

Environmental Monitoring Report
For
30 MW Ground Mounted Solar Power Plant Project
Connected to Thapyaywa Substation
(Operation Phase)
(3rd Time)
(October 2023 – March 2024)

Proposed by



Clean Power Energy Co., Ltd.

Prepared by



E Guard Environmental Services

March, 2024

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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

<p>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</p>	
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<p>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.</p>	
<p>Haz-Scanner EPAS PM₁₀, PM_{2.5}, NO₂, SO₂, CO, CO₂, Temperature, and Relative Humidity</p>	
<p>Digital Sound Level Meter Noise</p>	

Figure 1. 1 Air Quality Measuring during Operation Period

	<p>Air, Noise quality measuring at Thapyaywa Solar Power Project 23.01.2024 to 24.01.2024 (at source project site)</p>
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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	
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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 channel 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 23th to 24th January 2024. During this survey, these parameters were measured with adequate devices named Environmental Perimeter Air Station (EPAS) viz; Particulate Matters (PM₁₀ and PM_{2.5}) and gases CO₂, CO, SO₂, NO₂ via 24-hour basis. The results and guidelines of all emission pollutants are shown in table.

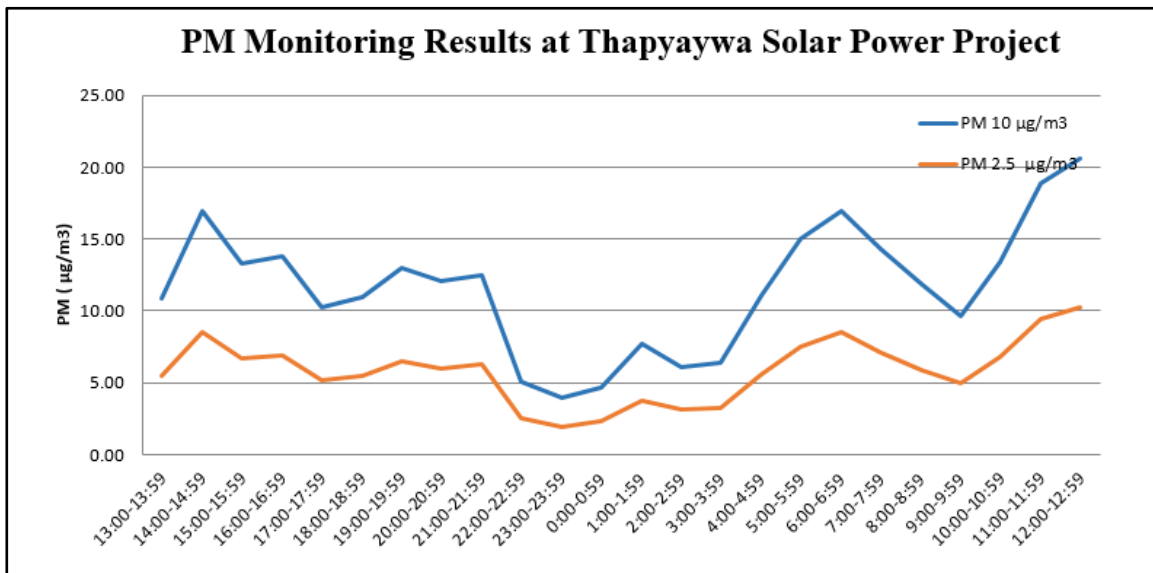


Figure 2. 1 PM Monitoring Results at Thapyaywa Solar Power Project

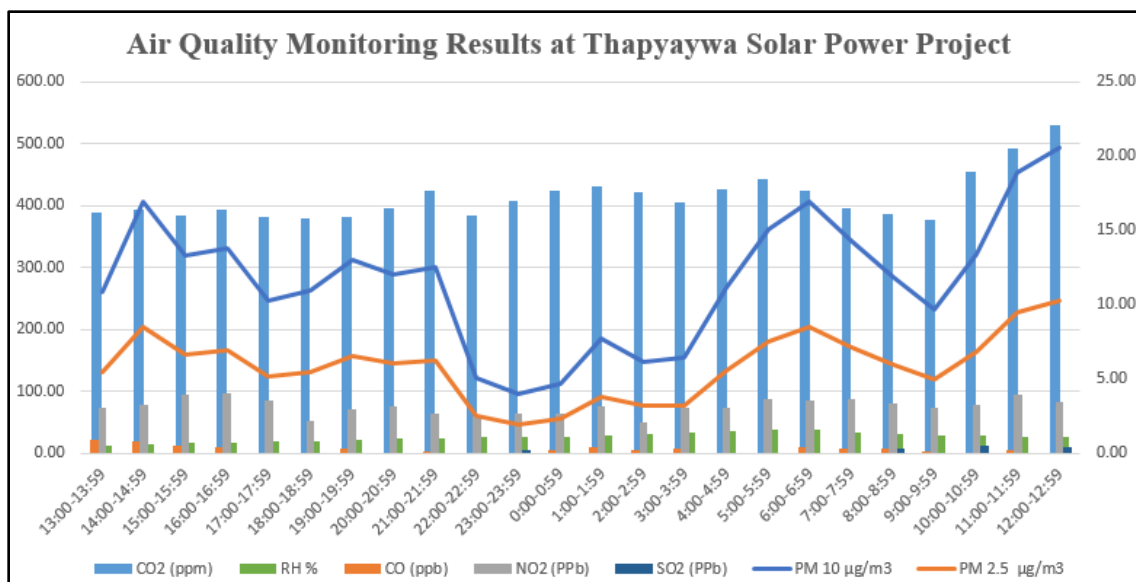


Figure 2. 2 Fluctuation of Air Pollutants during Dial Cycle at Thapyaywa Solar Power Project

Particulate matters (PM₁₀ and PM_{2.5}) results are within guideline values as shown in table. Atmospheric particulate matters such as PM₁₀ 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 (SO₂) 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 SO₂. SO₂ 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 (NO₂) and nitrous oxide (N₂O). NO₂ is formed by chemical reaction of NO and ozone. The main sources of NO₂ are combustion of fuel and on-road and off-road vehicles. NO₂ 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 SO₂ reduction.

