Environmental Monitoring Report

For

20 MW Ground Mounted Solar Power Plant Project Connected to Taungdawgwin Substation

(Operation Phase)

(3rd Time)

(September, 2023 - February, 2024)

Proposed by

Green Power Energy Co., Ltd.

Prepared by

E Guard Environmental Services

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INTRODUCTION

The proposed project is developed by Green Power Energy Co., Ltd. is located on an 80.9-hectare site southeast of Kyaukse, Myit Thar Township, Mandalay Region, Myanmar. Its coordinate points are 21° 26' 31.62" N, 96° 17' 10.63" E and the average altitude of the site is 0 m. is the second mega-scale solar PV project by Gold Energy Company Limited (the first being the 30-MW Thapyay Wa project – also in Manadalay district). Taungdawgwin involved a foundation of 6,807 piles to enable solar tracking so as to maximize PV energy captured by 45,980 solar panels. The project can generate 25.1 MW of direct current, or 22.9 MW of alternating current, per year. About 14% of the energy generated will go towards the nearby Kyaukse town, while the remainder will be linked to the Thapyay Wa substation and connected to the national grid via 6.05 miles of 33-kV transmission line, also built by GPE.With domestic energy consumption forecast to grow between 15-17% per year, solar power has been identified as a potentially significant source of renewable energy. While solar PV energy had been introduced for several years in Myanmar it accounted for about 1% of the country's installed energy generation capacity as at 2020.The solar PV tenders announced by MOEE form the country's largest-ever tender exercise for mega-scale solar projects (between 30 MW to 50 MW each) with a combined potential new capacity of 1.06 gigawatts (GW). However, the COVID-19 pandemic in 2020 and 2021 disrupted business travel and the supply and raised the costs of imported components such as PV panels and equipment. The operating environment was also affected by an economic slowdown and domestic issues. As a result, most of the 28 successful bidders did not complete their projects.Despite these immense challenges, Clean Power Energy Co., Ltd completed the Thapyay Wa (30 MW) project – the first among the 28 eventual bidders to do so.

Key Information

Project Details	Taungdawgwin
Location	Kyaukse, Myit Thar Township (Mandalay Division)
Capacity	20 MW
Nature of Project	BOO *
PPA #	20 years
Total Occupied Area	80.9 hectares
No. of panels	45,980
PV efficiency	545 Watts/panel (solar tracking capability)
Annual Generating Power	25.059 MW DC – 22.90 MW AC
Transmission Line	6.05 miles
Project Commencement	Dec-21
Project Commissioning	Nov-22
Commercial Operation Date	Nov-17-2022

Developer	Green Power Energy Limited

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, vibration 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 1.1.1: 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 Digital Sound 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 1.2.1: Noise level monitoring

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

Table 1.2.2: 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	

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. PRO Lab and Water Quality Laboratory of Forest Research Institute 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 parameters shown in the **Table 1.3.1.**

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 1.3.1: Environmental Quality Parameters for Water quality

Surface Water Parameters (1 location)	
Physical Parameter	Total Suspended Solids, Turbidity, Oil and Grease
Chemical Parameter	pH, EC, DO, TDS, Salinity, COD, Total Nitrogen, Total Phosphorus, Potassium
Biological Parameter	BOD
Ground Water Parameters (1 location)	
Physical Parameter	Total Suspended Solids, Turbidity, Oil and Grease
Chemical Parameter	pH, EC, DO, TDS, Salinity, COD, Total Nitrogen, Total Phosphorus, Potassium
Biological Parameter	BOD, Total Coliform Bacteria
Waste Water Parameters (1 location)	
Physical Parameter	Total Suspended Solids, Oil and Grease
Chemical Parameter	pH, COD, Total Nitrogen, Total Phosphorus
Biological Parameter	BOD, Total Coliform Bacteria

Water samplings are conducted using the following equipment as shown in figure (**Table 1.3.2**).

