SHWE TAUNG CEMENT COMPANY LIMITED

Biannual Environmental Monitoring Report

(22 May 2025 to 22 November 2025)

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 All previous issues are hereby superseded and are to be destroyed.

Rev	Date	Description	Prepared by	Checked by	Approved by
0	Nov 2025	Bi-annual reporting to ECD	 Hein Latt Environmental Manager	 - Head of HSE	 Kyaw Naing Soe Deputy Managing Director

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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 သဘော တူညီချက်အရ ၄းရမ်းထားသော 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 ၄၅ ဧကကို ဝန်ထမ်းများ၏ မိသားစုအိမ်ယာနှင့် အပန်းဖြေနေရာများအတွက် ခွဲဝေပေးထားပါသည်။

မန္တလေးတိုင်းဒေသကြီး သာစည်မြို့နယ် ကူပြင်ကျေးရွာတွင် တည်ရှိသော ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီ လီမိတက်၏ ဘိလပ်မြေ ၅၀၀ တန်မှ ၇,၀၀ တန်အထိ တိုးချဲ့ထုတ်လုပ်မည့် စီမံကိန်းအတွက် ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာသည် ၂၀၁၉ ခုနှစ်၊ နိုဝင်ဘာလ၊ ၂၂ ရက်နေ့တွင် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်၊ သယံဇာတနှင့်သဘာဝ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန (MONREC) ၏ အတည်ပြုချက် ရရှိခဲ့ပြီး ၂၀၂၃ ခုနှစ်၊ ဩဂုတ်လ၊ ၂၅ ရက်နေ့တွင် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ်ကိုလည်း ရရှိခဲ့ပြီးဖြစ်ပါသည်။ သို့ဖြစ်ပါ၍ STC သည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ဖော်ပြထားသော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (EMP) နှင့်အညီ ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးမှု ကိစ္စရပ်များ (Environmental & Social Monitoring Program) ကို လိုက်နာဆောင်ရွက်ခဲ့ပြီး ယခုအခါတွင် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေနှင့် နည်းဥပဒေများ၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာနမှ ချမှတ်ထားသော လုပ်ထုံးလုပ်နည်းများအတိုင်း ၂၀၂၅ ခုနှစ် မေလ ၂၂ ရက်နေ့မှ ၂၀၂၅ ခုနှစ် နိုဝင်ဘာလ ၂၂ ရက်နေ့အထိ ဆောင်ရွက်ခဲ့သော ပတ်ဝန်းကျင် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်းအစီရင်ခံစာကို တင်ပြခြင်းဖြစ်ပါသည်။

Shwe Taung Cement Co., Ltd အနေဖြင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ် (Environmental Compliance Certificate-ECC) မှာ ၁၄-၁၁-၂၀၂၄ ရက်နေ့တွင် သက်တမ်းကုန်ဆုံးခဲ့ပါသဖြင့် ပထမအကြိမ်သက်တမ်းတိုးထားသော ECC ကို သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနမှ ၁၆.၅.၂၀၂၅ ရက်နေ့တွင် ထုတ်ပေးခဲ့ပြီး သက်တမ်းတိုးထားသော ECC ကို Appendix A1 တွင် ဖော်ပြထားပါသည်။

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 22 May 2025 to 22 November 2025.

As the Environmental Compliance Certificate (ECC) for Shwe Taung Cement Co., Ltd. expired on 14 November 2024, the first renewal of the ECC was issued by the Ministry of Natural Resources and Environmental Conservation on 16 May 2025. The renewed ECC is provided in Appendix A1.

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.

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 and Social Monitoring Programme (Construction and Operation Phase)

Project Stage/ Component	Potential Impact	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
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. This includes the bulk storage of fuels and chemicals for protection of soil quality.	Weekly	HSE Team of Appointed Contractor And STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Stack emission from kiln system.	NOx, SO2, PM2.5, PM10 and O2	Discharge to kiln stack at new and existing plant	Real-time monitoring system	Continuous monitoring	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Stack emission from kiln system.	Check compliance with Myanmar National Environmental Quality (Emission) Guidelines (2015) for Cement and Lime Manufacturing (for NOx, SO2, PM2.5, PM10)	Stack emissions from existing and new kilns.	Standard analytical methods	Monthly	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Stack emission from kiln system.	Check compliance with Myanmar National Environmental Quality (Emission) Guidelines (2015) for Cement and Lime Manufacturing for: i. Cadmium + Thallium ii. Dioxins / Furans iii. Dust iv. Hydrogen Chloride v. Hydrogen Fluoride vi. Mercury vii. Nitrogen Oxides viii. Particulate Matter PM 10 ix. Sulphur Dioxide x. Total Metals xi. Total Organic Carbon	Stack emissions from existing and new kilns.	Standard analytical methods	Within 12 months of operation commencement and then annually for the following two years (i.e. a total of three monitoring)	STC HSSE Department Head and Environmental Manager

Operation / Cement Plant	Dust impacts	Dust deposition	Cement Plant, Kubyin and Pyi Nyaung Villages	Dust deposition gauge	Monthly	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Dust impacts	Wind speed and direction	AQ1 (worker accommodation)	Standard analytical methods	Continuous monitoring	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Discharge of runoff.	Check compliance with Myanmar National Environmental Quality (Emissions) Guidelines for site runoff and wastewater discharges (for BOD, COD, TSS, oil and grease, pH, total coliform bacteria, total nitrogen, total phosphorus). Volume of wastewater and treated wastewater discharged.	Treated wastewater discharge points at: 1. Coal Storage Area and Materials Handling Yards 2. Fuel Storage Area 3. Reservoir 4. Sedimentation Pond	Standard analytical methods	Monthly	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Discharge of treated wastewater	Check compliance with selected parameters (include BOD, COD, pH, SS, oil and grease, TN, TP and residual chlorine) of NEQEQ for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application). Check compliance with the full list of parameters on the NEQEQ for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application). Volume of wastewater and treated wastewater discharged.	Treated wastewater samples from: 1. Centralized tank of the wastewater treatment system.	Standard analytical methods	Monthly for selected parameters. Annually for full list of parameters	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Discharge of sludge	Check compliance with the full list of parameters on the NEQEG for Biosolids and Sludge Disposal.	Dewatered sludge samples from: 1. Each modular tank of the wastewater treatment system.	Standard analytical methods	Annually	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Discharge of treated wastewater.	Check compliance with effluent levels specified in Myanmar National Environmental Quality (Emission) Guidelines (2015)	Treated industrial wastewater discharge point from cement manufacturing process.	Standard analytical methods	Monthly	STC HSSE Department Head and Environmental Manager

		for Cement and Lime Manufacturing (for TSS, pH, temperature increase). Volume of treated wastewater discharged.				
Operation / Cement Plant	Air Quality Impacts at ASR	Check compliance with levels specified in Myanmar National Environmental Quality (Emission) Guidelines (2015) for NO2, SO2, PM2.5, and PM10.	AQ1 (worker accommodation), Kubyin Village and Pyi Nyaung Village	Standard analytical methods	Monthly	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Noise	Check compliance with noise levels specified in Myanmar National Environmental Quality (Emission) Guidelines (2015) for noise.	AQ1 (worker accommodation), Kubyin Village and Pyi Nyaung Village	Standard analytical methods	Twice per year	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Traffic Volume	Vehicle types and movements	Base camp and access road to the cement plant	Count of vehicles for 24 hours	Once within 6 months of operation	STC HSSE Department Head and Environmental Manager
Operation / Cement Plant	Waste Management	1. Volumes of waste (per waste stream – i.e. hazardous and nonhazardous) disposed of at non-hazardous solid waste management facility (on-site / off-site) and/or incinerated and not reused, recycled or reclaimed; 2. Volume of waste (per waste stream – i.e. hazardous and nonhazardous) reused, recycled or reclaimed; 3. Percent change of volume of waste (per waste stream – i.e. hazardous and nonhazardous) produced compared to previous year; 4. Percent change of volume of waste reused, recycled, reclaimed and disposed of compared to the previous year; 5. Volume of contaminated soils generated and treated on-site; 6. Description of implementation of segregation of waste streams (recyclables, general waste and hazardous waste): excellent / good / not good;	Cement Plant	Waste volume records	Quarterly	STC HSSE Department Head and Environmental Manager

		7. Reports of hazardous waste being mixed with general waste and vice versa: number; and 1. Reports of illegal dumping of wastes: number.				
Operation / Cement Plant	Occupational Health and Safety	Monitor medical check data of Staffs Monitor incident related to 1. Indoor Air Quality 2. Heat 3. Noise and Vibration 4. Physical impact 1. Chemical Usage	Cement Plant	Medical check Review of incident statistics	Before joining STC, workers will undertake a preemployment medical check. For all workers, medical check will be undertaken every 36 months. For workers engaged in noisy works (e.g. hammering, grinding of raw materials),workers potentially exposed to radiation, welder and industrial vehicle drivers, medical check will be undertaken every 12 months.	STC Medical Doctor STC HSSE Department Head and Environmental Manager
Construction and Operation / Cement Plant	Biodiversity	Please refer to *Table 8.1* and *Table 8.2* of *Annex E.*	Please refer to *Table 8.1* and *Table 8.2* of *Annex E.*	Please refer to *Table 8.1* and *Table 8.2* of *Annex E.*	Please refer to *Table 8.1* and *Table 8.2* of *Annex E.*	Please refer to *Table 8.1* and *Table 8.2* of *Annex E.*

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.

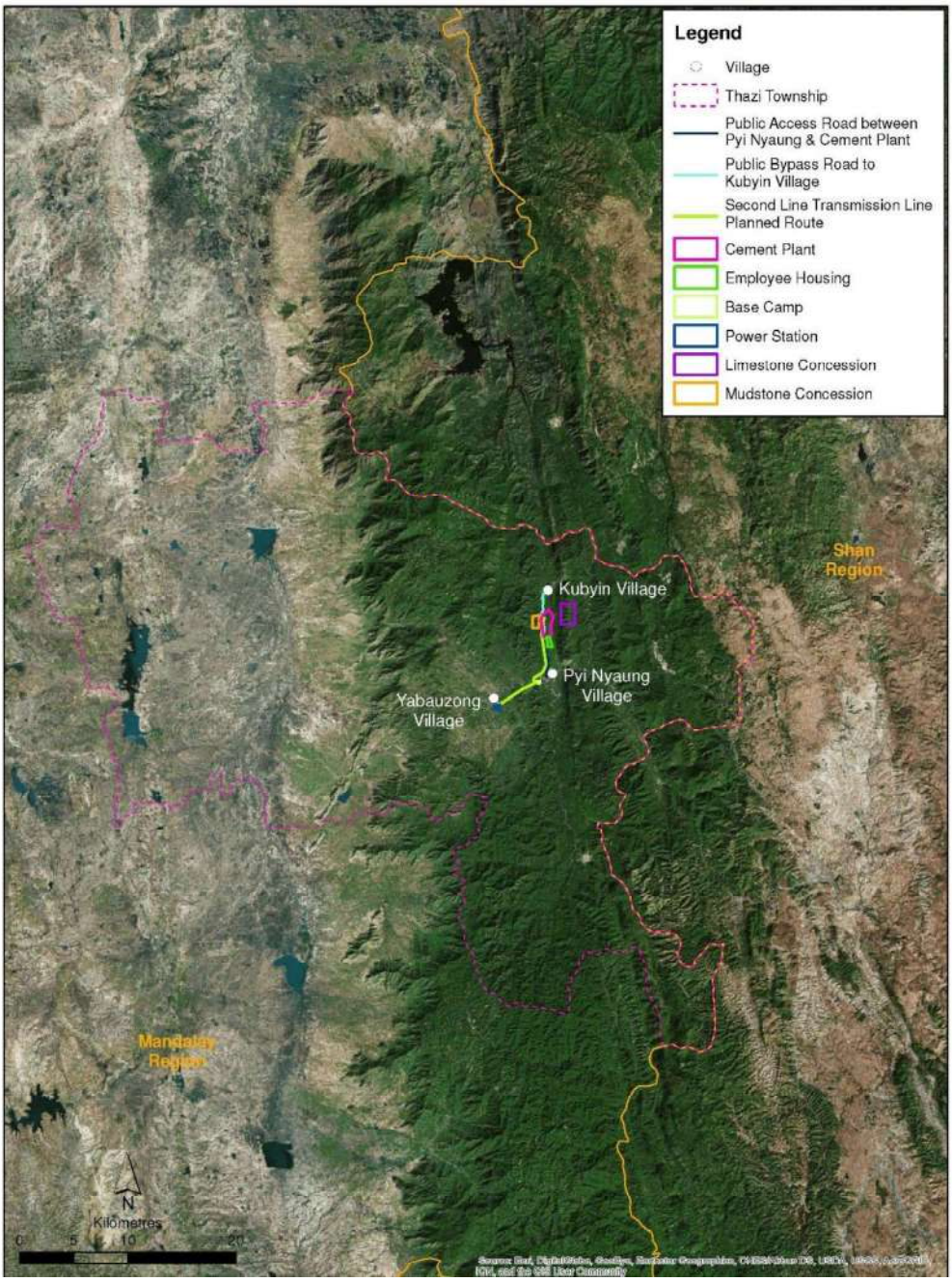
Shwe Taung Cement Co., Ltd. will prepare an environmental monitoring report and submit to the Ministry of Natural Resources and Environmental Conservation, MONREC in every six months as per the EIA Procedure requirements.

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.

As per monitoring program, STC need to check compliance with Myanmar National Environmental Quality (Emission) Guidelines (2015) for Cement and Lime Manufacturing for Cadmium + Thallium, Dioxins / Furans, Dust, Hydrogen Chloride, Hydrogen Fluoride, Mercury, Nitrogen Oxides, Particulate Matter PM 10, Sulphur Dioxide, Total Metals and Total Organic Carbon. However, there is no local service provider to analyze these full parameters for stack emission. Therefore, STC is still looking for oversea service providers to follow the monitoring program for air quality.

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

Line 1

Line 2

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

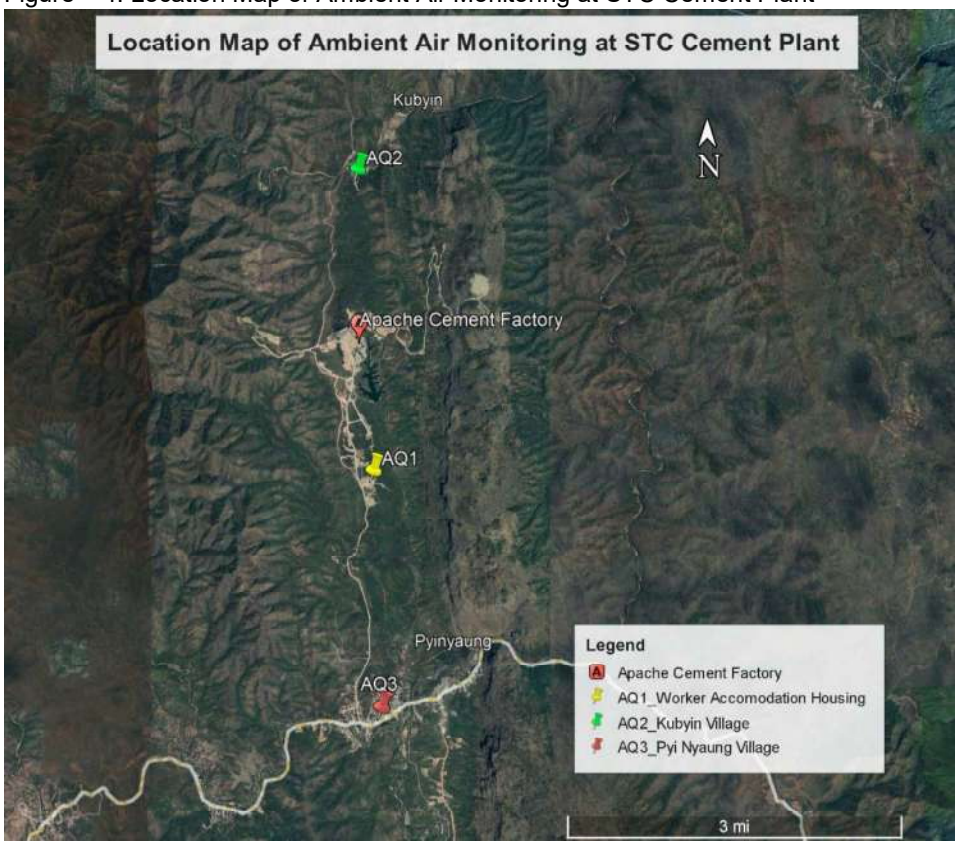


Table-2: Monitoring Location

No	Monitoring Location	Latitude	Longitude
1	AQ1_Worker Accommodation	20°50'56.15"N	96°23'35.97"E
2	AQ2_Ku Pyin Village	20°53'25.83"N	96°23'25.07"E
3	AQ3_Pyi Nyaung Village	20°49'8.19"N	96°23'51.55"E

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.skcinc.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).