Likewise, **Carbon Monoxide (CO) and Carbon dioxide (CO₂)** have the same emission sources and mitigation measures for SO₂ and NO₂. They are poisonous gas and cause damage to the respiratory organ. Guidelines 2013, adopted threshold limit values of CO₂ is 5,000 ppm for 8-

hour, time-weighted average. Thus, it can be concluded that the existing CO₂ 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)
23.01.2024	13:00-13:59	Average	389.15	0.92	3.05	10.85	5.48	13.07	0.00
23.01.2024	14:00-14:59	Average	392.30	0.78	3.27	16.97	8.48	14.33	0.00
23.01.2024	15:00-15:59	Average	384.93	0.47	3.90	13.33	6.67	16.00	0.00
23.01.2024	16:00-16:59	Average	392.75	0.40	4.03	13.77	6.88	17.68	0.00
23.01.2024	17:00-17:59	Average	381.40	0.00	3.52	10.27	5.13	18.23	0.00
23.01.2024	18:00-18:59	Average	380.02	0.00	2.15	10.93	5.47	20.13	0.00
23.01.2024	19:00-19:59	Average	381.57	0.32	2.95	12.97	6.48	21.72	0.00
23.01.2024	20:00-20:59	Average	395.92	0.00	3.17	12.07	6.03	22.62	0.00
23.01.2024	21:00-21:59	Average	424.70	0.10	2.68	12.53	6.27	24.65	0.00
23.01.2024	22:00-22:59	Average	383.40	0.00	2.47	5.03	2.52	26.00	0.00
23.01.2024	23:00-23:59	Average	408.27	0.00	2.65	3.93	1.97	26.00	0.20
24.01.2024	0:00-0:59	Average	424.27	0.20	2.68	4.70	2.35	26.00	0.00
24.01.2024	1:00-1:59	Average	431.15	0.40	3.17	7.72	3.78	28.05	0.00
24.01.2024	2:00-2:59	Average	420.93	0.25	2.07	6.13	3.15	31.83	0.00
24.01.2024	3:00-3:59	Average	404.93	0.35	3.02	6.43	3.22	34.25	0.00
24.01.2024	4:00-4:59	Average	426.55	0.00	3.07	11.10	5.55	35.87	0.00
24.01.2024	5:00-5:59	Average	443.30	0.00	3.63	15.03	7.52	36.67	0.00
24.01.2024	6:00-6:59	Average	424.77	0.38	3.57	16.97	8.48	37.00	0.00
24.01.2024	7:00-7:59	Average	395.05	0.33	3.67	14.30	7.15	33.20	0.00
24.01.2024	8:00-8:59	Average	386.12	0.32	3.38	11.83	5.92	30.80	0.33
24.01.2024	9:00-9:59	Average	377.42	0.13	3.03	9.65	4.95	29.30	0.00
24.01.2024	10:00-10:59	Average	454.18	0.00	3.22	13.40	6.83	27.28	0.53
24.01.2024	11:00-11:59	Average	492.22	0.22	3.93	18.90	9.45	25.25	0.00
24.01.2024	12:00-12:59	Average	529.28	0.00	3.40	20.57	10.28	25.00	0.37
Average			413.52	0.23	3.15	11.64	5.83	25.87	0.06
1 hour Minimum			377.42	0.00	2.07	3.93	1.97	13.07	0.00
1 hour Maximum			529.28	0.92	4.03	20.57	10.28	37.00	0.53

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	µg/m ³	20 500	24-hour 10-minute
4.	Nitrogen dioxide	µg/m ³	40 200	1 year 1 hour
5.	Particulate matter PM ₁₀	µg/m ³	20 50	1-year 24-hour
6.	Particulate matter PM _{2.5}	µg/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	2 nd Monitoring Results	Baseline Results	NEQG Guidelines Value	ACGIH Guidelines Value	NAAQS Guidelines Value	Unit	Averaging Period
PM ₁₀	11.64	4.69	27.11	50	-	-	µg/m ³	24hrs
PM _{2.5}	5.83	2.46	9.00	25	-	-	µg/m ³	24hrs
CO	0.00036	0.00069	0.01	-	-	9	ppm	8hrs
CO ₂	437.79	442.64	496.32	-	5000	-	ppm	8hrs
SO ₂	0.16	0.65	3.92	20	-	-	µg/m ³	24hrs
NO ₂	7.58	15.29	58.97	200	-	-	µg/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 23th to 24th January 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	24.01.2024	7:00:13-7:59:13	48.42	A	Day	46.25
2	24.01.2024	8:00:13-8:59:13	45.67	A	Day	
3	24.01.2024	9:00:13-9:59:13	45.28	A	Day	
4	24.01.2024	10:00:13-10:59:13	44.82	A	Day	
5	24.01.2024	11:00:13-11:59:13	45.53	A	Day	
6	24.01.2024	12:00:13-12:59:13	45.04	A	Day	
7	23.01.2024	13:00:13-13:59:13	53.51	A	Day	
8	23.01.2024	14:00:13-14:59:13	44.12	A	Day	
9	23.01.2024	15:00:13-15:59:13	44.60	A	Day	
10	23.01.2024	16:00:13-16:59:13	45.45	A	Day	
11	23.01.2024	17:00:13-17:59:13	45.19	A	Day	
12	23.01.2024	18:00:13-18:59:13	46.41	A	Day	
13	23.01.2024	19:00:13-19:59:13	46.40	A	Day	
14	23.01.2024	20:00:13-20:59:13	46.24	A	Day	
15	23.01.2024	21:00:13-21:59:13	47.01	A	Day	48.91
16	23.01.2024	22:00:13-22:59:13	46.50	A	Night	
17	23.01.2024	23:00:13-23:59:13	51.95	A	Night	
18	24.01.2024	0:00:13-0:59:13	56.96	A	Night	
19	24.01.2024	1:00:13-1:59:13	47.34	A	Night	
20	24.01.2024	2:00:13-2:59:13	45.89	A	Night	
21	24.01.2024	3:00:13-3:59:13	46.97	A	Night	
22	24.01.2024	4:00:13-4:59:13	46.21	A	Night	
23	24.01.2024	5:00:13-5:59:13	47.90	A	Night	
24	24.01.2024	6:00:13-6:59:13	50.50	A	Night	
Average			47.25			

