style-type: none"> Material handling processes including crushing operations, raw milling and clinker grinding should be undertaken in enclosed systems maintained under negative pressure by exhaust fans. Dust should be removed using cyclones and bag filters; and 	Equipped with cyclones and bag filters (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)	
<ul style="list-style-type: none"> Implementation of automatic bag filling and handling systems; 	Implemented both line 1 and line 2	
<ul style="list-style-type: none"> Use of electrostatic precipitators (ESPs) or fabric filter systems to collect and control fine suspended particulate emissions in the kiln gases; 	Installed (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)	
<ul style="list-style-type: none"> Use of cyclones to separate larger particulates of cooler gases followed by fabric filters and finally 	Equipped with cyclones and bag filters line 1 and line 2 (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)	
<ul style="list-style-type: none"> Mild dust should be captured and recycled using fabric filters within the mill. 	Equipped with bag filters (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)	

3.1.8 Evaluation

According to Air Quality Monitoring of Stack Emission and Ambient Air Quality Monitoring, the results of stack emission monitoring are under guideline value while those of AAM are exceeded in some values during summer season. Ambient Air monitoring was monthly tested at location of Sensitive Air Respecters such as Cement Plant Accommodation, and nearby villages which are Pyi Nyaung and Ku Pyin as in Cement Plant EIA report (2018). All results are within Myanmar National Environmental Quality (Emission) Guidelines (2015), except higher results of PM₁₀ and PM_{2.5} during summer season. STC has noted that there was a lot of forest bush fires set up by some villagers to clean the bushes, nearly every day.

Figure – 7: Forest Fire affected the Ambient Air Quality around STC Cement Plant



STC has investigated the reason of SO₂ result more than Myanmar National Environmental Quality (Emission) Guidelines (2015) as STC uses the low Sulphur content in coal that used as fuel for cement production as stated in STC Cement Plant EIA report. STC has analyzed the monitoring results from the portable HAZ-SCANNER™ EPAS device and found out that SO₂ results were a lot higher during day time and less value at night time. This indicate that the plant is operating 24hours and it couldn't be less during night time.

AQI across the globe considers the number of pollutants (most of the developed countries and some developing countries considers PM_{2.5} to measure the overall status of air quality being monitored), averaging time for which pollutants are measured, calculation method to compute air quality indices for each pollutant, calculation mode to aggregate the overall index, scale of an index, categories, color coding scheme, and related descriptive terms of the pollutants. There are many air quality index models to represent air quality level in the world. STC selected to assess ambient air quality results in Pyi Nyaung area based on AirNow, which is a partnership with the U.S. Environmental Protection Agency (EPA), color-coded index standards.

By analyzing all the AQI results, it is noted that PM_{2.5} values are majorly impacted by human activities (forest firing & open burning, etc.) from surrounding environment. STC will raise the public awareness among cement plant community and also disclosed these air quality monitoring results and AQI results at Pyi Nyaung Information Center and Ku Pyin library according to STC Stakeholder Engagement Plan.

STC engaged 3rd party Environmental consultant as auditor and the auditor advised that this was the case as forest fires in the hills surrounding the plant were numerous at the time of the audit and consistent haze was present over the general area. The Auditor considered that the forest fires are contributing to elevated particulate readings being recorded by STC and elevated readings cannot be solely apportioned to emissions from cement plant and associated facilities.

Therefore, STC was looking other factors that can be impacting on SO₂ results and found out that it was related to emission of mobile vehicles that were higher SO₂ than Kiln emission by using Testo PG-350 Portable Combustion and Emission Analyzer at STC Apache cement plant. There were a lot of heavy machineries and trailer trucks movement during day time and only trailer trucks movement during night time. So STC has raised awareness among the vehicle drivers to stop when they are parking or waiting, with sticker campaign “Turn Off Your Engine While Waiting or Parked” at Apache Cement plant.

These were a notable deterioration in regional air quality was found at Pyi Nyaung area. Moreover, cold air during the cold season can't hold as much moisture, and so the air is usually drier during winter. These habits were also noted on contributing factors of higher results of PM₁₀ and PM_{2.5}.

Moreover, there were regular device servicing and maintenance with NANOVA, authorized supplier of Myanmar of EPAS device, in January and March 2020. STC noted the Haz-scanner EPAS SO₂ sensor has some issue as the ambient air quality monitoring result of SO₂ was complied with Myanmar National Environmental Quality (Emission) Guidelines (2015) after NANOVA, the local authorized support of Myanmar.


Carried out sensor checking, testing using zeroing filter and internal tube cleaning by supplier 3 times due to sensor error reading of Haz-scanner devices.

The use of fabric filter system and electrostatic precipitator to collect and control fine suspended particulate emissions are implemented. Water suppression are also undertaken on the roads to mitigate dust emission on surrounding area in plant site and accommodation area. (See in Appendix A)

Moreover, to safeguard occupational health, STC collaborates with the Social Security Board to conduct health check-ups using a mobile medical unit and arranges necessary medical care for employees as needed.

Figure – 8: Occupational Health Care Records by Social Security Board



SHWE TAUNG Building Materials	
Office Note	
To: STC-PNG Site	Ref: STEM-PNG-HRM-34(003) ON.2
From: Human Resource Department	Date: 1 st of March 2024
Subject: လူမှုဝန်ထမ်းများ၏ ကျန်းမာရေး စစ်ဆေးမှုများ	Prepared By: Than Hike San
CC: HRM Manager / COO STEM	Approved By: Thant Zin Phyo Win
<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Confidential	
<p>အကြောင်းအရာ ။ လူမှုဝန်ထမ်းများ၏ ကျန်းမာရေး စစ်ဆေးမှုများ ဆောင်ရွက်ပေးမည့်ကိစ္စ။</p> <p>အထက်အကြောင်းအရာပတ်သက်သည့် Shwe Taung Cement Co., Ltd. ပြည်သူ့ဆေးရုံတွင် တာဝန်ထမ်းဆောင်နေသော အမှုထမ်း/လုပ်သမားများနှင့် ချေးကမ်း (Labour) မှုအား လူမှုဝန်ထမ်းများ လာရောက် ဆေးကုသစစ်ဆေးပေးမည့်နေ့ရက်များနှင့် ဆေးကုသစစ်ဆေးမှုခံယူရန်အတွက် အကြောင်းကြားအပ်ပါသည်။</p> <p>◆ သတိပြုရန် လူမှုဝန်ထမ်းများ (6-3-2024) နှင့် (7-3-2024) ရက်နေ့များတွင် လာရောက်၍ ဆေးကုသ စစ်ဆေးပေးမည့်နေ့ရက်များနှင့် သက်ဆိုင်ရာဆေးကုသစစ်ဆေးမှု မိမိလိုလားဆောင်ရွက် အဆင်ပြေ/ လိုက်နာမှုနှင့် ချေးကမ်း (Labour) မှုအား ကြိုတင်အကြောင်းကြားပေးထားနိုင်ပါသည်။ ခေါ်ယူခံယူမှုများတွင် လုပ်ငန်းရပ်တန့် မသွားမည့် အတွက်လူမှုဝန်ထမ်းများနှင့် ချေးကမ်း (Labour) မှုအားလုံး 55B Card (ယာဉ်တံ/ Smart Card) မှာမှတ်တမ်း အတည်ပြုထားသည့် နေ့ရက်များတွင် နေ့စဉ်ဆေးကုသစစ်ဆေးမှုခံယူရန် ပြန်လည်အကြောင်းကြား 55B Card မှာမှတ်တမ်းတင်ထားပါ ရန်အပ်အပ်ပါသည်။</p> <p>စစ်ဆေးပေးမည့်ရက်များ ။ 6th of March 2024 - (ရက်သတ္တံ) 7th of March 2024 - (ပြည့်သတန်းရက်)</p> <p>စစ်ဆေးပေးမည့်နေရာ ။ နံနက် (၈:၀၀) နာရီမှ နေ့လယ် (၁:၃၀) နာရီ အထိ၊ နေ့လယ် (၁:၃၀) နာရီမှ ညနေ (၅:၀၀) နာရီ အထိ၊</p> <p>စစ်ဆေးပေးမည့်ရက်များ ။ (Apache Clinic)</p> <p style="text-align: right;">  Thant Zin Phyo Win Human Resource Department (PNG) Shwe Taung Building Materials </p>	

3.2 Water Quality Monitoring

Monitoring of water quality regularly is quite necessary for the assessment of water quality for beneficial purposes. Operation is dry process and do not generate wastewater. Sanitary wastewater from office and household are discharged to bio tank and treated wastewater are monitored in compliance with the NEQEG on BOD, COD, pH, SS, oil & grease, TN & TP and as per WHO Drinking water guidelines.

3.2.1 Monitoring Location

Figure – 9 shows the location of Water Quality sampling point monthly on WHO Drinking Water Guidelines and IFC Effluent Water Guidelines for Water Quality Monitoring (e.g. pH, Color, Turbidity, Iron, BOD, COD etc.) are the parameters for measurement.

Table-13: Water Sampling location

No	Sampling Location	Latitude	Longitude
1	Ku Pyin Stream	20°53'22.92"N	96°23'23.92"E
2	Ye Shin Stream	20°50'24.08"N	96°23'26.81"E
3	Supply Water	20°51'35.3"N	96°23'37.7"E
4	Sedimentation Pond 5	20°52'10.60"N	96°23'16.67"E
5	Sedimentation Pond 9	20°50'51.17"N	96°23'45.02"E

3.2.1.1 Location Map of Water Quality Sampling Points

Figure – 9: Water Quality Sampling Points



3.2.2 Monitoring Result for Water Quality

Table-14: Ku Pyin Stream Water Quality Monitoring Result

Ku Pyin Stream Water Supply Water Analysis									
ITEM	WHO Drinking Water Guideline	EQEG Guideline	Baseline Results	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
pH	6.5 – 8.5	6 - 9	6.3	No water	7.9	8.3	8.5	8.5	8.6
Color	15 PCU	-	-		0	65	35	15	10
Turbidity	5 NTU	-	-		0.71	21.6	15.3	3.89	0.44
Calcium hardness	500 mg/l	-	-		270	225	180	246	200
Chloride (Cl)	250 mg/l	-	-		4	6	2	2	1
Sulphate (SO ₄)	200 mg/l	-	-		20	20	10	10	10
TSS	50 mg/l	50 mg/l	23		3	67	41	13	3
Nitrate	50 mg/l	-	-		4	-	7	5.9	16

Table-15: Ye Shin Stream Water Quality Monitoring Result

Ye Shin Stream Supply Water Analysis (Near Pyi Nyaung)							
ITEM	WHO Drinking Water Guideline	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
pH	6.5 – 8.5	No water	7.8	7.9	8.2	Cannot collect water sample because of the flooding issues	8.3
Color	15 PCU		20	25	5		10
Turbidity	5 NTU		1.11	1.36	4.36		7.21
Calcium hardness	500 mg/l		207	195	150		168
Chloride (Cl)	250 mg/l		4	6	5		2
Sulphate (SO ₄)	200 mg/l		20	20	10		10
TSS	50 mg/l		10	8	17		22
Nitrate	50 mg/l		9.1	-	5.2		8.4

Table-16: Lower Reservoir Water Quality Monitoring Result

Lower Reservoir Supply Water Analysis									
ITEM	WHO Drinking Water Guideline	EQEG Guide line	Baseline Results	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
pH	6.5 – 8.5	6 - 9	7.6	8.3	8.6	8.5	8.8	8.4	8.5
Color	15 PCU	-	-	60	100	40	15	20	25
Turbidity	5 NTU	-	-	9.83	10.2	7.74	7.93	16.9	5.49
Calcium hardness	500 mg/l	-	-	90	135	120	129	99	126
Chloride (Cl)	250 mg/l	-	-	5	5	5	3	3	3
Sulphate (SO ₄)	200 mg/l	-	-	20	20	20	20	10	10
TSS	50 mg/l	50 mg/l	11	40	37	37	34	41	22
Nitrate	50 mg/l	-	-	4.8	26	-	7.6	6	7

Lower reservoir supply water test results from external laboratories are attached in Appendix-(B-4).

Table-17: Sedimentation Pond-5 Surface Water Test Result

Sedimentation Pond 5 Surface Water Test Result									
Parameters	IFC Waste Water Guideline	EQEG Guide line	Baseline Results	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
pH	6 ~ 9	6 ~ 9	7.6	7.7	8	8.3	8.1	8.1	8.2
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	41.5	68	96	93	60	55	12
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	6.5	43	13	26	-	-	-
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	215.5	130	99	87	48	28	18
Total Nitrogen	10 mg/l	10 mg/l	1.7	ND	1.65	-	2.05	2.75	1.78
Total Nitrate	44.29 mg/l	-	-	ND	7.3	-	0.3	12.2	7.9
Total Phosphorous	2 mg/l	2	0.06	0.2	0.2	0.2	0.3	0.3	0.1
Oil and grease	10 mg/l	10 mg/l	DL	ND	ND	ND	ND	ND	ND
Total Coliform Bacteria	-	100 ml	45.50	-	-	-	-	-	-




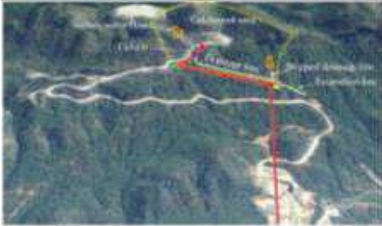

Table – 18: Bio Tank Effluent Discharge to Sedimentation Pond 9 Test Results



Bio Tank Effluent Discharge to Sedimentation Pond 9									
Parameters	IFC Waste Water Guideline	EQEG Guide line	Baseline Results	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024
pH	6 ~ 9	6 ~ 9	-	No water	No water	No water	No water	8.2	8.2
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	-					32	33
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	-					-	-
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	-					33	19
Total Nitrogen	10 mg/l	10 mg/l	-					2.42	4.49
Total Nitrate	44.29 mg/l	-	-					10.7	19.9
Total Phosphorous	2 mg/l	2	-					2.6	2.3
Oil and grease	10 mg/l	10 mg/l	-					ND	ND
Total Coliform Bacteria	-	100 ml	-					-	-






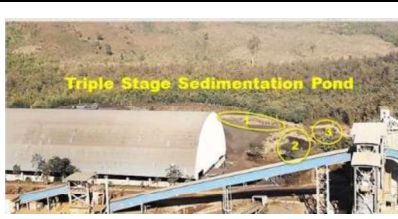
* There was no effluent water from bio tank from May 2024 to August 2024.
Laboratory results for water quality are attached in Appendix-B.