Table – 3: 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 2025	June 2025	July 2025	Aug 2025	Sep 2025	Oct 2025
Carbon dioxide	1 hour	%	11.86	11.07	11.88	9.79	11.9	Shut Down
Oxygen	1 hour	%	Sensor Error	1.46	0	3.73	0	
Carbon monoxide	1 hour	625 mg/Nm3	602.5	70	298.75	28.75	3.75	
Nitrogen oxides	1 hour	600 mg/Nm3	61.64	93.8	29.48	62.98	2.01	
Sulphur dioxide	1 hour	400 mg/Nm3	8.58	0	0	0	5.72	

Table – 4: 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 2025	June 2025	July 2025	Aug 2025	Sep 2025	Oct 2025
Carbon dioxide	1 hour	%	11.9	9.11	7.18	11.9	11.9	Shut Down
Oxygen	1 hour	%	Sensor Error	4.67	8.32	0	0	
Carbon monoxide	1 hour	625 mg/Nm3	60	Sensor Error	88.75	12.5	7.5	
Nitrogen oxides	1 hour	600 mg/Nm3	142.04	48.24	1.23	28.14	21.44	
Sulphur dioxide	1 hour	400 mg/Nm3	2.86	31.46	0	0	2.86	

3.1.4 Monitoring Result for Ambient Air Quality Monitoring

Table – 5: 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: Worker Accommodation					
	ECD/ WHO / IFC Guideline			**Test Result**					
Parameter	**Average Period**	**Guideline Value in µg/m3**	**Baseline**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
Nitrogen dioxide	24 hours	200	3.63	74.87	Sensor Error	Sent to Nanova Co., Ltd for Service	94.21	4.29	29.39
Ozone		100	-	45.26			44.73	4.16	22.53
PM10		50	-	4.30			34.99	5.38	2.02
PM2.5		25	-	13.66			10.98	16.85	3.79
Sulphur dioxide		20	<DL	**25.38**			0.27	1.23	0.33
Carbon dioxide		ppm	-	60.99			1.70	2.70	0.00
Carbon monoxide		10 ppm	-	0.15			0.00	0.06	0.05
Remark: The high SO_2 concentration in May could be influenced by hot and dry weather conditions with limited air dispersion. Reduced wind speed and low atmospheric mixing height may have caused temporary accumulation of pollutants near the ground level.									

Table – 6: 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	**Average Period**	**Guideline Value in µg/m3**	**Baseline**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
Nitrogen dioxide	24 hours	200	10.1	78.09	Sensor Error	Sent to Nanova Co., Ltd for Service	108.26	3.76	25.33
Ozone		100	-	57.45			52.15	4.10	28.74
PM10		50	76.3	5.85			11.92	4.41	3.22
PM2.5		25	37.4	3.33			11.43	3.08	2.87
Sulphur dioxide		20	<DL	**29.37**			0.00	0.00	0.01
Carbon dioxide		ppm	-	15.25			0.10	0.00	0.00
Carbon monoxide		10 ppm	-	0.20			0.00	0.02	0.10
Remark: The high SO_2 concentration in May could be influenced by hot and dry weather conditions with limited air dispersion. Reduced wind speed and low atmospheric mixing height may have caused temporary accumulation of pollutants near the ground level.									

Table – 7: 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	**Average Period**	**Guideline Value in µg/m3**	**Baseline**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
Nitrogen dioxide	24 hours	200	10.3	186.11	Sensor Error	Sent to Nanova Co., Ltd for Service	Didn't Monitor	12.60	Did not monitor
Ozone		100	-	88.62				10.23	
PM10		50	32.2	4.36				14.12	
PM2.5		25	19.9	2.71				18.08	
Sulphur dioxide		20	<DL	**20.37**				1.29	
Carbon dioxide		ppm	-	29.02				0.21	
Carbon monoxide		10 ppm	-	0.15				0.00	
Remark: The high SO_2 concentration in May could be influenced by hot and dry weather conditions with limited air dispersion. Reduced wind speed and low atmospheric mixing height may have caused temporary accumulation of pollutants near the ground level.									

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 – 8: 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 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Sensitive Group**
PM_{10}	24 hour	ug/m3	4	Sensor Error	Sent to Nanova Co., Ltd for Service	31	5	2	People with respiratory disease are the group most at risk.
$PM_{2.5}$	24 hour	ug/m3	59			54	65	21	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	People with heart disease are the group most at risk.
Ozone	8 hour	ppb	21			20	2	10	Children and people with asthma are the groups most at risk.
Nitrogen dioxide	1 hour	ppb	37			47	2	14	People with asthma or other respiratory diseases, the elderly, and children are the groups most at risk.
Sulphur dioxide	1 hour	ppb	13			0	0	0	People with asthma are the group most at risk.

Table – 9: 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 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Sensitive Group**
PM_{10}	24 hour	ug/m3	5	Sensor Error	Sent to Nanova Co., Ltd for Service	10	4	3	People with respiratory disease are the group most at risk.
$PM_{2.5}$	24 hour	ug/m3	18			55	17	16	People with respiratory or heart disease, the elderly and children are the groups most at risk.
Carbon monoxide	8 hour	ppm	2			0	0	1	People with heart disease are the group most at risk.
Ozone	8 hour	ppb	27			24	2	13	Children and people with asthma are the groups most at risk.
Nitrogen dioxide	1 hour	ppb	39			54	2	12	People with asthma or other respiratory diseases, the elderly, and children are the groups most at risk.
Sulphur dioxide	1 hour	ppb	16			0	0	0	People with asthma are the group most at risk.

Table – 10: 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 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Sensitive Group**
PM_{10}	24 hour	ug/ m3	4	Sensor Error	Sent to Nanova Co., Ltd for Service	Didn't Monitor	13	Did not monitor	People with respiratory disease are the group most at risk.
$PM_{2.5}$	24 hour	ug/ m3	15				68		People with respiratory or heart disease, the elderly and children are the groups most at risk.
Carbon monoxide	8 hour	ppm	1				0		People with heart disease are the group most at risk.
Ozone	8 hour	ppb	42				5		Children and people with asthma are the groups most at risk.
Nitrogen dioxide	1 hour	ppb	98				6		People with asthma or other respiratory diseases, the elderly, and children are the groups most at risk.
Sulphur dioxide	1 hour	ppb	10				0		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 Table - 11 for dust deposition monitoring results from 22 May 2025 to 22 November 2025.

Table – 11: Dust Monitoring Locations

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

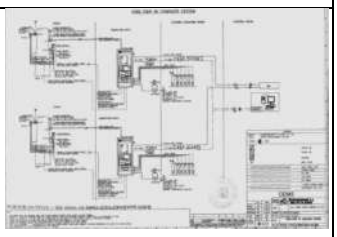
Figure – 6: Dust Deposition Monitoring

Table – 12: Dust Deposition Monitoring results at Cement Plant Accommodation, Ku Pyin and Pyi Nyaung villages from 22 May 2025 to 22 November 2025

Samplers: Nay Hlaing Oo	**Dust Deposition Monitoring**						
	Test Result						
Parameter	**Australia & New Zealand Guideline (g/m2/Day)**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
STC Accommodation (Ingyin Hostel)	1.191 (g/m2/Day)	**1.71**	0.54	0.46	0.09	0.60	0.57
STC Accommodation (55acres)		1.1	0.28	0.26	0.05	0.34	0.50
Ku Pyin (Behind Library)		0.53	0.44	0.68	0.10	0.53	0.51
Ku Pyin (Primary School)		0.38	0.41	0.51	0.06	0.36	0.36
Pyi Nyaung (Near Main Road)		0.94	0.38	0.44	0.16	0.64	0.43
Pyi Nyaung (Information Center)		0.92	0.18	0.21	0.07	0.24	0.46
Remark: Dust exceedance in Ingyin hostel was attributed to road maintenance activities in May 2025.							

3.1.7 Air Quality Mitigation Measures

Table – 13: Air Quality Management

Affected Aspect	Mitigation Measures	Action Taken	Photos
Air Quality	• 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.	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.	
	• 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.		
	• Emission concentrations of NOx, 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.	Regular monitoring (See in Section 3.1.3 for stack emission monitoring results)	
	• An occupational exposure monitoring program for workers will be put in place to monitor indoor air quality.	Completed by HR & OHS. Result TBA ECD conducted test for Exposure Limits	
	• Reduce number of material transfer points by simple, linear layout for material handling operations;	Completed and installed for line 1 and line 2 design	
	• Use of enclosed belt conveyors for material transportation and emission controls at transfer points;	Implementation on line 2	
	• Regular cleaning of conveyor belt systems;	Included in PME scope (Regular Maintenance of bag filter and electrostatic precipitator, see in Appendix)	

	• Crushed and blended raw materials should be stored in covered or closed bays;	Additional silo constructed in line 2	
	• Pulverized coal should be stored in silos or closed storage;	Implemented	
	• Clinker should be stored in covered or closed bays or silos with dust extractions;	Implemented	
	• 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)	
	• 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)	
	• Implementation of automatic bag filling and handling systems;	Implemented both line 1 and line 2	
	• 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)	
	• 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)	
	• 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. All results are within Myanmar National Environmental Quality (Emission) Guidelines (2015), except higher results of PM_{10} and SO_2 during summer season. These increases are likely attributable to frequent forest fires initiated by some local villagers for land clearing, as well as slash-and-burn practices conducted by Forest Department for teak plantation management near the STC area.

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

STC has investigated the reason of SO_2 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 SO_2 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 SO_2 results and found out that it was related to emission of mobile vehicles that were higher SO_2 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 STM 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 in October 2025. The campaign involved the distribution and installation of "No Idling: Turn Off Your Engine" stickers at the main entrance, vehicle parking areas, and security gates. Furthermore, toolbox meetings and awareness sessions were conducted to educate drivers, contractors, and staff about the environmental and health impacts of vehicle idling and the benefits of adopting this practice.

Figure – 8: Photo Records of "No Idling: Turn Off Your Engine Sticker Campaign"

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 PM_{10} 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-A2)

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 – 9: Occupational Health Care Records by Social Security Board in August 2025

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

As per monitoring program, STC monthly monitor Sedimentation Pond 5 near coal storage area and reservoir for discharge of runoff, Sedimentation Pond 7 for industrial wastewater and biotank effluent for discharge of treated wastewater. In addition, STC monitors water quality in Ku Pyin and Ye Shin Streams to support community health and safety. Figure 10 illustrates the locations of the water quality sampling points. The monitoring parameters are based on WHO Drinking Water Guidelines and IFC Effluent Discharge Standards, and include pH, color, turbidity, iron, BOD, COD, and other relevant indicators.

Table-14: 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 (Reservoir)	20°51'35.3"N	96°23'37.70"E
4	Sedimentation Pond 5 (Coal Storage Area)	20°52'10.60"N	96°23'16.67"E
5	Sedimentation Pond 7 Effluent (Industrial Wastewater)	20°51'54.88"N	96°23'32.49"E
6	Biotank Effluent	20°50'51.17"N	96°23'45.02"E

3.2.1.1 Location Map of Water Quality Sampling Points

Figure – 10: Water Quality Sampling Points

3.2.2 Monitoring Result for Water Quality

Table-15: Ku Pyin Stream Water Quality Monitoring Result

Ku Pyin Stream Water Analysis									
ITEM	**WHO Drinking Water Guideline**	**EQEG Guideline**	**Baseline Results**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
pH	6.5 – 8.5	6 - 9	6.3	7.5	7.7	7.7	7.7	7.3	7.7
Color	15 PCU	-	-	10	15	**110**	5	10	**35**
Turbidity	5 NTU	-	-	1.46	1.6	**50.0**	1.7	**5.8**	**10.4**
Calcium hardness	500 mg/l	-	-	*	*	*	*	*	*
Chloride (Cl)	250 mg/l	-	-	*	*	*	*	*	*
Sulphate (SO4)	200 mg/l	-	-	*	*	*	*	*	*
TSS	50 mg/l	50 mg/l	23	10	7.0	**266.0**	4.0	16	28.0
Nitrate	50 mg/l	-	-	11	*	*	*	*	*
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the stream. This causes higher turbidity, color, and TSS levels.									

Table-16: Ye Shin Stream Water Quality Monitoring Result

Ye Shin Stream Water (Near Pyi Nyaung) Analysis								
ITEM	**WHO Drinking Water Guideline**	**EQEG Guideline**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
pH	6.5 – 8.5	6 - 9	7.3	7.6	7.6	7.6	7.7	7.2
Color	15 PCU	-	15	15	**25**	15	**40**	**55**
Turbidity	5 NTU	-	1.99	**5.68**	**9.46**	**10.8**	**13.8**	**29.2**
Calcium hardness	500 mg/l	-	*	*	*	*	*	*
Chloride (Cl)	250 mg/l	-	*	*	*	*	*	*
Sulphate (SO4)	200 mg/l	-	*	*	*	*	*	*
TSS	50 mg/l	50 mg/l	6	33	30	30	37	**76**
Nitrate	50 mg/l	-	8.5	*	*	*	*	*
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the stream. This causes higher turbidity, color, and TSS levels.								

Table-17: Lower Reservoir Water Quality Monitoring Result

Lower Reservoir Supply Water Analysis									
ITEM	**WHO Drinking Water Guideline**	**EQEG Guide line**	**Baseline Results**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
pH	6.5 – 8.5	6 - 9	7.6	7.5	7.6	7.7	7.8	7.6	7.3
Color	15 PCU	-	-	**55**	**45**	**25**	15	15	**25**
Turbidity	5 NTU	-	-	**11.9**	**6.17**	**5.38**	1.48	**5.22**	**10.1**
Calcium hardness	500 mg/l	-	-	*	*	*	*	*	*
Chloride (Cl)	250 mg/l	-	-	*	*	*	*	*	*
Sulphate (SO4)	200 mg/l	-	-	*	*	*	*	*	*
TSS	50 mg/l	50 mg/l	11	35	19	17	15	16	26
Nitrate	50 mg/l	-	-	15.1	3.3	*	*	*	*
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the stream. This causes higher turbidity, and color levels.									

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

Table-18: 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 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
pH	6 ~ 9	6 ~ 9	7.6	7.3	8.1	**10.2**	7.8	7.8	8.2
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	41.5	*	*	*	*	*	*
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	6.5	*	*	*	*	*	*
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	215.5	**83**	**108**	**57**	46	**83**	**122**
Total Nitrogen	10 mg/l	10 mg/l	1.7	0.81	*	*	*	*	*
Total Nitrate	44.29 mg/l	-	-	3.6	10.4	*	*	*	*
Total Phosphorous	2 mg/l	2	0.06	*	*	*	*	*	*
Oil and grease	10 mg/l	10 mg/l	DL	*	*	*	*	*	*
Total Coliform Bacteria	-	100 ml	45.50	-	-	-	-	-	-
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the stream. This causes higher TSS level.									

Table – 19: Sedimentation Pond 7 Effluent Water Test Result

Sedimentation Pond 7 Surface Water Test Result									
Parameters	**IFC Waste Water Guideline**	**EQEG Guide line**	**Baseline Results**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
pH	6 ~ 9	6 ~ 9	7.6	7.8	8.8	8.1	7.6	7.6	8.3
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	41.5	*	*	*	*	*	*
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	6.5	*	*	*	*	*	*
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	215.5	**30**	17	13	15	18	8
Total Nitrogen	10 mg/l	10 mg/l	1.7	1.24	0.34	*	*	*	*
Total Nitrate	44.29 mg/l	-	-	5.5	1.5	*	*	*	*
Total Phosphorous	2 mg/l	2	0.06	*	*	*	*	*	*
Oil and grease	10 mg/l	10 mg/l	DL	*	*	*	*	*	*
Total Coliform Bacteria	-	100 ml	45.50	-	-	-	-	-	-
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the stream. This causes higher TSS level.									