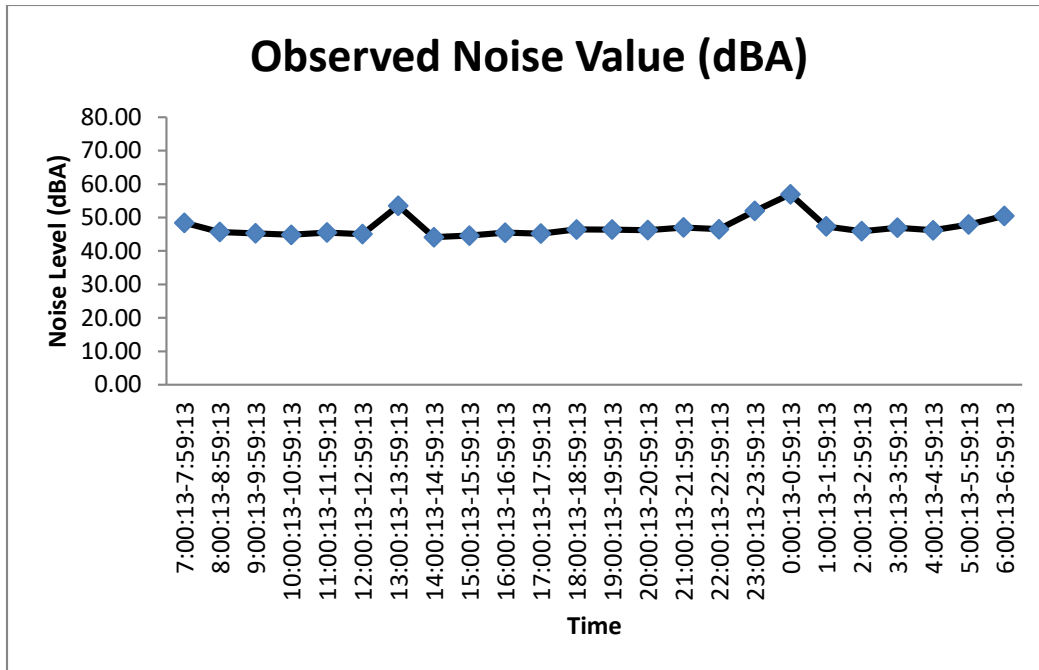


Figure 2. 3 Noise Level at Thapyaywa Solar Project Site (Source)

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	24.01.2024	7:00:13-7:59:13	54.21	A	Day	47.21
2	24.01.2024	8:00:13-8:59:13	51.66	A	Day	
3	24.01.2024	9:00:13-9:59:13	49.80	A	Day	
4	24.01.2024	10:00:13-10:59:13	47.92	A	Day	
5	24.01.2024	11:00:13-11:59:13	46.71	A	Day	
6	24.01.2024	12:00:13-12:59:13	49.66	A	Day	
7	24.01.2024	13:00:13-13:59:13	44.30	A	Day	
8	23.01.2024	14:00:13-14:59:13	45.83	A	Day	
9	23.01.2024	15:00:13-15:59:13	42.73	A	Day	
10	23.01.2024	16:00:13-16:59:13	47.51	A	Day	
11	23.01.2024	17:00:13-17:59:13	48.94	A	Day	
12	23.01.2024	18:00:13-18:59:13	41.96	A	Day	
13	23.01.2024	19:00:13-19:59:13	43.01	A	Day	
14	23.01.2024	20:00:13-20:59:13	45.65	A	Day	
15	23.01.2024	21:00:13-21:59:13	48.30	A	Day	
16	23.01.2024	22:00:13-22:59:13	38.09	A	Night	43.21
17	23.01.2024	23:00:13-23:59:13	37.75	A	Night	
18	24.01.2024	0:00:13-0:59:13	38.04	A	Night	

19	24.01.2024	1:00:13-1:59:13	41.61	A	Night
20	24.01.2024	2:00:13-2:59:13	38.19	A	Night
21	24.01.2024	3:00:13-3:59:13	39.41	A	Night
22	24.01.2024	4:00:13-4:59:13	44.39	A	Night
23	24.01.2024	5:00:13-5:59:13	59.30	A	Night
24	24.01.2024	6:00:13-6:59:13	52.11	A	Night
Average			45.71		