3.2.3 Water Quality Mitigation Measures






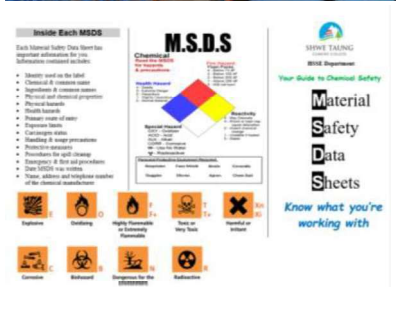
Table – 19: Water Quality Management



Affected Aspect	Mitigation Measures	Action Taken	Photos
Surface Water Quality	<ul style="list-style-type: none"> Implementing storm water management practices to manage the flow of storm-water, prevent uncontrolled migration and minimize erosion and sediment transport from project facilities and disturbed areas. Construction of a dedicated drainage network to intercept and diversion runoff; 	Constructed stormwater drains around the cement plant channel to sedimentation ponds	 <p>Figure (2) Drainage for catchment area</p>
	<ul style="list-style-type: none"> Divert runoff from the mudstone quarry to an appropriately sized and maintained sedimentation pond to allow adequate retention time for suspended solids to settle; 	Constructed sedimentation pond dual stage.	<p>Sedimentation pond from storm water runoff to allow adequate retention time for suspended solids to settle before entering wetlands area.</p> <p>Location Map of Sedimentation Pond at STC Site</p>  <p>Layout Plan for Stormwater Discharge Area A and B</p> 
	<ul style="list-style-type: none"> Divert runoff from the limestone quarry to the wetland created by STM via a weir to remove suspended solids before entering the wetland; 	Constructed sedimentation pond dual stage.	 <p>Figure (2) Drainage for wetland area</p>
	<ul style="list-style-type: none"> Baffles or other measures to reduce the velocity of runoff downhill slopes should be installed to minimize scouring; 	Visual monitoring by MNE	 <p>Figure (1) Zoning for slope protection measures</p>

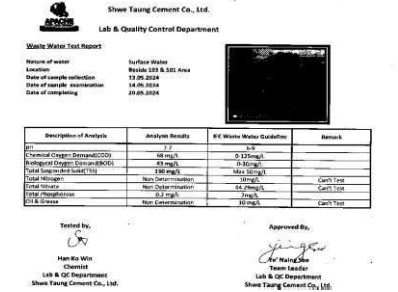

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	<ul style="list-style-type: none"> Exposed areas and overburden dumps should be revegetated as quickly as possible. 	Tree planting during monsoon season	
	<ul style="list-style-type: none"> STM will prepare and implement a Storm water Management Plan considering the mitigation committed above. 	Plan have been developed and construction on progress for Line 2 area. Line 1 area was constructed since 2014.	 <p>Figure 3.2 Storm water flow, cement plant and limestone mine area</p>
	<ul style="list-style-type: none"> All areas used to store and/or handle coal, laterite and limestone should be paved and surrounded by perimeter drains. For the coal storage area, it should be covered; 	Implemented and covered during monsoon season	<p>Material Handling: Coal Stockpile Storage @ 501 Area</p> 
	<ul style="list-style-type: none"> Runoff from the laterite and limestone staging areas shall be diverted to retention ponds and may be used for greening, dust suppression or discharged to the onsite reservoir. 	Constructed sedimentation pond dual stage and reuse for gardening and dust control.	 <p>Coal Staging Stockpile: Double Stage Sedimentation Pond</p> 
	<ul style="list-style-type: none"> For the coal storage area, STM has agreed to cover this area. Water from the roof will be diverted via storm water drains to retention ponds and may be used for greening, dust suppression or discharged to the onsite reservoir. Runoff collected by the interceptor drains (small volume) within the covered coal storage area will be diverted for treatment at the wastewater treatment plant. 	Constructed sedimentation pond triple stage.	 <p>Triple Stage Sedimentation Pond</p>

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	<ul style="list-style-type: none"> Discharges into the reservoir and any runoff discharged to surface streams should be monitored monthly for compliance with Myanmar National Environmental Quality (Emissions) Guidelines for site runoff and wastewater discharges (for TSS, oil and grease, pH). 	Conducted and monitored by LQC result documented (See in 4.3.2 water result)	
	<ul style="list-style-type: none"> Lightning protection should be installed at all areas used to store bulk fuel and other flammables; 	Installed at fuel depot.	 <p>Constructed bunded hardstand with containment for 110% of the volume of stored fuel and equipped with oil-water separator. Installed lightning protection post.</p>
	<ul style="list-style-type: none"> The fuel storage facility should be constructed on bunded hardstand with containment sufficient for 110% of the volume of the single largest tank; 	Equipped.	 <p>Constructed bunded hardstand with containment for 110% of the volume of stored fuel and equipped with oil-water separator. Installed lightning protection post.</p>
	<ul style="list-style-type: none"> Discharges from this bunded area should pass through an oil-water separator; 	Installed	 <p>Constructed bunded hardstand with containment for 110% of the volume of stored fuel and equipped with oil-water separator. Installed lightning protection post.</p>
	<ul style="list-style-type: none"> Spill Response Plan should be developed and implemented; (conducted awareness training and deliver pamphlet to relevant employees in the plant) 	Approved and implemented	 <p>Develop training materials for spill control response</p> <p>Conducted training and drill for Spill Response Procedure</p>  <p>Inside Each MSDS</p> <p>Each Material Safety Data Sheet has important information for you. Information is organized as follows:</p> <ul style="list-style-type: none"> Identify and use the data Chemical & company name Ingredients & chemical composition Physical hazards Health hazards Reactive hazard of water Corrosive hazard Environmental hazard Prevention & emergency response Prevention for spill cleanup Emergency & first aid procedures Other MSDS use notes Name, address and telephone number of the chemical manufacturer <p>M.S.D.S</p> <p>SHWE TAUNG CEMENT CO., LTD.</p> <p>Your Guide to Chemical Safety</p> <p>Material Safety Data Sheets</p> <p>Know what you're working with</p>
	<ul style="list-style-type: none"> Discharges from the coal staging area should be monitored monthly for compliance with Myanmar National Environmental Quality (Emissions) Guidelines for site 	Conducted and monitored by LQC result documented (See in Section 4.3.2 for water test result)	

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	runoff and wastewater discharges (for TSS, oil and grease, pH).		
	<ul style="list-style-type: none"> Sanitary wastewater (includes toilet, sink, shower) should be discharged to the wastewater treatment plant and not be directly discharged to any water bodies. Kitchen flows should be discharged for treatment at dedicated grease trap / water purification unit and not be directly discharged to any water bodies. 	Constructed Bio Tank for treatment of sanitary wastewater.	
	<ul style="list-style-type: none"> Treated wastewater will be monitored monthly at the centralized treated wastewater tank to check compliance with the NEQEG on BOD, COD, pH, SS, oil and grease, TN, TP and residual chlorine and monitored annually for compliance with the full list of parameters on the NEQEG for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application). Sludge generated from the wastewater treatment units will be dewatered to meet with the Myanmar NEQEG for Bio solids and Sludge Disposal before disposal to the non-hazardous solid waste management facility. Sludge samples from each modular tank will be checked yearly for compliance with the NEQEG for Bio solids and Sludge Disposal. 	Conducted and monitored by LQC result documented (See Section 3.2.2 for water result)	(See Section 3.2.2 for water result)

*Data from Environment shared google drive

Notice: Presently all the discharge from bund wall areas directly channel to sedimentation pond.

3.2.4 Evaluation

The establishment of sewage and sanitary waste management and storm water management is executing in plant site. Since the dry process is used for the cement production and the second line is also adopted a similar dry process as the first line, do not generate wastewater from first line and second line production. Discharge sanitary wastewater from plant office and household accommodation are diverted for treatment at the wastewater treatment plant. Treated wastewater from water treatment plant are monitored monthly in compliance with the NEQEG guideline. Wheel washing bay shall be installed at the cement plant guardhouse to avoid cement trail trucks tracking dirt onto public sealed roads and generating dust.

3.3 Noise Monitoring

The nearest representative noise sensitive receptors (NSRs) that may potentially affect by the noise impact due to the Project are identified as Pyi Nyaung and Ku Pyin villages. STC operate noise monitoring twice a year in accordance with Mudstone Environmental Monitoring Plan and results are shown in Table 20 below:

3.3.1 Location Map of Noise Quality Monitoring Points

Figure – 10: Noise Quality Sampling Points

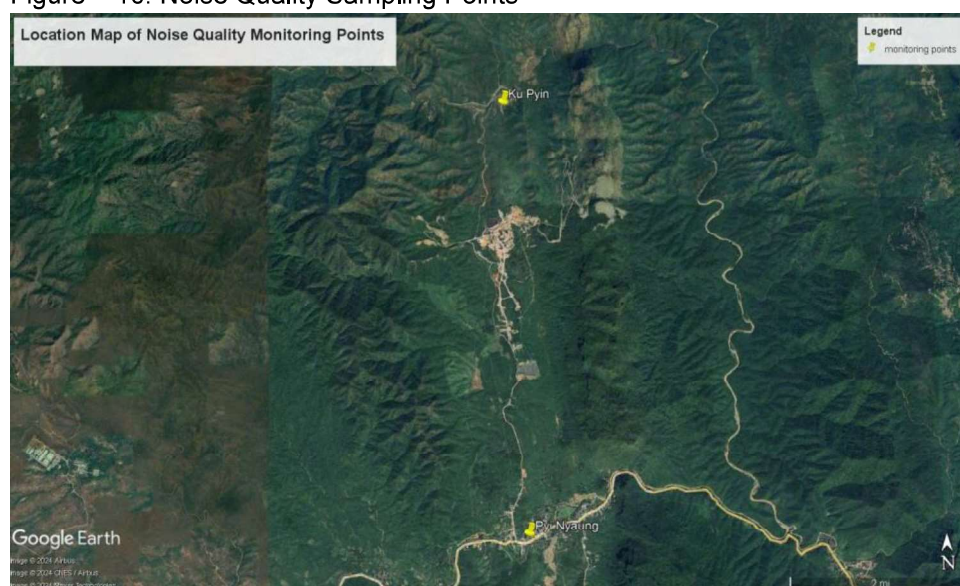


Table – 20: Noise Monitoring Results in Pyi Nyaung and Ku Pyin villages

Noise Monitoring Results							
Machine Name: KIMO DB 200					Operator: Nay Hlaing Oo		
Location	ECD/ WHO / IFC Guideline					Test Result	
	NEQEG and IFC Noise Level Guideline, dB(A)		Baseline Noise Levels, dB(A)		Receptor	Day (07:00 – 22:00 hrs), dB (A)	Night (22:00 – 07:00 hrs) dB (A)
	Day	Night	Day	Night			
Pyi Nyaung Village	55	45	-	-	Residential	80.2	63.4
Ku Pyin Village	55	45	-	-	Residential	53.9	52.5

3.3.2 Evaluation

The noise level assessment for Pyi Nyaung Village reveals significant exceedance of NEQEG and IFC guidelines, with measured daytime levels at 80.2 dB(A) and nighttime levels at 63.4 dB(A). The primary cause of this excess noise is not related to Shwe Taung's cement plant or quarry operations but rather due to the village's proximity to the Meikhtila-Taunggyi Highway Road, which experiences heavy vehicular traffic, particularly during nighttime hours. This high traffic volume poses a serious concern for community health and well-being, given its continuous nature.

3.4 Soil Quality Monitoring

Soil quality monitoring was undertaken in April 2023 in Ku Pyin village. The locations for soil sampling are provided in Figure 12. Two soil samples were taken at each sampling location. These samples were sent to the laboratory analyzed by Department of Agriculture (Land Use), Ministry of Agriculture, Livestock and Irrigation (MOALI). Parameters measured included Moisture, pH, Electrical Conductivity, Organic Carbon, Humus, Total Nitrogen, Ca^{2+} , Mg^{2+} , K^+ , P, K_2O , Water Soluble SO_4^{2-} . Soil quality monitoring results for laboratory analyzed parameters are shown in Table 5.

3.4.1 Location Map of Soil Quality Monitoring Points

Figure – 11: Soil Quality Sampling Points

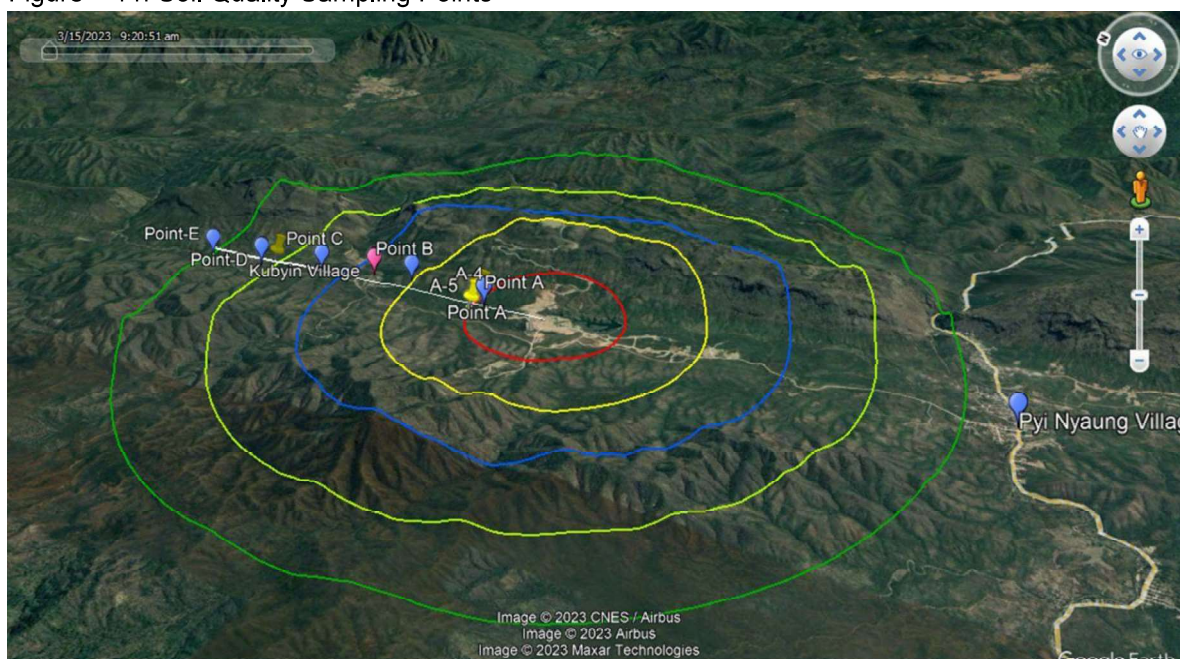


Table – 21: Soil Monitoring Results in Ku Pyin village

Parameter	Unit	Baseline	Sample A	Sample B	Sample C	Sample D	Sample E	Remark
Moisture %	%	14.6	3.13	2.23	2.64	4.99	2.65	
pH	pH	6.6	7.12	6.90	7.28	7.99	6.66	
Electrical Conductivity	dm/s	0.77	0.08	0.06	0.09	0.15	0.06	
Organic Carbon%	%	1.62	1.37	1.04	1.89	1.98	1.25	
Humus	%	-	2.36	1.79	3.25	3.41	2.15	
Total N%	%	-	0.108	0.107	0.107	0.165	0.107	
Ca^{2+}	Meq/100gm	-	14.43	9.53	13.68	22.43	15.06	
Mg^{2+}	Meq/100gm	-	2.75	0.68	1.37	1.40	2.74	
K^+	Meq/100gm	-	0.54	0.41	0.43	0.47	0.41	
P	ppm	-	0.41	0.41	0.41	0.42	0.41	
K_2O	mg/100gm	-	25.39	19.02	20.33	22.11	19.12	
Water Soluble SO_4^{2-}		-	0.04	0.08	0.08	ND	0.04	

3.4.2 Evaluation

Agronomist stated that the current outcomes are satisfactory and that it would be beneficial for STC to implement small-scale plantations in the Ku Pyin area if STC can demonstrate the success of planting as a model plantation. He then responded that all test results have been reliable for at least a year.

3.5 Waste Management Monitoring

3.5.1 Generation of Non- Hazardous Waste

In Shwe Taung Cement Factory, collect non-hazardous waste generated from plant site and accommodation area every day and dispose them to Temporary Non-hazardous Storage Area. For kitchen wastes, compost or use as animal feed in nearby villages. On the other hand, dispose laboratory and clinical wastes to Meikhtila Incinerator, Meikhtila District, Mandalay Region, approved by Meikhtila City Development Committee and have plan to dispose hazardous wastes to Golden Dowa Eco-system Myanmar Co., Ltd., Accredited Waste Management Company. Figure 12, 13 and 14 shows location maps of waste disposal area and waste collection points.