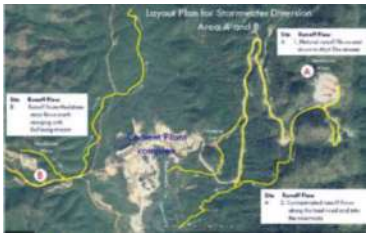
Table – 20: Bio Tank Effluent Discharge to Sedimentation Pond 9 Test Results

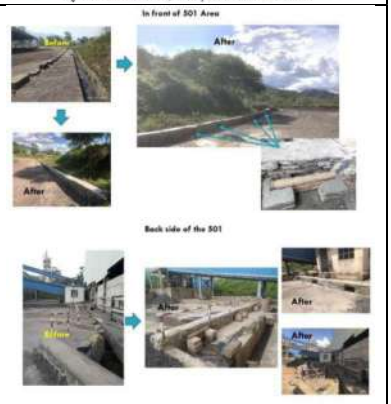
Bio Tank Effluent Discharge to Sedimentation Pond 9									
Parameters	**IFC Waste Water Guideline**	**EQEG Guide line**	**Baseline Results**	**May 2025**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**
pH	6 ~ 9	6 ~ 9	-	8	6.9	7.6	7.9	7.5	8.3
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	-	*	*	*	*	*	*
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	-	*	*	*	*	*	*
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	-	**125**	**113**	29	24	22	106
Total Nitrogen	10 mg/l	10 mg/l	-	6.75	*	*	*	*	*
Total Nitrate	44.29 mg/l	-	-	29.9	*	*	*	*	*
Total Phosphorous	2 mg/l	2	-	*	*	*	*	*	*
Oil and grease	10 mg/l	10 mg/l	-	*	*	*	*	*	*
Total Coliform Bacteria	-	100 ml	-	-	-	-	-	-	-
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the stream. This causes higher TSS level. Biotank Sludge results from external laboratory are attached in Appendix-B8.									

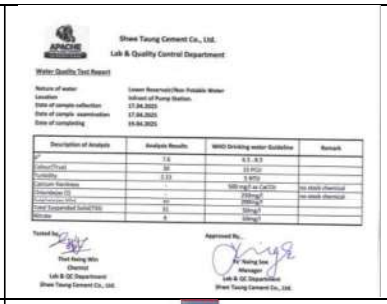
Laboratory results for water quality are attached in Appendix-B.

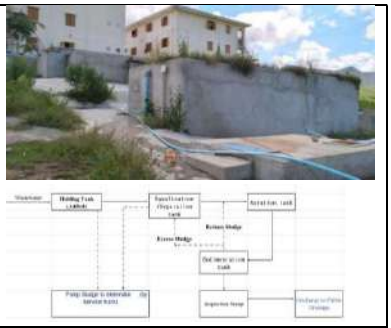
3.2.3 Water Quality Mitigation Measures

Table – 21: Water Quality Management

Affected Aspect	Mitigation Measures	Action Taken	Photos
Surface Water Quality	• 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	  Figure (2) Drainage for catchment area
	• 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.	 
	• 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.	
	• Baffles or other measures to reduce the velocity of runoff downhill slopes should be installed to minimize scouring;	Visual monitoring by MNE	 Figure (1) Zoning for slope protection measures

	• Exposed areas and overburden dumps should be revegetated as quickly as possible.	Tree planting during monsoon season	
	• 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.	
	• 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	
	• 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.	
	• 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.	Upgraded sedimentation pond near coal storage area.	

	• 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)	
	• Lightning protection should be installed at all areas used to store bulk fuel and other flammables;	Installed at fuel depot.	 Constructed bunded hardstand with containment for 110% of the volume of stored fuel and equipped with oil-water separator. Installed lightning protection post.
	• The fuel storage facility should be constructed on bunded hardstand with containment sufficient for 110% of the volume of the single largest tank;	Equipped.	 Constructed bunded hardstand with containment for 110% of the volume of stored fuel and equipped with oil-water separator. Installed lightning protection post.
	• Discharges from this bunded area should pass through an oil-water separator;	Installed	 Constructed bunded hardstand with containment for 110% of the volume of stored fuel and equipped with oil-water separator. Installed lightning protection post.
	• Spill Response Plan should be developed and implemented; (conducted awareness training and deliver pamphlet to relevant employees in the plant)	Approved and implemented	
	• Discharges from the coal staging area 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 Section 4.3.2 for water test result)	

	• 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.	
	• 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 NEQEQ 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)

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

3.2.4 Evaluation

The sewage, sanitary waste management system, and stormwater management measures have been established within the plant site. As the cement plant operates using the dry process—both for the first line and second line—no process wastewater is generated from production activities. Sanitary wastewater from the plant office and staff accommodation is routed to a bio-treatment tank, where it undergoes treatment prior to discharge. The treated effluent is monitored on a monthly basis to ensure compliance with the NEQEG guidelines. A wheel-washing bay will be installed at the cement plant guardhouse to prevent cement trucks from tracking soil or debris onto public paved roads, thereby minimizing dust generation. During the rainy season, heavy rainfall increases surface runoff from the surrounding areas. This runoff can transport soil particles, sediments, and organic matter into nearby streams, resulting in increased turbidity, color, and total suspended solids (TSS) levels.

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 22 below:

3.3.1 Location Map of Noise Quality Monitoring Points

Figure – 11: Noise Quality Sampling Points

Table – 22: Noise Monitoring Locations

No	Noise Monitoring Location	Latitude	Longitude
1	Ku Pyin Village	20°53'20.47"N	96°23'27.58"E
2	Pyi Nyaung Village	20°49'4.58"N	96°23'40.42"E
3	Worker Accommodation	20°50'56.15"N	96°23'35.97"E

Table – 23: Noise Monitoring Results in Ku Pyin and Pyi Nyaung village

Noise Monitoring Results								
Machine Name: KIMO LDB 23						Operator: Nay Hlaing Oo		
Location	ECD/ WHO / IFC Guideline					Test Result		Remark
	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	77.09	59.21	
Ku Pyin Village	55	45	-	-	Residential	57.85	49.06	
Worker Accommodation	55	45	-	-	Residential	52.81	50.21	

3.3.2 Evaluation

Noise levels were measured using a KIMO LDB 23 meter at Pyi Nyaung, Ku Pyin Village and worker accommodation. According to NEQEG and IFC guidelines, the limit for residential areas is 55 dB(A) in the day and 45 dB(A) at night. At Pyi Nyaung Village, noise levels reached 77.09 dB(A) during the day and 59.21 dB(A) at night, exceeding the limits. This is mainly due to continuous vehicle traffic from the nearby Meikhtila–Taunggyi Highway. At Ku Pyin Village, readings were 57.85 dB(A) in the day and 49.06 dB(A) at night, slightly above the guideline values. The increase may be linked to heavy rainfall in monitoring period. At the Worker Accommodation area, the daytime noise level complied with the standard; however, the nighttime level marginally exceeded the 45 dB(A) limit. Overall, the results suggest that external factors, particularly road traffic, contribute to elevated noise levels in nearby communities, while noise from plant operations has minimal direct impact.

3.4 Waste Management Monitoring

3.4.1 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

Figure – 13: Location Map of Collection Points of All Generated Wastes from Accommodation Area

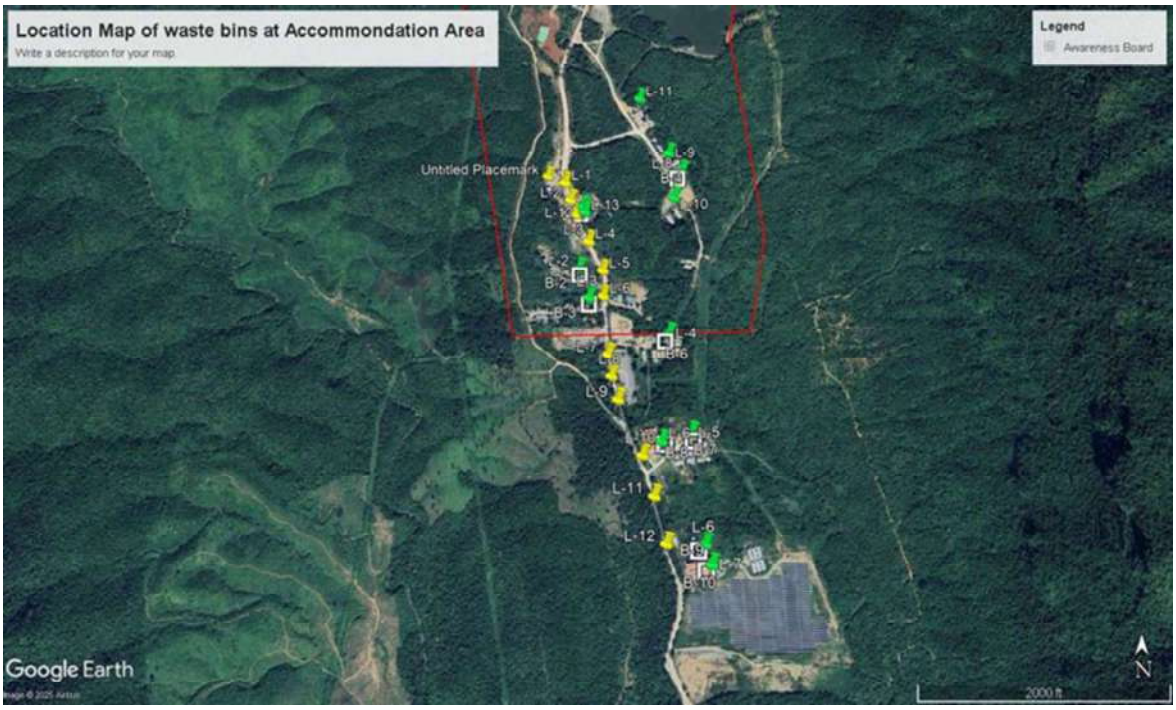


Figure – 14: Location Map of Disposal Sites for Waste from Plant and Accommodation Area

Figure – 15: Location Map of Site Waste Dumping Area (Scrap Yard)

Table – 24: Generated Non-Hazardous Waste

STC Non-hazardous Waste Generated from 22 May 2025 to 22 November 2025				
Month	**Generated Waste (kg)**	**Reduction waste (kg)**	**Landfill Waste (kg)**	**Remark**
May 2025	15,520	3,705	11,815	Disposed to Temporary Non-hazardous Solid Waste Storage Area
June 2025	20,780	3,179	17,601	
July 2025	23,840	3,062	20,778	
August 2025	25,100	3,864	21,236	
September 2025	16,000	4,747	11,254	
October 2025	22,060	2,746	19,314	

3.4.2 Generation of Hazardous Waste

Table – 25: Generated Hazardous Waste

STC Generated Hazardous Waste						
Sr.	**Date**	**Type of Waste**	**Qty**	**Amount (kg)**	**Treatment Facility**	**Remarks**
1	26 June 2025	Clinical, Laboratory and Contaminated Oil rags	-	1480 kg	Meikhtila Municipal Incinerator	Disposal

3.4.3 Waste Management Mitigation Measures

Table – 26: 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	
	• A waste inventory should be created to establish the types of wastes;	Established (dispose Non-hazardous waste to Temporary N-H Solid Waste Storage area whereas Hazardoous waste will be disposed to DOWA, accredited waste management company. Clinical and Laboratory waste are disposed to Meikhtila Incinerator, approved for disposal by Meikhtila City Development Committee)	 
	• Identify disposal routes (including transport options and disposal sites) for all wastes generated;	Identified waste streams (See Figure-12, 13 & 14 for waste collection point and disposal site)	
	• Segregate wastes and recycle wherever possible;	Segregated scrap materials for resale and reuse (See Figure-15 for Scrap Yard Area)	 
	• Hazardous wastes should be segregated and disposed separately from non-hazardous wastes using a license contractor;	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 Meikhtila City Development Committee)	
	• 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	Hazardous waste is collected and deposed to dispose to Meikthila Incinerator, approved by Meikhtila City Development Committee.	 

	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;		
	• Waste oil should be used for kiln start-up;	Resale by Warehouse Department (WHS)	
	• Organic waste for composting or use as animal feed in nearby villages;	Organic waste (vegetables waste) are collected and composed to use as a fertilizer. Organic waste (food waste) are collected by locals for as animal feed.	
	• Waste suitable for use as fuel should be considered; and	Used waste oil resale to local merchant	
	• The existing landfill is not lined and should be only used for inert (non-reactive) and non-hazardous waste only.	Implemented (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.)	  Temporary Solid Non-hazardous wastes storage inspected by ECD and other government entities for the approval of EIA.

3.4.4 Evaluation

Implementing principles of the waste hierarchy in the most responsible manner (reduce, reuse, recycle, reclaim, dispose) in the plant site by conducting in-house training for hazardous and non-hazardous waste management, tool box talk, delivering pamphlet, offering waste bin in each plant site department and accommodation area, undertaking simultaneous mass housekeeping 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.

4.1 Market Survey & Invasive Species Survey

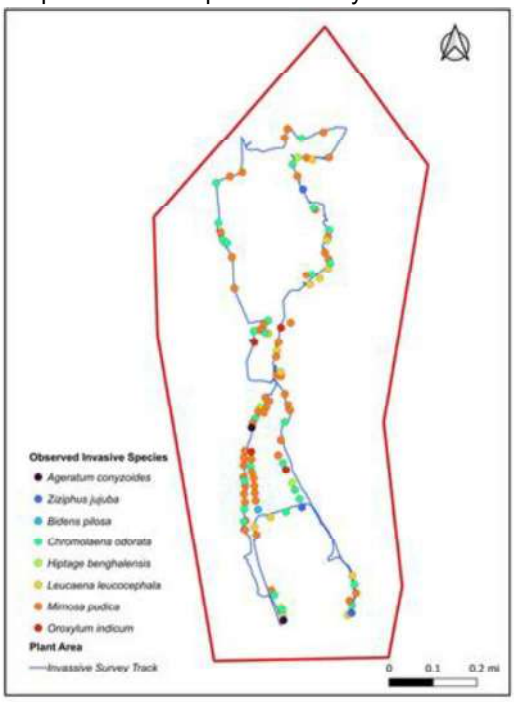
A market survey was conducted at Pyi Nyaung Village Market on 18 July 2025 from 08:00 to 09:00 AM by HSE Department. The objective of the survey was to collect data on illegal wildlife trade, with a particular focus on the sale of protected species such as the Bengal Slow Loris, Chinese Pangolin, Shan State Langur, Phayre's Langur, Western Hoolock Gibbon, and Eastern Hoolock Gibbon. Based on field observations, no evidence of wildlife trade was found in the Pyi Nyaung Village Market. All meat vendors were found to be trading only domestic animal products, including pork, chicken, beef, mutton, fish, and prawn. HSE Team also conducted interviews with the village leader and local residents to assess the presence of poaching or illegal wildlife trading activities within the village and market areas. According to the interviews, no incidents of poaching were reported. This is attributed to the low occurrence of wild species in the vicinity and the increasing awareness of local communities regarding wildlife protection and the prohibition of illegal trade.

Figure – 16: Photo Records from Market Survey in July 2025

An invasive flora species survey was conducted within the plant boundary on 26 July 2025. The survey was carried out by walking along established transect lines and recording the occurrence and abundance of invasive plant species. As part of ongoing management measures, clearing and eradication activities were implemented throughout the plant area to prevent the spread of invasive species. During the survey, photographic records were taken for documentation and verification purposes. A total of eight invasive flora species were identified within the surveyed area, namely *Khwe-thay-pan*, *Hmwe-sok*, *Bi-zet*, *Bein-new*, *Baw-za-gaing*, *Hti-ka-yone*, *Kyaung-sha*, and *Zi*.

Figure – 17: Photo Records from Invasive Species Survey in July 2025

Figure – 18: Map of Invasive Species Survey within STC Cement Plant



4.2 Ecosystem Restoration Plantations

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: 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**	

Table – 28: Maintenance of Ecosystem Restoration Plantations (ERP)

Location	Particular	Patched Area in 2023	Patched Area in 2024	Patched Area in 2025	May	June	July		August	September-October
					Site Prep:	Patching	1st Weeding	Patching	Patching	2nd Weeding
Near Apache	ERP 33 Ac	7 Ac	3.9 Ac (2100 Nos.)	0.2 Ac (100 Nos.)	-	-	7 Ac	0.2 Ac (100 Nos.)	-	7 Ac
Near Apache	ERP 65 Ac	33 Ac	1.3 Ac (700 Nos.)	1.3 Ac (700 Nos.)	-	-	33 Ac	1.3 Ac (700 Nos.)	-	33 Ac
South Pyi Nyaung	ERP 100 Ac	16 Ac	1.9 Ac (1000 Nos.)	1.9 Ac (1000 Nos.)	-	-	16 Ac	-	1.9 Ac (1000 Nos.)	16 Ac
		–	9 Ac (4860 Nos.)	0.9 Ac (500 Nos.)	-	-	9 Ac	-	0.9 Ac (500 Nos.)	9 Ac
		–	–	1 Ac (4840 Nos.)	Stacking/ Digging	1 Ac (4840 Nos.)	1 Ac	-	-	1 Ac
		–	–	1 Ac (520 Nos.)		-	1 Ac	1 Ac (520 Nos.)	-	1 Ac
Grand Total						**4840 Nos.**	**67 Ac**	**1320 Nos.**	**1500 Nos.**	**67 Ac**

During the reporting period from 22 May 2025 to 22 November 2025, ecosystem restoration plantations (ERP) were maintained and protected through scheduled weeding and fire prevention activities across various locations. At the Near Apache sites, 1st weeding and patching of about 800 seedlings were completed in July, followed by the 2nd weeding in October. Similarly, at the South Pyi Nyaung ERP 100-acre site, site preparation for patching of about 4,840 seedlings were completed in May and June, followed by the first weeding and additional patching of about 520 seedlings in July. Patching with a total of 1,500 seedlings and 2nd weeding was carried out consistently in August and October. Overall, by the end of October 2025, the restoration activities had effectively strengthened the success of earlier plantation phases, under continuous care and ecological improvement.

