Environmental Monitoring Report

For

30 MW Ground Mounted Solar Power Plant Project Connected to Thapyaywa Substation

(Operation Phase)

(4th Time)

(April 2024 – September 2024)

Proposed by

Clean Power Energy Co., Ltd.

Prepared by

E Guard Environmental Services

October, 2024

Table of Contents

List of Figures

List of Table

Introduction

This Environmental Management Plan (EMP) report is for the 30 MW Ground Mounted Solar Power Plant Project Connected to Thapyaywa Substation, which is proposed by Clean Power Energy Co., Ltd. The project proponent, Clean Power Energy Co., Ltd., is formed by the consortium with these two members: Gold Energy Co., Ltd. (95 share percentage) and Universal Energy Co., Ltd. (5 share percentage) for the proposed project. The project proponent won tender from the Ministry of Electricity and Energy and obtained permit for construction and electricity generation from solar energy of the proposed project. The proposed project will contribute to fulfill a goal for achieving universal access to electricity by 2030 as per Myanmar National Electrification Plan (NEP). Myanmar has one of the lowest rates of electrification in Southeast Asia; almost 50 percent of households in Myanmar have access to electricity and electricity consumption per capita is among the lowest in the world, therefore, development of electricity generation projects, especially for electricity generation from renewable energy projects are urgently required in Myanmar.

The proposed project is located at Thapyaywa Village Tract, Thazi Township, Meiktilar District, Mandalay Region, Myanmar. Its coordinate points are 20° 58' 39.33" N, 96° 0' 45.20" E and the average altitude of the site is 167 m. The construction of the proposed project includes box transformer foundation, supporting bracket and foundation of solar power station, multiple-use building and outdoor equipment foundation construction as well as construction and stringing of 33 kV overhead transmission line. The construction processes of the proposed project will take about 6 months and then operation processes to generate electricity from solar energy and distribute to the Thapyaywa Substation will take 20 years (lifespan of the project). The total capacity of capacity of AC side of the proposed project is 31.45 MW and DC side is 37.27 MW, including five photovoltaic power generation units. The photovoltaic power station is connected to the 33 kV bus side of the 230 kV main transformer in the Thapyaywa Substation. Total land area of solar power plant is 133.44 acres (54 hectares) and the annual average horizontal global radiation and diffuse radiation are 1,850.5 kWh/m2 and 833.69 kWh/m2 respectively, therefore, annual total solar radiation level of the project site is rich. The direct radiation amount takes a large proportion of the total radiation and the project site has a good development prospect, where is suitable for the construction of large-scale grid connected photovoltaic power station.

Environmental quality monitoring team included U Aung Moe Oo, U Ye Chit Zaw and U Khin Zaw Min. The environmental quality monitoring report includes air, water and noise. Air quality monitoring was carried out in one location as source (Project Site) and also water quality test was carried out in two places as ground water (GW- project site) and waste water (WW- Outlet of waste water cannel from the project site). Noise are also measured in two locations as source (Project Site) and receptor (staff housing). Most of the environmental monitoring results (air, water and noise) are within the guidelines.

1. METHODOLOGY

Baseline environmental parameters and sampling locations were defined according to the objectives for environmental impact assessment, and monitoring purposes. Locations for sampling and analysis of water quality, ambient air quality and noise level of the project site were identified by e Guard Environmental Services Co., Ltd.

1.1 Ambient Air Quality

The emissions of dust particles and gases were measured for 24hrs continuously at the selected sites using the Environmental Perimeter Air Station (EPAS). The results were compared with National Environmental Quality Guidelines NEQG, American Conference of Governmental Industrial Hygienists (ACGIH) and National Ambient Air Quality Standards (NAAQS). EPAS provides direct readings in real time with data-logging capabilities. Air quality is composed of dust and gas emissions of the ambient air.

Table 1. 1 Ambient Air Quality Measurement

Ambient Air Quality (1 location)	
Gas Emission	CO, CO_2, SO_2, NO_2
Dust Emission	PM_{10}, $PM_{2.5}$

1.2 Ambient Noise

Noise level LAeq (dBA) will be measured at the selected locations that can reflect the exposure of the nearest local community and sensitive locations. Duration and frequency were measured for 24hrs continuously at the selected site using the Sound Pressure Level Meter.

The monitoring procedures, data analysis and interpretation were carried out in accordance with the instrument's manufacture and National Environmental Quality (Emission) Guidelines, World Health Organization (WHO) and International Finance Corporation (IFC) guidelines in order to be in line with Environmental Conservation Department, Ministry of Natural Resources and Environment Conservation (MONREC). "National Environmental Quality (Emission) Guidelines" for Myanmar was also presented the value of noise level as LAeq (dBA).

Table 1. 2 Noise level monitoring

Noise monitoring (2 locations)	
Noise Emission	LAeq (dBA) (1hrs, 24 hrs.)

Table 1. 3 Equipment used to measure ambient air and noise measurement

Davis Vantage Pro2 Wireless Weather Station Provides detailed current weather conditions and expanded forecasts - all at a glance The Vantage Pro2 uses a frequency-hopping spread spectrum radio from 902 MHz to 928 MHz to transmit and receive data up to 1,000' (300m) line of sight. In addition, the weather station	

features a bubble level, improved anemometer base, redesigned wind cups, and factory-calibrated wind direction. The integrated sensor suite combines temperature and humidity sensors, rain collector with an aluminum-plated tipping bucket, and anemometer into one package for easy setup. Measure inside and outside temperature and humidity, heat index, barometric pressure, dew point, rainfall, wind direction and speed, and wind chill.	
Haz-Scanner EPAS PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, CO_2, Temperature, and Relative Humidity	
Digital Sound Level Meter Noise	

Figure 1. 1 Air Quality Measuring during Operation Period

	Air, Noise quality measuring at Thapyaywa Solar Power Project 07.07.2024 to 08.07.2024 (at source project site)

1.3 Water Quality

Water samples were collected on site with appropriate sampling equipment and procedures. The sampling team has pre-arranged with the labs in Yangon for analysis and logistic arrangement made to reach the preserved samples with unique IDs to the designated labs within 48hrs.

The sampling and survey team has a list of local laboratories providing analytical services for ground water, waste water and surface water quality analysis. Up to this date, there is no

laboratory having accredited certification for water quality testing (environmental analysis) in Myanmar. SGS (Myanmar), ISO (Myanmar). Laboratories have used for water quality analysis among the list of laboratories. These laboratories have been recognized as a long-term establishment in Myanmar and employed qualified technical staffs.

The following laboratories were used for analysis of water and parameter shown in the **Table 1. 4.**

1. PRO Lab, No. (9), Sabae Housing, Pyi Htaung Su Road, (26) Ward, South Dagon Tsp, Yangon, Myanmar. Tel: 09 893 767424
2. Water Quality Laboratory, Forest Research Institute, Yezin, Nay Pyi Taw. Tel: 09 430 19169, 09 420 705131

Table 1. 4 Environmental Quality Parameters for Water quality

Waste Water Parameters (1 location)	
Physical Parameter	Total Suspended Solids
Chemical Parameter	BOD, COD, pH
Biological Parameter	Total Coliform Bacteria
Nutrients	Total Nitrogen, Total Phosphorus
Compounds	Oil & grease
Ground Water Parameters (1 location)	
Physical Parameter	Total Suspended Solids, Color, Turbidity
Chemical Parameter	BOD, COD, pH, EC, Total Alkalinity
Biological Parameter	Total Coliform Bacteria
Metal	Iron, Manganese
Nutrients	Total Nitrogen, Total Phosphorus, Chloride
Compounds	Oil & grease

Water samplings are conducted using the following equipment as shown in figure (**Table 1. 5**).