Figure – 12: Location Map of Collection Points of All Generated Wastes from Plant Site and Accommodation Area

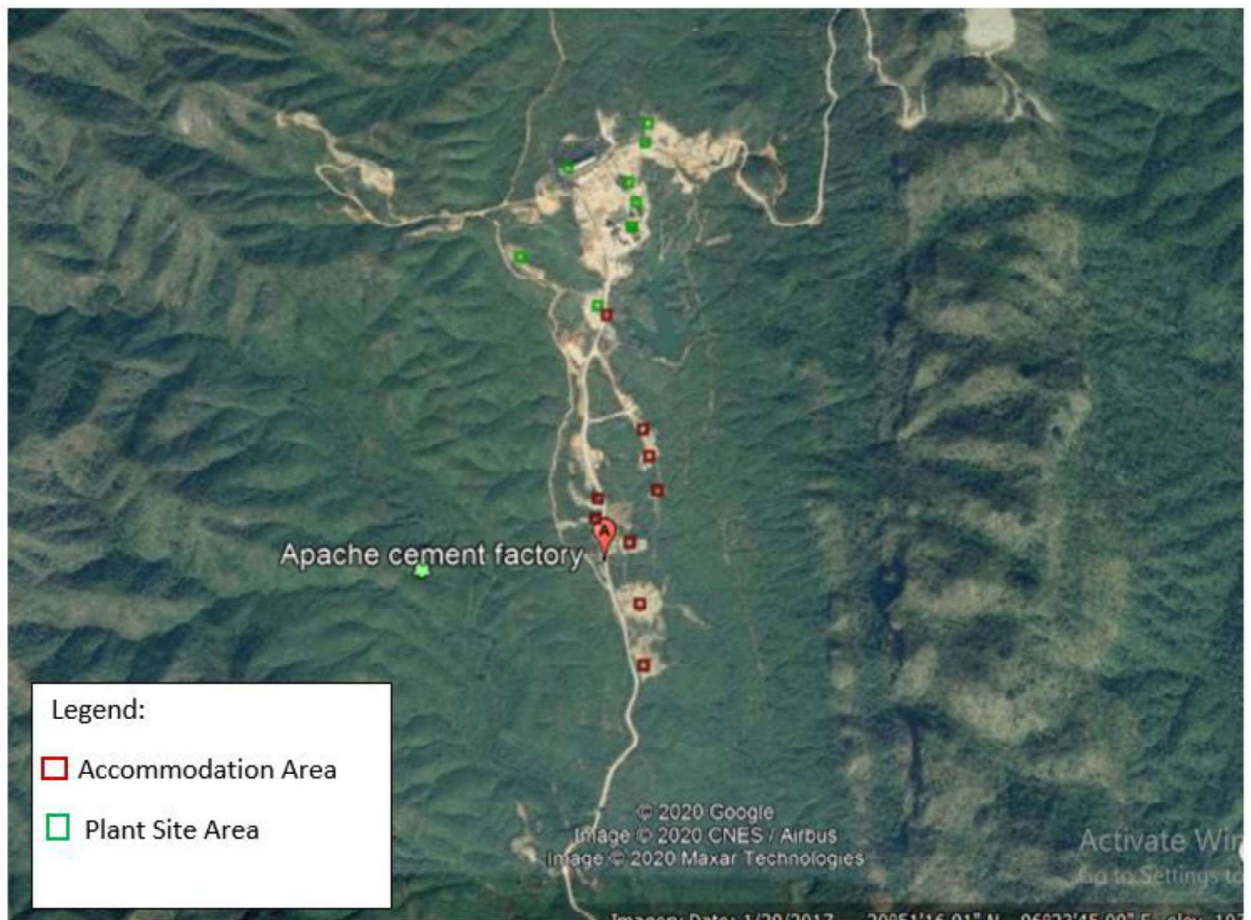


Figure – 13: Location Map of Disposal Sites for Waste from Plant and Accommodation Area

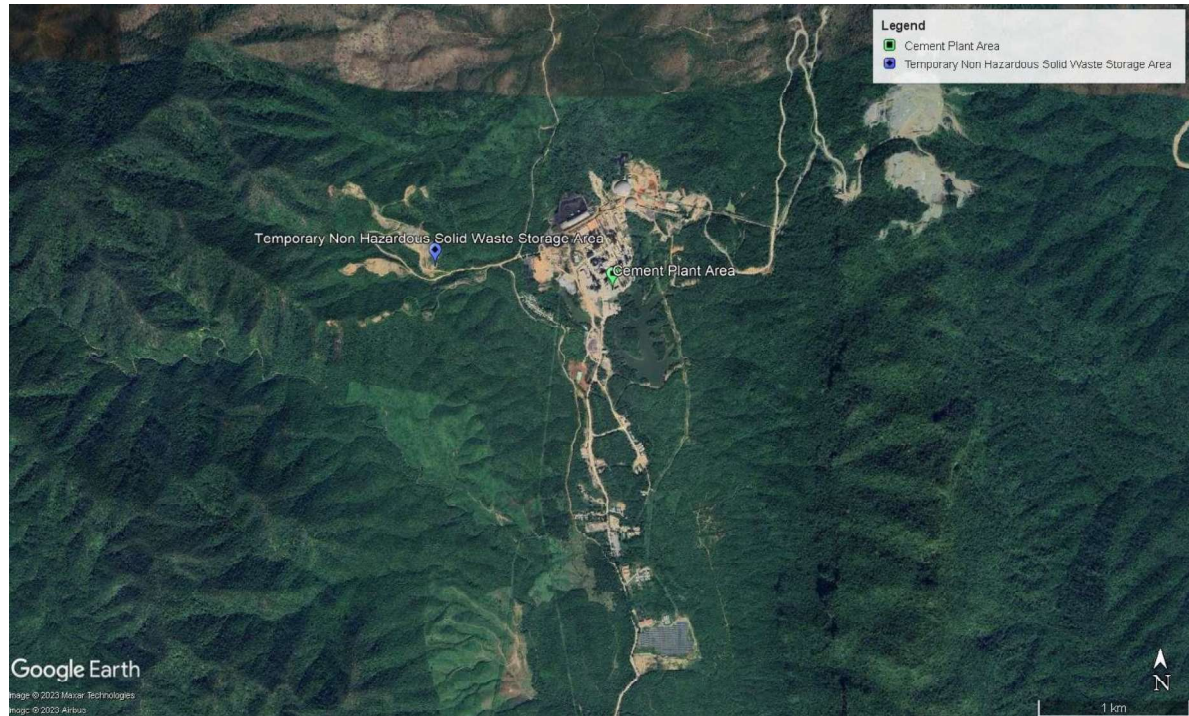
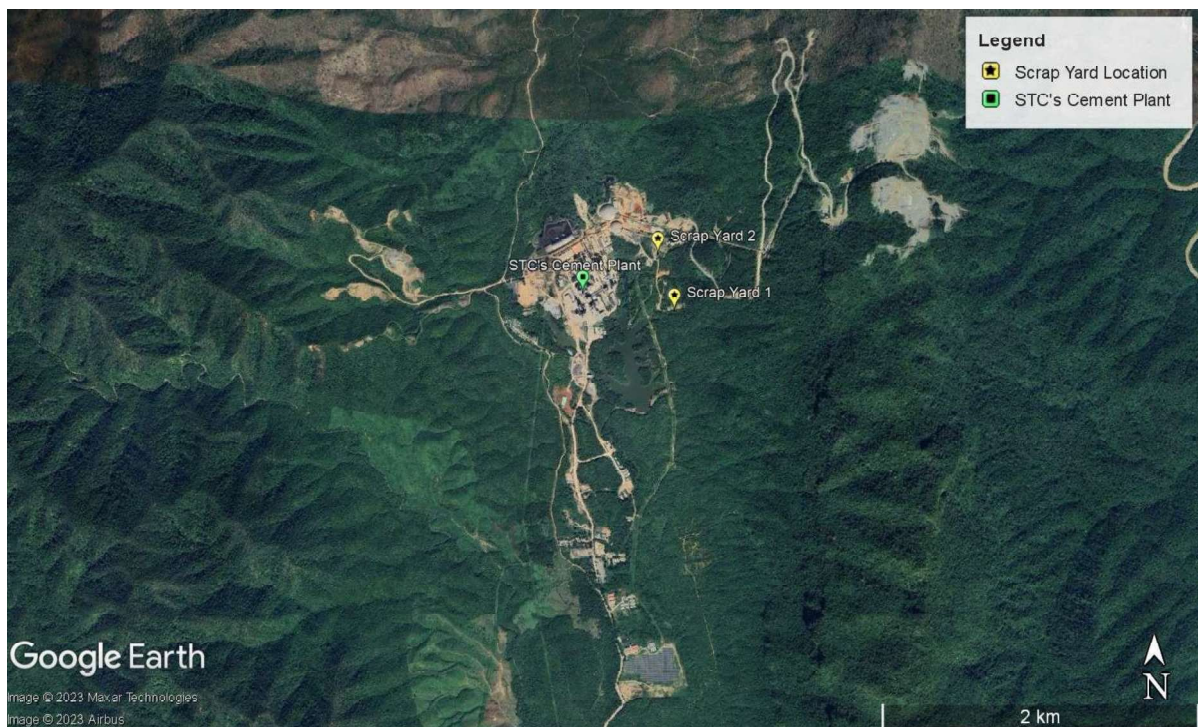


Figure – 14: Location Map of Site Waste Dumping Area (Scrap Yard)





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Table – 22: Generated Non-Hazardous Waste

STC Non-hazardous Waste Generated from May 2024 to October 2024		
Month	Weight (kg)	Remark
May 2024	18920	Disposed to Temporary Non-hazardous Solid Waste Storage Area
June 2024	17180	
July 2024	18660	
August 2024	21260	
September 2024	17280	
October 2024	17120	


3.5.2 Generation of Hazardous Waste




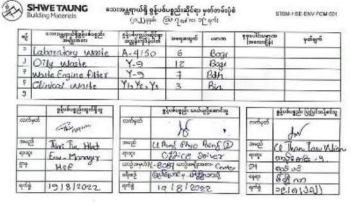

Table – 23: Generated Hazardous Waste



STC Generated Hazardous Waste						
Sr.	Date	Type of Waste	Quantity	Amount (kg)	Treatment Facility	Remarks
1	7 August 2023	Clinical, Laboratory and Contaminated Oil rags	-	1740 kg	Meikhtila Municipal Incinerator	Disposal




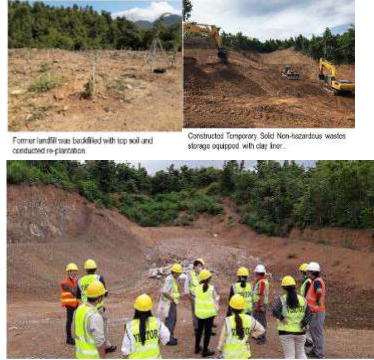
3.5.3 Waste Management Mitigation Measures

Table – 24: Waste Management Mitigation Measures

Affected Aspect	Mitigation Measures	Action Taken	Photos
Waste Management	A waste management plan (WMP) for the project has been developed that include the following as a minimum:	Approved waste management plan	<p>Figure 3. The Waste Hierarchy (the "5R's")</p>  <ul style="list-style-type: none"> Refuse <ul style="list-style-type: none"> Minimise the amount of waste produced Prefer bulk goods rather than packaged goods Train workforce to reduce waste production Reduce <ul style="list-style-type: none"> Where possible, clean and maintain non-single use items for multiple use Reuse <ul style="list-style-type: none"> Transform waste to be used as primary matter in fabrication of other goods Recycle <ul style="list-style-type: none"> Transform waste to produce value added product (viz. compost) Recover/Dispose <ul style="list-style-type: none"> Controlled incineration Destroy non-hazardous solid waste treatment facility Offsite disposal by specialist contractor

	<ul style="list-style-type: none"> A waste inventory should be created to establish the types of wastes; 	<p>Established (dispose Non-hazardous waste to Temporary N-H Solid Waste Storage area whereas Hazardous waste will be disposed to DOWA, accredited waste management company. Clinical and Laboratory waste are disposed to Meikthila Incinerator, approved for disposal by Meikthila City Development Committee)</p>	
	<ul style="list-style-type: none"> Identify disposal routes (including transport options and disposal sites) for all wastes generated; 	<p>Identified waste streams (See Figure-11 & 12 for waste collection point and disposal site)</p>	
	<ul style="list-style-type: none"> Segregate wastes and recycle wherever possible; 	<p>Segregated scrap materials for resale and reuse (See Figure-13 for Scrap Yard Area)</p>	
	<ul style="list-style-type: none"> Hazardous wastes should be segregated and disposed separately from non-hazardous wastes using a license contractor; 	<p>Hazardous waste treatment by DOWA and non-hazardous waste, municipal waste disposed at Temporary Non-hazardous solid waste storage area. Medical and laboratory waste dispose to Meikthila Incinerator, approved by Meikthila City Development Committee)</p>	
	<ul style="list-style-type: none"> Hazardous wastes shall be labelled and stored in sealed containers that are stored on bunded hardstand. Hazardous wastes that are unsuitable for disposal in the cement kiln (such as waste oil drums) shall be returned to the manufacturer or trucked to Mandalay for appropriate disposal at a hazardous waste facility; 	<p>Hazardous waste are collected and deposited to dispose to Meikthila Incinerator, approved by Meikthila City Development Committee.</p>	

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	<ul style="list-style-type: none"> Waste oil should be used for kiln start-up; 	Resale by ADM	
	<ul style="list-style-type: none"> Organic waste for composting or use as animal feed in nearby villages; 	<p>Organic waste (vegetables waste) are collected and composed to use as a fertilizer.</p> <p>Organic waste (food waste) are collected by locals for as animal feed</p>	
	<ul style="list-style-type: none"> Waste suitable for use as fuel in the Mudstone Quarry should be considered; and 	Used waste oil resale to local merchant	
	<ul style="list-style-type: none"> The existing landfill is not lined and should be only used for inert (non-reactive) and non-hazardous waste only. 	<p>Implemented</p> <p>(Constructed Old Temporary Non-hazardous solid storage area for disposing Non-hazardous waste and operated it from 2012 to June 2019. Replantation in old place after closure. After inspection of New Temporary Non-hazardous solid storage area from ECD and governmental organizations in 5 July 2019, operate that one until now.)</p>	 <p>Former landfill was backfilled with top soil and conducted re-plantation.</p> <p>Constructed Temporary Solid Non-hazardous wastes storage equipped with clay liner.</p> <p>Temporary Solid Non-hazardous wastes storage inspected by ECD and other government entities for the approval of EIA.</p>

3.5.4 Evaluation

Implementing principles of the waste hierarchy in the most responsible manner (reduce, reuse, recycle, reclaim, dispose) in the plant site by conducting tool box talk, delivering pamphlet, offering waste bin in each plant site department and accommodation area, undertaking simultaneous mass housekeeping 9 campaigns occasionally, using waste manifest form, daily conducting housekeeping in the site and surrounding area to get awareness on waste reduction, segregation, collection and disposal practices that avoid impacts on the physical, biophysical and social environments.

4. Biodiversity Action Plan Implementation

STC is continuous implementing Biodiversity Action Plan (BAP) with regular Transect Survey, Invasive Survey, Wildlife Market Survey, maintaining the Ecosystem Restoration Plantations and 3 nurseries, and raising biodiversity conservation activities around the Limestone and Mudstone Quarry operation.

Table-25: Biodiversity Action Plan Implementation

Biodiversity Action Plan Implementation				
No.	Type of Survey	Implementation Month	Process	Remark
1	Invasive Species Survey	December 2023	Done	
2	Transact Survey	January 2024	Done	
3	Transact Survey	February 2024	Done	

Invasive Species Survey

These dominant species mostly found cement plant and should control in time. *Mimosa pudica* (Htikayone) should collect and burned to control distribution. *Leucaena leucocephala*, (Bawsakaing) should cut the tree before fruiting season and dig the root to stop coppicing. *Chromolaena odorata* (Bizat) should cut the bushes and burn before flowering season. They can reproduce especially in wind dispersal methods and sometime by animals and trucks. Detail survey will make in quarterly to monitor the distribution of invasive species. We should also use herbicide to control some invasive species.

Figure – 15: Invasive Species Survey



Chromolaena odorata



Mimosa pudica



Chromolaena odorata



Leucaena leucocephala

Table-26: Ecosystem Restoration Plantation List by years

No.	Year	Acre	No. of trees	Remark
1	2016	33	17820	
2	2017	15	5950	
3	2018	50	60500	
4	2019	115	50100	
5	2020	150	81100	
6	2021	150	81100	
7	2023	65	35100	
	2024 (Total)	578	331670	

STC has successfully implemented an ecosystem restoration initiative by establishing plantations for land leased agreement with the government since 2016. The maintenance of these plantations is diligently carried out through routine operations, including weeding, patching, and fire protection across all areas.

Table-27: Maintenance of Ecosystem Restoration Plantations (ERP)

Location	Particular	Patched Area in 2023	Patched Area in June 2024	July	August	September	October
				1st Weeding	Patching	2nd Weeding	2nd Weeding
Near Apache	ERP 33 Ac	7 Ac	-	7 Ac (100%)	2100 Nos	7 Ac (100%)	-
Near Apache	ERP 65 Ac	33 Ac	-	33 Ac (100%)	700 Nos	33 Ac (50%)	33 Ac (100%)
South Pyi Nyaung	ERP 100 Ac	16 Ac	-	16 Ac (100%)	1000 Nos	0%	16 Ac (100%)
		—	9 Ac (4860 Nos.)	9 Ac (100 %)	-	9 Ac (100%)	-
Grand Total				65 Ac (100%)	3800 Nos.	65 Ac (100%)	

Between May and October 2024, Shwe Taung carried out comprehensive ecosystem restoration activities within the Pyi Nyaung and Ku Pyin Reserved Forests. The activities commenced in late May with patching operations across 100 acres of the Pyi Nyaung Reserved Forest, successfully restoring 4,860 plants by mid-June using zero-burning techniques. In July, a first round of weeding was completed in this area, with a status check conducted on July 9 confirming its success. In August, STC initiated patching activities in both the Ku Pyin and Pyi Nyaung Reserved Forests, planting a total of 3,800 plants, with the process wrapping up by mid-month. Fertilization activities were subsequently completed by the end of August. A second round of weeding commenced in September, achieving 65% completion by the end of the month, and was fully finalized in mid-October, as confirmed by HSE for the status checks.