Figure – 19: Maintenance activities at Ecosystem Restoration Plantations

4.3 Biodiversity Awareness Training

STM conducted in-house training sessions on the Biodiversity Policy and Action Plan for new employees, as well as biodiversity awareness programs for local communities, particularly children, in Ku Pyin and Pyi Nyaung Villages. These programs aimed to enhance understanding of local wildlife species found in and around the STC and STM project areas. As part of the awareness activities, a coloring contest was organized for children, with awards presented to outstanding participants. The children actively engaged in the program, contributing to its success and fostering greater appreciation for biodiversity conservation.

Figure – 20: Awareness Raising Program in Pyi Nyaung & Ku Pyin Village

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.).

Generally, there is one to two daytime blasting occurred at limestone 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. Please see the updated “Emergency Preparedness Fire Drill Exercise Reports” in “Appendix – E”

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.

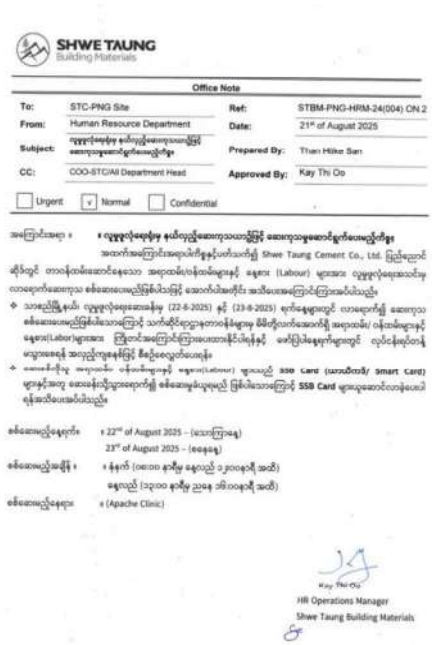
Additional training includes belt conveyor guarding and machine cover to enhance machinery safety, first aid for immediate response to injuries, and scaffolding safety for the proper erection and use of scaffolds. Programs such as "Take 2 Minutes" encourage employees to assess risks before starting tasks, 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 –21: OHS, First Aid Trainings Records and Medical check-ups from Ministry of Health


SHWE TAUNG
Building Materials

Office Note

To:	STC-PNG Site	Ref:	STBM-PNG-HRM-24(004) ON.2
From:	Human Resource Department	Date:	21st of August 2025
Subject:	[illegible]	Prepared By:	Than Hlike Sian
CC:	COO-STC/All Department Head	Approved By:	Kay Thi Oo

☐ Urgent ☑ Normal ☐ Confidential

[illegible]

HR Operations Manager
Shwe Taung Building Materials

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-A3. Monitoring photo records can be seen in the Appendix-F.

8. Appendix

APPENDIX-A

APPENDIX-A1

First Renewal of Cement Plant's Environmental Compliance Certificate

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာလိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ်

(Environmental Compliance Certificate - ECC)

သက်သေခံလက်မှတ်အမှတ်။ ECC (၃၄၂ /သက်တမ်းတိုး) ရက်စွဲ။ ၂၀၂၅ ခုနှစ်၊ မေ လ ၁၆ ရက်

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဥပဒေ (ပြည်ထောင်စုလွှတ်တော် ဥပဒေအမှတ် ၉/၂၀၁၂) နှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း (အမိန့်ကြော်ငြာစာအမှတ် ၆၁၆/၂၀၁၅) တို့အရ နောက်ဆက်တွဲ (က) တွင် ဖော်ပြထားသော အဆိုပြုစီမံကိန်းအား နောက်ဆက်တွဲ (ခ) ပါ စည်းကမ်းချက်များကို လိုက်နာဆောင်ရွက်စေလျက် ဤပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ် (Environmental Compliance Certificate - ECC) ကို ထုတ်ပေးလိုက်သည်-

(က)	**စီမံကိန်းအဆိုပြုသူ**	- ဦးကျော်နိုင်စိုး (ဒုတိယမန်နေးဂျင်းဒါရိုက်တာ)
(ခ)	**ဆက်သွယ်ရန် လိပ်စာ**	- Shwe Taung Cement Co.,Ltd. No (94), Building (A), Nat Mauk Road, Bo Cho Ward, Bahan Township, Yangon, Myanmar. ဖုန်း 95-1-8603345, 8603346
(ဂ)	**စီမံကိန်းအမျိုးအစား**	- ဘိလပ်မြေတိုးချဲ့တည်ဆောက်ခြင်းနှင့်ထုတ်လုပ်ခြင်းစီမံကိန်း
(ဃ)	**စီမံကိန်းကာလ**	- အခွင့်အမိန့်ရအဖွဲ့အစည်းက ခွင့်ပြုသည့်ကာလ
(င)	**စီမံကိန်း၏ အရွယ်အစား**	- မြေဧရိယာ (၄၅၅) ဧက
(စ)	**စီမံကိန်းတည်နေရာ**	- မန္တလေးတိုင်းဒေသကြီး၊ သာစည်မြို့နယ်၊ ကူပြင်ကျေးရွာအုပ်စု
(ဆ)	**ECC သက်တမ်း (၅)နှစ်** **(ပထမအကြိမ်သက်တမ်းတိုး)**	- စတင်ထုတ်ပေးရက် - ၂၅-၁၁-၂၀၂၄ သက်တမ်းကုန်ဆုံးရက် - ၂၄-၁၁-၂၀၂၉
(ဇ)	**အတည်ပြုအစီရင်ခံစာ**	- ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီ၏ ၂၇-၅-၂၀၁၉ ရက်စွဲပါ စာအမှတ်၊ STC-MD-034-2019 ဖြင့် တင်ပြသည့် **"ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) အစီရင်ခံစာ"**

၁၆.၅.၂၀၂၅

ပြည်ထောင်စုဝန်ကြီး (ကိုယ်စား)

(လှမောင်သိန်း၊ အမြဲတမ်းအတွင်းဝန်)

သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန

စည်းကမ်းချက်များ

၁။ စီမံကိန်းအဆိုပြုသူသည် အောက်ပါစည်းကမ်းချက်များကို လိုက်နာအကောင်အထည်ဖော်ဆောင်ရွက်ရမည်-

(က) ဤသက်သေခံလက်မှတ်၏ နောက်ဆက်တွဲပါ စည်းကမ်းချက်များကို လိုက်နာဆောင်ရွက်ရန်၊

(ခ) ပတ်ဝန်းကျင်နှင့်လူမှုဆိုင်ရာ ဆိုးကျိုးသက်ရောက်မှုများကို ကြိုတင်ကာကွယ်ရေး၊ အနိမ့်ဆုံး ဖြစ်စေရေးနှင့် ထိခိုက်မှုများကို ပြန်လည်ကုစားရေး ဆောင်ရွက်ပေးရန်၊

(ဂ) စီမံကိန်းအဆိုပြုသူ၏ စီမံကိန်းဆိုင်ရာ ကတိကဝတ်များနှင့် လိုက်နာထမ်းဆောင်ရမည့် တာဝန်များကို သတ်မှတ်ရန်၊

(ဃ) လက်ခံနိုင်သော ပတ်ဝန်းကျင်အရည်အသွေးဖြစ်စေရေးအတွက် စံချိန်စံညွှန်းများနှင့် အရည်အသွေးတိုင်းတာရေးနည်းလမ်းများ သတ်မှတ်ရန်၊

(င) စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် အစီရင်ခံခြင်းတို့ကို ပုံမှန်ဆောင်ရွက်စေရန်၊

(စ) စီမံကိန်းတွင် စဉ်ဆက်မပြတ် ဆောင်ရွက်သွားရမည့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲရေး အစီအမံတစ်ရပ်ကို ရေးဆွဲဆောင်ရွက်ရန်၊

(ဆ) စောင့်ကြပ်ကြည့်ရှုမှုအစီရင်ခံစာအား (၆) လ တစ်ကြိမ် ရေးဆွဲတင်ပြရန်၊

(ဇ) စီမံကိန်းအဆိုပြုသူသည် စီမံကိန်းအရွယ်အစား၊ တည်နေရာ၊ ဆက်သွယ်ရန်လိပ်စာ၊ လုပ်ငန်းဆောင်ရွက်မှု ရှိ/ မရှိ အခြေအနေများ ပြောင်းလဲမှုရှိပါက ဝန်ကြီးဌာနသို့ ဆက်သွယ် အကြောင်းကြားရန်၊

(ဈ) ဤဝန်ကြီးဌာနမှ အခါအားလျော်စွာ ထုတ်ပြန်သောအမိန့်၊ ညွှန်ကြားချက်များကို လိုက်နာ ဆောင်ရွက်ရန်၊

(ည) ဤပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ်သည် လုပ်ငန်းဆောင်ရွက်ရန်အတွက် ခွင့်ပြုမိန့်ထုတ်ပေးခြင်း မဟုတ်ဘဲ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ စည်းကမ်းချက်များအား လိုက်နာဆောင်ရွက်ရန်ဖြစ်ပြီး မြေအသုံးပြုခွင့်နှင့် လုပ်ငန်းဆောင်ရွက်ခွင့်ပြုမိန့်တို့နှင့်စပ်လျဉ်း၍ သက်ဆိုင်ရာဝန်ကြီးဌာန သို့မဟုတ် အခွင့်အမိန့်ရ အဖွဲ့အစည်းများ၏ မူဝါဒ၊ ဥပဒေ၊ နည်းဥပဒေများ၊ လုပ်ထုံး လုပ်နည်း၊ လမ်းညွှန်ချက်များ နှင့်အညီ ရယူလိုက်နာဆောင်ရွက်ရန်၊

(ဋ) ဤသက်သေခံလက်မှတ်သည် လုပ်ငန်းပိုင်ဆိုင်မှုနှင့် သက်ဆိုင်ခြင်းမရှိစေရ။

၂။ သက်ဆိုင်ရာ ခွင့်ပြုမိန့်ထုတ်ပေးသည့်ဌာနမှ ခွင့်ပြုမိန့် ပယ်ဖျက်လျှင်သော်လည်းကောင်း၊ သက်တမ်းတိုးပေးခြင်း မရှိလျှင်သော်လည်းကောင်း၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ် သက်တမ်းရှိစေကာမူ ဤသက်သေခံလက်မှတ်၏ သက်တမ်းသည်လည်း အလိုအလျောက် ကုန်ဆုံးသည်ဟု မှတ်ယူရမည်။

APPENDIX-A2

Mitigation Measures for Air Quality Impact

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

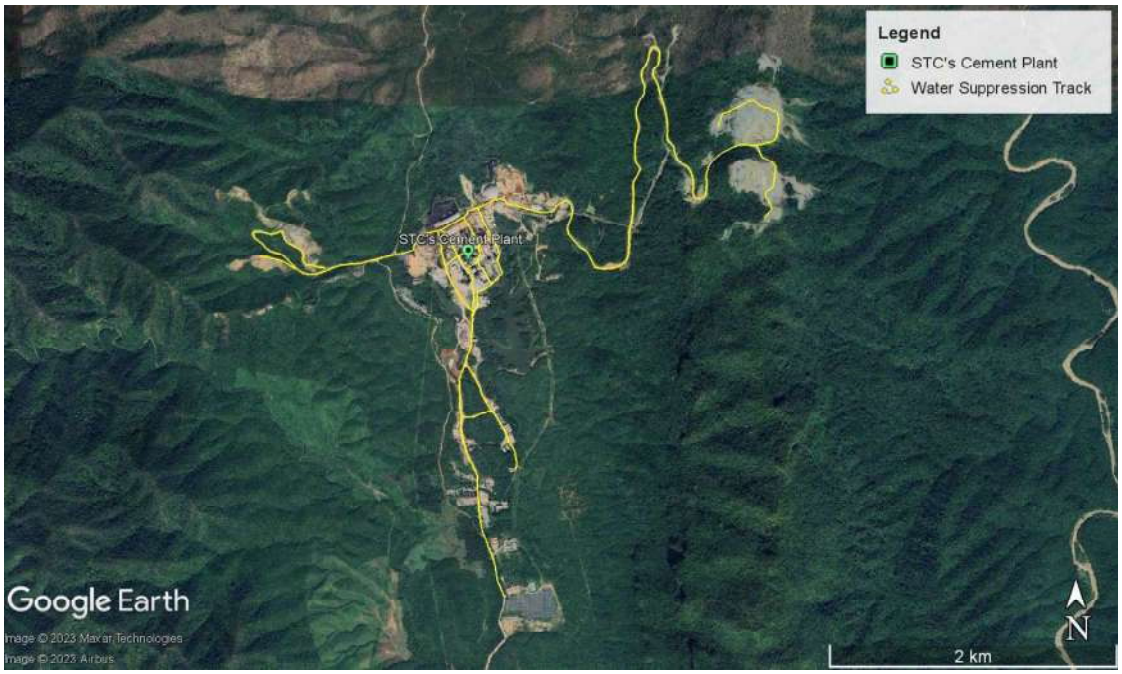


Table: Water Suppression Record from November to April 2025 to mitigate dust suppression in plant site.

Water Suppression Record 2025												
Month	Vehicle No.											
	5B -4174 (Capacity: 2200 gal)		6C-1052 (Capacity: 4000 gal)		2R-5191 (Capacity: 800 gal)		1P-4508 (Capacity: 4500 gal)		2R-5193 (Capacity: 800 gal)		7G-9512 (Capacity: 2800 gal)	
	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption	Total Load	Water Consumption
May 2025	-	-	99	396,000	-	-	65	292,500	59	47,200	107	299,600
June 2025	-	-	72	288,000	-	-	85	382,500	65	52,000	151	422,800
July 2025	-	-	-	-	-	-	53	238,500	85	68,000	210	588,000
Aug 2025	-	-	-	-	-	-	83	373,500	131	104,800	188	526,400
Sep 2025	-	-	29	116,000	-	-	87	391,500	45	36,000	37	103,600
Oct 2025	-	-	103	412,000	-	-	79	355,500	3	2,400	-	-

Note: Source of water supply from Sedimentation Ponds

Table: Bag Filter 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

APPENDIX-A3

Status of Cement Biannual Environmental Monitoring Reports Submission to ECD

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	
		ဆဋ္ဌမအကြိမ်	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	ဝန်ကြီးရုံးအတည်ပြုသည့် ရက်စွဲအရ ပြန်လည်ညှိနှိုင်း ပြင်ဆင်တင်ပြခဲ့ပါသည်။
	၂၉.၁၁.၂၀၂၄	ဒသမအကြိမ်	၂၀၂၄ ခုနှစ် မေလမှ ၂၀၂၄ ခုနှစ် အောက်တိုဘာလအထိ	
	၂၁.၅.၂၀၂၅	၁၁ ကြိမ်မြောက်	၂၀၂၄ ခုနှစ် နိုဝင်ဘာလမှ ၂၀၂၅ ခုနှစ် ဧပြီလအထိ	
	၂၀၂၅ ခုနှစ် နိုဝင်ဘာလ	၁၂ ကြိမ်မြောက်	၂၀၂၅ ခုနှစ် မေလ ၂၂ ရက်မှ ၂၀၂၅ ခုနှစ် နိုဝင်ဘာလ ၂၂ ရက်နေ့ အထိ	
	ဆက်လက်တင်ပြရန်	***၁၃ ကြိမ်မြောက်***	***၂၀၂၅ ခုနှစ် နိုဝင်ဘာလ ၂၂ ရက်နေ့ မှ ၂၀၂၆ ခုနှစ် မေလ ၂၂ ရက်နေ့ အထိ***	***၂၀၂၆ ခုနှစ် မေလအတွင်း တင်ပြရန်***