Table 1. 5 Equipment for Water Sampling

Water Sampling Bottle	

1.4 Monitoring and Sampling Locations

Sampling locations were confirmed by environmental specialist on site before doing the sampling. Water quality sampling locations consist of one waste water locations (WWQ: outlet of waste water cannel from the project site) and one ground water location (GWQ: Project Site) which is situated near the project site). Air quality was monitored at the selected one location (Thapyaywa solar power project site (source) that can get results of the existing ambient air quality.

Figure 1. 2 Air Quality Monitoring Locations of Thapyaywa Solar Power Project

Figure 1. 3 Noise Quality Monitoring Locations of Thapyaywa Solar Power Project

Figure 1. 4 Water Quality Sampling Locations of Thapyaywa Solar Power Project

Table 1. 6 Locations of Environmental Quality sampling points

Locations No.	Points	Coordinate	Locations
Ambient Air Quality Monitoring Location			
1.	AQ1	Lat - 20°58'30.73"N, Long - 96° 0'34.17"E	Project Site
Noise Quality Monitoring Locations			
1.	NQ1	Lat - 20°58'30.73"N, Long - 96° 0'34.17"E	Project Site
2.	NQ2	Lat - 20°58'36.06"N, Long - 96° 0'45.24"E	Project Site (Receptor)
Waste Water Quality Monitoring Location			
1.	WWQ	Lat - 20°58'29.10"N, Long - 96° 0'34.42"E	Outlet of waste water cannel from the project site
Ground Water Quality Sampling Location			
1.	GWQ	Lat - 20°58'35.36"N, Long - 96° 0'45.74"E	Project Site

2. ENVIRONMENTAL QUALITY

2.1 Ambient Air Quality

The air quality monitoring was done at selected locations during 7th to 8th July 2024. During this survey, these parameters were measured with adequate devices named Environmental Perimeter Air Station (EPAS) viz; Particulate Matters (PM_{10} and $PM_{2.5}$) and gases CO_2, CO, SO_2, NO_2 via 24-hour basis. The results and guidelines of all emission pollutants are shown in table.

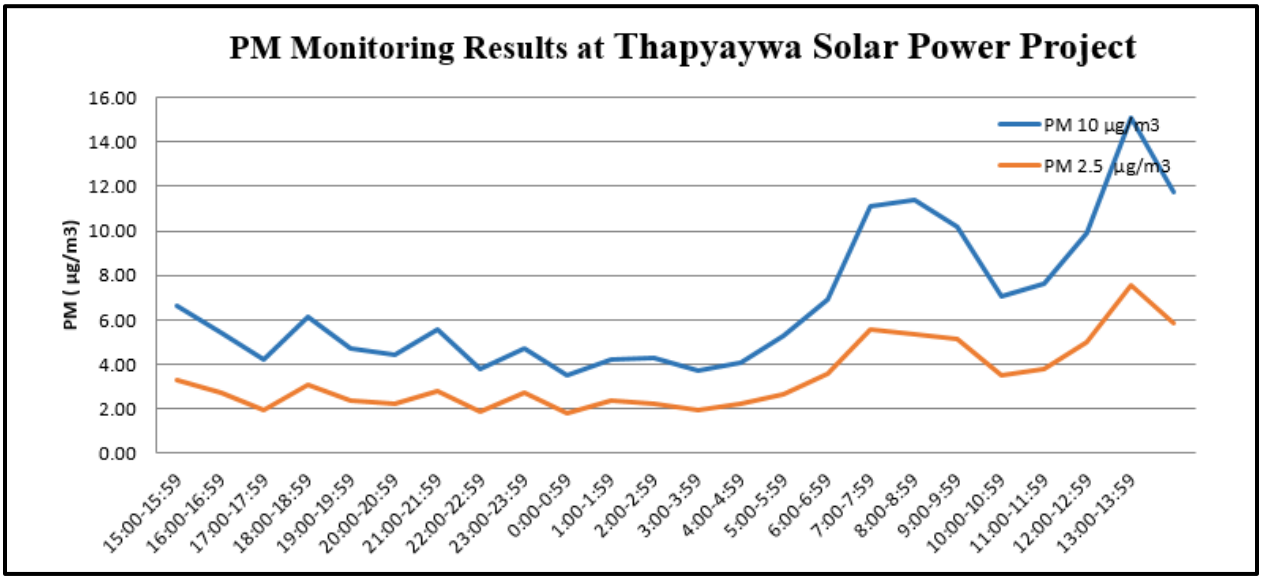


Figure 2. 1 PM Monitoring Results at Thapyaywa Solar Power Project

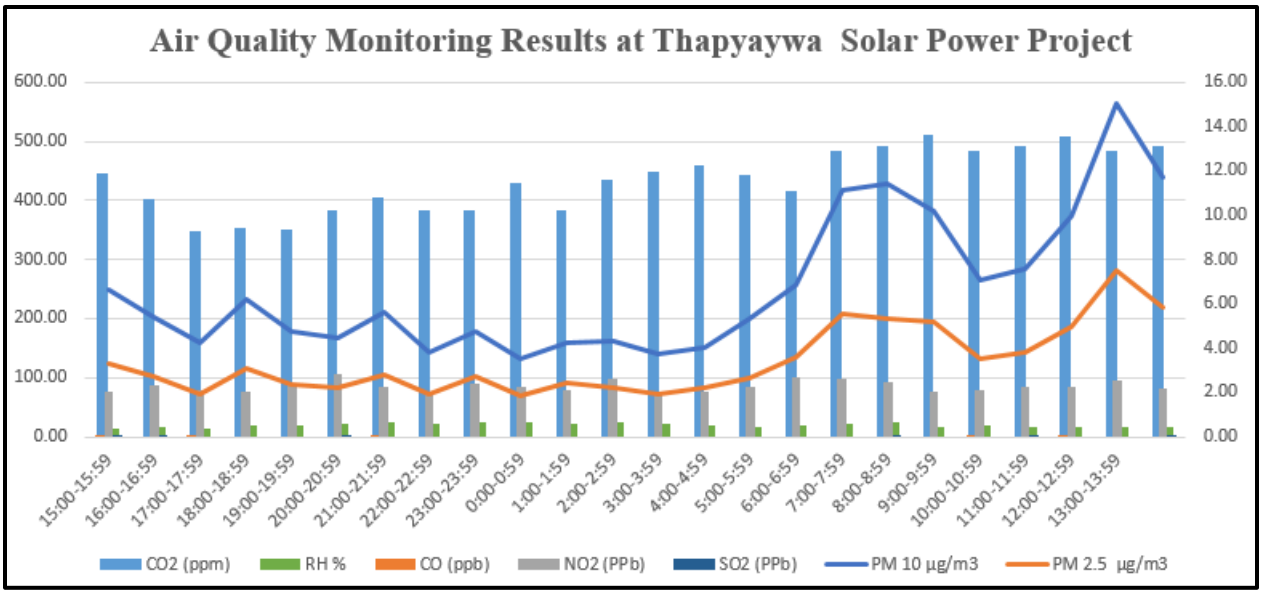


Figure 2. 2 Fluctuation of Air Pollutants during Dial Cycle at Thapyaywa Solar Power Project

Particulate matters (PM_{10} and $PM_{2.5}$) results are with in guideline values as shown in table. Atmospheric particulate matters such as PM_{10} and $PM_{2.5}$ have their ability to reach the deepest part of lungs and so affect respiratory process. In this air quality survey of the project site, the surveyed results of these particulate matters gathered from EPAS. The results with one-hour interval are shown in the following table.

Sulfur Dioxide (SO_2) is generated from combustion of fuels such as oil and coal, and as by-product from some chemical production or wastewater treatment processes. On-road and off-road vehicles are also emission source of SO_2. SO_2 irritates the respiratory tract, injures lung tissues and reduces visibility and level of sunlight. The emission can be controlled by implementation of manufacturer recommended engine maintenance programs, good driving practices, installing and maintaining emissions control devices, and implementing a regular vehicle maintenance and repair program.