Figure – 16: Maintenance activities at Ecosystem Restoration Plantations



STC took zero burning practice in all plantation to protect carbon emission from our activities. It may lead to develop slow growth of some species such as Kyun and Myanmar Kokko. The grow rate of Sein Pan is the best growth rate that average is about 7 ft in South Pyi Nyaung plantation. Mazili grow rate is the best in plantation 65 acre near cement plant. Padauk was damage due to domestic buffalo from near village. STC will mitigate to get better growth rate plantation in next year by changing of planting pattern, selection of species, preparation of soil before planting.

STC will operated fire protection for all patched area in plantation to protect wild fire and its damages before dry seasons.

5. Corporate Social Responsibility

STC cement plant implements Corporate Social Responsibility (CSR) to communities and release newsletter in quarterly, see in Appendix – D.

6. Occupational Health and Safety

Workers are at risk of occupational health and safety incidents. Such incidents may be linked to the physical environment in which they operate, the procedures they have to abide by or the on-site health and safety culture.

Shwe Taung has existing occupational health and safety policies and procedures in place at the mudstone quarry and these are applicable for the expansion project. These procedures include requirements in terms of operational safety (blasting, excavator, ladder, crane and forklift management, working at height, personal protective equipment use, lifting operation, emergency management, etc.). With the support of the IFC, STC has retained international consultants to assist with the review, update and implementation of its occupational health and safety procedures.

Generally, there is one to two daytime blasting occurred at mudstone quarry within two to three months. Blasting is thus infrequent and will be managed under the Standard Operating Procedure (SOP) for blasting and excavation to ensure safety of staff and community.

6.1 Fire Safety Measures

In compliance with the directives of the Myanmar Fire Services Department, STC has implemented a series of fire safety measures to mitigate fire hazards in the workplace. These measures include conducting regular fire drills and maintaining firefighting equipment.

The main objective of regular fire drills is to ensure all staff are familiar with fire safety protocols and the use of firefighting equipment. Training were conducted to familiarize staff with the operation of a fire truck in case of an emergency. Moreover, all employees were trained on the correct procedures to follow upon hearing the fire alarm. This includes how to safely evacuate to the nearest assembly area within a short timeframe. Staff were also trained to identify and use firefighting facilities such as fire hydrants, fire extinguishers, and other related equipment. Activities during the drill were meticulously documented, and photographs were taken to provide a visual record of the procedures and participation.

Figure – 17: Fire Drill Records





6.2 Occupational Hazard Prevention and First Aid Training

Ensuring the safety and well-being of our employees is paramount. STC conducts comprehensive training programs focused on occupational hazard prevention and first aid. These programs are meticulously documented with detailed procedures and photographic evidence to uphold high standards of health and safety compliance.

OHS training at STC encompasses a broad spectrum of critical safety topics. Employees receive training on energy isolation to prevent accidental startups, and on confined space and rescue equipment to ensure safe operations in restricted areas. Office safety training covers best practices for maintaining a safe work environment, while working at height training emphasizes the use of proper safety measures and equipment. Training for riggers and signalmen ensures safe rigging practices and effective communication during lifting operations. Hot work training covers procedures and precautions for tasks involving open flames or heat, and safety inductions provide new employees with essential safety knowledge.



Additional training includes belt conveyor guarding and machine cover to enhance machinery safety, first aid for immediate response to injuries, and scaffolding safety for the proper erection and use of scaffolds. Programs such as "Take 2 Minutes" encourage employees to assess risks before starting tasks, and safety interaction and observation promote proactive safety discussions. Electrical safety training addresses procedures for working with electrical systems, while manual handling training teaches proper techniques to prevent injuries. Risk management training focuses on identifying, assessing, and mitigating workplace risks.

Internally, STC conduct annual employee safety inductions to refresh safety protocols, permit to work training to ensure understanding of the permit system for hazardous tasks, and safe work procedure training. Risk assessment training is provided to develop techniques for evaluating and mitigating risks. Lototo (Lock Out, Tag Out, Try Out) training ensures the safe de-energization of equipment, and specific electrical training addresses managing electrical hazards. Regular office safety training and fire drills are also conducted to reinforce these practices.

A key component of STC's training is first aid. First aid training program equips employees with the skills necessary to provide immediate assistance in the event of an injury or health emergency. This includes basic first aid techniques, CPR, and the use of first aid equipment. Employees learn how to respond to a variety of medical situations, ensuring that they are prepared to act swiftly and effectively. This training is crucial in minimizing the impact of workplace injuries and can be life-saving in critical situations. Moreover, to safeguard occupational health, STC collaborates with the Social Security Board to conduct health check-ups using a mobile medical unit and arranges necessary medical care for employees as needed.

Figure –18: OHS, First Aid Trainings Records and Medical check-ups from Social Security Board using Mobile Medical Unit



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7. Conclusion and Recommendation

STC cement plant demonstrates the implementation of Environment Monitoring Plan in which they are operating and has properly assessed the key potential environmental and social impacts associated with the cement plant operation. It is ensuring that the Myanmar environmental legislative compliance and IFC standards of good practice during the cement plant expansion project and operations in Thazi Township, Mandalay Region.

Mitigation measures are properly implemented as per stated in EMP, it is expected that the environmental and social impacts are managed by STC with robust environmental management system that is implemented by a well-resourced, integrated and competent HSE staffs as per compliance of STC Cement Plant EIA report.

The Environment Management Plan concludes that no major direct impacts are anticipated from this Project and all environmental impacts have been properly and progressively mitigated. These monitoring results will be properly communicated to stakeholders, especially local community, as per Stakeholders Engagement Plan. Moreover, biannual environmental monitoring reports are disclosed to community at Information Centers in Pyi Nyaung and Ku Pyin villages and has uploaded in Apache Cement Website <https://www.apachecement.com/>. The “Status of Cement Plant Biannual Environmental Monitoring Reports Submission to ECD” can be seen in the Appendix-A.

8. Appendix

APPENDIX-A

Figure: Water Suppression Map to mitigate dust emission in plant site

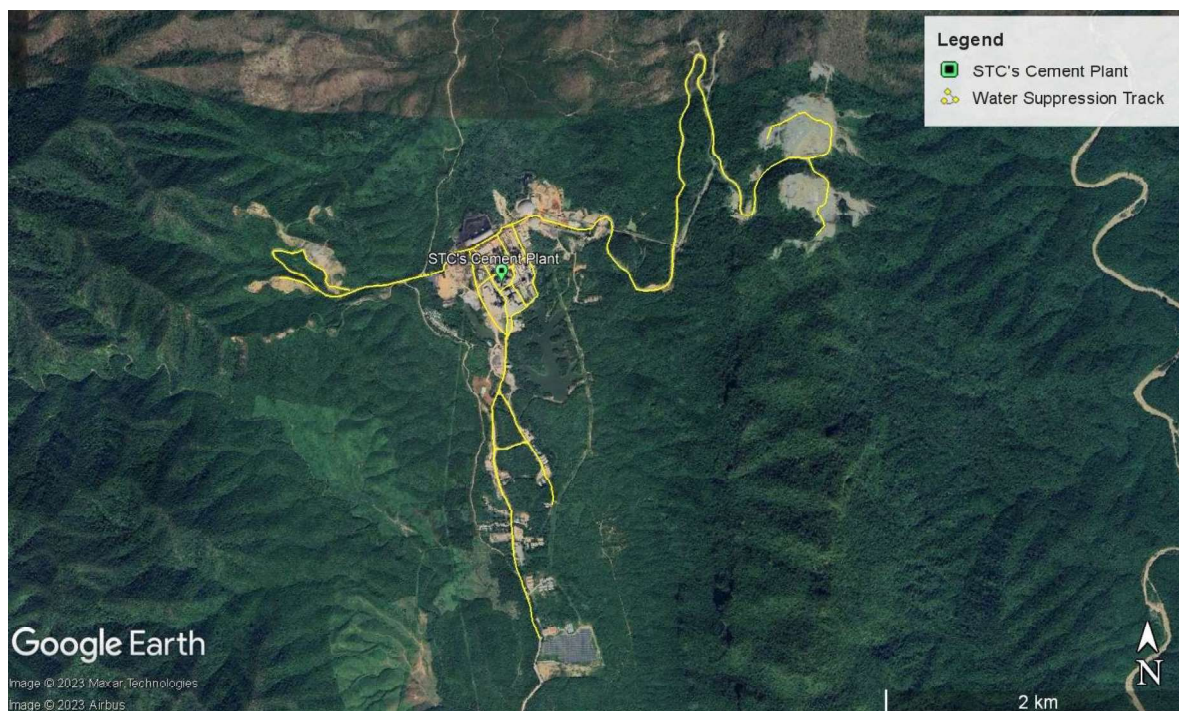


Table: Water Suppression Record from May to October 2024 to mitigate dust suppression in plant site.

Water Suppression Record 2024										
Month	5B -4174 (Capacity: 2200 gal)		6C-1052 (Capacity: 4000 gal)		6C-1051 (Capacity: 4000 gal)		1P-4508 (Capacity: 4500 gal)		2R-5193 (Capacity: 800 gal)	
	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption
May 2024	-	-	72	288000	-	-	34	153000	-	-
June 2024	-	-	21	84000	-	-	18	81000	78	62400
July 2024	-	-	27	108000	-	-	83	373500	141	112800
August 2024	-	-	19	76000	-	-	61	274500	159	127200
September 2024	-	-	-	-	-	-	81	364500	212	169600
October 2024	-	-	-	-	-	-	96	432000	220	17600

Note: Source of water supply from Sedimentation Ponds





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Table: Electrostatic Precipitator Maintenance Record



No	Month	Location	Qty	Unit
1	May	Line-1, Coal Mill Bag Filter & Cage	1536	Nos
2	June	Cement Mill-2, Bag Filter & Cage	1792	Nos
3	October	Cement Mill-1, Bag Filter & Cage	256	Nos

Table: Status of Cement Biannual Environmental Monitoring Reports Submission to ECD

ဝန်ကြီးရုံး အတည်ပြုချက် ရရှိသည့် ရက်စွဲ	(၆) လပတ် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ တင်ပြသည့် ရက်စွဲ	(၆) လပတ် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ တင်ပြသည့် အကြိမ်အရေအတွက်	စောင့်ကြပ်ကြည့်ရှုမှုအစီရင်ခံစာ တင်ပြသည့် အချိန်ကာလ အပိုင်းအခြား	မှတ်ချက်
၂၂.၁၁.၂၀၁၉	၂၉.၂.၂၀၂၄	ပထမအကြိမ်	၂၀၂၀ ခုနှစ် ဇန်နဝါရီလ မှ ၂၀၂၀ ခုနှစ် ဇွန်လအထိ	
		ဒုတိယအကြိမ်	၂၀၂၀ ခုနှစ် ဇူလိုင်လ မှ ၂၀၂၀ ခုနှစ် ဒီဇင်ဘာလအထိ	
		တတိယအကြိမ်	၂၀၂၁ ခုနှစ် ဇန်နဝါရီလ မှ ၂၀၂၁ ခုနှစ် ဇွန်လအထိ	
		စတုတ္ထအကြိမ်	၂၀၂၁ ခုနှစ် ဇူလိုင်လ မှ ၂၀၂၁ ခုနှစ် ဒီဇင်ဘာလအထိ	
		ပဉ္စမအကြိမ်	၂၀၂၂ ခုနှစ် ဇန်နဝါရီလ မှ ၂၀၂၂ ခုနှစ် ဇွန်လအထိ	
		ဆဌမအကြိမ်	၂၀၂၂ ခုနှစ် ဇူလိုင်လ မှ ၂၀၂၂ ခုနှစ် ဒီဇင်ဘာလအထိ	
		သတ္တမအကြိမ်	၂၀၂၃ ခုနှစ် ဇန်နဝါရီလ မှ ၂၀၂၃ ခုနှစ် ဇွန်လအထိ	
		အဋ္ဌမအကြိမ်	၂၀၂၃ ခုနှစ် ဇူလိုင်လ မှ ၂၀၂၃ ခုနှစ် ဒီဇင်ဘာလအထိ	
	၂၈.၆.၂၀၂၄	နဝမအကြိမ်	၂၀၂၃ ခုနှစ် နိုဝင်ဘာလမှ ၂၀၂၄ ခုနှစ် ဧပြီလအထိ	မန္တလေးတိုင်းရင်း၏ ညွှန်ကြားချက်အရ အစီရင်ခံစာ တင်ပြသည့် ကာလအပိုင်း အခြားအား ဝန်ကြီးရုံးအတည်ပြုသည့် ရက်စွဲအရ ပြန်လည်ညှိနှိုင်းပြင်ဆင် တင်ပြခဲ့ပါသည်။
	၂၀၂၄ ခုနှစ် နိုဝင်ဘာလ	ဒဿမအကြိမ်	၂၀၂၄ ခုနှစ် မေလမှ ၂၀၂၄ ခုနှစ် အောက်တိုဘာလအထိ	

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APPENDIX-B

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APPENDIX - (B-1) **(Ku Pyin Stream Water Quality Results)**



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water	Stream Water
Location	Ku Pyin Village
Date of sample collection	19.06.2024
Date of sample examination	20.06.2024
Date of completing	22.06.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
pH	7.9	6.5 - 8.5
Colour(True)	0 PCU	15 PCU
Turbidity	0.71 NTU	5 NTU
Calcium Hardness	270 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	4 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	3 mg/l	50mg/l
Nitrate	4 mg/l	50mg/l

Tested by

Han Ko Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye' Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Stream Water
Location Ku Pyin Village
Date of sample collection 18.07.2024
Date of sample examination 19.07.2024
Date of completing 25.07.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.3	6.5 ~ 8.5
Colour(True)	65 PCU	15 PCU
Turbidity	21.6 NTU	5 NTU
Calcium Hardness	225 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	6 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	67 mg/l	50mg/l

Tested by

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Chemist
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Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Stream Water
Location Ku Pyin Village
Date of sample collection 20.08.2024
Date of sample examination 20.08.2024
Date of completing 22.08.2024

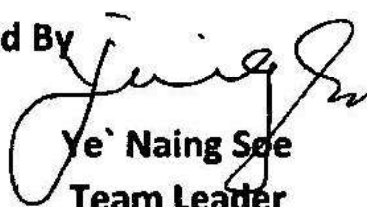
Description of Analysis	Analysis Results	WHO Drinking water Guideline
pH	8.5	6.5 ~ 8.5
Colour(True)	35 PCU	15 PCU
Turbidity	15.3 NTU	5 NTU
Calcium Hardness	180 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	2 mg/l	250mg/l
Nitrate	7 mg/l	50mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	41 mg/l	50mg/l
E-Coli	2700(CFU/100)ml	0(CFU/100)ml
Coliform	19488(CFU/100)ml	0(CFU/100)ml

Tested by

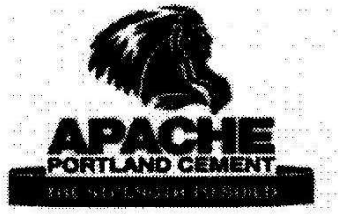

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Approved By


Ye' Naing Soe
Team Leader

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Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Stream Water
Location Ku Pyin Village
Date of sample collection 20.09.2024
Date of sample examination 21.09.2024
Date of completing 25.09.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.5	6.5 ~ 8.5
Colour(True)	15 PCU	15 PCU
Turbidity	3.89 NTU	5 NTU
Calcium Hardness	246 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	2 mg/l	250mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	13 mg/l	50mg/l
Nitrate	5.9 mg/l	50mg/l

Tested by

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Approved By

Ye` Naing Soe
Team Leader
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Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water	Stream Water
Location	Ku Pyin Village
Date of sample collection	23.10.2024
Date of sample examination	23.10.2024
Date of completing	25.10.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.6	6.5 ~ 8.5
Colour(True)	10 PCU	15 PCU
Turbidity	0.44 NTU	5 NTU
Calcium Hardness	200 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	1 mg/l	250mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	3 mg/l	50mg/l
Nitrate	16 mg/l	50mg/l

Tested by



Han Ko Win
Chemist

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Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Team Leader

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Shwe Taung Cement Co., Ltd.