APPENDIX-B

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	**16.05.2025**
Date of sample examination	**17.05.2025**
Date of completing	**18.05.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
pH	7.5	6.5 ~ 8.5	
Colour(True)	10	15 PCU	
Turbidity	1.46	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	10	50mg/l	
Nitrate	11	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
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	**18.06.2025**
Date of sample examination	**19.06.2025**
Date of completing	**21.06.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.7	6.5 - 8.5	
Colour(True)	15	15 PCU	
Turbidity	1.6	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	7.0	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APACHE PORTLAND CEMENT
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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	**23.07.2025**
Date of sample examination	**24.07.2025**
Date of completing	**25.07.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.7	6.5 - 8.5	
Colour(True)	110	15 PCU	
Turbidity	50.0	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	266.0	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

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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	**18.08.2025**
Date of sample examination	**20.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.7	6.5 ~ 8.5	
Colour(True)	5	15 PCU	
Turbidity	1.7	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	4.0	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APACHE PORTLAND CEMENT
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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	**17.09.2025**
Date of sample examination	**18.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.3	6.5 ~ 8.5	
Colour(True)	10	15 PCU	
Turbidity	5.8	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	16.0	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye` Naing Soe
Head of Lab & Quality Control Dept;
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	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.7	6.5 ~ 8.5	
Colour(True)	35	15 PCU	
Turbidity	10.4	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	28.0	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

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	**16.05.2025**
Date of sample examination	**17.05.2025**
Date of completing	**18.05.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
pH	7.3	6.5 ~ 8.5	
Colour(True)	15	15 PCU	
Turbidity	1.99	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	6	50mg/l	
Nitrate	8.5	50mg/l	

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

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Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Near Pyin Nyaung Village**
Date of sample collection	**18.06.2025**
Date of sample examination	**19.06.2025**
Date of completing	**21.06.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.6	6.5 ~ 8.5	
Colour(True)	15	15 PCU	
Turbidity	5.68	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	33	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Dept;
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	**23.07.2025**
Date of sample examination	**24.07.2025**
Date of completing	**25.07.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
p^H	7.6	6.5 ~ 8.5	
Colour(True)	25	15 PCU	
Turbidity	9.46	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	30	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Dept;
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	**18.08.2025**
Date of sample examination	**20.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.6	6.5 ~ 8.5	
Colour(True)	15	15 PCU	
Turbidity	10.8	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	30	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
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	**17.09.2025**
Date of sample examination	**18.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.7	6.5 ~ 8.5	
Colour(True)	40	15 PCU	
Turbidity	13.8	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	37	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

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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	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.2	6.5 ~ 8.5	
Colour(True)	55	15 PCU	
Turbidity	29.2	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	76	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

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	**16.05.2025**
Date of sample examination	**17.05.2025**
Date of completing	**18.05.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.5	6.5 ~ 8.5	
Colour(True)	55	15 PCU	
Turbidity	11.9	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	
Total Suspended Solid(TSS)	35	50mg/l	
Nitrate	15.1	50mg/l	

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Dept;
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	**18.06.2025**
Date of sample examination	**19.06.2025**
Date of completing	**21.06.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.6	6.5 ~ 8.5	
Colour(True)	45	15 PCU	
Turbidity	6.17	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	19	50mg/l	
Nitrate	3.3	50mg/l	

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

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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	**18.08.2025**
Date of sample examination	**20.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.8	6.5 - 8.5	
Colour(True)	15	15 PCU	
Turbidity	1.48	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	15	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
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	**17.09.2025**
Date of sample examination	**18.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.6	6.5 ~ 8.5	
Colour(True)	15	15 PCU	
Turbidity	5.22	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	16	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
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	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.3	6.5 - 8.5	
Colour(True)	25	15 PCU	
Turbidity	10.1	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	26	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX - (B-4)

(Supply Water (Lower Reservoir))

Tested by External Laboratories

GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
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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 No. : GEM-LAB-202408095
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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

LAB
Aug 22, 2024
GEM

Approved By :

Ni Ni Aye Lwin Aug 22, 2024
Manager

*** End Of Document ***

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C). LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

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

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd), Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 2 of 2

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

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

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	**19.05.2025**
Date of sample examination	**20.05.2025**
Date of completing	**21.05.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.3	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	83	Max 50mg/L	
Total Nitrogen	0.81	10mg/L	
Total Nitrate	3.6	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
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	**16.06.2025**
Date of sample examination	**17.06.2025**
Date of completing	**20.06.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.1	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	108	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	10.4	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Department
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	**22.07.2025**
Date of sample examination	**24.07.2025**
Date of completing	**25.07.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	10.2	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	57	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
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Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
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	**20.08.2025**
Date of sample examination	**21.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.8	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	46	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
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Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
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	**18.09.2025**
Date of sample examination	**19.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.8	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	83	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

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Approved By,

Ye' Naing Soe
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Lab & QC Department
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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	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.2	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	122	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
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Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
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Shwe Taung Cement Co., Ltd.

APPENDIX - (B-6)

(Sedimentation Pond 7 Effluent Water Results)

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**19.05.2025**
Date of sample examination	**20.05.2025**
Date of completing	**21.05.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.7	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	21	Max 50mg/L	
Total Nitrogen	1.31	10mg/L	
Total Nitrate	5.8	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
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Approved By,

Ye Naing Soe
Head of Lab & Quality Control Department
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	**Between 401 & 405**
Date of sample collection	**16.06.2025**
Date of sample examination	**17.06.2025**
Date of completing	**20.06.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.7	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	16	Max 50mg/L	
Total Nitrogen	0.56	10mg/L	
Total Nitrate	2.5	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

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Approved By,

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

Lab & Quality Control Department

Waste Water Test Report

Nature of water	Surface Water(Effluent Water)
Location	Between 401 & 405
Date of sample collection	22.07.2025
Date of sample examination	24.07.2025
Date of completing	25.07.2025

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.0	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	9.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

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Approved By,

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

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**20.08.2025**
Date of sample examination	**21.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	18.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

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Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
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	**Between 401 & 405**
Date of sample collection	**18.09.2025**
Date of sample examination	**19.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	19.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
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Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
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	**Between 401 & 405**
Date of sample collection	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.4	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	7.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX - (B-7)

(Biotank Effluent Water Results)

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**28.05.2025**
Date of sample examination	**28.05.2025**
Date of completing	**29.05.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	**125**	Max 50mg/L	
Total Nitrogen	6.75	10mg/L	
Total Nitrate	29.9	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

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

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**16.06.2025**
Date of sample examination	**17.06.2025**
Date of completing	**20.06.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	6.9	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	**113**	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

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

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**28.07.2025**
Date of sample examination	**29.07.2025**
Date of completing	**29.07.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	**29**	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
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Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

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

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**20.08.2025**
Date of sample examination	**21.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.9	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	24	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

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

APACHE
PORTLAND CEMENT
THE STRENGTH TO BUILD

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**23.09.2025**
Date of sample examination	**23.09.2025**
Date of completing	**23.09.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.5	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	22	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX - (B-8)

(Biotank Sludge Results from External Laboratory)

GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
Lot No E1. Thilawa SEZ Zone A, Yangon Region, Myanmar.
Phone No Fax No: (+95) 1 2309051

motivate our planet

Report No. : GEM-LAB-202305002
Revision No. : 1
Report Date : 4 May, 2023
Application No. : 0235-C002

Analysis Report

Client Name : Shwe Taung Cement Co.,Ltd.
Address : Shwe Taung Cement Plant, Pyi Nyaung
Project Name : Shwe Taung Cement Samples

Sample Description

Sample Name : Bio-tank Sludge
Sample No. : S-2304001
Waste Profile No : -

Sampling Date : 24 April, 2022
Sampling By : Customer
Sample Received Date : 24 April, 2022
Analytical Date : 24/04-04/05/2023

No.	Parameter	Method For Liquid Sample Preparation	Method of Measurement	Unit	Result	LOQ
1	Arsenic	EPA Method 3050 B (Acid Digestion of Sediments, Sludges, and Soils)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/kg	≤0.34	0.34
2	Selenium			mg/kg	≤0.34	0.34
3	Zinc			mg/kg	47.736	0.068
4	Nickel			mg/kg	≤0.068	0.068
5	Copper			mg/kg	4.352	0.068
6	Cadmium			mg/kg	≤0.068	0.068
7	Mercury			mg/kg	<0.068	0.068
8	Lead			mg/kg	≤0.068	0.068
9	Chromium			mg/kg	≤0.068	0.068
10	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)		MPN Index/100ml	4900.0	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

EPA- The United States Environmental Protection Agency

Analysed By :

Cherry Myint Thein
Assistant Manager

LAB
4/5/23
GEM

Approved By :

Ni Ni Aye Lwin
Manager

APPENDIX- C

Ambient Air Quality Results

APPENDIX - (C-1)

Ambient Air Quality Results of Plant Site

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 07-05-2025 6:15:00 AM

End Date 08-05-2025 6:14:00 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	**4.29722**	**13.6597**	**60.9923**	**.147159**	**39.8270**	**23.0930**	**9.68541**	**0**	**69.6812**	**27.525**	**138.366**	**.779236**	**9.86944**	**0**	**0**	**0**	**0**
Max	7	213	170	.84	160	90	73	0	100	35	333	6.3	10.3	0	0	0	0
Min	2	1	0	0	2	1	0	0	27	21	54	0	9.3	0	0	0	0
EPAS 919217	**4.29722**	**13.6597**	**60.9923**	**.147159**	**39.8270**	**23.0930**	**9.68541**	**0**	**69.6812**	**27.525**	**138.366**	**.779236**	**9.86944**	**0**	**0**	**0**	**0**
	7	213	170	.84	160	90	73	0	100	35	333	6.3	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	27	21	54	0	9.3	0	0	0	0
Daily Wed, May 7, 2025	**4.02629**	**17.9774**	**82.4544**	**.197492**	**53.1464**	**30.8723**	**12.7295**	**0**	**82.0469**	**25.3464**	**118.403**	**.192018**	**9.89690**	**0**	**0**	**0**	**0**
	7	213	170	.84	160	90	73	0	100	34	273	4.7	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	28	21	54	0	9.3	0	0	0	0
Ave Period 24 07-05-2025	**4.02629**	**17.9774**	**82.4544**	**.197492**	**53.1464**	**30.8723**	**12.7295**	**0**	**82.0469**	**25.3464**	**118.403**	**.192018**	**9.89690**	**0**	**0**	**0**	**0**
	7	213	170	.84	160	90	73	0	100	34	273	4.7	10.3	0	0	0	0
	2	1	0	0	2	1	0	0	28	21	54	0	9.3	0	0	0	0
Daily Thu, May 8, 2025	**5.06666**	**1.39733**	**.04**	**.004213**	**2**	**1**	**1.04**	**0**	**34.5626**	**33.712**	**195.061**	**2.44693**	**9.79146**	**0**	**0**	**0**	**0**
	6	4	6	.06	2	1	21	0	47	35	333	6.3	9.9	0	0	0	0
	4	1	0	0	2	1	0	0	27	32	69	.1	9.3	0	0	0	0
Ave Period 24 08-05-2025 06:14	**5.06666**	**1.39733**	**.04**	**.004213**	**2**	**1**	**1.04**	**0**	**34.5626**	**33.712**	**195.061**	**2.44693**	**9.79146**	**0**	**0**	**0**	**0**
	6	4	6	.06	2	1	21	0	47	35	333	6.3	9.9	0	0	0	0
	4	1	0	0	2	1	0	0	27	32	69	.1	9.3	0	0	0	0

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Environmental Report

Record Cnt 1440

Start Date 07-08-2025 3:19:00 AM

End Date 08-08-2025 3:18:00 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	**19.7187**	**6.2875**	**0**	**0**	**2.13958**	**20.9569**	**0**	**.001687**	**0**	**72.9756**	**.142361**	**.175**	**10.8765**	**0**	**0**	**0**	**0**
Max	347	142	0	0	70	946	0	.44	0	73	29	3.3	11.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	71	0	0	10.1	0	0	0	0
EPAS 919217	**19.7187**	**6.2875**	**0**	**0**	**2.13958**	**20.9569**	**0**	**.001687**	**0**	**72.9756**	**.142361**	**.175**	**10.8765**	**0**	**0**	**0**	**0**
	347	142	0	0	70	946	0	.44	0	73	29	3.3	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	71	0	0	10.1	0	0	0	0
Daily Thu, Aug 7, 2025	**39.8829**	**10.4096**	**0**	**0**	**2.30981**	**2.48709**	**0**	**.003321**	**0**	**73**	**0**	**.088296**	**11.0440**	**0**	**0**	**0**	**0**
	347	142	0	0	70	223	0	.44	0	73	0	1.4	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	73	0	0	10.3	0	0	0	0
Ave Period 24 07-08-2025 12:59 PM	**39.8829**	**10.4096**	**0**	**0**	**2.30981**	**2.48709**	**0**	**.003321**	**0**	**73**	**0**	**.088296**	**11.0440**	**0**	**0**	**0**	**0**
	347	142	0	0	70	223	0	.44	0	73	0	1.4	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	73	0	0	10.3	0	0	0	0
Daily Fri, Aug 8, 2025	**6.08032**	**3.49941**	**0**	**0**	**2.02444**	**33.4493**	**0**	**.000582**	**0**	**72.9592**	**.238649**	**.233643**	**10.7632**	**0**	**0**	**0**	**0**
	284	60	0	0	23	946	0	.13	0	73	29	3.3	11.2	0	0	0	0
	2	1	0	0	2	1	0	0	0	71	0	0	10.1	0	0	0	0
Ave Period 24 08-08-2025 11:59 PM	**6.08032**	**3.49941**	**0**	**0**	**2.02444**	**33.4493**	**0**	**.000582**	**0**	**72.9592**	**.238649**	**.233643**	**10.7632**	**0**	**0**	**0**	**0**
	284	60	0	0	23	946	0	.13	0	73	29	3.3	11.2	0	0	0	0
	2	1	0	0	2	1	0	0	0	71	0	0	10.1	0	0	0	0

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Environmental Report

Record Cnt 1440

Start Date 15-09-2025 3:14:01 AM

End Date 16-09-2025 3:13:00 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	**5.38194**	**16.8493**	**2.70208**	**.056784**	**2.28055**	**2.12291**	**.469444**	**.000937**	**.291666**	**72.6881**	**25.4979**	**.212986**	**11.0206**	**0**	**0**	**0**	**0**
Max	30	56	239	4.73	159	391	177	.17	42	87	360	2.9	11.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	20	0	0	10.3	0	0	0	0
EPAS 919217	**5.38194**	**16.8493**	**2.70208**	**.056784**	**2.28055**	**2.12291**	**.469444**	**.000937**	**.291666**	**72.6881**	**25.4979**	**.212986**	**11.0206**	**0**	**0**	**0**	**0**
	30	56	239	4.73	159	391	177	.17	42	87	360	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	20	0	0	10.3	0	0	0	0
Daily Mon, Sep 15, 2025	**5.36516**	**16.0754**	**2.64285**	**.065626**	**2.32423**	**2.14125**	**.443017**	**.001083**	**.337078**	**72.6396**	**29.4678**	**.052728**	**11.0510**	**0**	**0**	**0**	**0**
	30	56	239	4.73	159	391	177	.17	42	87	360	1.2	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	20	0	0	10.3	0	0	0	0
Ave Period 24 15-09-2025 11:59 PM	**5.36516**	**16.0754**	**2.64285**	**.065626**	**2.32423**	**2.14125**	**.443017**	**.001083**	**.337078**	**72.6396**	**29.4678**	**.052728**	**11.0510**	**0**	**0**	**0**	**0**
	30	56	239	4.73	159	391	177	.17	42	87	360	1.2	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	20	0	0	10.3	0	0	0	0
Daily Tue, Sep 16, 2025	**5.48969**	**21.8195**	**3.08247**	**0**	**2**	**2.00515**	**.639175**	**0**	**0**	**73**	**0**	**1.24226**	**10.8257**	**0**	**0**	**0**	**0**
	11	42	163	0	2	5	62	0	0	73	0	2.9	10.9	0	0	0	0
	2	1	0	0	2	1	0	0	0	73	0	0	10.3	0	0	0	0
Ave Period 24 16-09-2025 03:13 AM	**5.48969**	**21.8195**	**3.08247**	**0**	**2**	**2.00515**	**.639175**	**0**	**0**	**73**	**0**	**1.24226**	**10.8257**	**0**	**0**	**0**	**0**
	11	42	163	0	2	5	62	0	0	73	0	2.9	10.9	0	0	0	0
	2	1	0	0	2	1	0	0	0	73	0	0	10.3	0	0	0	0