Nitrogen Oxides (NO_X) in the ambient air consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O). NO_2 is formed by chemical reaction of NO and ozone. The main sources of NO_2 are combustion of fuel and on-road and off-road vehicles. NO_2 decreases lung function and resistance to infection. The gas emission can be monitored by combustion modification, flue gas recirculation, water/ steam injection and the same measures for SO_2 reduction.

Likewise, **Carbon Monoxide (CO) and Carbon dioxide (CO_2)** have the same emission sources and mitigation measures for SO_2 and NO_2. They are poisonous gas and cause damage to the respiratory organ. Guidelines 2013, adopted threshold limit values of CO_2 is 5,000 ppm for 8-

hour, time-weighted average. Thus, it can be concluded that the existing CO_2 level is acceptable for human health.

Detail results and variation patterns with one-hour interval of pollutants are shown in tables and figures below. Results of average, peak and minimum of a day are calculated in the table.

Table 2. 1 Air Pollutants Emission Results (Thapyaywa Solar Power Project)

Date	Time		CO_2 (ppm)	CO (ppb)	NO_2 (ppb)	PM_{10} µg/m^3	$PM_{2.5}$ µg/m^3	RH %	SO_2 (ppb)
07.07.2024	15:00-15:59	Average	444.70	0.02	2.02	6.60	3.30	13.43	0.02
07.07.2024	16:00-16:59	Average	402.42	0.00	2.30	5.40	2.70	16.34	0.02
07.07.2024	17:00-17:59	Average	348.80	0.02	2.10	4.25	1.93	14.66	0.00
07.07.2024	18:00-18:59	Average	354.70	0.00	2.07	6.17	3.08	18.43	0.00
07.07.2024	19:00-19:59	Average	351.22	0.00	2.32	4.73	2.37	19.56	0.00
07.07.2024	20:00-20:59	Average	383.32	0.00	2.85	4.43	2.22	22.45	0.02
07.07.2024	21:00-21:59	Average	404.60	0.02	2.28	5.60	2.80	23.56	0.00
07.07.2024	22:00-22:59	Average	383.32	0.00	2.03	3.80	1.90	21.46	0.00
07.07.2024	23:00-23:59	Average	382.77	0.00	2.37	4.72	2.72	25.87	0.00
08.07.2024	0:00-0:59	Average	429.50	0.00	2.22	3.50	1.82	24.12	0.00
08.07.2024	1:00-1:59	Average	383.65	0.00	2.10	4.25	2.40	21.67	0.00
08.07.2024	2:00-2:59	Average	433.90	0.00	2.63	4.30	2.22	24.76	0.00
08.07.2024	3:00-3:59	Average	447.55	0.00	2.02	3.72	1.93	22.12	0.00
08.07.2024	4:00-4:59	Average	459.63	0.00	2.07	4.05	2.25	19.45	0.00
08.07.2024	5:00-5:59	Average	442.92	0.00	2.23	5.30	2.65	17.33	0.00
08.07.2024	6:00-6:59	Average	416.67	0.00	2.68	6.88	3.57	19.34	0.00
08.07.2024	7:00-7:59	Average	484.80	0.00	2.60	11.13	5.57	22.65	0.00
08.07.2024	8:00-8:59	Average	492.18	0.00	2.48	11.42	5.33	23.43	0.02
08.07.2024	9:00-9:59	Average	509.88	0.00	2.02	10.15	5.15	17.34	0.00
08.07.2024	10:00-10:59	Average	484.80	0.02	2.08	7.03	3.52	18.32	0.00
08.07.2024	11:00-11:59	Average	492.18	0.00	2.25	7.60	3.80	16.35	0.02
08.07.2024	12:00-12:59	Average	508.42	0.02	2.28	9.93	4.97	17.33	0.00
08.07.2024	13:00-13:59	Average	484.80	0.00	2.52	15.07	7.53	16.32	0.00
08.07.2024	14:00-14:59	Average	492.18	0.00	2.17	11.73	5.87	15.22	0.02
Average			434.12	0.00	2.28	6.74	3.40	19.65	0.00
1 hour Minimum			348.80	0.00	2.02	3.50	1.82	13.43	0.00
1 hour Maximum			509.88	0.02	2.85	15.07	7.53	25.87	0.02

Table 2. 2 Air Emission Levels (Standard)

No.	Parameter	Unit	Maximum Concentration	
			National	Average Period
1.	Carbon monoxide	mg/m^3	9	8-hour
2.	Carbon dioxide	ppm	5000	8-hour
3.	Sulfur dioxide	$\mu g/m^3$	20 500	24-hour 10-minute
4.	Nitrogen dioxide	$\mu g/m^3$	40 200	1 year 1 hour
5.	Particulate matter PM_{10}	$\mu g/m^3$	20 50	1-year 24-hour
6.	Particulate matter $PM_{2.5}$	$\mu g/m^3$	10 25	1-year 24-hour

Source: Myanmar National Environmental Quality (Emission) Guidelines, National Ambient Air Quality Standards (NAAQS), American Conference of Governmental Industrial Hygienists (ACGIH).

Detail results with one-hour interval of pollutants are shown in **Table 2. 1**. The average, peak and minimum values of results per day are calculated. All results are under the Myanmar National Environmental Quality (emission) Guidelines.

Table 2. 3 Observed Ambient Air Quality Results from Selected Points

Parameters	Observed Values	3rd Monitoring Results	Baseline Results	NEQG Guidelines Value	ACGIH Guidelines Value	NAAQS Guidelines Value	Unit	Averaging Period
PM_{10}	6.74	11.64	27.11	50	-	-	$\mu g/m^3$	24hrs
$PM_{2.5}$	3.40	5.83	9.00	25	-	-	$\mu g/m^3$	24hrs
CO	0.00001	0.00036	0.01	-	-	9	ppm	8hrs
CO_2	493.66	437.79	496.32	-	5000	-	ppm	8hrs
SO_2	0.011	0.16	3.92	20	-	-	$\mu g/m^3$	24hrs
NO_2	5.35	7.58	58.97	200	-	-	$\mu g/m^3$	1hrs

2.2 Ambient Noise

Ambient noise level for the proposed project was measured with Digital Sound Level Meter at the project site. The noise level measurement is conducted at Thapyaywa solar power project points: these points are nearly the air monitoring points and staff housing on 7th to 8th July 2024. Measuring period is 24 hours continuously. The observed values are described in **Table 2. 4** and **Table 2. 5** and the following figures are noise level measurement at the proposed project.