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APPENDIX - (B-2) **(Ye Shin Stream Water Results)**



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Stream Water
Location Near Pyin Nyaung Village
Date of sample collection 19.06.2024
Date of sample examination 20.06.2024
Date of completing 22.06.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
pH	7.8	6.5 - 8.5
Colour(True)	20 PCU	15 PCU
Turbidity	1.11 NTU	5 NTU
Calcium Hardness	207 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	4 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	10 mg/l	50mg/l
Nitrate	9.1 mg/l	50mg/l

Tested by,

Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing See
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Stream Water
Location Near Pyin Nyaung Village
Date of sample collection 18.07.2024
Date of sample examination 19.07.2024
Date of completing 25.07.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	7.9	6.5 - 8.5
Colour(True)	25 PCU	15 PCU
Turbidity	1.36 NTU	5 NTU
Calcium Hardness	195 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	6 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	8 mg/l	50mg/l

Tested by,

Han Ko Win
Chemist
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Approved By,

Ye Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water	Stream Water
Location	Near Pyin Nyaung Village
Date of sample collection	21.08.2024
Date of sample examination	21.08.2024
Date of completing	23.08.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.2	6.5 ~ 8.5
Colour(True)	5 PCU	15 PCU
Turbidity	4.36 NTU	5 NTU
Calcium Hardness	150 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	5 mg/l	250mg/l
Nitrate	5.2mg/l	50mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	17 mg/l	50mg/l
E-Coli	129 (CFU/100)ml	0(CFU/100)ml
Coliform	2394 (CFU/100)ml	0(CFU/100)ml

Tested by,

Han Ko Win
Chemist

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Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Stream Water
Location Near Pyin Nyaung Village
Date of sample collection 23.10.2024
Date of sample examination 23.10.2024
Date of completing 25.10.2024



Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.3	6.5 ~ 8.5
Colour(True)	10 PCU	15 PCU
Turbidity	7.21 NTU	5 NTU
Calcium Hardness	168 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	2 mg/l	250mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	22 mg/l	50mg/l
Nitrate	8.4 mg/l	50mg/l

Tested by,

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Approved By,

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APPENDIX - (B-3)

(Supply Water (Lower Reservoir))



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Lower Reservoir/Non Potable Water
Location Infront of Pump Station.
Date of sample collection 15.05.2024
Date of sample examination 16.05.2024
Date of completing 22.05.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.3	6.5 - 8.5
Colour(True)	60 PCU	15 PCU
Turbidity	9.83 NTU	5 NTU
Calcium Hardness	90 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	5 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	40 mg/l	50mg/l
Nitrate	4.8 mg/l	50mg/l

Tested by,

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Approved By,

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Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Lower Reservoir/Non Potable Water
Location Infront of Pump Station.
Date of sample collection 19.06.2024
Date of sample examination 20.06.2024
Date of completing 22.06.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.6	6.5 ~ 8.5
Colour(True)	100 PCU	15 PCU
Turbidity	10.2 NTU	5 NTU
Calcium Hardness	135 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	5 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	37 mg/l	50mg/l
Nitrate	26 mg/l	50mg/l

Tested by,

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Approved By,

Ye Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Lower Reservoir/Non Potable Water
Location Infront of Pump Station.
Date of sample collection 10.07.2024
Date of sample examination 11.07.2024
Date of completing 17.07.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.5	6.5 ~ 8.5
Colour(True)	40 PCU	15 PCU
Turbidity	7.74 NTU	5 NTU
Calcium Hardness	120 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	5 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Total Suspended Solid(TSS)	37 mg/l	50mg/l

Tested by,

Han Ko Win

Chemist

Lab & QC Department

Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe

Team Leader

Lab & QC Department

Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water Lower Reservoir/Non Potable Water
Location Infront of Pump Station.
Date of sample collection 12.08.2024
Date of sample examination 12.08.2024
Date of completing 13.08.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
pH	8.8	6.5 ~ 8.5
Colour(True)	15 PCU	15 PCU
Turbidity	7.93 NTU	5 NTU
Calcium Hardness	129 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	3 mg/l	250mg/l
Sulphate(as SO ₄)	20 mg/l	200mg/l
Nitrate	7.6 mg/l	50mg/l
Total Suspended Solid(TSS)	34 mg/l	50mg/l

Tested by,

Han Ko Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water	Lower Reservoir/Non Potable Water
Location	Infront of Pump Station.
Date of sample collection	17.09.2024
Date of sample examination	17.09.2024
Date of completing	21.09.2024

Description of Analysis	Analysis Results	WHO Drinking water Guideline
pH	8.4	6.5 ~ 8.5
Colour(True)	20 PCU	15 PCU
Turbidity	16.9 NTU	5 NTU
Calcium Hardness	99 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	3 mg/l	250mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	41 mg/l	50mg/l
Nitrate	6 mg/l	50mg/l

Tested by,

Han Ko Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.
Lab & Quality Control Department

Water Quality Test Report

Nature of water	Lower Reservoir/Non Potable Water
Location	Infront of Pump Station.
Date of sample collection	18.10.2024
Date of sample examination	19.10.2024
Date of completing	23.10.2024



Description of Analysis	Analysis Results	WHO Drinking water Guideline
p ^H	8.5	6.5 ~ 8.5
Colour(True)	25 PCU	15 PCU
Turbidity	5.49 NTU	5 NTU
Calcium Hardness	126 mg/l	500 mg/l as CaCO ₃
Chloride(as Cl)	3 mg/l	250mg/l
Sulphate(as SO ₄)	10 mg/l	200mg/l
Total Suspended Solid(TSS)	22 mg/l	50mg/l
Nitrate	7 mg/l	50mg/l

Tested by,

Han Ko Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.

	SHWE TAUNG CEMENT COMPANY LIMITED		 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report		

APPENDIX - (B-4)

(Supply Water (Lower Reservoir))

Tested by External Laboratories

Report No. : GEM-LAB-202408095

Revision No. : 1

Report Date : 22 August, 2024

Application No. : 0235-C001

Test Report

Client Name : Shwe Taung Cement Co.,Ltd
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name : Shwe Taung Cement Water Quality Test
Sample Description
Sample Name : Supply Water
Sample No. : W-2408079
Waste Profile No. : -

Sampling Date : 7 August, 2024

Sampling By : Withdraw GEM

Sample Received Date : 7 August, 2024

Analytical Date : 7-22/08/2024

No.	Parameter	Method	Unit	Result	LOQ
1	Temperature	Instrument Analysis Method	°C	26.8	0.0
2	pH	APHA 4500 H+ B (Electrometric Method)	—	8.31	0.00
3	SS	APHA 2540D (Dry at 103-105°C Method)	mg/l	12	—
4	BOD (5)	HACH Method 10099 (Respirometric Method)	mg/l	10.35	0.00
5	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	30.7	0.7
6	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	3.1
7	Total Phosphorous	APHA 4500-P E (Ascorbic Acid Method)	mg/l	<0.05	0.05
8	Ammonia	HACH Method 10205 (Silicylate TNT Plus Method)	mg/l	<0.02	0.02
9	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
10	Zinc	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
11	Arsenic	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.010
12	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
13	Cadmium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
14	Selenium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.010
15	Lead	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
16	Copper	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
17	Nickel	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
18	Silver	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
19	Iron	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	0.274	0.002
20	Cyanide	HACH 8027 (Pyridine -Pyrazalone Method)	mg/l	<0.002	0.002
21	Total Cyanide	Distillation Process: APHA 4500-CN- C. Total Cyanide after Distillation, Determine Cyanide Concentration Process: HACH 8027 (Pyridine -Pyrazalone Method)	mg/l	<0.002	0.002
22	Hexavalent Chromium (Cr6+)	ISO 11083:1994 (Determination of chromium(VI) Spectrometric method using 1,5-diphenylcarbazide)	mg/l	<0.05	0.05

REPORT RESULT IS ONLY OF THE SAMPLE SUBMITTED FOR ANALYSIS.

THIS ANALYSIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THE LABORATORY OF
GOLDEN DOWA ECO-SYSTEM MYANMAR CO.,LTD.

Report No. : GEM-LAB-202408095

Revision No. : 1

Report Date : 22 August, 2024

Application No. : 0235-C001

Test Report

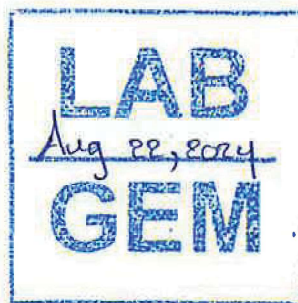
Client Name : Shwe Taung Cement Co., Ltd
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name : Shwe Taung Cement Water Quality Test
Sample Description
Sample Name : Supply Water
Sample No. : W-2408079
Waste Profile No. : -
Sampling Date : 7 August, 2024
Sampling By : Withdraw GEM
Sample Received Date : 7 August, 2024
Analytical Date : 7-22/08/2024

No.	Parameter	Method	Unit	Result	LOQ
23	Fluoride	USEPA SPANDS 2 Method	mg/l	0.227	0.014
24	Total Chlorine	APHA 4500 CL G (DPD Colorimetric Method)	mg/l	0.1	0.1
25	Sulphide	HACH 8131 (USEPA Methylene Blue Method)	mg/l	0.019	0.005
26	Phenols	USEPA Method 420.1 (Phenolics (Spectrophotometric, Manual 4AAP With Distillation))	mg/l	0.006	0.002
27	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	mg/l	54000.0	1.8

Remark : LOQ - Limit of Quantitation

APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

Analysed By :

Cherry Myint Thein
Assistant Manager

*** End Of Document ***

Approved By :

Ni Ni Aye Lwin
Manager

WTL-RE-001

Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

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WATER QUALITY TEST RESULTS FORM

Client Shwe Taung Cement
Nature of Water ဆည်ရေ
Location ပြည်ညောင်ကျေးရွာ၊ သာစည်မြို့နယ်။
Date and Time of collection 6.8.2024 (10:30 AM)
Date and Time of arrival at Laboratory 7.8.2024
Date and Time of commencing examination 8.8.2024
Date and Time of completing 9.8.2024

Results of Water Analysis

WHO Drinking Water Guideline (Geneva - 1993)

pH		6.5 - 8.5
Colour (True)	TCU	15 TCU
Turbidity	NTU	5 NTU
Conductivity	micro S/cm	
Total Hardness	mg/l as CaCO ₃	500 mg/l as CaCO ₃
Calcium Hardness	mg/l as CaCO ₃	
Magnesium Hardness	mg/l as CaCO ₃	
Total Alkalinity	mg/l as CaCO ₃	
Phenolphthalein Alkalinity	mg/l as CaCO ₃	
Carbonate (CaCO ₃)	mg/l as CaCO ₃	
Bicarbonate (HCO ₃)	mg/l as CaCO ₃	
Iron	0.88 mg/l	0.3 mg/l
Chloride (as CL)	mg/l	250 mg/l
Sodium Chloride (as NaCL)	mg/l	
Sulphate (as SO ₄)	mg/l	500 mg/l
Total Solids	mg/l	1500 mg/l
Total Suspended Solids	mg/l	
Total Dissolved Solids	mg/l	1000 mg/l
Manganese	mg/l	0.05 mg/l
Phosphate	mg/l	
Phenolphthalein Acidity	mg/l	
Methyl Orange Acidity	mg/l	
Salinity	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by

Signature:

Name:

Hein
Zaw Hein Oo
B.Sc (Chemistry)
Br.Chemist

Approved by

Signature:

Name:

Thinzar
Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

(a division of WEG Co., Ltd.) ISO Tech Laboratory

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.

Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

W0824 167

WATER QUALITY TEST RESULTS FORM

Client Shwe Taung Cement
Nature of Water ဆည်ရေ
Location ပြည်ညောင်ကျေးရွာ၊ သာစည်မြို့နယ်။
Date and Time of collection 6.8.2024 (10:30 AM)
Date and Time of arrival at Laboratory 7.8.2024
Date and Time of commencing examination 8.8.2024
Date and Time of completing 9.8.2024

Results of Water Analysis

WHO Drinking Water Guideline (Geneva - 1993)

Temperature (°C)		°C	
Fluoride (F)	0.4	mg/l	1.5 mg/l
Lead (as Pb)		mg/l	0.01 mg/l
Arsenic (As)	0.005	mg/l	0.01 mg/l
Nitrate (N.NO ₃)		mg/l	50 mg/l
Chlorine (Residual)	Nil	mg/l	
Ammonia Nitrogen (NH ₃)	0.15	mg/l	
Ammonium Nitrogen (NH ₄)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)		mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)		mg/l	
Cyanide (CN)	0.011	mg/l	0.07 mg/l
Zinc (Zn)		mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO ₂)		mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by

Signature: Henry

Name:

Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by

Signature: Thinzar Theint Theint



Name:

Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

(a division of WEG Co., Ltd.)

No.18. Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.

Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

 SHWE TAUNG Building Materials	SHWE TAUNG CEMENT COMPANY LIMITED	 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report	

APPENDIX - (B-5) **(Sedimentation Pond 5 Water Results)**

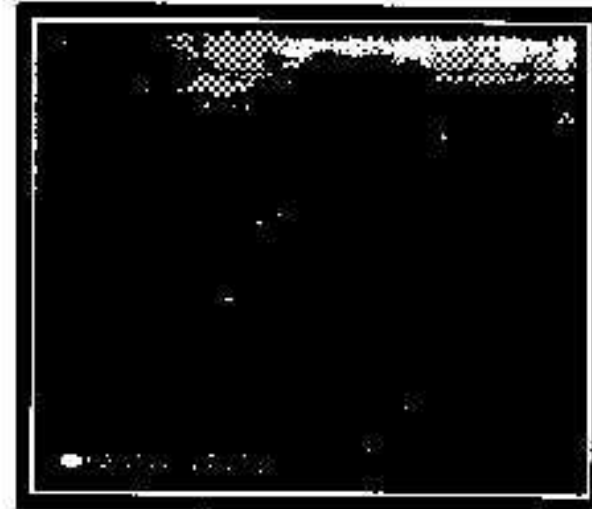


Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water Surface Water
Location Beside 103 & 501 Area
Date of sample collection 13.05.2024
Date of sample examination 14.05.2024
Date of completing 20.05.2024



Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.7	6-9	
Chemical Oxygen Demand(COD)	68 mg/L	0-125mg/L	
Biological Oxygen Demand(BOD)	43 mg/L	0-30mg/L	
Total Suspended Solid(TSS)	130 mg/L	Max 50mg/L	
Total Nitrogen	Non Determination	10mg/L	Can't Test
Total Nitrate	Non Determination	44.29mg/L	Can't Test
Total Phosphorous	0.2 mg/L	2mg/L	
Oil & Grease	Non Determination	10 mg/L	Can't Test

Tested by,

Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water Surface Water
Location Beside 103 & 501 Area
Date of sample collection 14.06.2024
Date of sample examination 14.06.2024
Date of completing 22.06.2024



Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8	6-9	
Chemical Oxygen Demand(COD)	96 mg/L	0-125mg/L	
Biological Oxygen Demand(BOD)	13 mg/L	0-30mg/L	
Total Suspended Solid(TSS)	99 mg/L	Max 50mg/L	
Total Nitrogen	1.65mg/L	10mg/L	
Total Nitrate	7.3 mg/L	44.29mg/L	
Total Phosphorous	0.2 mg/L	2mg/L	
Oil & Grease	Non Determination	10 mg/L	Can't Test

Tested by,

Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.

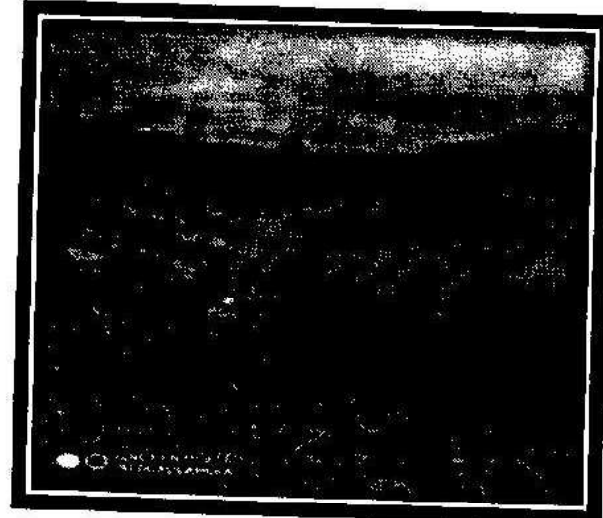


Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water Surface Water
Location Beside 103 & 501 Area
Date of sample collection 15.07.2024
Date of sample examination 16.07.2024
Date of completing 24.07.2024



Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.3	6-9	
Chemical Oxygen Demand(COD)	93 mg/L	0-125mg/L	
Biological Oxygen Demand(BOD)	26 mg/L	0-30mg/L	
Total Suspended Solid(TSS)	87 mg/L	Max 50mg/L	
Total Phosphorous	0.2 mg/L	2mg/L	
Oil & Grease	Non Determination	10 mg/L	Can't Test

Tested by,

Han Ko Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.