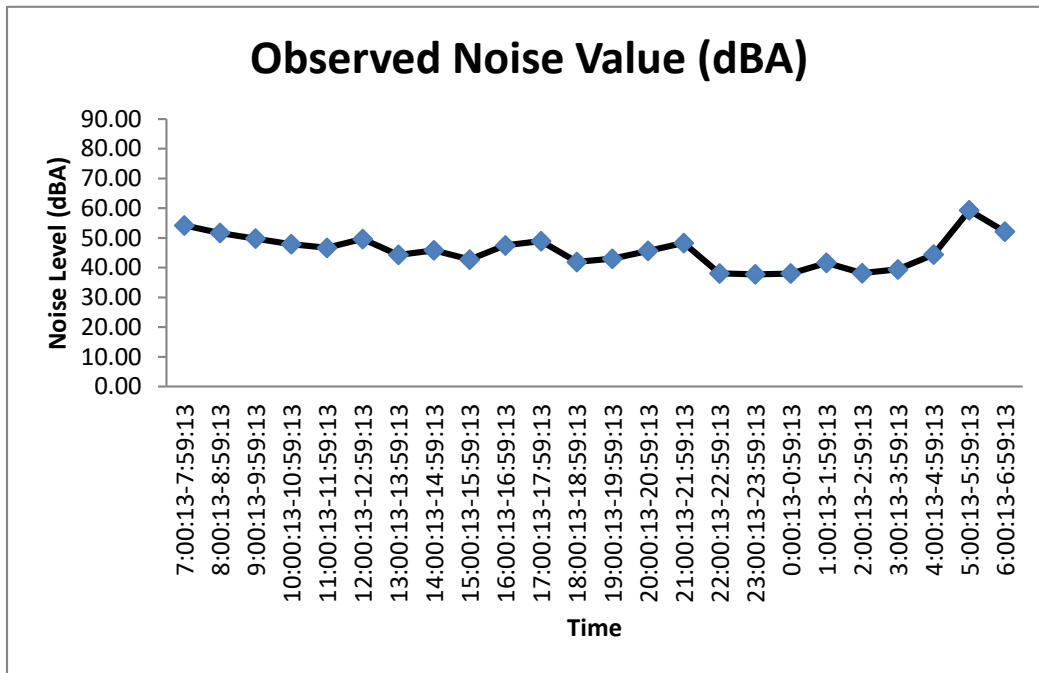


Figure 2. 4 Noise Level at Staff Housing (Receptor)

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

Point	Thapyaywa Solar Power Project	
	Day Time	Night Time
Project Site (Source)	46.25	48.91
2 nd Monitoring Results	48.37	51.15
Baseline Results	49.11	42.40
Guideline Values for Industrial	70	70
Staff Housing (Receptor)	47.21	43.21

2nd Monitoring Results	47.06	36.60
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 46.25 dB (A) and 47.21 dB (A). The observed values of the proposed project for nighttime at Thapyaywa Solar Power Project Site (source) and Staff Housing (Receptor) are 48.91 dB (A) and 43.21 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 23th to 24th January 2024 respectively. According to the data, the wind direction is following **Figure 2. 5** and **Figure 2. 6**.

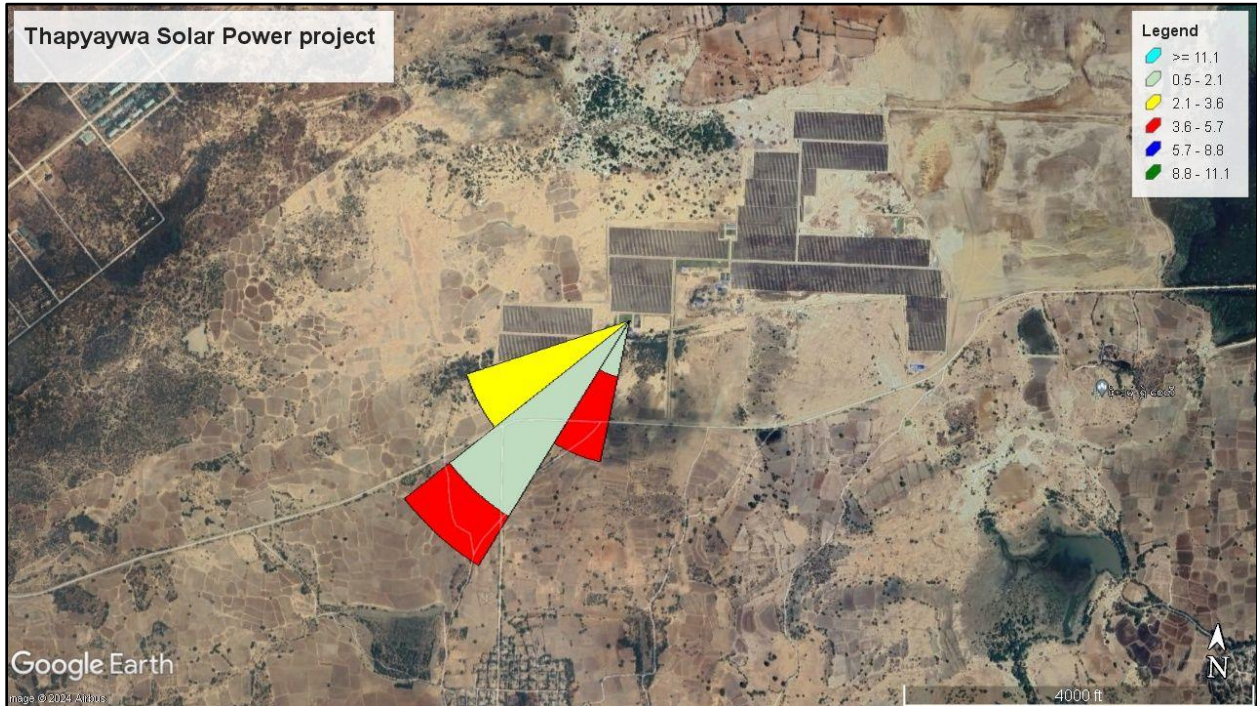


Figure 2. 5 Wind Speed and Wind Direction (Blowing From) at Thapyaywa Solar Power Project Site