Table 1.3.2: Equipment for water sampling

HORIBA U-50, Multiparameter Water Quality Meter Multiple sensors allow for the measurement of 11 parameters simultaneously. (pH, pH(mv), ORP, DO, Salinity, TDS, Seawater Specific Gravity, Temperature, Turbidity, Water depth) Patented auto-calibration features provide hassle free calibration of pH, dissolved oxygen, conductivity and turbidity. Ultra-sensitive Turbidity Sensors (Models U-50) Precision has been improved over conventional instruments. Improved stability of the dissolved oxygen sensor has been achieved with a new 3 electrode design for fast response and polarographic sensor for ease of maintenance. pH and ORP electrodes can be replaced individually to reduce replacement costs.	

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 3 sampling locations (SWQ: from Myo Gyi Dam Channel, GWQ: from the project site and WWQ: from the discharge water channel of the project site). Air quality was monitored at the selected 1 location; in front of the office in the project site of Taungdawgwin Solar Power project site that can get results of the existing ambient air quality. Noise level was monitored at two selected locations (N1: in front of the office in the project site of Taungdawgwin Solar Power project site as source and N2: near the labor camp as receptor).

Figure 1.4.1: Air Quality Monitoring Location of Taungdawgwin Solar Power Project

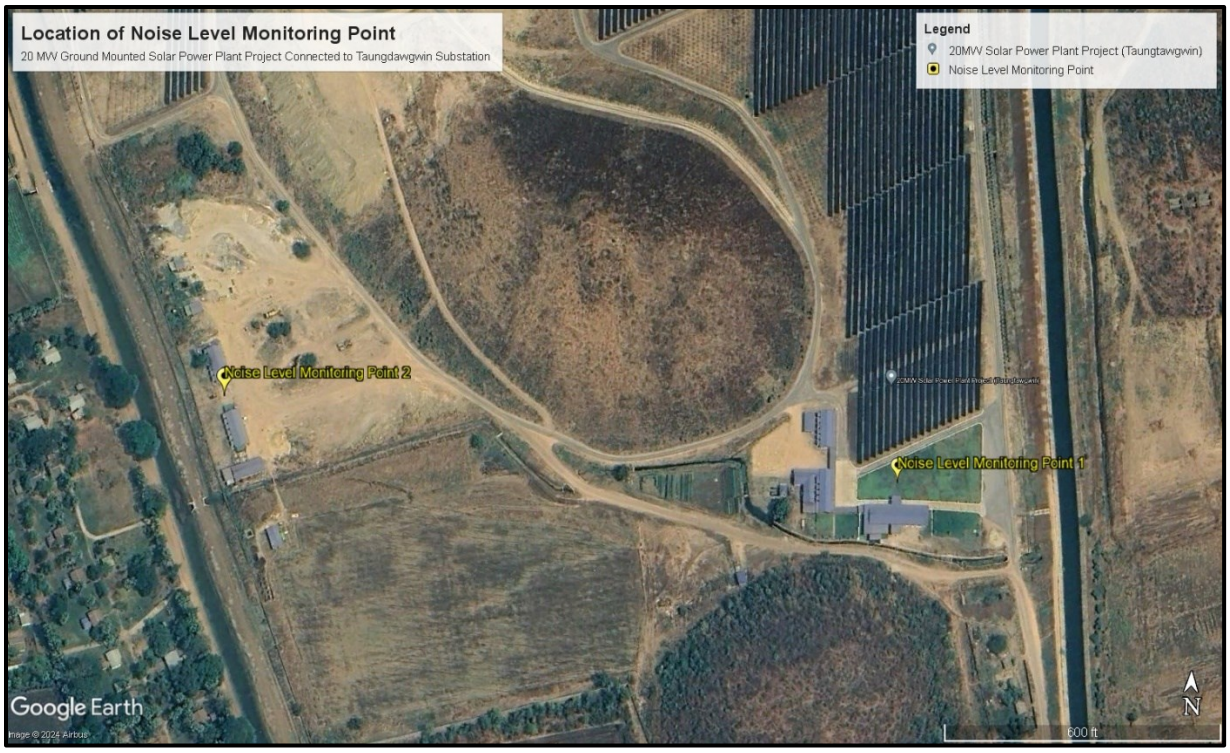


Figure 1.4.2: Noise Level Monitoring Locations of Taungdawgwin Solar Power Project