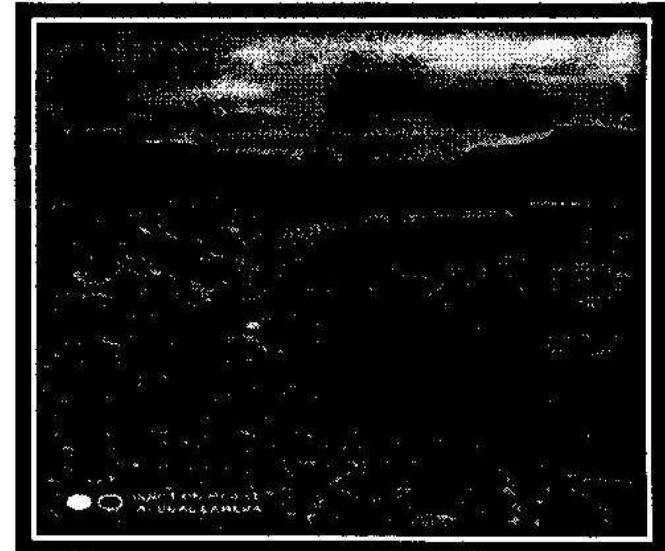


Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water Surface Water
Location Beside 103 & 501 Area
Date of sample collection 07.08.2024
Date of sample examination 08.08.2024
Date of completing 10.08.2024



Description of Analysis	Analysis Results	IFC Waste Water Guideline
pH	8.1	6-9
Chemical Oxygen Demand(COD)	60 mg/L	0-125mg/L
Total Suspended Solid(TSS)	48 mg/L	Max 50mg/L
Total Phosphorous	0.3 mg/L	2mg/L
Total Nitrogen	2.05 mg/L	10mg/L
Total Nitrate	9.1 mg/L	44.29mg/L

Tested by,

Han Ko Win

Chemist

Lab & QC Department

Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe

Team Leader

Lab & QC Department

Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water

Location

Date of sample collection

Date of sample examination

Date of completing

Surface Water

Beside 103 & 501 Area

16.09.2024

16.09.2024

20.09.2024



Description of Analysis	Analysis Results	IFC Waste Water Guideline
pH	8.1	6-9
Chemical Oxygen Demand(COD)	55 mg/L	0-125mg/L
Total Suspended Solid(TSS)	28 mg/L	Max 50mg/L
Total Phosphorous	0.3 mg/L	2 mg/L
Total Nitrogen	2.75mg/L	10mg/L
Total Nitrate	12.2 mg/L	44.29mg/L

Tested by,

Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water Surface Water
Location Beside 103 & 501 Area
Date of sample collection 24.10.2024
Date of sample examination 25.10.2024
Date of completing 26.10.2024



Description of Analysis	Analysis Results	IFC Waste Water Guideline
pH	8.2	6-9
Chemical Oxygen Demand(COD)	12 mg/L	0-125mg/L
Total Suspended Solid(TSS)	18 mg/L	Max 50mg/L
Total Phosphorous	0.1 mg/L	2 mg/L
Total Nitrogen	1.78 mg/L	10mg/L
Total Nitrate	7.9 mg/L	44.29mg/L

Tested by,



Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.

	SHWE TAUNG CEMENT COMPANY LIMITED	 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report	

APPENDIX - (B-6)

(Sedimentation Pond 9 Water Results)



Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	Surface Water(Effluent Water)
Location	55 Acre (Bio Tank)
Date of sample collection	19.09.2024
Date of sample examination	20.09.2024
Date of completing	24.09.2024

Description of Analysis	Analysis Results	IFC Waste Water Guideline
pH	8.2	6-9
Chemical Oxygen Demand(COD)	38 mg/L	0-125mg/L
Total Suspended Solid(TSS)	33 mg/L	Max 50mg/L
Total Nitrogen	2.42 mg/L	10mg/L
Total Nitrate	10.7 mg/L	44.29mg/L
Total Phosphorous	2.6 mg/L	2mg/L

Tested by,

Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By, ^{For}

Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.



Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	Surface Water(Effluent Water)
Location	55 Acre (Bio Tank)
Date of sample collection	24.10.2024
Date of sample examination	25.10.2024
Date of completing	26.10.2024

Description of Analysis	Analysis Results	IFC Waste Water Guideline
pH	8.2	6-9
Chemical Oxygen Demand(COD)	33 mg/L	0-125mg/L
Total Suspended Solid(TSS)	19 mg/L	Max 50mg/L
Total Nitrogen	4.49 mg/L	10mg/L
Total Nitrate	19.9 mg/L	44.29mg/L
Total Phosphorous	2.3 mg/L	2mg/L

Tested by,



Han Ko Win
Chemist

Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,



Ye' Naing Soe
Team Leader

Lab & QC Department
Shwe Taung Cement Co., Ltd.

 SHWE TAUNG Building Materials	SHWE TAUNG CEMENT COMPANY LIMITED	 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report	

APPENDIX- C

Ambient Air Quality Results

 SHWE TAUNG Building Materials	SHWE TAUNG CEMENT COMPANY LIMITED		 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report		

APPENDIX - (C-1)

Ambient Air Quality Results of Plant Site




Environmental Report

Record Cnt 1440

Start Date 07-05-2024
10:39:00 AM

End Date 08-05-2024
10:38:00 AM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	28.6951	7.07361	0	.185847	43.6729	31.3437	7.97638	0	54.1347	27.4	206.736	1.29131	10.1875	0	0	0	0
Max	83	65	0	.42	113	66	46	0	100	34	359	6.3	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	26	21	0	0	9.7	0	0	0	0
EPAS 919217	28.6951	7.07361	0	.185847	43.6729	31.3437	7.97638	0	54.1347	27.4	206.736	1.29131	10.1875	0	0	0	0
	83	65	0	.42	113	66	46	0	100	34	359	6.3	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	26	21	0	0	9.7	0	0	0	0
Daily Fri, Jul 5, 2024	28.5655	10.5867	0	.186754	28.5593	27.4382	13.7091	0	39.5093	29.9787	208.375	2.07103	10.2340	0	0	0	0
	83	65	0	.42	111	66	46	0	69	34	359	6.3	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	26	24	1	0	9.9	0	0	0	0
Ave Period 24 05-07-2024 11:59 P.M.	28.5655	10.5867	0	.186754	28.5593	27.4382	13.7091	0	39.5093	29.9787	208.375	2.07103	10.2340	0	0	0	0
	83	65	0	.42	111	66	46	0	69	34	359	6.3	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	26	24	1	0	9.9	0	0	0	0
Daily Mon, Aug 5, 2024	28.8575	2.66979	0	.184710	62.6181	36.2394	.790297	0	72.4679	24.1674	204.682	.313928	10.1292	0	0	0	0
	56	11	0	.38	113	60	11	0	100	32	357	4.7	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	31	21	0	0	9.7	0	0	0	0
Ave Period 24 05-08-2024 10:38 A.M.	28.8575	2.66979	0	.184710	62.6181	36.2394	.790297	0	72.4679	24.1674	204.682	.313928	10.1292	0	0	0	0
	56	11	0	.38	113	60	11	0	100	32	357	4.7	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	31	21	0	0	9.7	0	0	0	0

Main			Preferences			Header			Data			Report		
														
Record Cnt 1440														
Start Date 19-06-2024														
3:05:00 PM														
End Date 20-06-2024														
3:04:01 PM														
									</					



Environmental Report

Record Cnt 1440

Start Date 04-07-2024
4:29:00 PM

End Date 05-07-2024
4:28:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	14.4958	5.18263	20.7930	.072729	23.1347	13.4055	1.19444	.000347	83.7319	26.1659	153.636	.652569	10.1354	0	0	0	0
Max	79	59	83	.37	62	33	16	.13	100	32	359	7.6	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	46	23	5	0	9.6	0	0	0	0
EPAS 919217	14.4958	5.18263	20.7930	.072729	23.1347	13.4055	1.19444	.000347	83.7319	26.1659	153.636	.652569	10.1354	0	0	0	0
	79	59	83	.37	62	33	16	.13	100	32	359	7.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	46	23	5	0	9.6	0	0	0	0
Daily Sun, Apr 7, 2024	26.2727	10.9157	17.1596	.100776	26.1130	16.3569	2.88248	.001108	89.8957	25.1596	190.337	1.38603	10.2203	0	0	0	0
	79	59	69	.37	62	33	16	.13	100	30	325	7.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	57	23	27	0	9.7	0	0	0	0
Ave Period 24 07-04-2024 11:59 P.M.	26.2727	10.9157	17.1596	.100776	26.1130	16.3569	2.88248	.001108	89.8957	25.1596	190.337	1.38603	10.2203	0	0	0	0
	79	59	69	.37	62	33	16	.13	100	30	325	7.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	57	23	27	0	9.7	0	0	0	0
Daily Tue, May 7, 2024	9.12537	2.56825	22.4499	.059939	21.7765	12.0596	.424671	0	80.9211	26.6248	136.900	.318099	10.0967	0	0	0	0
	42	14	83	.29	57	31	15	0	100	32	359	3.6	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	46	23	5	0	9.6	0	0	0	0
Ave Period 24 07-05-2024 04:28 P.M.	9.12537	2.56825	22.4499	.059939	21.7765	12.0596	.424671	0	80.9211	26.6248	136.900	.318099	10.0967	0	0	0	0
	42	14	83	.29	57	31	15	0	100	32	359	3.6	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	46	23	5	0	9.6	0	0	0	0



Environmental Report

Record Cnt 1440

Start Date 13-08-2024
4:48:00 PM

End Date 14-08-2024
4:47:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	8.0875	3.28402	0	.076375	40.3673	22.9826	.118055	.005236	100	23.5083	163.75	.008611	10.2427	0	0	0	0
Max	26	14	0	.42	141	51	14	.19	100	25	256	.8	10.5	0	0	0	0
Min	2	1	0	0	2	5	0	0	100	23	82	0	9.7	0	0	0	0
EPAS 919217	8.0875	3.28402	0	.076375	40.3673	22.9826	.118055	.005236	100	23.5083	163.75	.008611	10.2427	0	0	0	0
	26	14	0	.42	141	51	14	.19	100	25	256	.8	10.5	0	0	0	0
	2	1	0	0	2	5	0	0	100	23	82	0	9.7	0	0	0	0
Daily Tue, Aug 13, 2024	10.4027	4.57638	0	.083148	55.9467	29.9884	.393518	.005231	100	23.4143	230.344	.000462	10.3402	0	0	0	0
	26	14	0	.42	69	36	14	.19	100	24	256	.1	10.5	0	0	0	0
	2	1	0	0	44	23	0	0	100	23	172	0	9.9	0	0	0	0
Ave Period 24 13-08-2024 11:59 P.M.	10.4027	4.57638	0	.083148	55.9467	29.9884	.393518	.005231	100	23.4143	230.344	.000462	10.3402	0	0	0	0
	26	14	0	.42	69	36	14	.19	100	24	256	.1	10.5	0	0	0	0
	2	1	0	0	44	23	0	0	100	23	172	0	9.9	0	0	0	0
Daily Wed, Aug 14, 2024	7.09523	2.73015	0	.073472	33.6904	19.9801	0	.005238	100	23.5486	135.209	.012103	10.2009	0	0	0	0
	17	11	0	.22	141	51	0	.13	100	25	220	.8	10.5	0	0	0	0
	2	1	0	0	2	5	0	0	100	23	82	0	9.7	0	0	0	0
Ave Period 24 14-08-2024 04:47 P.M.	7.09523	2.73015	0	.073472	33.6904	19.9801	0	.005238	100	23.5486	135.209	.012103	10.2009	0	0	0	0
	17	11	0	.22	141	51	0	.13	100	25	220	.8	10.5	0	0	0	0
	2	1	0	0	2	5	0	0	100	23	82	0	9.7	0	0	0	0



Environmental Report

Record Cnt 1440

Start Date 24-09-2024 8:27:00 AM

End Date 25-09-2024 8:26:00 AM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	12.0486	5.72430	0	.092034	38.2958	24.4354	2.19513	.010708	93.9104	24.4395	180.243	.273680	10.3313	0	0	0	0
Max	87	53	0	.34	403	140	60	.48	100	30	360	8.6	10.7	0	0	0	0
Min	2	1	0	0	2	1	0	0	56	23	0	0	9.6	0	0	0	0
EPAS 919217	12.0486	5.72430	0	.092034	38.2958	24.4354	2.19513	.010708	93.9104	24.4395	180.243	.273680	10.3313	0	0	0	0
	87	53	0	.34	403	140	60	.48	100	30	360	8.6	10.7	0	0	0	0
	2	1	0	0	2	1	0	0	56	23	0	0	9.6	0	0	0	0
Daily Tue, Sep 24, 2024	15.0428	7.64415	0	.091693	35.6259	24.6966	3.38799	.014651	90.6066	25.1339	162.297	.421972	10.4133	0	0	0	0
	87	53	0	.34	403	140	60	.48	100	30	359	8.6	10.7	0	0	0	0
	2	1	0	0	2	1	0	0	56	23	0	0	9.9	0	0	0	0
Ave Period 24 24-09-2024 11:59 ****	15.0428	7.64415	0	.091693	35.6259	24.6966	3.38799	.014651	90.6066	25.1339	162.297	.421972	10.4133	0	0	0	0
	87	53	0	.34	403	140	60	.48	100	30	359	8.6	10.7	0	0	0	0
	2	1	0	0	2	1	0	0	56	23	0	0	9.9	0	0	0	0
Daily Wed, Sep 25,	6.53846	2.19132	0	.092662	43.2090	23.9546	0	.003451	99.9901	23.1617	213.268	.000788	10.1804	0	0	0	0
	26	10	0	.17	128	52	0	.14	100	26	360	.1	10.3	0	0	0	0
	2	1	0	.05	15	9	0	0	95	23	3	0	9.6	0	0	0	0
Ave Period 24 25-09-2024 08:26 ****	6.53846	2.19132	0	.092662	43.2090	23.9546	0	.003451	99.9901	23.1617	213.268	.000788	10.1804	0	0	0	0
	26	10	0	.17	128	52	0	.14	100	26	360	.1	10.3	0	0	0	0
	2	1	0	.05	15	9	0	0	95	23	3	0	9.6	0	0	0	0





Environmental Report

Record Cnt 1440

Start Date 07-10-2024 2:44:00 PM

End Date 08-10-2024 2:43:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	17.2104	7.06180	.072916	.070375	21.75	12.7437	1.66944	0	88.5583	24.7625	230.987	.476527	10.1920	0	0	0	0
Max	119	72	11	.68	190	84	74	0	100	31	360	6.9	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	56	22	0	0	9.7	0	0	0	0
EPAS 919217	17.2104	7.06180	.072916	.070375	21.75	12.7437	1.66944	0	88.5583	24.7625	230.987	.476527	10.1920	0	0	0	0
	119	72	11	.68	190	84	74	0	100	31	360	6.9	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.7	0	0	0	0
Daily Wed, Jul 10, 2024	18.6618	7.11690	0	.079172	27.3758	15.7913	4.19604	0	90.3561	25.0197	263.334	.454316	10.2458	0	0	0	0
	72	36	0	.68	190	84	74	0	100	31	360	4.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	61	23	0	0	9.9	0	0	0	0
Ave Period 24 10-07-2024 11:59 PMA	18.6618	7.11690	0	.079172	27.3758	15.7913	4.19604	0	90.3561	25.0197	263.334	.454316	10.2458	0	0	0	0
	72	36	0	.68	190	84	74	0	100	31	360	4.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	61	23	0	0	9.9	0	0	0	0
Daily Sat, Aug 10, 2024	16.2975	7.02714	.118778	.064841	18.2115	10.8269	.080316	0	87.4276	24.6006	210.642	.490497	10.1581	0	0	0	0
	119	72	11	.36	45	24	4	0	100	31	358	6.9	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	1	0	9.7	0	0	0	0
Ave Period 24 10-08-2024 02:43 PMA	16.2975	7.02714	.118778	.064841	18.2115	10.8269	.080316	0	87.4276	24.6006	210.642	.490497	10.1581	0	0	0	0
	119	72	11	.36	45	24	4	0	100	31	358	6.9	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	1	0	9.7	0	0	0	0

	SHWE TAUNG CEMENT COMPANY LIMITED		 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report		

APPENDIX - (C-2)