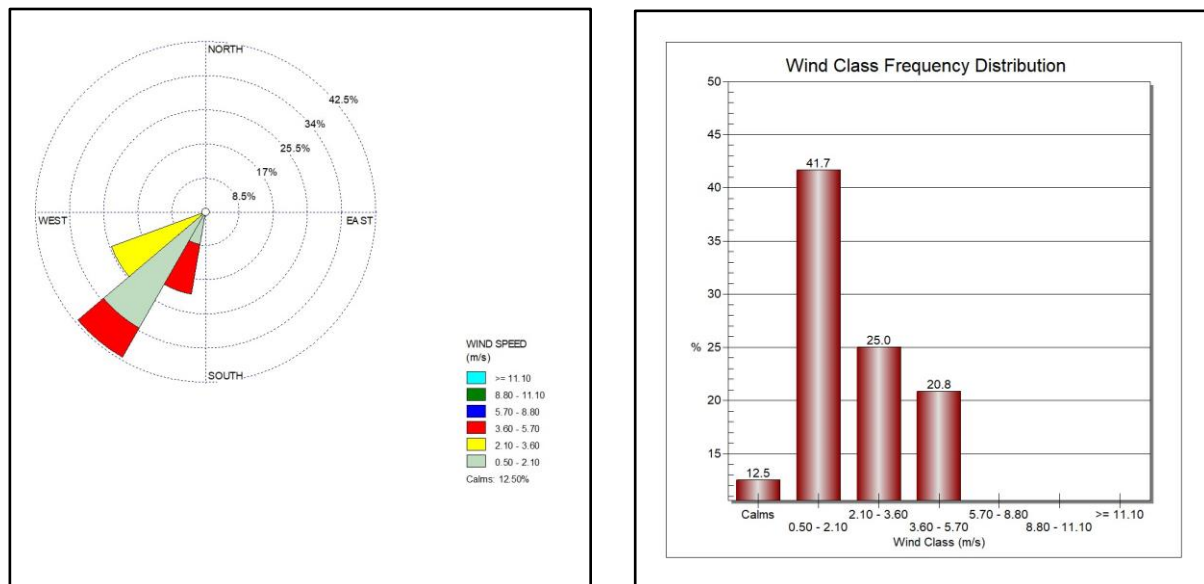


Figure 2. 6 Wind Class Frequency Distribution at the Thapyaywa Solar Power Project Site

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 14th October 2023, 8th November 2023, 31th December 2023, 23th January 2024, 21th February 2024 and 16th March 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	2 nd Monitoring Results	Baseline Results	WHO Drinking Water Guideline
Biological Oxygen Demand (BOD)	mg/l	0.59	0.55	6	-
Chemical Oxygen Demand (COD)	mg/l	2.40	1.10	32	-
Color	PCU	9	58	-	-
Chloride	mg/l	27.48	19.23	-	-
Electrical Conductivity	mS/m	103.72	103.32	1.39	-
pH	-	8.50	8.43	7.36	6.5-8.5
Oil & Grease	mg/l	10	10	<5	-
Turbidity	FNU	0.62	42	5.3	-
Total Alkalinity	mmol/l	8.26	8.24	-	-
Total Nitrogen	mg/l	0.55	0.68	0.84	-
Total Phosphorus	mg/l	0.015	0.019	0.012	-
Total suspended solid (TSS)	mg/l	2.4	0.33	28	-
Total coliform bacteria	MPN/ml	<0.3	9.3	4.5	Not detected
Iron	mg/l	0.10	1.66	-	-
Manganese	mg/l	<0.006	0.064	-	-

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

Item	Unit	Waste Water	2 nd Monitoring Results	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Biological Oxygen Demand (BOD)	mg/l	0.64	0.57	30
Chemical Oxygen Demand (COD)	mg/l	4.40	1.12	125
pH	-	8.42	8.36	6-9
Total Nitrogen	mg/l	0.15	0.48	10
Total Phosphorus	mg/l	0.025	0.025	2
Oil and Grease	mg/l	8	9	10
Total suspended solid (TSS)	mg/l	10.90	0.4	50
Total coliform bacteria	CFU/100 ml	<0.3	4.3	400

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

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	104	-
pH	-	8.59	6-9
Temperature	°C	26	-
Total Dissolved Solids	mg/l	470	-

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

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	103.92	-
pH	-	8.61	6-9
Temperature	°C	26.17	-
Total Dissolved Solids	mg/l	477	-

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

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	102.92	-

pH	-	8.49	6-9
Temperature	°C	25.92	-
Total Dissolved Solids	mg/l	563	-

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

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	94.92	-
pH	-	8.44	6-9
Temperature	°C	25.41	-
Total Dissolved Solids	mg/l	511	-

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

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	14.96	-
pH	-	7.1	6-9
Temperature	°C	25.60	-
Total Dissolved Solids	mg/l	82	-

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

Item	Unit	Waste Water	National Environmental Quality (Emission) Guideline for Electric Power Transmission and Distribution
Electrical Conductivity	mS/m	102.71	-
pH	-	8.48	6-9
Temperature	°C	28.56	-
Total Dissolved Solids	mg/l	616	-