Figure 1.4.3: Water Quality Sampling Locations of Taungdawgwin Solar Power Project

Table 1.4.1: Locations of Environmental Quality sampling points

Locations No.	Points	Coordinate	Locations
Ambient Air Quality Monitoring Location			
1.	AQ	Lat - 21°26'31.90"N Long - 96°17'11.29"E	in front of the office in the project site of Taungdawgwin Solar Power project site
Noise Level Monitoring Locations			
1.	N1	Lat - 21°26'32.52"N Long - 96°17'10.79"E	in front of the office in the project site of Taungdawgwin Solar Power project site
2.	N2	Lat - 21°26'33.83"N Long - 96°16'55.30"E	near the labor camp as receptor
Water Quality Monitoring Location			
1.	SWQ	Lat - 21°26'54.43"N Long - 96°17'12.94"E	from Myo Gyi Dam Channel
2.	GWQ	Lat - 21°26'34.49"N Long - 96°16'55.23"E	from the project site
3.	WWQ	Lat - 21°26'31.92"N Long - 96°17'7.54"E	from the discharge water channel of the project site

AQ = Air Quality

N = Noise

SWQ = Surface Water Quality

GWQ = Ground Water Quality

WWQ = Waste Water Quality

2. ENVIRONMENTAL QUALITY

2.1 Ambient Air Quality

The air quality monitoring was done at selected locations during 24th to 25th January 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.

Air Quality Measuring
24.01.2024 to 25.01.2024
(in front of the office in the project site of Taungdawgwin Solar Power project site)

Figure 2.1.1: Air quality measuring at Taungdawgwin Solar Power project site during operation period

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.

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.

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 2.1.1: Air Pollutants emission results (Taungdawgwin Solar Power Project) (24th to 25th January 2024)

Taungdawgwin Solar Power Project Air Results									
Date	**Time**		**CO_2 (ppm)**	**CO (ppm)**	**NO_2 (µg/m3)**	**PM_{10} µg/m^3**	**$PM_{2.5}$ µg/m^3**	**RH %**	**SO_2 (µg/m3)**
24.01.2024	16:00-16:59	Average	381.97	0.01	1.67	7.68	3.30	56.42	0.06
24.01.2024	17:00-17:59	Average	372.72	0.01	1.50	7.32	3.28	62.32	0.08
24.01.2024	18:00-18:59	Average	398.72	0.01	1.52	6.78	3.08	65.67	0.16
24.01.2024	19:00-19:59	Average	402.80	0.01	1.07	6.60	3.12	68.54	0.18
24.01.2024	20:00-20:59	Average	402.37	0.01	1.03	6.68	2.63	72.43	0.09
24.01.2024	21:00-21:59	Average	399.58	0.01	1.28	6.78	3.11	75.34	0.13
24.01.2024	22:00-22:59	Average	403.82	0.01	1.45	7.47	3.65	78.33	0.17
24.01.2024	23:00-23:59	Average	422.57	0.00	0.82	7.55	3.78	78.54	0.00
25.01.2024	0:00-0:59	Average	429.52	0.00	1.07	6.83	3.25	79.93	0.00
25.01.2024	1:00-1:59	Average	424.68	0.00	1.17	6.97	2.68	81.03	0.00
25.01.2024	2:00-2:59	Average	384.48	0.00	1.65	7.08	3.17	81.23	0.00
25.01.2024	3:00-3:59	Average	387.32	0.00	1.87	7.27	3.22	84.42	0.00
25.01.2024	4:00-4:59	Average	379.10	0.00	1.45	7.82	3.02	85.35	0.00
25.01.2024	5:00-5:59	Average	394.13	0.01	1.30	8.32	3.50	87.56	0.04
25.01.2024	6:00-6:59	Average	425.10	0.00	2.23	8.03	4.12	87.43	0.05
25.01.2024	7:00-7:59	Average	481.03	0.00	1.73	7.94	3.67	84.02	0.07
25.01.2024	8:00-8:59	Average	431.17	0.00	2.92	7.28	3.22	80.22	0.03
25.01.2024	9:00-9:59	Average	447.38	0.00	3.08	6.55	3.55	75.32	0.00
25.01.2024	10:00-10:59	Average	439.50	0.01	1.92	6.43	3.35	76.76	0.00
25.01.2024	11:00-11:59	Average	405.08	0.00	2.90	6.33	3.14	64.32	0.00
25.01.2024	12:00-12:59	Average	503.78	0.01	2.07	6.30	3.27	54.43	0.00
25.01.2024	13:00-13:59	Average	448.18	0.01	2.03	7.12	3.67	50.28	0.04
25.01.2024	14:00-14:59	Average	407.28	0.01	3.10	6.52	3.45	46.42	0.16
25.01.2024	15:00-15:59	Average	380.72	0.01	2.54	7.38	3.85	46.43	0.12
Average			414.71	0.01	1.81	7.13	3.34	71.78	0.06
1 hour Minimum			372.72	0.00	0.82	6.30	2.63	46.42	0.00
1 hour Maximum			503.78	0.01	3.10	8.32	4.12	87.56	0.18