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Environmental Report

Record Cnt 1440

Start Date 02-10-2025 4:38:00 AM

End Date 03-10-2025 4:37:00 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	**2.02152**	**3.78958**	**0**	**.051201**	**15.6354**	**11.4923**	**.126388**	**.004402**	**0**	**24.4638**	**119.783**	**.277708**	**10.8627**	**0**	**0**	**0**	**0**
Max	5	93	0	4.81	142	137	182	.37	0	31	357	4.1	11.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	22	0	0	10.3	0	0	0	0
EPAS 919217	**2.02152**	**3.78958**	**0**	**.051201**	**15.6354**	**11.4923**	**.126388**	**.004402**	**0**	**24.4638**	**119.783**	**.277708**	**10.8627**	**0**	**0**	**0**	**0**
	5	93	0	4.81	142	137	182	.37	0	31	357	4.1	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	22	0	0	10.3	0	0	0	0
Daily Thu, Oct 2, 2025	**2.00258**	**2.74698**	**0**	**.028502**	**13.2822**	**11.6032**	**0**	**.000215**	**0**	**24.1919**	**105.119**	**.150086**	**10.9164**	**0**	**0**	**0**	**0**
	5	57	0	1.69	44	49	0	.13	0	31	357	3.1	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	22	0	0	10.3	0	0	0	0
Ave Period 24 02-10-2025 11:59 PM	**2.00258**	**2.74698**	**0**	**.028502**	**13.2822**	**11.6032**	**0**	**.000215**	**0**	**24.1919**	**105.119**	**.150086**	**10.9164**	**0**	**0**	**0**	**0**
	5	57	0	1.69	44	49	0	.13	0	31	357	3.1	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	22	0	0	10.3	0	0	0	0
Daily Fri, Oct 3, 2025	**2.10071**	**8.14748**	**0**	**.146079**	**25.4712**	**11.0287**	**.654676**	**.021906**	**0**	**25.6007**	**181.075**	**.811151**	**10.6384**	**0**	**0**	**0**	**0**
	5	93	0	4.81	142	137	182	.37	0	30	355	4.1	10.7	0	0	0	0
	2	1	0	0	2	1	0	0	0	24	90	0	10.3	0	0	0	0
Ave Period 24 03-10-2025 04:37 AM	**2.10071**	**8.14748**	**0**	**.146079**	**25.4712**	**11.0287**	**.654676**	**.021906**	**0**	**25.6007**	**181.075**	**.811151**	**10.6384**	**0**	**0**	**0**	**0**
	5	93	0	4.81	142	137	182	.37	0	30	355	4.1	10.7	0	0	0	0
	2	1	0	0	2	1	0	0	0	24	90	0	10.3	0	0	0	0

APPENDIX - (C-2)

Ambient Air Quality Results of Pyi Nyaung Village

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 19-05-2025 4:15:00 AM

End Date 20-05-2025 4:14:00 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	**5.84722**	**3.32638**	**15.2548**	**.204631**	**41.5381**	**29.3131**	**11.2083**	**.003506**	**78.8284**	**26.3569**	**180.485**	**.198680**	**9.94756**	**0**	**0**	**0**	**0**
Max	49	59	66	1.08	416	180	138	.25	100	32	360	3.5	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	45	22	1	0	9.1	0	0	0	0
EPAS 919217	**5.84722**	**3.32638**	**15.2548**	**.204631**	**41.5381**	**29.3131**	**11.2083**	**.003506**	**78.8284**	**26.3569**	**180.485**	**.198680**	**9.94756**	**0**	**0**	**0**	**0**
	49	59	66	1.08	416	180	138	.25	100	32	360	3.5	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	45	22	1	0	9.1	0	0	0	0
Daily Mon, May 19,	**6.42109**	**3.18565**	**18.4962**	**.230185**	**49.3434**	**34.3223**	**11.3164**	**.004261**	**84.7282**	**25.3527**	**192.896**	**.179578**	**9.89510**	**0**	**0**	**0**	**0**
	49	59	66	1.08	416	180	138	.25	100	32	360	3.5	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	45	22	1	0	9.1	0	0	0	0
Ave Period 24 19-05-2025 11:59 PM	**6.42109**	**3.18565**	**18.4962**	**.230185**	**49.3434**	**34.3223**	**11.3164**	**.004261**	**84.7282**	**25.3527**	**192.896**	**.179578**	**9.89510**	**0**	**0**	**0**	**0**
	49	59	66	1.08	416	180	138	.25	100	32	360	3.5	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	45	22	1	0	9.1	0	0	0	0
Daily Tue, May 20, 2025	**3.18039**	**3.98039**	**.192156**	**.085882**	**5.26666**	**6.03529**	**10.7058**	**0**	**51.4117**	**31.0235**	**122.811**	**.287450**	**10.1913**	**0**	**0**	**0**	**0**
	4	46	9	.45	37	27	47	0	68	32	325	2	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	45	29	5	0	9.6	0	0	0	0
Ave Period 24 20-05-2025 04:14 AM	**3.18039**	**3.98039**	**.192156**	**.085882**	**5.26666**	**6.03529**	**10.7058**	**0**	**51.4117**	**31.0235**	**122.811**	**.287450**	**10.1913**	**0**	**0**	**0**	**0**
	4	46	9	.45	37	27	47	0	68	32	325	2	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	45	29	5	0	9.6	0	0	0	0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 20-08-2025 3:24:00 AM

End Date 21-08-2025 11:59:00 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	**15.5555**	**12.7652**	**0**	**0**	**2.53611**	**5.19444**	**0**	**0**	**0**	**72.9986**	**.007638**	**.018888**	**11.1225**	**0**	**0**	**0**	**0**
Max	830	659	0	0	279	649	0	0	0	73	3	.7	11.6	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	72	0	0	10.6	0	0	0	0
EPAS 919217	**15.5555**	**12.7652**	**0**	**0**	**2.53611**	**5.19444**	**0**	**0**	**0**	**72.9986**	**.007638**	**.018888**	**11.1225**	**0**	**0**	**0**	**0**
	830	659	0	0	279	649	0	0	0	73	3	.7	11.6	0	0	0	0
	2	1	0	0	2	1	0	0	0	72	0	0	10.6	0	0	0	0
Daily Wed, Aug 20, 2025	**24.0538**	**27.4843**	**0**	**0**	**2.94965**	**2.62673**	**0**	**0**	**0**	**73**	**0**	**.014062**	**11.3078**	**0**	**0**	**0**	**0**
	394	343	0	0	279	458	0	0	0	73	0	.2	11.6	0	0	0	0
	2	1	0	0	2	1	0	0	0	73	0	0	10.9	0	0	0	0
Ave Period 24 20-08-2025 12:59 PM	**24.0538**	**27.4843**	**0**	**0**	**2.94965**	**2.62673**	**0**	**0**	**0**	**73**	**0**	**.014062**	**11.3078**	**0**	**0**	**0**	**0**
	394	343	0	0	279	458	0	0	0	73	0	.2	11.6	0	0	0	0
	2	1	0	0	2	1	0	0	0	73	0	0	10.9	0	0	0	0
Daily Thu, Aug 21, 2025	**9.89004**	**2.95254**	**0**	**0**	**2.26041**	**6.90625**	**0**	**0**	**0**	**72.9976**	**.012731**	**.022106**	**10.9990**	**0**	**0**	**0**	**0**
	830	659	0	0	195	649	0	0	0	73	3	.7	11.3	0	0	0	0
	2	1	0	0	2	1	0	0	0	72	0	0	10.6	0	0	0	0
Ave Period 24 21-08-2025 11:59 PM	**9.89004**	**2.95254**	**0**	**0**	**2.26041**	**6.90625**	**0**	**0**	**0**	**72.9976**	**.012731**	**.022106**	**10.9990**	**0**	**0**	**0**	**0**
	830	659	0	0	195	649	0	0	0	73	3	.7	11.3	0	0	0	0
	2	1	0	0	2	1	0	0	0	72	0	0	10.6	0	0	0	0

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Environmental Report

Record Cnt 1440

Start Date 02-09-2025 3:01:00 AM

End Date 03-09-2025 3:00:00 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	**14.1159**	**18.0812**	**.209027**	**0**	**6.70277**	**5.21805**	**.49375**	**.020826**	**0**	**72.9173**	**.3**	**.179166**	**11.0459**	**0**	**0**	**0**	**0**
Max	188	115	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
EPAS 919217	**14.1159**	**18.0812**	**.209027**	**0**	**6.70277**	**5.21805**	**.49375**	**.020826**	**0**	**72.9173**	**.3**	**.179166**	**11.0459**	**0**	**0**	**0**	**0**
	188	115	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Daily Tue, Sep 2, 2025	**13.1461**	**17.0722**	**.185861**	**0**	**6.47577**	**5.16521**	**.389992**	**.021795**	**0**	**72.9277**	**.234312**	**.153534**	**11.0699**	**0**	**0**	**0**	**0**
	56	65	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Ave Period 24 02-09-2025 11:59 PM	**13.1461**	**17.0722**	**.185861**	**0**	**6.47577**	**5.16521**	**.389992**	**.021795**	**0**	**72.9277**	**.234312**	**.153534**	**11.0699**	**0**	**0**	**0**	**0**
	56	65	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Daily Wed, Sep 3, 2025	**20.8618**	**25.0994**	**.370165**	**0**	**8.28176**	**5.58563**	**1.21546**	**.014088**	**0**	**72.8453**	**.756906**	**.357458**	**10.8784**	**0**	**0**	**0**	**0**
	188	115	37	0	29	20	184	.23	0	73	16	2	11	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Ave Period 24 03-09-2025 03:00 AM	**20.8618**	**25.0994**	**.370165**	**0**	**8.28176**	**5.58563**	**1.21546**	**.014088**	**0**	**72.8453**	**.756906**	**.357458**	**10.8784**	**0**	**0**	**0**	**0**
	188	115	37	0	29	20	184	.23	0	73	16	2	11	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 16-10-2025 12:43:00 AM

End Date 17-10-2025 12:42:00 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	**3.22361**	**2.87430**	**0**	**.103791**	**13.4736**	**14.6652**	**.005555**	**0**	**0**	**24.3791**	**119.961**	**.014930**	**10.8023**	**0**	**0**	**0**	**0**
Max	118	63	0	1.19	62	36	8	0	0	31	358	.9	11.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	22	0	0	10.1	0	0	0	0
EPAS 919217	**3.22361**	**2.87430**	**0**	**.103791**	**13.4736**	**14.6652**	**.005555**	**0**	**0**	**24.3791**	**119.961**	**.014930**	**10.8023**	**0**	**0**	**0**	**0**
	118	63	0	1.19	62	36	8	0	0	31	358	.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	22	0	0	10.1	0	0	0	0
Daily Thu, Oct 16, 2025	**3.26127**	**2.93199**	**0**	**.104481**	**13.8267**	**15.0851**	**.005726**	**0**	**0**	**24.1904**	**117.915**	**.015103**	**10.8146**	**0**	**0**	**0**	**0**
	118	63	0	1.19	62	36	8	0	0	30	358	.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	22	0	0	10.1	0	0	0	0
Ave Period 24 16-10-2025 11:59 PM	**3.26127**	**2.93199**	**0**	**.104481**	**13.8267**	**15.0851**	**.005726**	**0**	**0**	**24.1904**	**117.915**	**.015103**	**10.8146**	**0**	**0**	**0**	**0**
	118	63	0	1.19	62	36	8	0	0	30	358	.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	22	0	0	10.1	0	0	0	0
Daily Fri, Oct 17, 2025	**2**	**1**	**0**	**.081395**	**2**	**1.02325**	**0**	**0**	**0**	**30.5116**	**186.418**	**.009302**	**10.4046**	**0**	**0**	**0**	**0**
	2	1	0	.17	2	2	0	0	0	31	286	.1	10.6	0	0	0	0
	2	1	0	.02	2	1	0	0	0	30	6	0	10.3	0	0	0	0
Ave Period 24 17-10-2025 12:42 AM	**2**	**1**	**0**	**.081395**	**2**	**1.02325**	**0**	**0**	**0**	**30.5116**	**186.418**	**.009302**	**10.4046**	**0**	**0**	**0**	**0**
	2	1	0	.17	2	2	0	0	0	31	286	.1	10.6	0	0	0	0
	2	1	0	.02	2	1	0	0	0	30	6	0	10.3	0	0	0	0

APPENDIX - (C-3)

Ambient Air Quality Results of Ku Pyin Village

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 15-05-2025 3:39:00 AM

End Date 16-05-2025 3:38:00 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	**4.35694**	**2.70763**	**29.0187**	**.150548**	**98.9951**	**45.2166**	**7.77430**	**.002812**	**94.0486**	**23.8736**	**132.177**	**.139861**	**10.0081**	**0**	**0**	**0**	**0**
Max	7	113	83	.48	391	154	148	.32	100	30	359	5.4	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	57	22	1	0	9.3	0	0	0	0
EPAS 919217	**4.35694**	**2.70763**	**29.0187**	**.150548**	**98.9951**	**45.2166**	**7.77430**	**.002812**	**94.0486**	**23.8736**	**132.177**	**.139861**	**10.0081**	**0**	**0**	**0**	**0**
	7	113	83	.48	391	154	148	.32	100	30	359	5.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	57	22	1	0	9.3	0	0	0	0
Daily Thu, May 15, 2025	**4.27027**	**1.47174**	**34.0204**	**.163751**	**116.374**	**52.9508**	**9.07862**	**.003112**	**97.7878**	**23.2203**	**132.009**	**.057903**	**10.0524**	**0**	**0**	**0**	**0**
	7	4	83	.48	391	154	148	.32	100	29	357	3.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	63	22	3	0	9.3	0	0	0	0
Ave Period 24 15-05-2025 11:59 PM	**4.27027**	**1.47174**	**34.0204**	**.163751**	**116.374**	**52.9508**	**9.07862**	**.003112**	**97.7878**	**23.2203**	**132.009**	**.057903**	**10.0524**	**0**	**0**	**0**	**0**
	7	4	83	.48	391	154	148	.32	100	29	357	3.6	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	63	22	3	0	9.3	0	0	0	0
Daily Fri, May 16, 2025	**4.84018**	**9.59817**	**1.13242**	**.076940**	**2.10045**	**2.09589**	**.502283**	**.001141**	**73.2009**	**27.5159**	**133.114**	**.596803**	**9.76118**	**0**	**0**	**0**	**0**
	7	113	19	.18	11	13	10	.13	100	30	359	5.4	9.9	0	0	0	0
	3	1	0	0	2	1	0	0	57	25	1	0	9.3	0	0	0	0
Ave Period 24 16-05-2025 03:38 AM	**4.84018**	**9.59817**	**1.13242**	**.076940**	**2.10045**	**2.09589**	**.502283**	**.001141**	**73.2009**	**27.5159**	**133.114**	**.596803**	**9.76118**	**0**	**0**	**0**	**0**
	7	113	19	.18	11	13	10	.13	100	30	359	5.4	9.9	0	0	0	0
	3	1	0	0	2	1	0	0	57	25	1	0	9.3	0	0	0	0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 02-09-2025 3:01:00 AM

End Date 03-09-2025 3:00:00 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	**14.1159**	**18.0812**	**.209027**	**0**	**6.70277**	**5.21805**	**.49375**	**.020826**	**0**	**72.9173**	**.3**	**.179166**	**11.0459**	**0**	**0**	**0**	**0**
Max	188	115	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
EPAS 919217	**14.1159**	**18.0812**	**.209027**	**0**	**6.70277**	**5.21805**	**.49375**	**.020826**	**0**	**72.9173**	**.3**	**.179166**	**11.0459**	**0**	**0**	**0**	**0**
	188	115	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Daily Tue, Sep 2, 2025	**13.1461**	**17.0722**	**.185861**	**0**	**6.47577**	**5.16521**	**.389992**	**.021795**	**0**	**72.9277**	**.234312**	**.153534**	**11.0699**	**0**	**0**	**0**	**0**
	56	65	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Ave Period 24 02-09-2025 11:59 PM	**13.1461**	**17.0722**	**.185861**	**0**	**6.47577**	**5.16521**	**.389992**	**.021795**	**0**	**72.9277**	**.234312**	**.153534**	**11.0699**	**0**	**0**	**0**	**0**
	56	65	234	0	75	61	320	.77	0	73	16	2.9	11.5	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Daily Wed, Sep 3, 2025	**20.8618**	**25.0994**	**.370165**	**0**	**8.28176**	**5.58563**	**1.21546**	**.014088**	**0**	**72.8453**	**.756906**	**.357458**	**10.8784**	**0**	**0**	**0**	**0**
	188	115	37	0	29	20	184	.23	0	73	16	2	11	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0
Ave Period 24 03-09-2025 03:00 AM	**20.8618**	**25.0994**	**.370165**	**0**	**8.28176**	**5.58563**	**1.21546**	**.014088**	**0**	**72.8453**	**.756906**	**.357458**	**10.8784**	**0**	**0**	**0**	**0**
	188	115	37	0	29	20	184	.23	0	73	16	2	11	0	0	0	0
	2	1	0	0	2	1	0	0	0	70	0	0	10.6	0	0	0	0