Table 2. 4 Observed Values of Noise Level Measurement at Thapyaywa Solar Project Site (Source)

No.	Date	Time	Observed Mean Value (Source)	Weight	Day/Night	Average
1	08.07.2024	7:00:13-7:59:13	54.41	A	Day	53.31
2	08.07.2024	8:00:13-8:59:13	56.25	A	Day	
3	08.07.2024	9:00:13-9:59:13	56.26	A	Day	
4	08.07.2024	10:00:13-10:59:13	51.37	A	Day	
5	08.07.2024	11:00:13-11:59:13	47.71	A	Day	
6	08.07.2024	12:00:13-12:59:13	49.89	A	Day	
7	08.07.2024	13:00:13-13:59:13	56.94	A	Day	
8	08.07.2024	14:00:13-14:59:13	51.52	A	Day	
9	07.07.2024	15:00:13-15:59:13	59.38	A	Day	
10	07.07.2024	16:00:13-16:59:13	61.96	A	Day	
11	07.07.2024	17:00:13-17:59:13	56.92	A	Day	
12	07.07.2024	18:00:13-18:59:13	51.01	A	Day	
13	07.07.2024	19:00:13-19:59:13	52.55	A	Day	
14	07.07.2024	20:00:13-20:59:13	47.58	A	Day	
15	07.07.2024	21:00:13-21:59:13	45.89	A	Day	
16	07.07.2024	22:00:13-22:59:13	46.09	A	Night	48.81
17	07.07.2024	23:00:13-23:59:13	47.70	A	Night	
18	08.07.2024	0:00:13-0:59:13	46.25	A	Night	
19	08.07.2024	1:00:13-1:59:13	46.20	A	Night	
20	08.07.2024	2:00:13-2:59:13	46.24	A	Night	
21	08.07.2024	3:00:13-3:59:13	46.32	A	Night	
22	08.07.2024	4:00:13-4:59:13	53.23	A	Night	
23	08.07.2024	5:00:13-5:59:13	54.08	A	Night	
24	08.07.2024	6:00:13-6:59:13	53.13	A	Night	
Average			**51.62**			

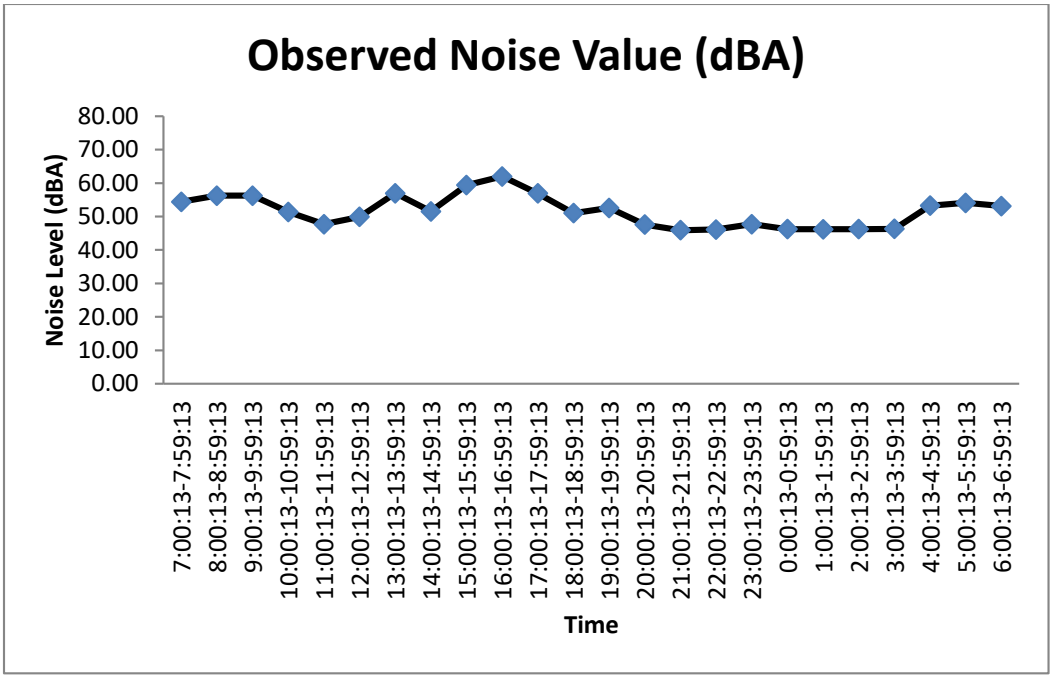


Figure 2. 3 Noise Level at Thapyaywa Solar Project Site (Source)

Table 2. 5 Observed Values of Noise Level Measurement at Staff Housing (Receptor)

No.	Date	Time	Observed Mean Value (Source)	Weight	Day/Night	Average
1	08.07.2024	7:00:13-7:59:13	45.40	A	Day	47.22
2	08.07.2024	8:00:13-8:59:13	44.59	A	Day	
3	08.07.2024	9:00:13-9:59:13	44.57	A	Day	
4	08.07.2024	10:00:13-10:59:13	48.16	A	Day	
5	08.07.2024	11:00:13-11:59:13	45.39	A	Day	
6	08.07.2024	12:00:13-12:59:13	45.56	A	Day	
7	08.07.2024	13:00:13-13:59:13	57.60	A	Day	
8	08.07.2024	14:00:13-14:59:13	50.39	A	Day	
9	07.07.2024	15:00:13-15:59:13	46.00	A	Day	
10	07.07.2024	16:00:13-16:59:13	47.77	A	Day	
11	07.07.2024	17:00:13-17:59:13	46.13	A	Day	
12	07.07.2024	18:00:13-18:59:13	46.27	A	Day	
13	07.07.2024	19:00:13-19:59:13	45.94	A	Day	
14	07.07.2024	20:00:13-20:59:13	46.58	A	Day	
15	07.07.2024	21:00:13-21:59:13	47.96	A	Day	
16	07.07.2024	22:00:13-22:59:13	39.17	A	Night	37.86
17	07.07.2024	23:00:13-23:59:13	37.97	A	Night	
18	08.07.2024	0:00:13-0:59:13	44.78	A	Night	

19	08.07.2024	1:00:13-1:59:13	35.84	A	Night	
20	08.07.2024	2:00:13-2:59:13	37.09	A	Night	
21	08.07.2024	3:00:13-3:59:13	36.26	A	Night	
22	08.07.2024	4:00:13-4:59:13	35.55	A	Night	
23	08.07.2024	5:00:13-5:59:13	35.57	A	Night	
24	08.07.2024	6:00:13-6:59:13	38.47	A	Night	
Average			**43.71**			

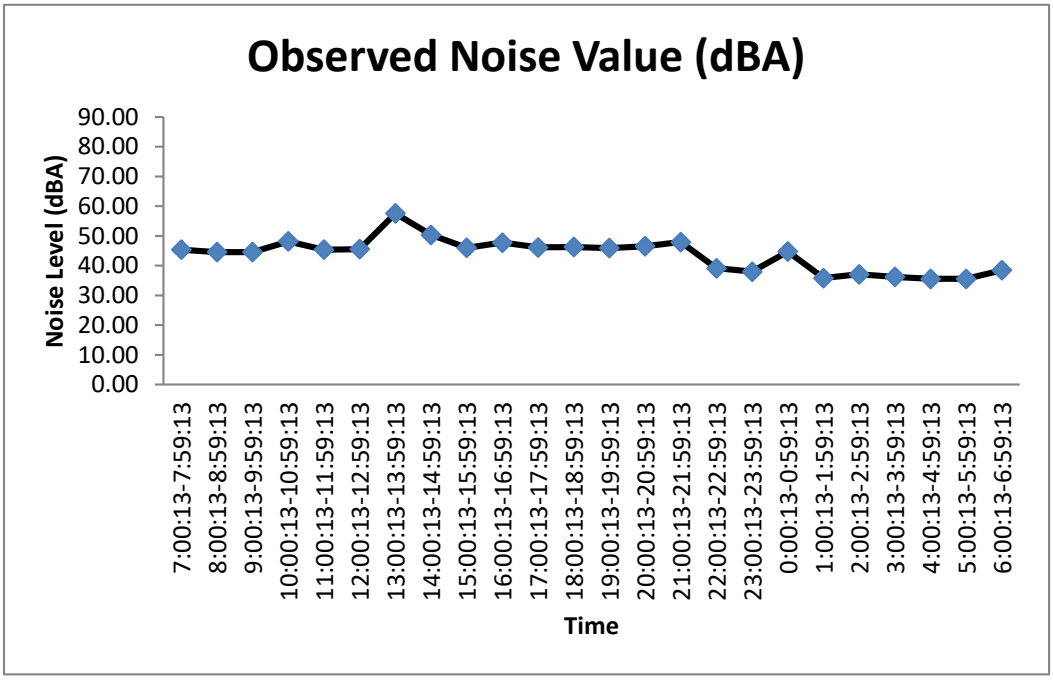


Figure 2. 4 Noise Level at Staff Housing (Receptor)

Table 2. 6 Observed Ambient Noise Level Results from Selected Points

Point	**Thapyaywa Solar Power Project**	
	Day Time	Night Time
Project Site (Source)	**53.31**	**48.81**
3rd Monitoring Results	**46.25**	**48.91**
Baseline Results	**49.11**	**42.40**
Guideline Values for Industrial	**70**	**70**
Staff Housing (Receptor)	**47.22**	**37.86**

3rd Monitoring Results	**47.21**	**43.21**
Baseline Results	**40.20**	**43.08**
Guideline Values for Residential	**55**	**45**

The observed values are compared with the National Environmental Quality (Emission) Guidelines as shown in **Table 2. 6** except receptor point, which indicates the separate level for residential and industrial points.