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
October, 2023	PV Field	Hazard and Safety Training	Thapyaywa Solar Power Plant	25	
November, 2023	Working Area	Aware Training About PPE	Thapyaywa Solar Power Plant	30	
December, 2023	Power Station	Fire Safety Training	Thapyaywa Solar Power Plant	75	
January, 2024	Working Area	Electrical Safety Training	Thapyaywa Solar Power Plant	25	
February, 2024	Power Station	Provide PPE Safety Equipment	Thapyaywa Solar Power Plant	35	
March, 2024	Office Meeting Room	Health Care	Thapyaywa Solar Power Plant	75	
October, 2023	Working Area	Electrical Safety Training	Thapyaywa Solar Power Plant	35	
November, 2023	PV Field	Hazard and Safety Training	Thapyaywa Solar Power Plant	30	
December, 2023	Working Area	Aware Training About PPE	Thapyaywa Solar Power Plant	25	
January, 2024	Power Station	Fire Safety Training	Thapyaywa Solar Power Plant	75	
February, 2024	Working Area	Electrical Safety Training	Thapyaywa Solar Power Plant	35	
March, 2024	Office Meeting Room	Health Care	Thapyaywa Solar Power Plant	75	

Monitoring Record for Occupational Safety Equipment

Date	Place	Type	Quality	Remark	Inspected By	Supervisor
31-January-2024	Store	Safety Shoe	22		U Shein Min Htet	U Toe <u>Toe</u>
31-January-2024	Store	Safety Helment	22		U Shein Min Htet	U Toe Toe
31-January-2024	Store	Safety Gloves	22		U Shein Min Htet	U Toe <u>Toe</u>
31-January-2024	Store	Safety Belt	22		U Shein Min Htet	U Toe <u>Toe</u>

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	ဦးစိုင်းဘိုဘို	ဒုစက်ရုံမှူး	09-420732352
၃	ဦးရှိန်းမင်းထက်	အန္တရာယ်ကင်းရှင်းရေးအရာရှိ	09-791635193
၄	ဦးတိုးတိုး	ကြီးကြပ်ရေးမှူး	09-978876757
၅	ဦးဝင်းမြင့်ထွန်း	ရှေးဦးသူနာပြု	09-400476694
၆	ဦးသန်းဝင်းနိုင်	အရေးပေါ်အခြေအနေထိန်းချုပ်ရေးမှူး	09-766785118

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

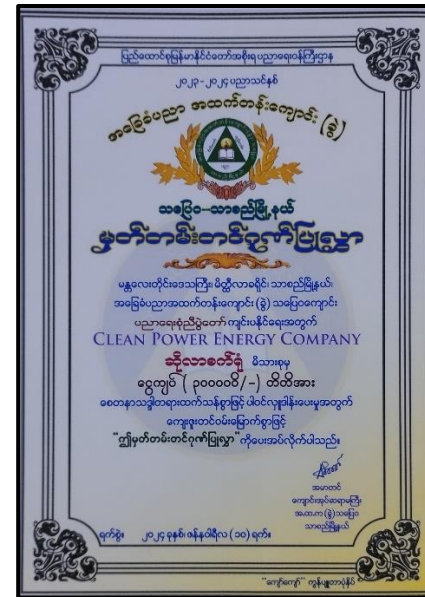
Fire Extinguisher Check List

No.	Date	Description	Location	Existing	Unit
1	1.1.2024	Fire Extinguisher (50) kg	Power Station	1	nos
2	1.1.2024	Fire Extinguisher (3) kg	Power Station	3	nos
3	1.1.2024	Fire Extinguisher (3) kg	Briefing Hall	3	nos
4	1.1.2024	Fire Extinguisher (5) kg	Briefing Hall Office	1	nos
5	1.1.2024	Fire Extinguisher (5) kg	Briefing Hall Generator (65kVA)	1	nos
6	1.1.2024	Fire Extinguisher (4) kg	EP Generator (56kVA)	1	nos
7	1.1.2024	Fire Extinguisher (4) kg	6 Unit (1)	3	nos
8	1.1.2024	Fire Extinguisher (5) kg	6 Unit (2)	2	nos
9	1.1.2024	Fire Extinguisher (5) kg	6 Unit (3)	2	nos
10	1.1.2024	Fire Extinguisher (5) kg	6 Unit (4)	2	nos
11	1.1.2024	Fire Extinguisher (3) kg	Staff Office	2	nos
12	1.1.2024	Fire Extinguisher (5) kg	Construction Office	1	nos
13	1.1.2024	Fire Extinguisher (3) kg	Store	2	nos
14	1.1.2024	Fire Extinguisher (10) kg	Store	1	nos
15	1.1.2024	Fire Extinguisher (5) kg	Oil Farm	3	nos
16	1.1.2024	Fire Extinguisher (3) kg	Messing	2	nos
17	1.1.2024	Fire Extinguisher (5) kg	Main Gate	2	nos
18	1.1.2024	Fire Extinguisher (5) kg	Power Station Gate	2	nos
19	1.1.2024	Fire Extinguisher (5) kg	East Gate	2	nos
20	1.1.2024	Fire Extinguisher (5) kg	Kitchen Room	2	nos
21	1.1.2024	Fire Extinguisher (5) kg	Tower (1)	2	nos
22	1.1.2024	Fire Extinguisher (5) kg	Tower (2)	2	nos
23	1.1.2024	Fire Extinguisher (5) kg	Tower (3)	2	nos
24	1.1.2024	Fire Extinguisher (3) kg	Box X' mer 1	3	nos
25	1.1.2024	Fire Extinguisher (5) kg	Box X' mer 2	3	nos
26	1.1.2024	Fire Extinguisher (5) kg	Box X' mer 3	3	nos
27	1.1.2024	Fire Extinguisher (5) kg	Box X' mer 4	3	nos
28	1.1.2024	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
12.12.2023	အလှည့်	အလှည့်ရွာတွင် သံဃာတော်များအား နေ့ဆွမ်းကပ်ခြင်း။		
7.1.2024	ဟံဇား	ဟံဇားမြို့ သာသနာ့အာဇာနည် အရှင်မြတ်နှစ်ပါး၏ ဂုဏ်ပြုပူဇော်ပွဲတွင် နဝကမ္မဝတ္ထုငွေ ဆပ်ကပ်ခြင်း။		
10.1.2024	ဟံဇား	ဟံဇား၏ ပေ(၁၅၄၀)အရှည် ကျောင်းခြံစည်းရိုးပြုလုပ်ရာတွင် သစ်ပင်များအား ရှင်းလင်းရန် စက်ကြီးများဖြင့် ကူညီပံ့ပိုးပေးခြင်း။		
10.1.2024	သပြေဝ	အခြေခံပညာအထက်တန်းကျောင်း(ခွဲ) သပြေဝကျောင်း ပညာရေးစုညီပွဲတော်ကျင်းပရေး ရုံးငွေ လှူဒါန်းခြင်း။		
15.1.2024	ဟံဇား	ဟံဇားဘုန်းကြီးကျောင်း နေ့ဆွမ်းကပ်ခြင်း။		
16.1.2024	ဟံဇား	ဟံဇားမြို့ အမှတ်(၂) အခြေခံပညာမူလတန်းကျောင်းတွင် လျှပ်စစ်ဝါယာကြိုးများသွယ်တန်း လှူဒါန်းပေးခြင်း။		
17.1.2024	ဟံဇား	ဟံဇားမြို့ အမှတ်(၁) အခြေခံပညာမူလတန်းကျောင်းတွင် သောက်သုံးရေစက်ထားရုံရန် အဆောက်အဦး လှူဒါန်းပေးခြင်း။		
25.1.2024	ဖိုးမြရွဲဘုရား	ဖိုးမြရွဲဘုရားတွင် သံဃာတော်များအား ဆွမ်းဆန်စိမ်းလောင်းလှူခြင်း။		
2.2.2024	ဒဟတ်တော	ဒဟတ်တောလမ်းပြုပြင်လမ်းခင်းခြင်း။		
4.2.2024	ညောင်ပင်ဝန်း	ညောင်ပင်ဝန်းဘုန်းကြီးကျောင်း ပဌာန်းပိတ်ပွဲ နေ့ဆွမ်းကပ်ခြင်း။		
14.3.2024	မြို့ကြီးကုန်း	မြို့ကြီးကုန်းကျေးရွာ၊ ရွာလယ်ကျောင်းတိုက် သံဃာတော်များ ဆွမ်းဆန်စိမ်းလောင်းလှူခြင်း။		