Ambient Air Quality Results of Pyi Nyaung Village



Environmental Report

Record Cnt 1440

Start Date 13-05-2024
2:58:00 PM

End Date 14-05-2024
2:57:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	40.6138	9.58125	0	.242243	45.2638	13.2576	31.4291	0	0	0	172.690	.214236	10.3421	0	0	0	0
Max	104	73	0	1.5	115	35	89	0	0	0	360	2.8	10.6	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	0	0	0	9.9	0	0	0	0
EPAS 919217	40.6138	9.58125	0	.242243	45.2638	13.2576	31.4291	0	0	0	172.690	.214236	10.3421	0	0	0	0
	104	73	0	1.5	115	35	89	0	0	0	360	2.8	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	0	0	0	0	9.9	0	0	0	0
Daily Mon, May 13,	55.2195	16.4483	0	.297804	33.5571	10.2767	42.1457	0	0	0	185.241	.087084	10.4640	0	0	0	0
	104	73	0	1.5	106	34	81	0	0	0	356	2.6	10.6	0	0	0	0
	12	1	0	0	2	1	12	0	0	0	1	0	10	0	0	0	0
Ave Period 24 13-05-2024 11:59 P.M.	55.2195	16.4483	0	.297804	33.5571	10.2767	42.1457	0	0	0	185.241	.087084	10.4640	0	0	0	0
	104	73	0	1.5	106	34	81	0	0	0	356	2.6	10.6	0	0	0	0
	12	1	0	0	2	1	12	0	0	0	1	0	10	0	0	0	0
Daily Tue, May 14, 2024	31.7984	5.43652	0	.208708	52.3296	15.0567	24.9610	0	0	0	165.115	.290979	10.2685	0	0	0	0
	84	73	0	.98	115	35	89	0	0	0	360	2.8	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	0	0	0	9.9	0	0	0	0
Ave Period 24 14-05-2024 02:57 P.M.	31.7984	5.43652	0	.208708	52.3296	15.0567	24.9610	0	0	0	165.115	.290979	10.2685	0	0	0	0
	84	73	0	.98	115	35	89	0	0	0	360	2.8	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	0	0	0	9.9	0	0	0	0




Environmental Report


Record Cnt 1440

Start Date 13-06-2024 11:28:00 AM

End Date 14-06-2024 11:27:00 AM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	7.83055	2.74305	0	.111361	20.6805	12.8548	10.4256	.001930	98.1868	24.9833	193.668	.024930	10.3345	0	0	0	0
Max	41	20	0	.45	43	23	30	.22	100	27	359	1.6	10.6	0	0	0	0
Min	2	1	0	0	2	1	0	0	79	24	2	0	9.9	0	0	0	0
EPAS 919217	7.83055	2.74305	0	.111361	20.6805	12.8548	10.4256	.001930	98.1868	24.9833	193.668	.024930	10.3345	0	0	0	0
	41	20	0	.45	43	23	30	.22	100	27	359	1.6	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	79	24	2	0	9.9	0	0	0	0
Daily Thu, Jun 13, 2024	9.73936	3.68484	0	.116861	16.7353	10.9242	16.0598	.003031	97.6768	25.4308	223.779	.039627	10.4118	0	0	0	0
	41	20	0	.45	43	23	30	.22	100	27	352	1.6	10.6	0	0	0	0
	2	1	0	0	2	1	2	0	79	24	2	0	9.9	0	0	0	0
Ave Period 24 13-06-2024 11:59 ****	9.73936	3.68484	0	.116861	16.7353	10.9242	16.0598	.003031	97.6768	25.4308	223.779	.039627	10.4118	0	0	0	0
	41	20	0	.45	43	23	30	.22	100	27	352	1.6	10.6	0	0	0	0
	2	1	0	0	2	1	2	0	79	24	2	0	9.9	0	0	0	0
Daily Fri, Jun 14, 2024	5.74418	1.71366	0	.105348	24.9927	14.9651	4.26744	.000726	98.7441	24.4941	160.755	.008866	10.25	0	0	0	0
	16	8	0	.39	40	23	18	.13	100	27	359	.8	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	79	24	6	0	9.9	0	0	0	0
Ave Period 24 14-06-2024 11:27 ****	5.74418	1.71366	0	.105348	24.9927	14.9651	4.26744	.000726	98.7441	24.4941	160.755	.008866	10.25	0	0	0	0
	16	8	0	.39	40	23	18	.13	100	27	359	.8	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	79	24	6	0	9.9	0	0	0	0

Main			Preferences			Header			Data			Report		
														
Record Cnt 1440														
Start Date 15-07-2024														
4:42:00 PM														
End Date 16-07-2024														
4:41:01 PM														

Main			Preferences			Header			Data			Report		
														
Record Cnt 1440														
Start Date 20-08-2024														
2:55:00 PM														
End Date 21-08-2024														
2:54:00 PM														




Environmental Report



Record Cnt 1440

Start Date 16-09-2024 1:50:00 PM

End Date 17-09-2024 1:49:00 PM


	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	20.5881	7.95486	.600694	.305631	16.0395	12.4736	7.48333	.000701	87.7048	26.1229	150.584	.031180	9.80569	0	0	0	0
Max	317	87	20	2.24	46	29	95	.14	100	33	240	1.6	10	0	0	0	0
Min	2	1	0	0	2	1	0	0	45	23	7	0	9.1	0	0	0	0
EPAS 919217	20.5881	7.95486	.600694	.305631	16.0395	12.4736	7.48333	.000701	87.7048	26.1229	150.584	.031180	9.80569	0	0	0	0
	317	87	20	2.24	46	29	95	.14	100	33	240	1.6	10	0	0	0	0
	2	1	0	0	2	1	0	0	45	23	7	0	9.1	0	0	0	0
Daily Mon, Sep 16, 2024	31.2950	11.8852	.034426	.360557	13.6032	10.8524	14.2983	0	85.9491	26.8245	143.080	.042131	9.89721	0	0	0	0
	317	53	2	2.24	46	29	95	0	100	33	240	.8	10	0	0	0	0
	2	1	0	0	2	1	0	0	45	24	7	0	9.3	0	0	0	0
Ave Period 24 16-09-2024 11:59 P.M.	31.2950	11.8852	.034426	.360557	13.6032	10.8524	14.2983	0	85.9491	26.8245	143.080	.042131	9.89721	0	0	0	0
	317	53	2	2.24	46	29	95	0	100	33	240	.8	10	0	0	0	0
	2	1	0	0	2	1	0	0	45	24	7	0	9.3	0	0	0	0
Daily Tue, Sep 17, 2024	12.7192	5.06626	1.01686	.265265	17.8301	13.6650	2.47469	.001216	88.9951	25.6072	156.1	.023132	9.73843	0	0	0	0
	129	87	20	1.3	43	28	51	.14	100	32	229	1.6	10	0	0	0	0
	2	1	0	0	2	1	0	0	57	23	57	0	9.1	0	0	0	0
Ave Period 24 17-09-2024 01:49 P.M.	12.7192	5.06626	1.01686	.265265	17.8301	13.6650	2.47469	.001216	88.9951	25.6072	156.1	.023132	9.73843	0	0	0	0
	129	87	20	1.3	43	28	51	.14	100	32	229	1.6	10	0	0	0	0
	2	1	0	0	2	1	0	0	57	23	57	0	9.1	0	0	0	0

Main		Preferences		Header		Data		Report											
																			
Record Cnt		1440																	
Start Date		29-10-2024																	
		2:04:00 PM																	
End Date		30-10-2024																	
		2:03:00 PM																	

 SHWE TAUNG Building Materials	SHWE TAUNG CEMENT COMPANY LIMITED	 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report	

APPENDIX - (C-3)

Ambient Air Quality Results of Ku Pyin Village

Main			Preferences			Header			Data			Report		
														
Record Cnt 1440														
Start Date 15-05-2024														
4:08:00 PM														
End Date 16-05-2024														
4:07:00 PM														



Environmental Report

Record Cnt 1440

Start Date 06-06-2024 3:20:00 PM

End Date 07-06-2024 3:19:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	55.6958	7.27430	0	.105395	87.8868	36.3854	6.84027	.040833	96.0180	19.8437	153.784	.14625	10.2432	0	0	0	0
Max	3152	97	0	.34	357	136	91	.76	100	26	344	3.9	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	60	4	1	0	9.7	0	0	0	0
EPAS 919217	55.6958	7.27430	0	.105395	87.8868	36.3854	6.84027	.040833	96.0180	19.8437	153.784	.14625	10.2432	0	0	0	0
	3152	97	0	.34	357	136	91	.76	100	26	344	3.9	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	60	4	1	0	9.7	0	0	0	0
Daily Thu, Jun 6, 2024	116.419	7.625	0	.122134	106.413	40.025	9.37307	.091192	100	23.9769	104.907	.01	10.2944	0	0	0	0
	3152	74	0	.34	351	136	91	.76	100	26	306	.5	10.5	0	0	0	0
	2	1	0	.04	34	20	0	0	100	23	48	0	9.9	0	0	0	0
Ave Period 24 06-06-2024 11:59 P.M.	116.419	7.625	0	.122134	106.413	40.025	9.37307	.091192	100	23.9769	104.907	.01	10.2944	0	0	0	0
	3152	74	0	.34	351	136	91	.76	100	26	306	.5	10.5	0	0	0	0
	2	1	0	.04	34	20	0	0	100	23	48	0	9.9	0	0	0	0
Daily Fri, Jun 7, 2024	21.3739	7.07608	0	.095934	77.4152	34.3282	5.40869	.012369	93.7673	17.5076	181.409	.223260	10.2143	0	0	0	0
	1379	97	0	.33	357	129	54	.56	100	25	344	3.9	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	60	4	1	0	9.7	0	0	0	0
Ave Period 24 07-06-2024 03:19 P.M.	21.3739	7.07608	0	.095934	77.4152	34.3282	5.40869	.012369	93.7673	17.5076	181.409	.223260	10.2143	0	0	0	0
	1379	97	0	.33	357	129	54	.56	100	25	344	3.9	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	60	4	1	0	9.7	0	0	0	0



Environmental Report

Record Cnt 1440

Start Date 22-07-2024
2:06:00 PM

End Date 23-07-2024
2:05:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	8.17361	3.52152	30.4138	.075291	19.9229	12.3701	1.14861	.001041	89.4854	25.2861	200.05	.142291	10.1427	0	0	0	0
Max	81	50	93	.52	65	35	30	.14	100	31	359	3.7	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	55	23	0	0	9.1	0	0	0	0
EPAS 919217	8.17361	3.52152	30.4138	.075291	19.9229	12.3701	1.14861	.001041	89.4854	25.2861	200.05	.142291	10.1427	0	0	0	0
	81	50	93	.52	65	35	30	.14	100	31	359	3.7	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	55	23	0	0	9.1	0	0	0	0
Daily Mon, Jul 22, 2024	12.9191	6.73063	20.1498	.081666	29.9747	17.4983	2.66161	.002525	92.7676	24.9730	200.491	.077609	10.3055	0	0	0	0
	81	50	73	.52	65	35	30	.14	100	29	355	2.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	63	23	0	0	9.6	0	0	0	0
Ave Period 24 22-07-2024 11:59 P.M.	12.9191	6.73063	20.1498	.081666	29.9747	17.4983	2.66161	.002525	92.7676	24.9730	200.491	.077609	10.3055	0	0	0	0
	81	50	73	.52	65	35	30	.14	100	29	355	2.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	63	23	0	0	9.6	0	0	0	0
Daily Tue, Jul 23, 2024	4.84160	1.26832	37.6205	.070815	12.8652	8.76950	.086288	0	87.1808	25.5059	199.739	.187706	10.0283	0	0	0	0
	18	7	93	.34	41	23	7	0	100	31	359	3.7	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	55	23	0	0	9.1	0	0	0	0
Ave Period 24 23-07-2024 02:05 P.M.	4.84160	1.26832	37.6205	.070815	12.8652	8.76950	.086288	0	87.1808	25.5059	199.739	.187706	10.0283	0	0	0	0
	18	7	93	.34	41	23	7	0	100	31	359	3.7	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	55	23	0	0	9.1	0	0	0	0



Environmental Report

Record Cnt 1440

Start Date 16-08-2024 1:35:00 PM

End Date 17-08-2024 1:34:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	11.4361	5.97777	0	.057493	34.7201	17.8590	2.0875	.004569	91.7083	25.0298	214.579	.16375	10.2438	0	0	0	0
Max	70	61	0	1.06	375	136	68	.63	100	30	358	4.2	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	58	23	14	0	9.7	0	0	0	0
EPAS 919217	11.4361	5.97777	0	.057493	34.7201	17.8590	2.0875	.004569	91.7083	25.0298	214.579	.16375	10.2438	0	0	0	0
	70	61	0	1.06	375	136	68	.63	100	30	358	4.2	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	58	23	14	0	9.7	0	0	0	0
Daily Fri, Aug 16, 2024	14.8176	8.6672	0	.067392	50.336	23.9088	4.72	.010128	91.2128	25.2208	196.212	.21536	10.3352	0	0	0	0
	66	61	0	.29	375	136	68	.63	100	30	358	4.2	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	61	23	14	0	9.9	0	0	0	0
Ave Period 24 16-08-2024 11:59 P.M.	14.8176	8.6672	0	.067392	50.336	23.9088	4.72	.010128	91.2128	25.2208	196.212	.21536	10.3352	0	0	0	0
	66	61	0	.29	375	136	68	.63	100	30	358	4.2	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	61	23	14	0	9.9	0	0	0	0
Daily Sat, Aug 17, 2024	8.84294	3.91533	0	.049901	22.7447	13.2196	.068711	.000306	92.0883	24.8834	228.665	.124171	10.1737	0	0	0	0
	70	51	0	1.06	51	28	8	.13	100	30	354	4	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	58	23	30	0	9.7	0	0	0	0
Ave Period 24 17-08-2024 01:34 P.M.	8.84294	3.91533	0	.049901	22.7447	13.2196	.068711	.000306	92.0883	24.8834	228.665	.124171	10.1737	0	0	0	0
	70	51	0	1.06	51	28	8	.13	100	30	354	4	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	58	23	30	0	9.7	0	0	0	0



Environmental Report

Record Cnt 1440

Start Date 19-09-2024 3:12:00 PM

End Date 20-09-2024 3:11:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	18.4451	9.93472	0	.072451	38.0930	20.7465	5.02152	.005097	89.3520	26.1270	253.053	.255763	10.3373	0	0	0	0
Max	108	68	0	.5	246	95	83	.65	100	32	359	4.6	10.6	0	0	0	0
Min	2	1	0	0	2	1	0	0	56	22	0	0	9.9	0	0	0	0
EPAS 919217	18.4451	9.93472	0	.072451	38.0930	20.7465	5.02152	.005097	89.3520	26.1270	253.053	.255763	10.3373	0	0	0	0
	108	68	0	.5	246	95	83	.65	100	32	359	4.6	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.9	0	0	0	0
Daily Thu, Sep 19, 2024	24.9696	11.6041	0	.092443	34.7935	22.0776	7.26704	0	94.1893	25.6363	282.924	.232765	10.4821	0	0	0	0
	104	56	0	.18	71	37	36	0	100	30	358	3.7	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	69	24	4	0	10	0	0	0	0
Ave Period 24 19-09-2024 11:59 P.M.	24.9696	11.6041	0	.092443	34.7935	22.0776	7.26704	0	94.1893	25.6363	282.924	.232765	10.4821	0	0	0	0
	104	56	0	.18	71	37	36	0	100	30	358	3.7	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	69	24	4	0	10	0	0	0	0
Daily Fri, Sep 20, 2024	14.6677	8.96820	0	.060877	40.0032	19.9758	3.72149	.008048	86.5515	26.4111	235.759	.269078	10.2535	0	0	0	0
	108	68	0	.5	246	95	83	.65	100	32	359	4.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.9	0	0	0	0
Ave Period 24 20-09-2024 03:11 P.M.	14.6677	8.96820	0	.060877	40.0032	19.9758	3.72149	.008048	86.5515	26.4111	235.759	.269078	10.2535	0	0	0	0
	108	68	0	.5	246	95	83	.65	100	32	359	4.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.9	0	0	0	0