Table 2. 7 National Environmental Quality (Emission) Guidelines Values for Noise Level

Receptor	**One Hour LAeq (dBA)**	
	Daytime 07:00 - 22:00 (10:00 - 22:00 for Public Holidays)	**Nighttime 22:00 - 07:00 (22:00 - 10:00 for Public Holidays)**
Residential, institutional, educational	55	45
Industrial, commercial	70	70

The observed values of the proposed project for daytime at Thapyaywa Solar Power Project Site (source) and Staff Housing (Receptor) are 53.31 dB (A) and 47.22 dB (A). The observed values of the proposed project for nighttime at Thapyaywa Solar Power Project Site (source) and Staff Housing (Receptor) are 48.81 dB (A) and 37.86 dB (A). So, the observed daytime value and night time value for Thapyaywa Solar Power Project Site (source) and Staff Housing (Receptor) are lower than the guideline value.

2.3 Wind Speed and Direction

The following figures describe the wind speed and wind direction of the proposed project site (Thapyaywa Solar Power Project Site at source) on 7th to 8th July 2024 respectively. According to the data, the wind direction is following **Figure 2. 5** and **Figure 2. 6**.

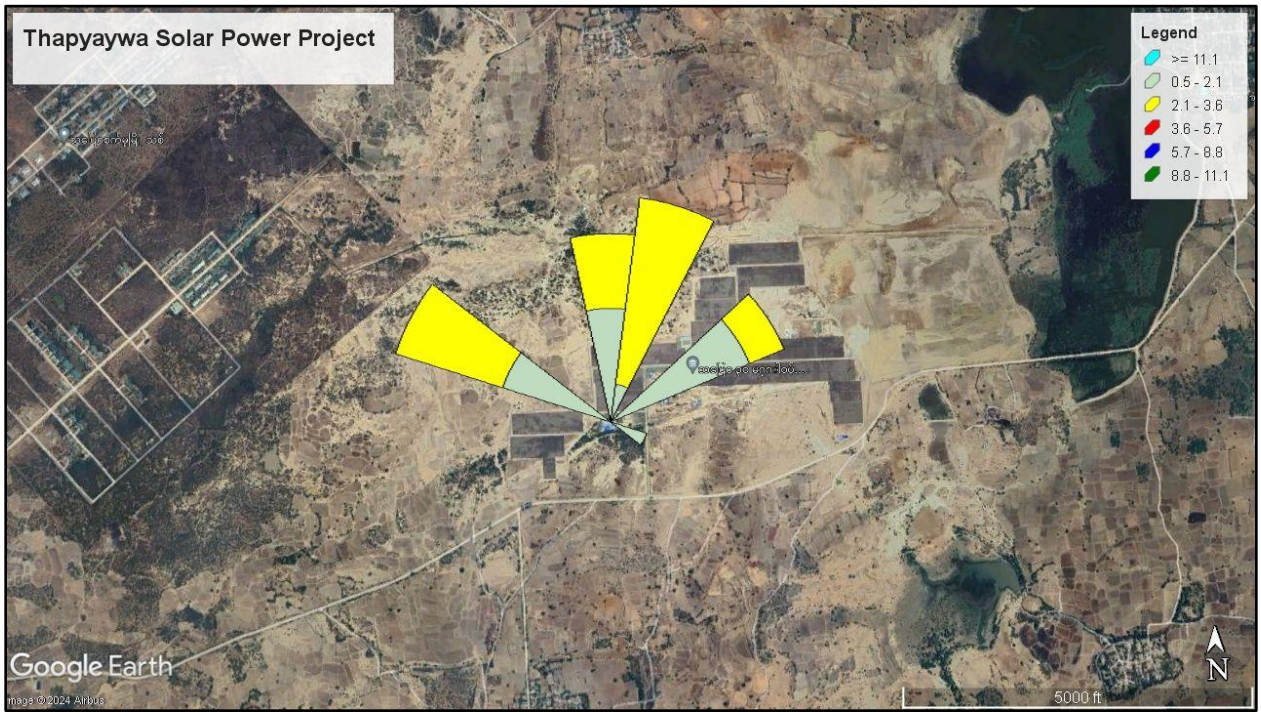


Figure 2. 5 Wind Speed and Wind Direction (Blowing From) at Thapyaywa Solar Power Project Site

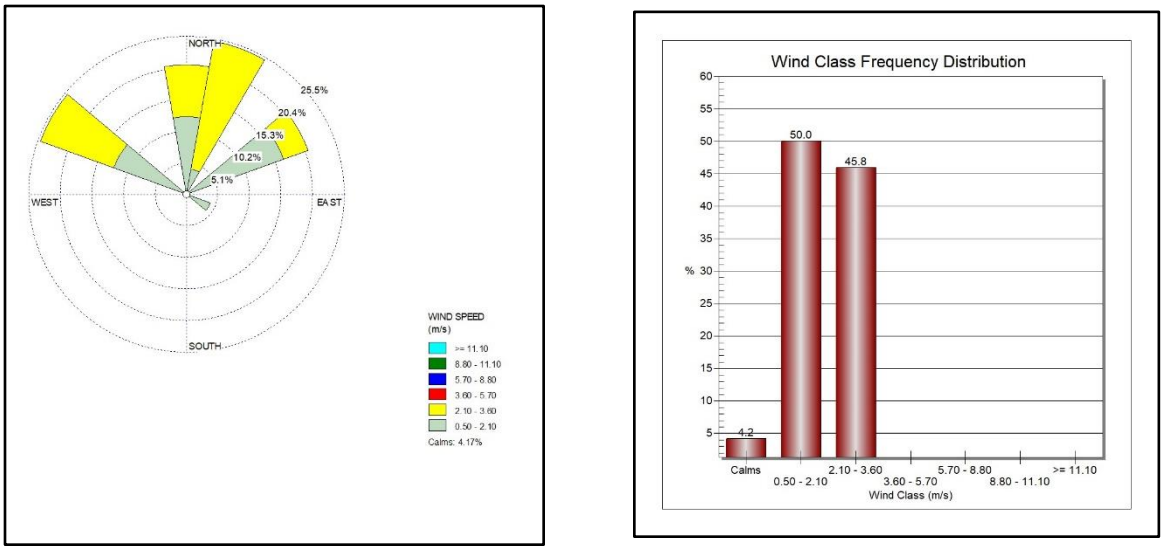


Figure 2. 6 Wind Class Frequency Distribution at the Thapyaywa Solar Power Project Site

2.4 Water quality

The project proponent is responsible for ensuring the drainage or runoff from the project or its related activities do not deteriorate the existing waste water and ground water quality before the project implementation. Waste water and ground water quality were recorded by laboratory analysis at two selected locations systematically. The field surveys for environmental quality monitoring and sampling were done during 23th January 2024. The field surveys for monthly sampling were done on 30th April 2024, 6th June 2024, 7th June 2024, 22th July 2024, 22th August 2024 and 01st October 2024.