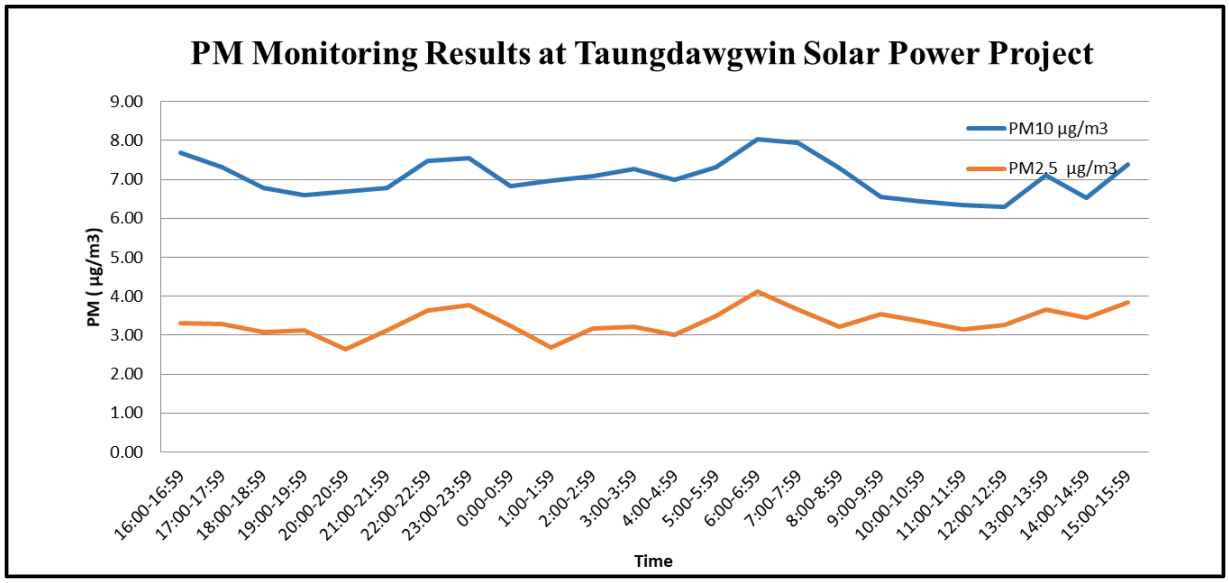


Figure 2.1.2: Fluctuation of Particulate Matters during diel cycle (24th to 25th January 2024)