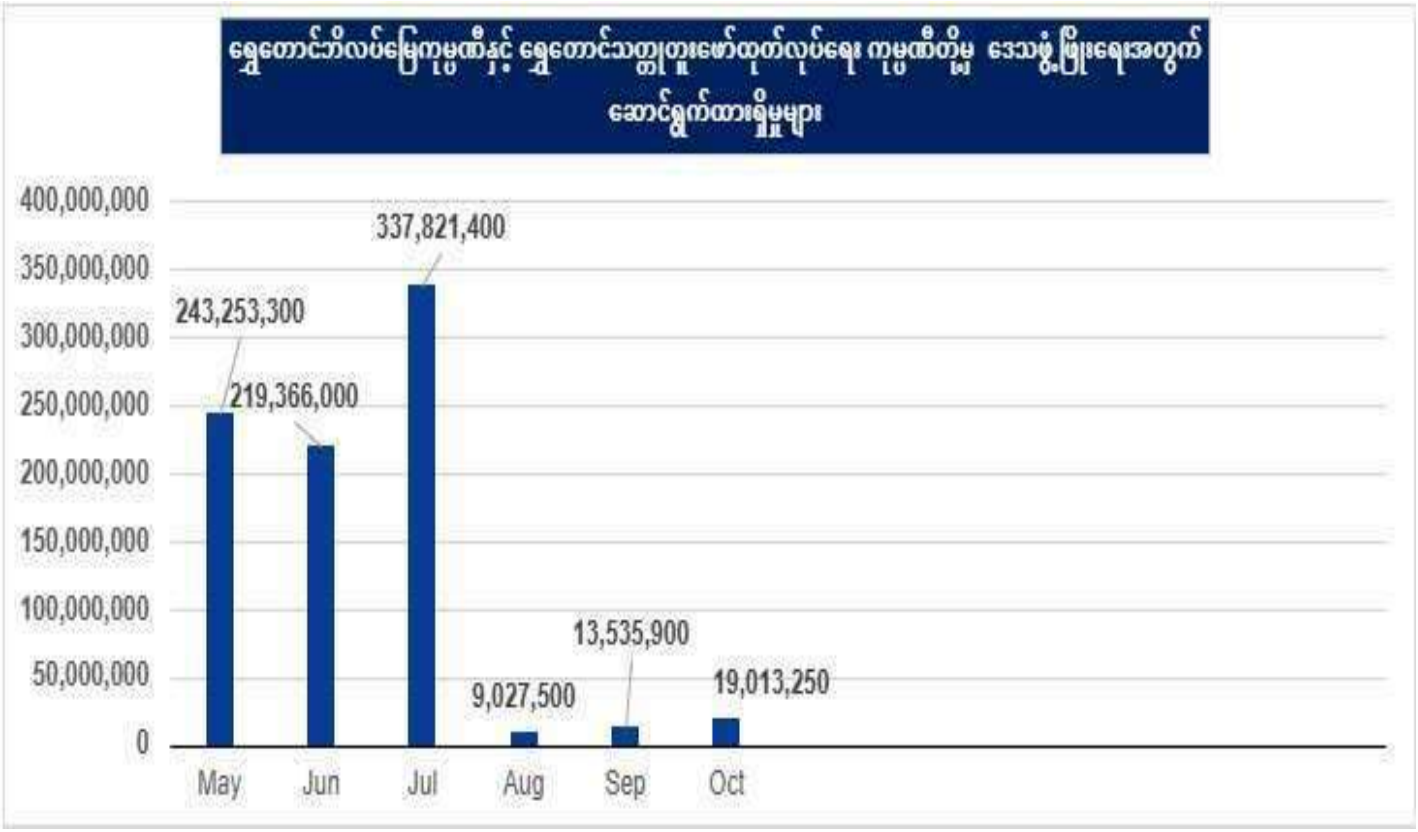
APPENDIX-D

Corporate Social Responsibility

Corporate Social Responsibility(CSR)

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီနှင့် ရွှေတောင်သတ္တုတူးဖော်ထုတ်လုပ်ရေးကုမ္ပဏီတို့မှ ဒေသဖွံ့ဖြိုးရေးအတွက် ဆောင်ရွက်ထားရှိမှုများ

စဉ်	အကြောင်းအရာ	May - 2025	Jun - 2025	Jul - 2025	Aug - 2025	Sep - 2025	Oct - 2025	Total
၁	လမ်းပန်းဆက်သွယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	4,154,400	2,352,000	691,200	2,519,600			9,717,200
၂	သန့်ရှင်းသောရေ ရရှိရေးအတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	900,000						900,000
၃	လျှပ်စစ်မီးလင်းရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	501,600						501,600
၄	ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	480,200	1,913,600	2,494,600	2,110,300	2,055,200	3,235,150	12,289,050
၅	ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း		540,000	72,000		3,838,300		4,450,300
၆	လူမှုရေးနှင့် ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	2,543,200	2,778,400	1,359,600	781,600	3,862,400	738,400	12,063,600
၇	ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	542,400		1,208,000	876,000	200,000	15,039,700	17,866,100
၈	သဘာဝဘေးအန္တရာယ်ကျရောက် ပျက်စီးမှုများတွင် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	234,131,500	211,782,000	331,996,000	2,740,000	3,580,000		784,229,500
စုစုပေါင်း		243,253,300	219,366,000	337,821,400	9,027,500	13,535,900	19,013,250	842,017,350



Corporate Social Responsibility(CSR)

လမ်းပန်းဆက်သွယ်ရေးဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅ခုနှစ်၊ မေလနှင့် ဇွန်လအတွင်း သာစည်မြို့နယ်၊ ယင်းမာပင်ကျေးရွာအုပ်စု၊ ယင်းမာပင်ကျေးရွာ၊ ညောင်ပင်သာရပ်ကွက်၊ အနောက်ပိုင်းရှိ အလျား(၁၁၀၀)၊ အနံ(၁၈) ပေရှိသော ကျေးရွာလမ်းအား ကွန်ကရစ်လမ်းခင်းရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ- ၂၀၂၅ခုနှစ်၊ မေလအတွင်း သာစည်မြို့နယ်၊ ယင်းမာပင်ကျေးရွာအုပ်စု၊ ရေပေါင်းဆုံကျေးရွာရှိ နတ်စင်သို့ သွားသည့် အလျား (၂၁၀)၊ အနံ(၁၂)ပေရှိသောလမ်းအား ကွန်ကရစ်လမ်းခင်းရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ- ၂၀၂၅ခုနှစ်၊ ဩဂုတ်လအတွင်း ကူပြင်ကျေးရွာရှိ ဒေသနေ ပြည်သူများ အသုံးပြုနေသည့် ကျေးရွာလမ်းမအား စက်ယန္တရားကြီးများအသုံးပြု၍ ပြုပြင်ပေးခြင်း။

ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅-၂၆ ပညာသင်နှစ်အတွက် ပြည်ညောင်နှင့် ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများတွင် လိုအပ်လျက်ရှိသော ဆရာမ(၆)ဦးအား လစာငွေများ ထောက်ပံ့ပေးခြင်း။

ပုံ- ၂၀၂၅-၂၆ ပညာသင်နှစ်အတွက် ပြည်ညောင်နှင့်ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများမှ ကျောင်းသား/ကျောင်းသူ (၁၀)ဦးအား ပညာသင် ထောက်ပံ့ကြေး ပေးအပ်ခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာရှိ Information Center & Library နှင့် ကူပြင်ကျေးရွာရှိ ထာဝရအလင်းတန်း စာကြည့်တိုက်များတွင် လစဉ်စာအုပ်များဝယ်ယူထားပေးခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းမှ ယင်းမာပင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းသို့ G12 ကျောင်းသား/သူများ စာမေးပွဲ သွားရောက်ဖြေဆိုနိုင်ရန်အတွက် အကြိုအပို့ ကားစီစဉ် ဆောင်ရွက်ပေးခြင်း။

ပုံ- မိတ္ထီလာမြို့နယ်၊ ညောင်ကိုင်းကျေးရွာရှိ အခြေခံပညာအထက်တန်းကျောင်းအား သန့်ရှင်း၍ စိမ်းလန်းစိုပြည်သောကျောင်း ဖြစ်မြောက်လာရေးအတွက် ပျိုးပင်များ၊ မျိုးစေ့များ၊ ပန်းအိုး၊ ရေဖြန်းပုံး၊ စိုက်ပျိုးရေးသုံးပစ္စည်းများ ထောက်ပံ့ပေးခြင်း။

Corporate Social Responsibility(CSR)

ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ပြည်ညောင်ကျေးရွာအုပ်စုအတွင်းရှိ ဒေသနေပြည်သူများအတွက် ခွေးရူးပြန်ကာကွယ်ဆေး(၃)ဦးစာ ကနဦးမတည် လှူဒါန်းခြင်း။

ပုံ - ပြည်ညောင်ကျေးရွာရှိ ဖြူစင်လူငယ်ပရဟိတအသင်းမှ အောက်စီဂျင်(၆) အိုး ကို အောက်စီဂျင်ဖြည့်ပေးခြင်း။

ပုံ - ပြည်ညောင်ကျေးရွာအုပ်စု၊ ကူပြင်ကျေးရွာရှိ ဒေသနေ ပြည်သူများ၊ ကျောင်းသား၊ ကျောင်းသူများနှင့် ဆရာမများအတွက် မိုးကာအင်္ကျီ (၁၅၉)ထည် ပံ့ပိုးကူညီခြင်း။

ရေရရှိရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ယင်းမာပင်ကျေးရွာအုပ်စု၊ ပုပ္ပါးကုန်းကျေးရွာရှိ သဲလွန်းချောင်းတွင် အလျား (၁၃၀)၊ အနံ(၆)ပေ၊ အမြင့် (၅)ပေ ရှိသော သဲရေစုကန် ဆောက်လုပ်ရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များ လှူဒါန်းခြင်း။

Corporate Social Responsibility(CSR)

ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ကူပြင်ကျေးရွာ (၁၂)ကြိမ်မြောက် မဟာပဋ္ဌာန်းရွတ်ဖတ်ပူဇော်ပွဲနှင့် ဆွမ်းဆန်စိမ်းလောင်းလှူသည့်ပွဲတွင် ဆန်နှင့် ဝတ္ထုငွေ လောင်းလှူခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာရှိ အမှတ်(၅)ရပ်ကွက်၌ ဓမ္မာရုံဆောက်လုပ်ရာတွင် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ - ယင်းမာပင်ကျေးရွာ၊ ရွာဦးဘုန်းတော်ကြီးကျောင်းတွင် ညဏ်တော်အမြင့် (၁၈) တောင်ရှိ ဂျစ္ဆိတံဆုတောင်းပြည့်စေတီတော်မြတ်ကြီး ပြုပြင် ဆောက်လုပ်ရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ - ပြည်ညောင်ကျေးရွာ၊ စုပေါင်းမဟာဘုံကထိန်ပွဲတွင် အလှူငွေ ထည့်ဝင်လှူဒါန်းခြင်း။

ပုံ - ကူပြင်ကျေးရွာ၊ စုပေါင်းမဟာဘုံကထိန်ပွဲတွင် အလှူငွေ ထည့်ဝင်လှူဒါန်းခြင်း။

လူမှုရေးနှင့်ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ -၂၀၂၄ ခုနှစ်၊ အောက်တိုဘာလမှ စတင်၍ လစဉ် ကူပြင်ကျေးရွာရှိ အသက်အရွယ်ကြီးရင့်သော အဖိုးအဖွားများအား ကူညီထောက်ပံ့ပေးခြင်း။

ပုံ - သာစည်မြို့နယ်၊ မြန်မာ့မီးရထား၊ သွားလာပို့ဆောင်ရေးဌာန၊ သာစည်ဘူတာရုံအတွက် (၁၂၀)လီတာဆံ့ အမှိုက်ပုံး အကြီး (၄)ပုံး ကူညီပံ့ပိုးခြင်း။

သဘာဝဘေးအန္တရာယ်ကျရောက်ပျက်စီးမှုများအတွက် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ပျော်ဘွယ်မြို့ နှင့် ရမည်းသင်းမြို့၊ ငလျင်ဘေးဒဏ်ကြောင့် ထိခိုက်ပျက်စီးသွားသောစေတီများ နှင့် ပျက်စီးအဆောက်ဦးများ ရှင်းလင်းရေးလုပ်ငန်းများ ဆောင်ရွက်ရန်အတွက် စက်ယန္တရားကြီးများ အသုံးပြု၍ ကူညီပေးခြင်း။

ပုံ - ပင်းတယမြို့၊ သိမ်ကုန်းကျေးရွာအုပ်စု၊ ကုန်းစောင်းကျေးရွာတွင် ငလျင်ဒဏ်ကြောင့် ပျက်စီးသွားသော လူနေအိမ်များကို ပြုပြင်ရန်အတွက် ဘိလပ်မြေအိတ်များနှင့် အလှူငွေ လှူဒါန်းခြင်း။

ပုံ- သာစည်မြို့နယ်၊ လှိုင်းတက်ကျေးရွာ၊ ငလျင်ဘေးဒဏ်ကြောင့် ထိခိုက်ပျက်စီးသွားသော ရွှေဆင်းလှဘုရား ရှင်းလင်းရေးလုပ်ငန်းများဆောင်ရွက်ရန်အတွက် စက်ယန္တရားကြီးများ အသုံးပြု၍ ကူညီပေးခြင်း။

APPENDIX-E

Emergency Preparedness Fire Drill Exercise Reports

EMERGENCY PREPAREDNESS

FIRE DRILL REPORT

(14 Aug 2025, APACHE CEMENT FACTORY)

Prepare by : Nay Soe Naing

Position : HOD

Department : OHS

Contact No : 09255112704

Title: Fire Outbreak in Coal hopper tunnel (CPP)

Contents

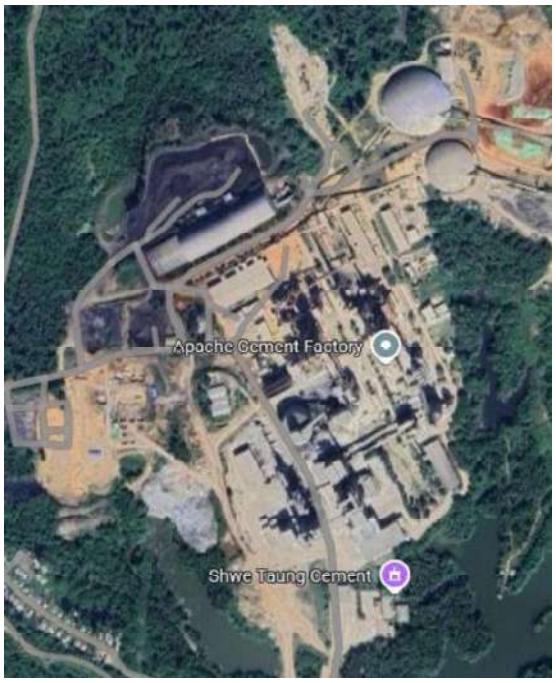
Introduction

Apache Cement Plant is situated at Pyi Nyaung Village, Thazi Township, Meiktila District, Mandalay Division.

This is recommended that ERT Emergency Response Team is prepared for any type of emergency that may occur.

Location of Apache Cement Factory

Name	**: Pyi Nyaung**
Company Name	**: Shwe Taung Cement Co.Ltd (Apache Cement)**
City	**: Tharzi Township**
State	**: Mandalay Devision**
Country	**: Myanmar**



Objective

- To ensure that everyone knows what to do in case of emergency
- To ensure all individuals in the workplace familiar with escape routes, emergency exits and safety protocols
- To practices everyone safety evacuate the nearest AA in an orderly manner
- Trained person aware on how to rescue injury person who trap inside the fire
- To familiarize on the usage of fire truck & firefighting such as Fire Hose Reel and fire extinguisher

Table Talk Exercise

The below is the key information to be discussed and concluded:

- The date/time of the exercise was confirmed. The proposed date/time were to be scheduled on
- 14 Aug 2025 at approximately 3:00 am.
- All personnel involved in the premises are encouraged to participate promptly.
- The passing time criterion is 15 minutes sharp.
- Identification of the premises key roles/responsibilities.

    a) ERT commander
    b) Firefighter and Reserve firefighter Team
    c) Rescue and Medical & First Aid Team
    d) Traffic Control & Security Team
    e) Warden and Evaluation Team
    f) Communication and CCTV Watcher Team
    g) Vehicle & Machinery Support Team

- The purpose of this exercise is to permit the contractors/staffs to understand the procedures and response as accordingly.
- To have a basic knowledge on how to operate a fire extinguisher/raw meal correctly.
- To have a basic knowledge on how to assist fire truck.