Objectives of the sampling and analysis of waste water and ground water is to understand the existing water quality at the selected locations and to monitor the impacts during operation period.

Table 2. 8 Ground Water Quality of Thapyaywa Solar Power Project

Item	Unit	Ground Water	3rd Monitoring Results	Baseline Results	WHO Drinking Water Guideline
Biological Oxygen Demand (BOD)	mg/l	0.19	0.59	6	-
Chemical Oxygen Demand (COD)	mg/l	0.8	2.40	32	-
Chloride	mg/l	11.50	27.48	-	-
Electrical Conductivity	mS/m	99.18	103.72	1.39	-
pH	-	8.19	8.50	7.36	6.5-8.5
Oil & Grease	mg/l	4	10	<5	-
Turbidity	FNU	0.84	0.62	5.3	-
Total Alkalinity	mmol/l	16.75	8.26	-	-
Total Nitrogen	mg/l	0.84	0.55	0.84	-
Total Phosphorus	mg/l	0.099	0.015	0.012	-
Total suspended solid (TSS)	mg/l	6	2.4	28	-
Total coliform bacteria	MPN/ml	<0.3	<0.3	4.5	Not detected
Iron	mg/l	0.03	0.10	-	-
Manganese	mg/l	0.3	<0.006	-	-

Table 2. 9 Waste Water Quality of Thapyaywa Solar Power Project

Item	Unit	Waste Water	3rd Monitoring Results	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Biological Oxygen Demand (BOD)	mg/l	1.05	0.64	30
Chemical Oxygen Demand (COD)	mg/l	5.6	4.40	125
pH	-	8.38	8.42	6-9
Total Nitrogen	mg/l	0.38	0.15	10
Total Phosphorus	mg/l	0.033	0.025	2
Oil and Grease	mg/l	2	8	10
Total suspended solid (TSS)	mg/l	65.06	10.90	50
Total coliform bacteria	CFU/100 ml	4.3	<0.3	400

Table 2. 10 Monthly Waste Water Quality of Thapyaywa Solar Power Project (April)

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	106.34	-
pH	-	8.72	6-9
Temperature	℃	28.27	-
Total Dissolved Solids	mg/l	584	-

Table 2. 11 Monthly Waste Water Quality of Thapyaywa Solar Power Project (May)

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	159.64	-
pH	-	8.36	6-9
Temperature	℃	27.78	-
Total Dissolved Solids	mg/l	3015	-

Table 2. 12 Monthly Waste Water Quality of Thapyaywa Solar Power Project (June)

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	103.37	-

pH	-	8.46	6-9
Temperature	℃	26.78	-
Total Dissolved Solids	mg/l	563	-

Table 2. 13 Monthly Waste Water Quality of Thapyaywa Solar Power Project (July)

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	159.14	-
pH	-	8.40	6-9
Temperature	℃	27.35	-
Total Dissolved Solids	mg/l	3024	-

Table 2. 14 Monthly Waste Water Quality of Thapyaywa Solar Power Project (August)

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	105.64	-
pH	-	8.15	6-9
Temperature	℃	25.49	-
Total Dissolved Solids	mg/l	1957	-

Table 2. 15 Monthly Waste Water Quality of Thapyaywa Solar Power Project (September)

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	103.62	-
pH	-	9.28	6-9
Temperature	℃	27.84	-
Total Dissolved Solids	mg/l	1985	-

Photo Record for Water Quality Sampling

	WWQ 1 (outlet from the project site)
	GWQ (from the project site)

3. ENVIRONMENTAL MONITORING PLAN

3.1 Monitoring Records for Safety Plan

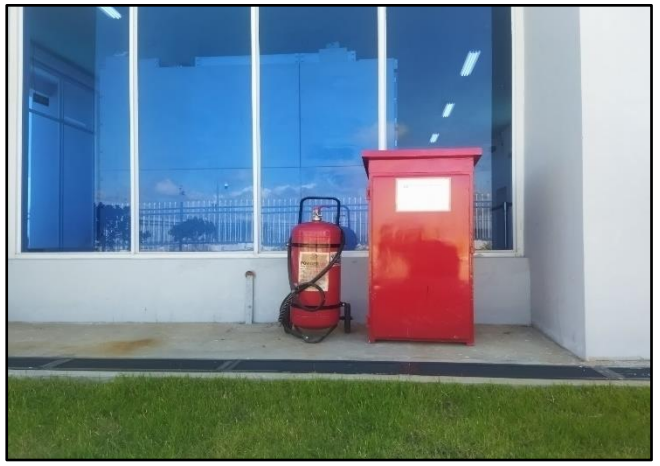
Monitoring Record for Safety Plan

Monthly Record					
Date	**Place**	**Activity**	**Organization**	**Number of Attendees**	**Remark**
April, 2024	PV Field	Hazard and Safety Training	Thapyaywa Solar Power Plant	25	
May, 2024	Working Area	Aware Training About PPE	Thapyaywa Solar Power Plant	30	
June, 2024	Power Station	Fire Safety Training	Thapyaywa Solar Power Plant	75	
July, 2024	Working Area	Electrical Safety Training	Thapyaywa Solar Power Plant	25	
August, 2024	Power Station	Provide PPE Safety Equipment	Thapyaywa Solar Power Plant	35	
September, 2024	Office Meeting Room	Health Care	Thapyaywa Solar Power Plant	75	
April, 2024	Working Area	Electrical Safety Training	Thapyaywa Solar Power Plant	35	
May, 2024	PV Field	Hazard and Safety Training	Thapyaywa Solar Power Plant	30	
June, 2024	Working Area	Aware Training About PPE	Thapyaywa Solar Power Plant	25	
July, 2024	Power Station	Fire Safety Training	Thapyaywa Solar Power Plant	75	
August, 2024	Working Area	Electrical Safety Training	Thapyaywa Solar Power Plant	35	
September, 2024	Office Meeting Room	Health Care	Thapyaywa Solar Power Plant	75	

Monitoring Record for Occupational Safety Equipment

Date	Place	Type	Quality	Inspected By	Supervisor	Remark
31-August-2024	Store	Safety Shoe	22	U Saw Paing Sett Naing	U Shein Min Htet	
31-August-2024	Store	Safety Helment	22	U Saw Paing Sett Naing	U Shein Min Htet	
31-August-2024	Store	Safety Gloves	22	U Saw Paing Sett Naing	U Shein Min Htet	
31-August-2024	Store	Safety Belt	22	U Saw Paing Sett Nain	U Shein Min Htet	

Records of Health and Safety Plan Activities



Emergency Contact List Attached in the Project Site

အရေးပေါ်အခြေအနေတုန့်ပြန်မှုအခြေအနေ			
စီမံကိန်းလုပ်ငန်းအတွင်းမှ အရေးကြီးဆက်သွယ်ရမည့် ဖုန်းနံပါတ်များ			
စဉ်	အမည်	ရာထူး	ဖုန်းနံပါတ်
၁	ဦးစည်သူဖြိုးဆွေ	စက်ရုံမှူး	09-777464755
၂	ဦးဇော်ရဲမောင်	ဒုစက်ရုံမှူး	09-260083285
၃	ဦးရှိန်းမင်းထက်	အဇ္ဈရာယ်ကင်းရှင်းရေးအရာရှိ	09-791635193
၄	ဦးတိုးတိုး	ကြီးကြပ်ရေးမှူး	09-978876757
၅	ဦးဝင်းမြင့်ထွန်း	ရှေ့ဦးဆောင်	09-400476694
၆	ဦးသန်းဝင်းဇိုင်	အရေးပေါ်အခြေအနေထိန်းချုပ်ရေးမှူး	09-766785118