5. Records for GRM

Monitoring Records for GRM

Monthly Record					
Date	Place	Issue	Organization Or Individual	Action Plan	Recorded by
October, 2023	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
November, 2023	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
December, 2023	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
January, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
February, 2024	Thapyaywa Solar Power Plant	-	-	-	U Si Thu Phyo Swe
March, 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	ဦးခင်မောင်တင်	ဥက္ကဋ္ဌ	သပြေဝကျေးရွာ
၂	ဦးအောင်ကျော်စိုင့်	အတွင်းရေးမှူး	CPE Co., Ltd
၃	ဦးမြင့်စိုး	အဖွဲ့ဝင်(၁)	သပြေဝကျေးရွာ
၄	ဦးချစ်ညို	အဖွဲ့ဝင်(၂)	သပြေဝကျေးရွာ
၅	ဦးပုတူး	အဖွဲ့ဝင်(၃)	CPE Co., Ltd

6. Records for Waste Disposal

Monthly Record				
Date	Place	Type	Amount	Inspected by
15-October, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	60 Kg	U Shein Min Htet
30-October, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	75 Kg	U Shein Min Htet
15-November, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	80 Kg	U Shein Min Htet
30-November, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	50 Kg	U Shein Min Htet
15-December, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	90 Kg	U Shein Min Htet
30-December, 2023	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	55 Kg	U Shein Min Htet
15-January, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	80 Kg	U Shein Min Htet
30-January, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	65 Kg	U Shein Min Htet
15-February, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	70 Kg	U Shein Min Htet
30-February, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	100 Kg	U Shein Min Htet
15-March, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	60 Kg	U Shein Min Htet
30-March, 2024	ဝန်ထမ်းလိုင်းများရုံး	အမှိုက်စို/အမှိုက်ခြောက်	60 Kg	U Shein Min Htet

Records for Waste Disposal





Appendix 1 (Water Results)



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/0206/2023
 Date: 16-10-2023

ANALYTICAL TEST REPORT

Project Name: Thapyaywa Solar Power Project
 Customer Address : -----

Assignment number	WQL/2023 – 80	Sampling Location	Tharsi
Sample number	1	Sampling Date	-
Sample type	-	Sample received date	15 – 10 - 2023
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.59	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	26.00	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	104.00	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	470	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/0316/2023

Date: 9-11-2023

ANALYTICAL TEST REPORT

Project Name: Thapyaywa Solar Power Project

Customer Address : -----

Assignment number	WQL/2023 - 99	Sampling Location	Tharsi
Sample number	1	Sampling Date	-
Sample type	-	Sample received date	09 - 11 - 2023
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.61	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	26.17	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	103.92	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	477	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/0001/2024

Date: 5-1-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project
Customer Address : U Aung Moe Oo (Eguard)

Assignment number	WQL/0002 – 2024	Sampling Location	Tharsi
Sample number	1	Sampling Date	-
Sample type	-	Sample received date	1 – 1 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.49	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	25.92	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	102.92	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®