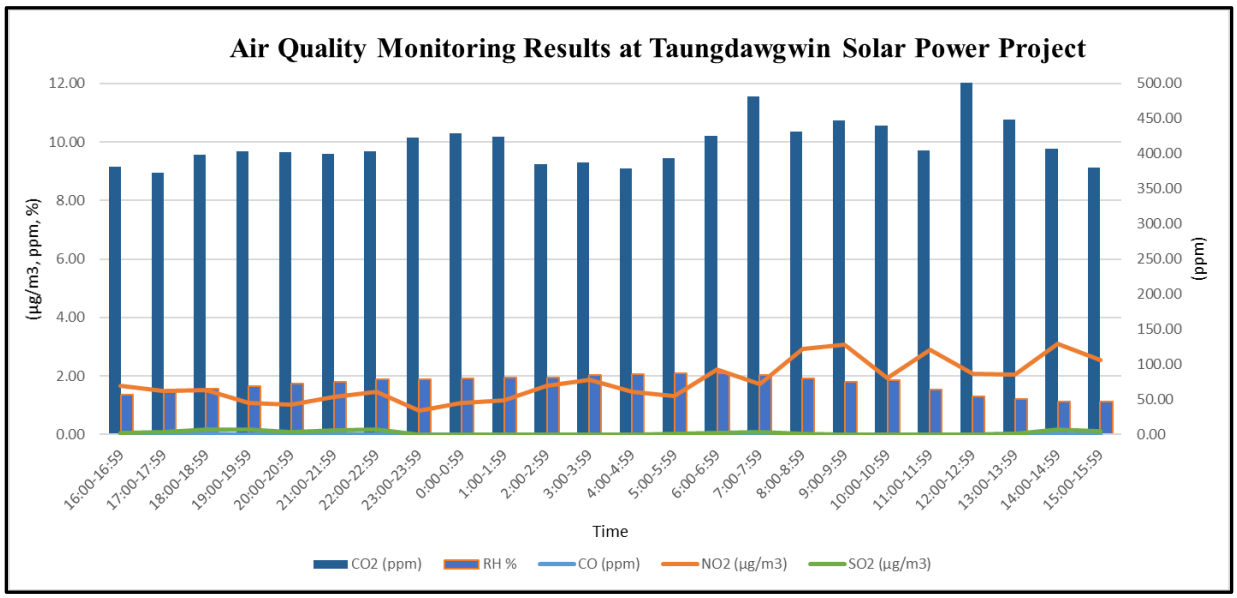


Figure 2.1.3: Fluctuation of Air Pollutants during diel cycle (24th to 25th January 2024)

Table 2.1.2: Observed Values of ambient air quality results from selected point

Parameters	Baseline Results	Values from Previous Monitoring	Observed Values	NEQG	ACGIH	NAAQS	Unit	Averaging Period
PM_{10}	25.13	7.05	7.13	50	-	-	$\mu g/m^3$	24hrs
$PM_{2.5}$	10.84	5.53	3.34	25	-	-	$\mu g/m^3$	24hrs
CO	0.04	0.01	0.01	-	-	9	ppm	8hrs
CO_2	451.72	427.3	432.89	-	5000	-	ppm	8hrs
SO_2	0.14	0.15	0.06	20	-	-	$\mu g/m^3$	24hrs
NO_2	28.97	5.83	3.10	200	-	-	$\mu g/m^3$	1hrs

Detail results with one-hour interval of pollutants are shown in **Table 2.1.1**. The average, peak and minimum values of results per day are calculated. As per above table 2.1.2, it can be seen that all parameters measured are within the National Environmental Quality (Emission) Guideline (NEQEG), American Conference of Governmental Industrial Hygienists (ACGIH) and National Ambient Air Quality Standards (NAAQS).

Table 2.1.3: Air Emission Levels (Standard)

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

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

2.2 Ambient Noise Level

Ambient noise level for the proposed project was measured with Digital Sound Level Meter at two locations: one point was set in front of the main office as source point and one point was set near the labor camp as receptor point, on 24th to 25th January 2024. Measuring period is 24 hours continuously.

Figure 2.2.1: Noise Level Monitoring in Front of the Main Office

Figure 2.2.2: Noise Level Monitoring Near the Labor Camp

The observed values are described in **Table 2.2.1** and **Table 2.2.2**; and the following figures are noise level measurement at the proposed project.