အရေးကြီးဆက်သွယ်ရမည့် ဒေသတွင်းဖုန်းနံပါတ်များ			
စဉ်	အမည်/ဌာန	အကြောင်းအရာ	ဖုန်းနံပါတ်
၁	မြို့နယ်မီးသတ်ဦးစီးဌာန	မီးလောင်ခြင်းအတွက်	09-402665664
၂	တိုက်နယ်ရဲစခန်း	လုံခြုံရေးကိစ္စရပ်များအတွက်	09-450337701
၃	အနီးဆုံးတိုက်နယ်ဆေးရုံ	ထိခိုက်ဒဏ်ရာရရှိသူများအတွက်	09-449872690
၄	မြို့နယ်လျှပ်စစ်ဌာန	လျှပ်စစ်မီးကိစ္စ	09-256592220
၅	မြို့နယ်အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာန	အထွေထွေအုပ်ချုပ်ရေးကိစ္စ	

Fire Extinguisher Check List

No.	Date	Description	Location	Existing	Unit
1	1.9.2024	Fire Extinguisher (50) kg	Power Station	1	nos
2	1.9.2024	Fire Extinguisher (3) kg	Power Station	3	nos
3	1.9.2024	Fire Extinguisher (3) kg	Briefing Hall	3	nos
4	1.9.2024	Fire Extinguisher (5) kg	Briefing Hall Office	1	nos
5	1.9.2024	Fire Extinguisher (5) kg	Briefing Hall Generator (65kVA)	1	nos
6	1.9.2024	Fire Extinguisher (4) kg	EP Generator (56kVA)	1	nos
7	1.9.2024	Fire Extinguisher (4) kg	6 Unit (1)	3	nos
8	1.9.2024	Fire Extinguisher (5) kg	6 Unit (2)	2	nos
9	1.9.2024	Fire Extinguisher (5) kg	6 Unit (3)	2	nos
10	1.9.2024	Fire Extinguisher (5) kg	6 Unit (4)	2	nos
11	1.9.2024	Fire Extinguisher (3) kg	Staff Office	2	nos
12	1.9.2024	Fire Extinguisher (5) kg	Construction Office	1	nos
13	1.9.2024	Fire Extinguisher (3) kg	Store	2	nos
14	1.9.2024	Fire Extinguisher (10) kg	Store	1	nos
15	1.9.2024	Fire Extinguisher (5) kg	Oil Farm	3	nos
16	1.9.2024	Fire Extinguisher (3) kg	Messing	2	nos
17	1.9.2024	Fire Extinguisher (5) kg	Main Gate	2	nos
18	1.9.2024	Fire Extinguisher (5) kg	Power Station Gate	2	nos
19	1.9.2024	Fire Extinguisher (5) kg	East Gate	2	nos
20	1.9.2024	Fire Extinguisher (5) kg	Kitchen Room	2	nos
21	1.9.2024	Fire Extinguisher (5) kg	Tower (1)	2	nos
22	1.9.2024	Fire Extinguisher (5) kg	Tower (2)	2	nos
23	1.9.2024	Fire Extinguisher (5) kg	Tower (3)	2	nos
24	1.9.2024	Fire Extinguisher (3) kg	Box X' mer 1	3	nos
25	1.9.2024	Fire Extinguisher (5) kg	Box X' mer 2	3	nos
26	1.9.2024	Fire Extinguisher (5) kg	Box X' mer 3	3	nos
27	1.9.2024	Fire Extinguisher (5) kg	Box X' mer 4	3	nos
28	1.9.2024	Fire Extinguisher (5) kg	Box X' mer 5	3	nos

4. Records for CSR activities

Records for CSR Activities

Date	Place	Type	Amount (MMK) Activities	Received
8-4-2024	ဟံဇား	ဟံဇားအင်းကန်ဘောင်လမ်းပြုပြင်ပေးခြင်း။		
17-4-2024	CPE Station	CPEစက်ရုံဝင်းအတွင်း အန္တရာယ်ကင်းပရိတ်တရားနာခြင်း။		
12-5-2024	ဟံဇား	ဟံဇားကျေးရွာအတွင်း သောက်သုံးရေပေးဝေခြင်း။		
14-6-2024	ဝက်တိုး	ဝက်တိုးကျေးရွာပဋ္ဌာန်းပွဲတွင်အလှူငွေများပေးအပ်လှူဒါန်းခြင်းနှင့်ခဲတွယ်ဘောဇဉ်များကပ်လှူခြင်း		
30.8.2024	ဒဟတ်တော	လူမှုကူညီရေးအဖွဲ့အားငွေပဒေသာပင်လှူဒါန်းခြင်း	၁၀သိန်း	
15.9.2024	သာဂရ	သုံးပတ်လည်ရွာရေဘေးသင့်ပြည်သူများအတွက်သာဂရဘုန်းကြီးကျောင်း သို့လှူဒါန်းခြင်း	၃၀ သိန်း	
17.9.2024	ဟံဇား	ဟံဇားလမ်းရေထုတ်ပြွန်(၅)လုံးထည့်သွင်းခြင်းလုပ်ငန်းဆောင်ရွက်ပေးခြင်း		
18.9.2024	ဟံဇား	ဟန်ဇားကျေးရွာဆွမ်းလောင်းပွဲတွင် လှူဖွယ်ပစ္စည်းများလှူဒါန်းခြင်း	၁၂သိန်း	
20.9.2024	ဟံဇား မှ သုံးပတ်လည်	ဟံဇားမှသုံးပတ်လည်ရွာအထိလမ်းပြုပြင်ရေးလုပ်ငန်းဆောင်ရွက်ပေးခြင်း	Machinery	
22.9.2024	သုံးပတ်လည်	သုံးပတ်လည်ရွာရေဘေးသင့်ပြည်သူများအတွက်စားသောက်ဖွယ်ရာများလှူဒါန်းခြင်း	၂၂ သိန်း၅သောင်း	

Photo Records of CSR Activities


SANY

5. Records for GRM

Monitoring Records for GRM

Monthly Record					
Date	**Place**	**Issue**	**Organization Or Individual**	**Action Plan**	**Recorded by**
April, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
May, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
June, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
July, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
August, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
September, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe

GRM Organization of Thapyaywa Solar Power Project Site

မကျေလည်မှုများ ဖြေရှင်းပေးရေးကော်မတီ			
စဉ်	အမည်	တာဝန်	ဌာန
၁	ဦးခင်မောင်တင့်	ဥက္ကဋ္ဌ	သပြေဝကျေးရွာ
၂	ဦးအောင်ကျော်ခိုင်	အတွင်းရေးမှူး	CPE Co., Ltd
၃	ဦးမြင့်စိုး	အဖွဲ့ဝင်(၁)	သပြေဝကျေးရွာ
၄	ဦးချစ်ညို	အဖွဲ့ဝင်(၂)	သပြေဝကျေးရွာ
၅	ဦးဖိုးထောင်	အဖွဲ့ဝင်(၃)	CPE Co., Ltd

6. Records for Waste Disposal

Monthly Record				
Date	**Place**	**Type**	**Amount**	**Inspected by**
15-April, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	60 Kg	U Shein Min Htet
30-April, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	75 Kg	U Shein Min Htet
15-May, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	80 Kg	U Shein Min Htet
30-May, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	50 Kg	U Shein Min Htet
15-June, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	90 Kg	U Shein Min Htet
30-June, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	55 Kg	U Shein Min Htet
15-July, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	80 Kg	U Shein Min Htet
30-July, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	65 Kg	U Shein Min Htet
15-August, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	70 Kg	U Shein Min Htet
30-August, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	100 Kg	U Shein Min Htet
15-September, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	60 Kg	U Shein Min Htet
30-September, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	60 Kg	U Shein Min Htet

Records for Waste Disposal

Appendix 1 (Water Results)

PRO LAB
ANALYTICAL LABORATORY

Myanmar Innovation Group of Co., Ltd
Address : No. (9), Sabae Housing, Pyi Htaung Su Road,
(26) Ward, South Dagon Tsp, Yangon, Myanmar.
Tel : 09-893 767 424
E-mail : info@prolabmyanmar.com

LABORATORY ANALYSIS REPORT

1	Client Name	: Thapyaywa Solar Power Project
2	Location	: Tharzi Township, Meikhtila District, Mandalay Region
3	Type of Sample	: Waste Water
4	Sample No.	: 00830/2024
5	Contact Person	: E-guard Environmental Services
6	Phone No.	: 09-797005212
7	Date Received	: 08.07.2024
8	Date of Test Performed	: 08.07.2024
9	Date of Issued	: 18.07.2024
10	Result	:

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Oil and Grease	2	mg/L	-	[a] 5520D, Soxhlet Extraction Method
2	Total Coliform	4.3	MPN/ml	-	FDA-BAM: MPN Method

Remark:

This certificate is issued only for the receipt of the test sample.
Dispose treated waste water according to state and local regulations.
[a] American Public Health Association, Standard Methods for the Examination of Water and Wastewater.