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/0034/2024

Date: 4-2-2024

ANALYTICAL TEST REPORT

Project Name: Thapyaywa Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 - 10-3	Sampling Location	Thazi Township
Sample number	1	Sampling Date	-
Sample type	Waste Water (WW)	Sample received date	24 - 1 - 2024
Comments	Monthly		

Parameter	Result	Unit	Method reference	Instruments
pH	8.44	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	25.41	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	94.92	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	511	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/0033/2024

Date: 4-2-2024

ANALYTICAL TEST REPORT

Project Name: Thapyaywa Solar Power Project

Customer Address : _____

Assignment number	WQL/2024 – 10-2	Sampling Location	Thazi Township
Sample number	2	Sampling Date	-
Sample type	Waste Water (WW)	Sample received date	24 - 1 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.42	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Biological Oxygen Demand (BOD)	0.64	mg/L	Potentiometric	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	4.40	mg/L	Titrimetric	Titration
Total Phosphorus	25.46	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Suspended Solid	10.90	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®
Total Nitrogen	0.15	mg/L	Kjeldahl Method	Kjeldahl Digestion and Distillation Unit

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



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 Ministry of Natural Resources and Environmental Conservation
 Department of Forest
 Forest Research Institute
 Water Quality Laboratory, Yezin



Ref : WQL/0032/2024

Date: 4-2-2024

ANALYTICAL TEST REPORT

Project Name: Thapyaywa Solar Power Project

Customer Address :

Assignment number	WQL/2024 – 10-1	Sampling Location	Thazi Township
Sample number	1	Sampling Date	-
Sample type	Groud Water (GW)	Sample received date	24 – 1 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	8.50	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Turbidity (Turb)	0.62	FNU	ISO 7027:1999	ManTech Robot (MT-165-981)
Conductivity (EC)	103.72	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Alkalinity (TALK)	8.26	mmol/l	ISO 9963-1:1996	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Biological Oxygen Demand (BOD)	0.59	mg/L	Potetiometric	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	2.40	mg/L	Titrimetric	Titratior
Total Phosphorus (TP)	14.92	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Suspended Solid (TSS)	2.4	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®
Total Nitrigen (TN)	0.55	mg/L	Kjeldahl Method	Kjeldahl Digestion and Distillation Unit
Chloride (Cl)	27.48	mg/L	ISO 10304-1: 2009	Ion Chromatography (Thermo Scientific, DIONEX AQUION

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

LABORATORY ANALYSIS REPORT

- 1 Client Name : Thapyaywa Solar Power Project
- 2 Location : Thazi Township
- 3 Type of Sample : Ground Water
- 4 Sample No. : 00121/2024
- 5 Contact Person : Ko Wunna Zaw
- 6 Phone No. : 09-797005180
- 7 Date Received : 24.01.2024
- 8 Date of Test Performed : 24.01.2024
- 9 Date of Issued : 01.02.2024
- 10 Result :

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Color	9	PCU	15 TCU	Hanna HI97727 - Color of Water Photometer
2	Iron	0.10	mg/L	0.3 mg/L	^(a) 3500-F B, Phenanthroline Method
3	Manganese	< 0.006	mg/L	0.4 mg/L	Hach 8149 (1 - (2 - Pyridylazo) - 2 - Naphthol PAN Method)
4	Oil and Grease	10	mg/L	NA	^(a) 5520D, Soxhlet Extraction Method
5	Total Coliform	< 0.3	MPN/ml	ND per 100 mL	FDA-BAM: MPN Method

Remark:

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

^(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 : *eh*

Approved By

Name : KYAWT KYAWT YIN
Position : Technical Consultant Manager
Signature : *kyawt*



LAB-FO-024-00

LABORATORY ANALYSIS REPORT

- 1 Client Name : Thapyaywa Solar Power Project
- 2 Location : Thazi Township
- 3 Type of Sample : Waste Water
- 4 Sample No. : 00122/2024
- 5 Contact Person : Ko Wunna Zaw
- 6 Phone No. : 09-797005180
- 7 Date Received : 24.01.2024
- 8 Date of Test Performed : 24.01.2024
- 9 Date of Issued : 01.02.2024
- 10 Result :

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Oil and Grease	8	mg/L	-	⁽¹⁾ 5520D, Soxhlet Extraction Method
2	Total Coliform	< 0.3	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.

⁽¹⁾ American Public Health Association, Standard Methods for the Examination of Water and Wastewater.

Tested By

Name : NAW EH THA KU
Position : Laboratory Technician
Signature :*Eh*.....

Approved By

Name : KYAWT KYAWT YIN
Position : Technical Consultant Manager
Signature :*Kyawt*.....





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/0067/2024

Date: 26-3-2024

ANALYTICAL TEST REPORT

Project Name: Thapyawa Solar Power Project

Customer Address : U Aung Moe Oo (Eguard)

Assignment number	WQL/2024 - 26-1	Sampling Location	Tharsi
Sample number	1	Sampling Date	-
Sample type	Waste Water (WW)	Sample received date	22 - 2 - 2024
Comments	-		

Parameter	Result	Unit	Method reference	Instruments
pH	7.1	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	25.60	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	14.96	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	82	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/0113/2024

Date: 18-3-2024

ANALYTICAL TEST REPORT

Project Name: **Thapyawa Solar Power Project**

Customer Address: U Aung Moe Oo

Assignment number	2024 - 39	Sampling Location	Tharsi
Sample number	1	Sampling Date	-
Sample type	ရေဆိုး	Sample received date	17 - 3 - 2024
Comments			

Parameter	Result	Unit	Method reference	Instruments
pH	8.48	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Temperature	28.56	°C	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Conductivity	102.71	mS/m	NS-ISO 7888:1993	ManTech Conductivity, Model 4510 Conductivity/TDS meter
Total Dissolved Solid	616	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