Environmental Report

Record Cnt 1440

Start Date 23-10-2024
3:47:00 PM

End Date 24-10-2024
3:46:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	12.6361	4.80416	.000694	.074243	22.2333	14.4375	1.90625	0	88.4180	24.9652	169.236	.179513	9.93527	0	0	0	0
Max	89	56	1	.71	59	34	23	0	100	31	358	5.2	10.2	0	0	0	0
Min	2	1	0	0	2	1	0	0	56	22	0	0	9.3	0	0	0	0
EPAS 919217	12.6361	4.80416	.000694	.074243	22.2333	14.4375	1.90625	0	88.4180	24.9652	169.236	.179513	9.93527	0	0	0	0
	89	56	1	.71	59	34	23	0	100	31	358	5.2	10.2	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.3	0	0	0	0
Daily Wed, Oct 23, 2024	19.8620	7.35091	.002028	.091805	34.2068	21.6572	2.33874	0	97.7991	24.1277	143.931	.078701	10.0137	0	0	0	0
	58	41	1	.34	59	34	15	0	100	27	188	3.6	10.2	0	0	0	0
	2	1	0	0	2	1	0	0	78	23	14	0	9.6	0	0	0	0
Ave Period 24 23-10-2024 11:59 P.M.	19.8620	7.35091	.002028	.091805	34.2068	21.6572	2.33874	0	97.7991	24.1277	143.931	.078701	10.0137	0	0	0	0
	58	41	1	.34	59	34	15	0	100	27	188	3.6	10.2	0	0	0	0
	2	1	0	0	2	1	0	0	78	23	14	0	9.6	0	0	0	0
Daily Thu, Oct 24, 2024	8.87434	3.47835	0	.065100	16	10.6789	1.68109	0	83.5343	25.4012	182.410	.231995	9.89440	0	0	0	0
	89	56	0	.71	48	27	23	0	100	31	358	5.2	10	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.3	0	0	0	0
Ave Period 24 24-10-2024 03:46 P.M.	8.87434	3.47835	0	.065100	16	10.6789	1.68109	0	83.5343	25.4012	182.410	.231995	9.89440	0	0	0	0
	89	56	0	.71	48	27	23	0	100	31	358	5.2	10	0	0	0	0
	2	1	0	0	2	1	0	0	56	22	0	0	9.3	0	0	0	0

 SHWE TAUNG Building Materials	SHWE TAUNG CEMENT COMPANY LIMITED	 SHWE TAUNG CEMENT CO.,LTD.
	Bi-Annual Environmental Monitoring Report	

APPENDIX-D

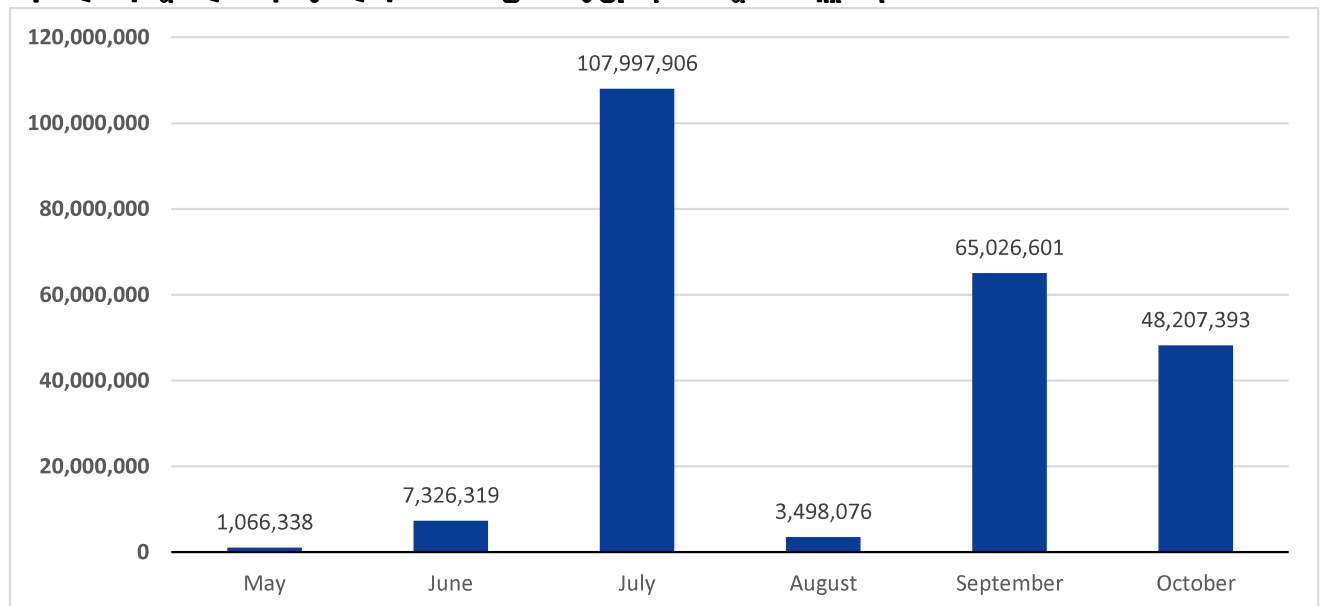
Corporate Social Responsibility

Corporate Social Responsibility (CSR)

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီလီမိတက် (အပါချီဘိလပ်မြေစက်ရုံ) ၊ ရွှေတောင်သတ္တုတူးဖော်ထုတ်လုပ်ရေးကုမ္ပဏီလီမိတက်
(ထုံးကျောက်နှင့်ရွှံ့ကျောက်လုပ်ကွက်များနှင့်ပတ်သက်၍ ဒေသဖွံ့ဖြိုးရေးဆောင်ရွက်ထားရှိမှုစာရင်း)

စဉ်	အကြောင်းအရာ	May - 2024	Jun - 2024	Jul - 2024	Aug - 2024	Sep - 2024	Oct - 2024	Total (kyats)
၁	လမ်းပန်းဆက်သွယ်ရေး တိုးတက်ကောင်းမွန်အောင် ဆောင်ရွက်ပေးနိုင်မှု			104,983,900	438,180	1,217,500		106,639,580
၂	ပြည်သူများ ရေရရှိမှု အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု						882,000	882,000
၃	လျှပ်စစ်ဓါတ်ရရှိရေး အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု							0
၄	ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု	350,000	1,003,000	2,394,940	1,267,800	1,720,000	2,206,730	8,942,470
၅	ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု	295,078	267,609	162,146	426,336	277,851	383,663	1,812,683
၆	လူမှုရေးနှင့် ကယ်ဆယ်ရေး အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု	421,260	6,055,710	34,000	1,365,760	718,750	325,000	8,920,480
၇	ဘာသာသာသနာရေး အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု			422,920			3,500,000	3,922,920
၈	သဘာဝဘေးအန္တရာယ်ကျရောက် ပျက်စီးမှုများ အထောက်အကူပြု ဆောင်ရွက်ပေးနိုင်မှု					61,092,500	40,910,000	102,002,500
စုစုပေါင်း		1,066,338	7,326,319	107,997,906	3,498,076	65,026,601	48,207,393	233,122,633

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီလီမိတက် (အပါချီဘိလပ်မြေစက်ရုံ) ၊ ရွှေတောင်သတ္တုတူးဖော်ထုတ်လုပ်ရေးကုမ္ပဏီလီမိတက်
(ထုံးကျောက်နှင့်ရွှံ့ကျောက်လုပ်ကွက်များနှင့်ပတ်သက်၍ ဒေသဖွံ့ဖြိုးရေးဆောင်ရွက်ထားရှိမှုစာရင်း)



Corporate Social Responsibility (CSR)

လမ်းပန်းဆက်သွယ်ရေး ဖွံ့ဖြိုးတိုးတက်ကောင်းမွန်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီဆောင်ရွက်ပေးခြင်း



ပုံ - ၂၀၂၄ခုနှစ်၊ ဇူလိုင်လအတွင်း ကျွန်ုပ်တို့၏ လမ်းဆက်သွယ်ရေး အဆင်ပြေစေရန် ကူညီပေးခြင်း (၁.၂၆) မိုင် ကျေးလက်လမ်းအား လိုအပ်သည့်မြေနှင့် ကျောက်များ ဖြည့်၍ လမ်းမြေညှိပေးခြင်း။



ပုံ - ၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလအတွင်း ပြည်ညောင်ကျေးရွာအတွင်းရှိ အမှတ်(၂)ရပ်ကွက် လမ်းအား ကွန်ကရစ်လမ်းခင်းနေစဉ်။

Corporate Social Responsibility (CSR)

ပညာရေးဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြုပံ့ပိုးကူညီဆောင်ရွက်ပေးခြင်း



ပုံ- ၂၀၂၄ခုနှစ်၊ ဇွန်လမှ အောက်တိုဘာလအထိ ပြည်ညောင်ကျေးရွာ အခြေခံပညာ အထက်တန်းကျောင်းမှ ကျောင်းသား၊ ကျောင်းသူ(၇)ဦးအား ပညာသင် ထောက်ပံ့ကြေး ပေးအပ်နေစဉ်။



ပုံ - ၂၀၂၄ခုနှစ်၊ ဇွန်လမှ အောက်တိုဘာလအထိ ပြည်ညောင်ကျေးရွာ အခြေခံပညာအထက်ကျောင်းမှ ဆရာမအား လစာငွေ ပေးအပ်နေစဉ်။



ပုံ- ၂၀၂၄ခုနှစ်၊ ဇွန်လအတွင်း ပြည်ညောင်ကျေးရွာ စာကြည့်တိုက်တွင် “ဒီရွာရေကန်” ခေါင်းစဉ်ဖြင့် စာဖတ်ပွဲ ကျင်းပနေစဉ်။



ပုံ- ၂၀၂၄ခုနှစ်၊ ဇူလိုင်လအတွင်း ကူပြင်ကျေးရွာစာသင် ကျောင်းတွင် “ဒီရွာရေကန်” ခေါင်းစဉ်ဖြင့် စာဖတ်ပွဲ ကျင်းပ နေစဉ်။



ပုံ- ၂၀၂၄ခုနှစ်၊ အောက်တိုဘာလ ကျင်းပပြုလုပ်သော သာစည်မြို့နယ်အဆင့် အင်္ဂလိပ်စာနှင့် သင်္ချာစွမ်းရည်ပြိုင်ပွဲအား ပြည်ညောင်ကျေးရွာ၊ အခြေခံပညာ အထက် တန်းကျောင်းရှိ ကျောင်းသား၊ ကျောင်းသူများမှ သွားရောက်ယှဉ်ပြိုင်ဖြေဆိုရန် အတွက် ကားဖြင့်အကြိုအပို့ ပြုလုပ် ပေးခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ အောက်တိုဘာလအတွင်း ကူပြင် ကျေးရွာ အခြေခံပညာ အလယ်တန်းကျောင်းတွင် ပျက်စီးနေသော မျက်နှာကြက်များအား ပြုပြင်ပေးခြင်း။

Corporate Social Responsibility (CSR)



ပြည်ညောင်ကျေးရွာရှိ အထက်တန်းကျောင်းအတွက် သုံးရေကူညီပံ့ပိုးပေးခြင်း။



ပြည်ညောင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းတွင် သောက်ရေသန့်စက်အတွက် ရေသိုလှောင်ကန်အသစ် တည်ဆောက်ခြင်းအတွက် ရန်ပုံငွေထည့်ဝင်ကူညီပံ့ပိုးပေးခြင်း။



ရွှေတောင်ဘီလပ်မြေကုမ္ပဏီလီမိတက် (အပါချီဘီလပ်မြေစက်ရုံ) ပြည်ညောင်နှင့်ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများမှ ကျောင်းသား/ကျောင်းသူ ပညာသင်ထောက်ပံ့ကြေးပေးအပ်ခြင်း

ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်ကောင်းမွန်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီဆောင်ရွက်ပေးခြင်း



ပုံ - ပြည်ညောင်နှင့်ကူပြင်ကျေးရွာရှိ ဒေသနေပြည်သူများအား လစဉ်အခမဲ့ ကျန်းမာရေးစောင့်ရှောက်ပေးနေစဉ်။

Corporate Social Responsibility (CSR)



ပုံ - ၂၀၂၄ခုနှစ် ၊ မေလအတွင်း ကူပြင်ကျေးရွာရှိ ဒေသနေပြည်သူများအား သားအိမ် ခေါင်းကင်ဆာနှင့်ပတ်သက်၍ ကျန်းမာရေးဟောပြောပွဲ ကျင်းပပြုလုပ်နေစဉ်။



ပုံ- ၂၀၂၄ခုနှစ် ၊ ဩဂုတ်လအတွင်း ပြည်ညောင်ကျေးရွာ အုပ်စုအတွင်းရှိ ပြည်ညောင် ကျေးလက်ဆေးပေးခန်းတွင် ဆေးအငွေရှူ(ချွဲပျော်စက်)အား လှူဒါန်းနေစဉ်။

လူမှုရေးနှင့်ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်ကောင်းမွန်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီဆောင်ရွက်ပေးခြင်း



ပုံ -၂၀၂၄ခုနှစ်၊ အောက်တိုဘာလမှ စတင်၍ ကူပြင်ကျေးရွာရှိ အသက်အရွယ် ကြီးရင့်သော အဖိုးအဖွားများအား ကူညီထောက်ပံ့ ပေးခြင်း။



ပုံ - ပြည်ညောင်နှင့်ကူပြင်ကျေးရွာရှိ စာကြည့်တိုက်တွင် ဒေသနေ ကလေးငယ်များ ကာယဉာဏ် ဖွံ့ဖြိုးစေရန် လေ့ကျင့် ကစားစရာများနှင့် သင်ထောက်ကူပစ္စည်းများထောက်ပံ့ ပေးထားခြင်း။



ပုံ - ပြည်ညောင်နှင့် ကူပြင်ကျေးရွာရှိ ထာဝရအလင်းတန်း စာကြည့်တိုက်တွင် ဒေသနေပြည်သူများ စာပေဗဟုသုတ၊ ပြင်ပအထွေထွေဗဟုသုတ၊ သတင်းအချက်အလက်နှင့် နည်းပညာများ လေ့လာနိုင်စေရန်အတွက် လစဉ် စာအုပ်အသစ်များထားရှိပေးခြင်းနှင့် Internet Wi-Fi အခမဲ့ တပ်ဆင်ပေးထားခြင်း။

Corporate Social Responsibility (CSR)

ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်ကောင်းမွန်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီဆောင်ရွက်ပေးခြင်း



ပုံ - ၂၀၂၄ခုနှစ်၊ အောက်တိုဘာလအတွင်း ကျပြင်ကျေးရွာ၊ စုပေါင်းမဟာဘုံ ကထိန်ပွဲအတွက် အလှူငွေထည့်ဝင်လှူဒါန်းခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ အောက်တိုဘာလအတွင်း ပြည်ညောင်ကျေးရွာ၊ စုပေါင်းမဟာဘုံကထိန်ပွဲ အတွက် အလှူငွေထည့်ဝင်လှူဒါန်း ခြင်း။

သဘာဝဘေးအန္တရာယ်ကျရောက်ပျက်စီးမှုများအတွက် အထောက်အကူပြု ပံ့ပိုးကူညီဆောင်ရွက်ပေးခြင်း

၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလ နှင့် အောက်တိုဘာလတွင် စက်ရုံးအနီးနားရှိကျေးရွာများနှင့် အခြားဒေသများတွင် ယာကီမုန်တိုင်းကြောင့် ရေဘေးသင့်ပြည်သူများအား ကူညီ ထောက်ပံ့ပေးခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလအတွင်း ပြည်ညောင်ကျေးရွာရှိ ရေဘေးသင့်ပြည်သူများအား ကူညီထောက်ပံ့ပေးခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလအတွင်း အုတ်ကျင်းကျေးရွာရှိ ရေဘေးသင့်ပြည်သူများအား ကူညီထောက်ပံ့ပေးခြင်း။

Corporate Social Responsibility (CSR)



ပုံ- ၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလအတွင်း တောင်ပြည်ညောင်ကျေးရွာရှိ ရေဘေးသင့်ပြည်သူများအား ကူညီ ထောက်ပံ့ပေးခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလအတွင်း - ကုပြင်ကျေးရွာရှိ ရေဘေးသင့်ပြည်သူများအား ကူညီ ထောက်ပံ့ပေးခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ စက်တင်ဘာလအတွင်း မုံပင်ကျေးရွာရှိ ရေဘေးသင့်ပြည်သူများအား ကူညီထောက်ပံ့ပေးခြင်း။



ပုံ- ၂၀၂၄ခုနှစ်၊ အောက်တိုဘာလအတွင်း ကလေးမြို့ရှိ ရေဘေးသင့်ပြည်သူများအား ကူညီထောက်ပံ့ပေးခြင်း။