Tested By
Name : NAW EH THA KU
Position : Laboratory Technician
Signature :.....

Approved By
Name : THEMAR WINT
Position : Laboratory Manager
Signature :.....

Myanmar Innovation Group of Co., Ltd. PRO LAB

LAB-FO-024-00

PRO LAB
ANALYTICAL LABORATORY

Myanmar Innovation Group of Co., Ltd
Address : No. (9), Sabae Housing, Pyi Htaung Su Road,
(26) Ward, South Dagon Tsp, Yangon, Myanmar.
Tel : 09-893 767 424
E-mail : info@prolabmyanmar.com

LABORATORY ANALYSIS REPORT

1	Client Name	: Thapyaywa Solar Power Project
2	Location	: Tharzi Township, Meikhtila District, Mandalay Region
3	Type of Sample	: Waste Water
4	Sample No.	: 00830/2024
5	Contact Person	: E-guard Environmental Services
6	Phone No.	: 09-797005212
7	Date Received	: 08.07.2024
8	Date of Test Performed	: 08.07.2024
9	Date of Issued	: 18.07.2024
10	Result	:

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Oil and Grease	2	mg/L	-	[a] 5520D, Soxhlet Extraction Method
2	Total Coliform	4.3	MPN/ml	-	FDA-BAM: MPN Method

Remark:

This certificate is issued only for the receipt of the test sample.
Dispose treated waste water according to state and local regulations.

[a] American Public Health Association, Standard Methods for the Examination of Water and Wastewater.

Tested By
Name : NAW EH THA KU
Position : Laboratory Technician
Signature :.....

Approved By
Name : THEMAR WINT
Position : Laboratory Manager
Signature :.....

Myanmar Innovation Group of Co., Ltd. PRO LAB

The Government of the Republic of the Union of Myanmar

Ministry of Natural Resources and Environmental Conservation

Department of Forest

Forest Research Institute

Water Quality Laboratory, Yezin

Water Quality Laboratory ★ Forest Research Institute, Yezin ★ No ..... Date .....

Ref: WQL/0168/2024

Date: 6-4-2024

ANALYTICAL TEST REPORT

Project Name: **Thapyawa Solar Power Project**

Customer Address: U Aung Moe Oo

Assignment number	2024 – 55	Sampling Location	Tharsi
Sample number	1	Sampling Date	-
Sample type	ရေဆိုး	Sample received date	1 – 5 - 2024
Comments			

Parameter	Result	Unit	Method reference	Instruments
pH	8.72	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	28.27	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	106.34	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	584	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®

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

Tested by

Signature:

Name: Dr. Thida Cho
Assistant Research Officer

Approved by

Signature:

Name: Dr. Thida Swe
Assistant Research Officer

The Government of the Republic of the Union of Myanmar

Ministry of Natural Resources and Environmental Conservation

Department of Forest

Forest Research Institute

Water Quality Laboratory, Yezin

Ref : WQL/0211/2024

Date: 4-2-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 – 84 - 1	Sampling Location	Thazi Township
Sample number	WW	Sampling Date	-
Sample type	Waste Water	Sample received date	7 - 6 - 2024
Comments	**Monthly**		

Parameter	Result	Unit	Method reference	Instruments
pH	8.36	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	27.78	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity (EC)	159.64	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solids	3015	mg/L	Potentiometric	Aquameter & Aquaprobe AP.2000

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Ref : WQL/0222/2024

Date: 13-6-2024

ANALYTICAL TEST REPORT

Project Name: **Thapyaywa Solar Power Project**

Customer Address: U Aung Moe Oo

Assignment number	WQL/2024 - 71	Sampling Location	Tharsi
Sample number	Waste Water (WW)	Sampling Date	-
Sample type	Waste Water	Sample received date	8 - 6 - 2024
Comments			

Parameter	Result	Unit	Method reference	Instruments
pH	8.46	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	26.78	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	103.37	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	563	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®

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Ref : WQL/0265/2024

Date: 2-8-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 - 84 - 2	Sampling Location	Thazi Township
Sample number	WW	Sampling Date	-
Sample type	Waste Water	Sample received date	7 - 7 - 2024
Comments	**Monthly**		

Parameter	Result	Unit	Method reference	Instruments
pH	8.40	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	27.35	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity (EC)	159.14	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solids	3024	mg/L	Potentiometric	Aquameter & Aquaprobe AP.2000

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Ref : WQL/0263/2024

Date: 2-8-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 - 84-3	Sampling Location	Thazi Township
Sample number	GW	Sampling Date	-
Sample type	Ground Water	Sample received date	7 - 7 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.19	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity (EC)	99.18	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Turbidity	0.84	FNU	ISO 7027:1999	ManTech Robot (MT-165-981)
Total Alkalinity	16.75	mmol/l	ISO 9963-1:1996	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Biological Oxygen Demand (BOD)	0.19	*mg/L*	Potetiometric Method	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	0.8	*mg/L*	Titrimetric Method	Titrator
Total Phosphorus	9.97	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Nitrogen	0.84	mg/L	Kjeldahl Method	Kjeldahl Digestion and Distillation Unit
Total Suspended Solids	6	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®
Chloride	11.50	mg/L	Titrimetric Method	Titrator

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Ref : WQL/0264/2024

Date: 2-8-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 – 84-4	Sampling Location	Thazi Township
Sample number	WW	Sampling Date	-
Sample type	Waste Water	Sample received date	7 - 7 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.38	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Biological Oxygen Demand (BOD)	1.05	*mg/L*	Potentiometric Method	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	5.6	*mg/L*	Titrimetric Method	Titrator
Total Phosphorus	33.73	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Nitrogen	0.38	mg/L	Kjeldahl Method	Kjeldahl Digestion and Distillation Unit
Total Suspended Solids	65.06	mg/L	NS 4733:1983/NS-EU 872:2005	Circulation and Filtration System

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

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Water Quality Laboratory, Yezin

Ref : WQL/0317/2024

Date: 28-8-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project

Customer Address : U Aung Moe Oo (Eguard)

Assignment number	WQL/2024 – 100	Sampling Location	Tharsi
Sample number	WW	Sampling Date	-
Sample type	Waste Water	Sample received date	23-8-2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.15	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	25.49	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	105.64	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	1957	mg/L	Potentiometric	Aquameter & Aqua probe AP.2000

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Ref : WQL/0361/2024

Date: 3-10-2024

ANALYTICAL TEST REPORT

Project Name: Thapyaywa Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 – 112	Sampling Location	Tharsi
Sample number	Waste Water	Sampling Date	-
Sample type	WW	Sample received date	2 – 10 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	9.28	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	27.84	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	103.62	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	1985	mg/L	Potentiometric	Aquameter & Aquaprobe Ap.2000

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