SHWE TAUNG
Drill Attendance

Emergency response team role and responsibilities

ERD Manager

- The ERD manager shall be a senior member of the management and in charge of liasing with Company Management as per crisis management.
- He is person who is the overall in-charge of the emergency response operations and liaises with senior officials of government agencies such as MFBD, FGLLID etc.
- Direct all counter measures and emergency procedure to control and decide on the evacuation of the plant area site.

Firefighter and Reserve firefighter Team

- Conduct firefighting in the event of a fire emergency
- Coordinate the rescue of personnel with Rescue Team member from the scene of fire
- Remove any flammable fire

Rescue and Medical & First Aid Team

- Coordinating the evacuation & rescue of personnel
- Cooperating with firefighting team on the rescue of personnel
- Cooperating with respective person in charge of the personnel on the rescue of missing personnel from their working areas
- Reporting to ERT Lead on the status of their rescue

Traffic Control & Security Team

- Security shall control the crowd
- To clear the access and egress for firetruck and Ambulance path
- To point the incident place to firetruck driver

Warden and Evaluation Team

- Counting and make sure that all personnel are accountable at assembly area.
- If anyone is missing, immediately report to evacuation team
- Liaise with the respective person in charge from work group and collate the headcounts

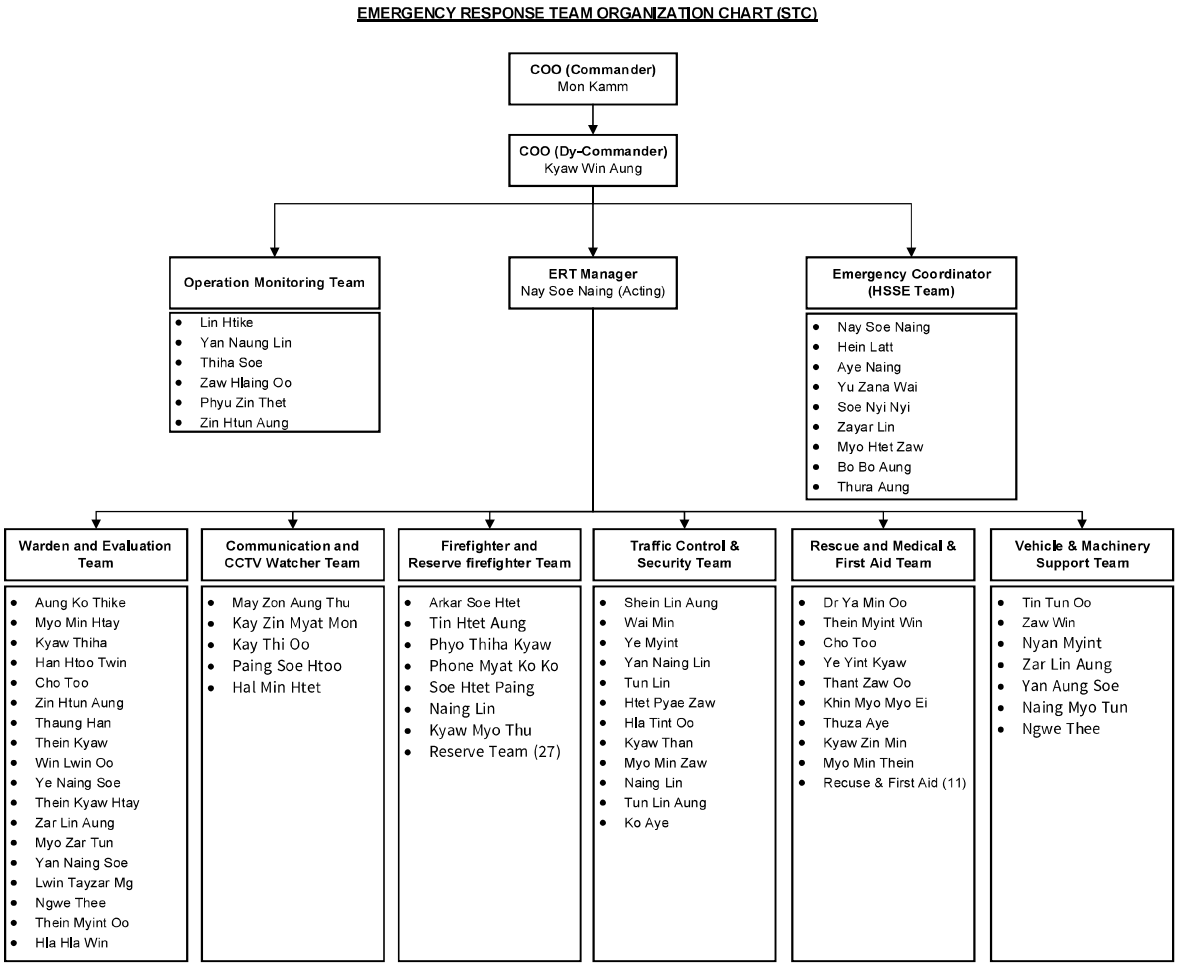
Communication and CCTV Watcher Team

- To monitor CCTV scream
- To arrange the ambulance
- To inform the Clinic
- To arrange the budget

Vehicle & Machinery Support Team

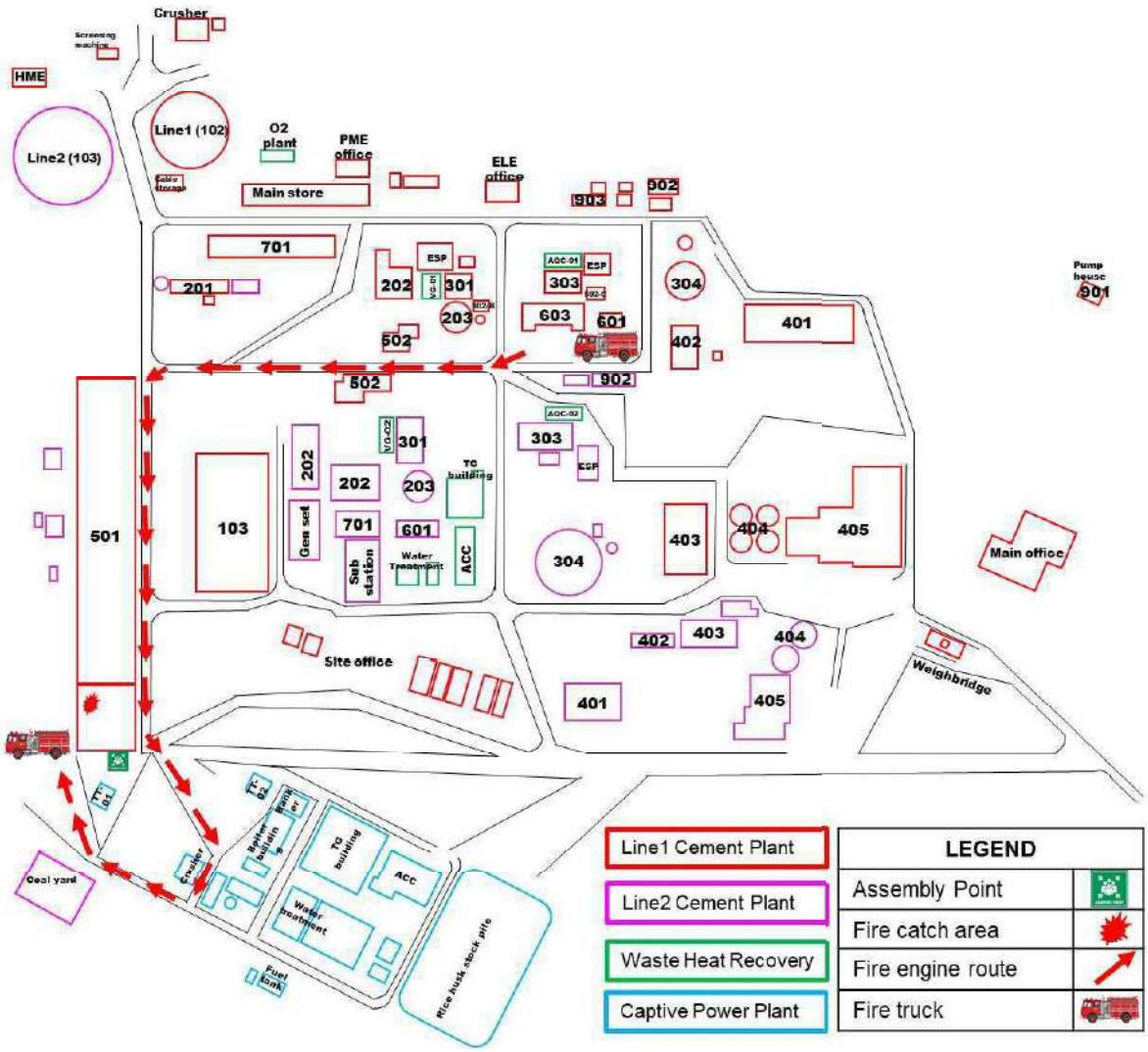
- To arrange ambulance and vehicle
- To arrange require heavy machinery such as Excavator, Mobile crane, Wheel loader etc…

Emergency response team flow chart



Scenario

- About 02:45 pm, one of CPP staff was found coal smoldering in coal hopper tunnel (CPP).
- He tries to extinguish coal smoldering fire using by raw meal
- Site supervisor call STC hotline number



Event

The events are recorded and listed below:

Estimated Time	Events(s)
2:45 PM	Coal smoldering inside coal hopper tunnel
2:46 pm	CPP stie operator try to extinguish coal smoldering using by raw meal
3:00 pm	CPP site supervisor call emergency hot line
3:03 pm	ERT was activated and move to emergency location
3:10 pm	Fire truck arrived emergency location
3:15 pm	Fire was put up and evaluated injury person
3:20 pm	Medical team was given treatment to injury person
3:30 pm	Debrief

Coal hopper inside fire drill result

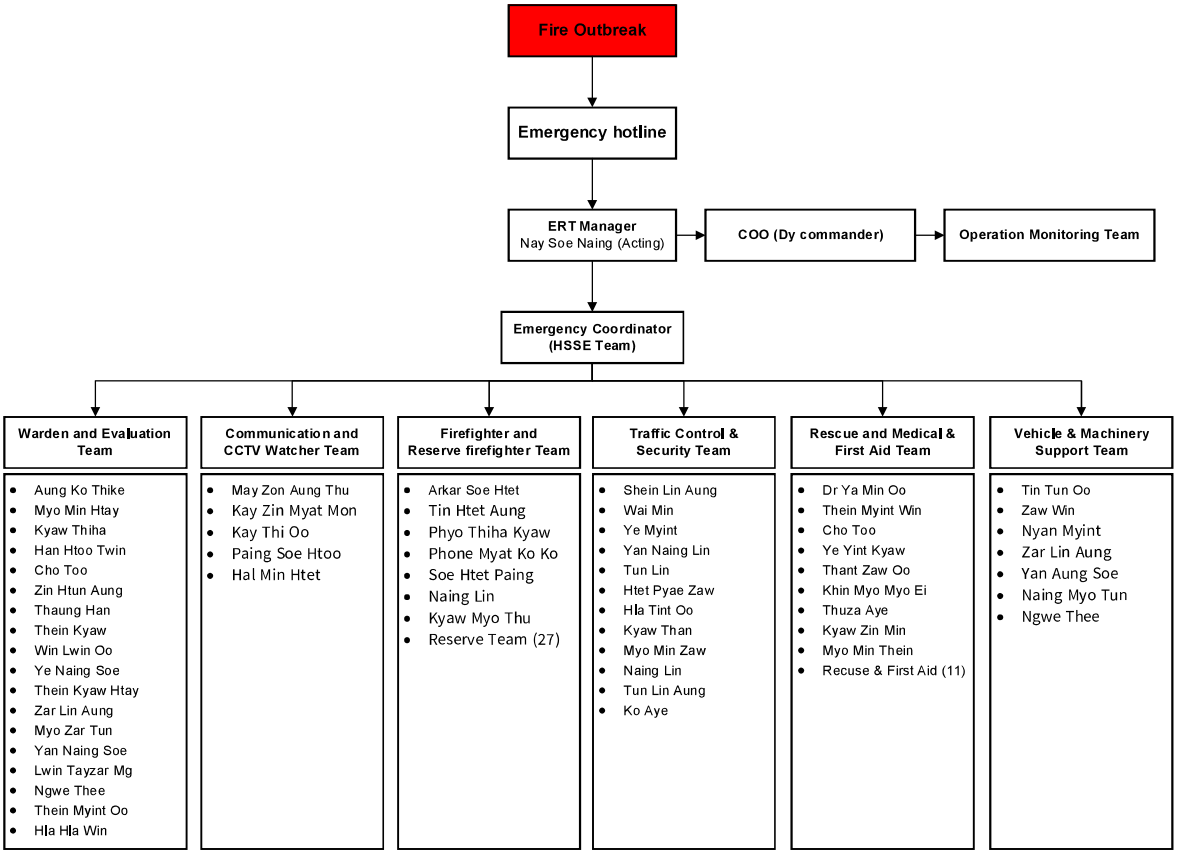
1. Total participation : 15
    a. Firefighting team : 6
    b. Rescue team : 5
    c. Traffic control team : 3
    d. Medical team : 6
    e. Communication team : 2
    f. CPP staff : 10
    g. CPP construction contractor/ workers : 45
2. Assemble Time Record : Approximately 10 ~ 15 minutes

Debrief

1. Recap on the basic procedures when occurred:
    a. Call to emergency hot line - 09255113060, 09 985525338
    b. If need, turn off the electrical supply in building
    c. If need, turn off the equipment and machinery on site
    d. Move to the assembly area; fast and slowly
    e. At the assembly area, respective dept-in-charge will act as head count officer to take head count and register in the attendance sheet
    f. Wait for further instructions by ERD Manager

Appendixes

a. Process details flow chart



b. Emergency contact list

Key Personnel	Pager / Hand phone
Police	199
Ambulance (Phyu Sin Myitta)	09968014931/ 09976897934
Rescue dept	0673404666/ 0673404777
Factory and general labour law inspection dept	095032471
Fire Service (Yin Mar Pin Station)	09445921400 /191
Meiktala General Hospital	095 84497
Fire Service (Thar Zi Station)	0642069131

STC Contact Numbers		
Name	Position	Contact numbers
Mon Kham	COO (STC)	09255112909
Kyaw Win Aung	Head of ERT	09255112052
Lin Htike	HOD	09255112918
Nan Maw Maw Aye	Head of ADM	09255112651
Nay Soe Naing	Head of OHS	09255112704
Zaw Tint	Head of MNE	09255112674
Myo Min Htay	Head of HME	09255112914
Zaw Hlaing Oo	Head of ELE	09255111988
Thiha Soe	Head of PME	09255112897
Phyu Zin Thet	Head of PRD	09255112923
Nyan Myint	Head of LGS	09255113244
Yan Naung Lin	Head of CPP	09255113364
Kyaw Thiha	SMD manager	09255112644
Daw Khin Nwei Nwei Lynn	FME manager	09255112028
Hla Hla Win	FNA manager	09255112645
May Zon Aung Thu	HSSE manager	09255113015
Hein Latt	HSSE manager	09255113077
Kay Zin Myat Mon	RSM manager	09255112940
Tin Tun Oo	ADM manager	09255112032
Ngwe Thee	ADM manager	09255113023
Aung Htoo Min	PCM manager	09255112892
Kay Thi Oo	HR manager	09883002034
Myo Aung Hlaing	ICT manager	09255112996

c. CPP site operator try to extinguish coal smoldering using by raw meal


d. Site supervisor stop belt conveyor using pull cord and inform to emergency hot line


e. After received emergency information report to ERT manager and communication team


f. Firefighter team and rescue team was activated and move to emergency location


g. Security control the incoming vehicles


h. firefighting team extinguished fire


i. Rescue team try to evaluate injury person

j. Medical team was given treatment and relocate injury person to the clinic

k. Management team & worker are move to Assembly Area


l. Debrief by Head of OHS Department


APPENDIX-F

Monitoring Photo Records

Ambient Air Monitoring Photo Records

Worker Accommodation

Pyi Nyaung Village

Ku Pyin Village

Water Quality Monitoring Photo Records

Ku Pyin Stream

Ye Shin Stream

Supply Water (Reservoir)

Sedimentation Pond 5 (Coal Storage Area)

Sedimentation Pond 7 Effluent (Industrial Wastewater)

Bio tank Effluent

Noise Monitoring Photo Record

Ku Pyin Village

Pyi Nyaung Village

Worker Accommodation