Table 2.2.1: Observed Values of Noise Level Measurement in Front of the Main Office (Source)

No.	Date	Time	Observed Mean Value (Source)	Weight	Day/Night	Average
1	25.01.2024	7:00-7:59	46.50	A	Day	
2	25.01.2024	8:00-8:59	47.18	A	Day	
3	25.01.2024	9:00-9:59	48.07	A	Day	
4	25.01.2024	10:00-10:59	45.37	A	Day	
5	25.01.2024	11:00-11:59	45.30	A	Day	
6	25.01.2024	12:00-12:59	45.23	A	Day	
7	25.01.2024	13:00-13:59	52.08	A	Day	
8	25.01.2024	14:00-14:59	45.74	A	Day	46.64
9	25.01.2024	15:00-15:59	45.83	A	Day	
10	24.01.2024	16:00-16:59	46.44	A	Day	
11	24.01.2024	17:00-17:59	47.49	A	Day	
12	24.01.2024	18:00-18:59	52.87	A	Day	
13	24.01.2024	19:00-19:59	41.79	A	Day	
14	24.01.2024	20:00-20:59	43.40	A	Day	
15	24.01.2024	21:00-21:59	46.28	A	Day	
16	24.01.2024	22:00-22:59	41.57	A	Night	
17	24.01.2024	23:00-23:59	39.85	A	Night	
18	25.01.2024	0:00-0:59	40.86	A	Night	
19	25.01.2024	1:00-1:59	40.56	A	Night	
20	25.01.2024	2:00-2:59	42.95	A	Night	41.87
21	25.01.2024	3:00-3:59	43.42	A	Night	
22	25.01.2024	4:00-4:59	45.09	A	Night	
23	25.01.2024	5:00-5:59	42.04	A	Night	
24	25.01.2024	6:00-6:59	40.52	A	Night	
Average			44.85			

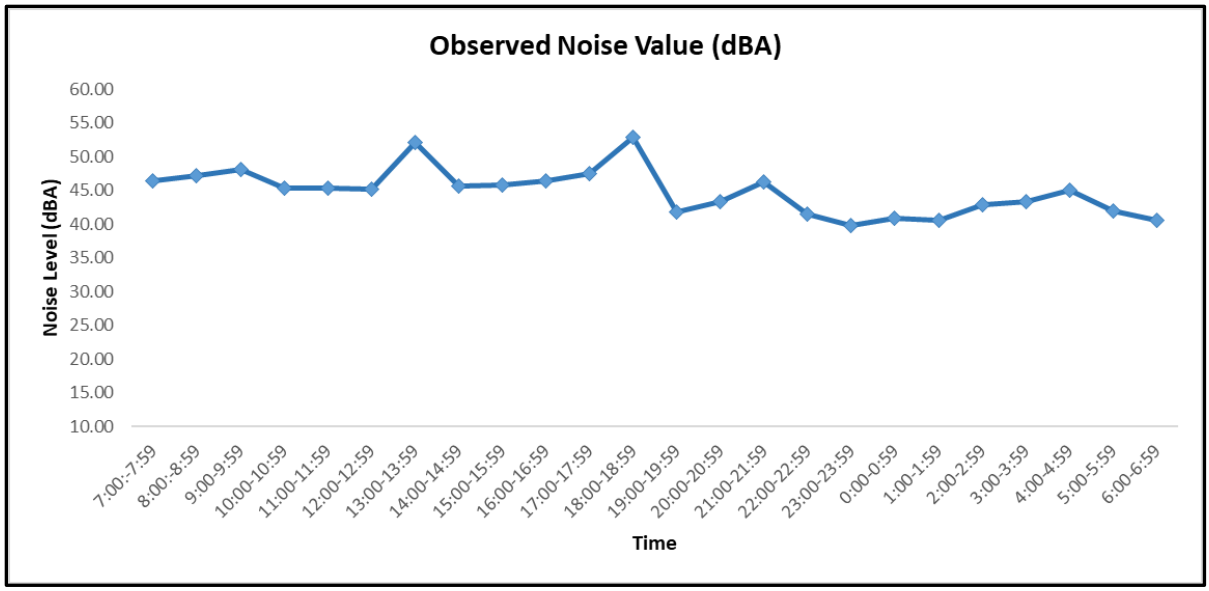


Figure 2.2.3: Noise Level at Point 1 (In Front of the Main Office)

Table 2.2.2: Observed Values of Noise Level Measurement Near the Labor Camp (Receptor)

No.	Date	Time	Observed Mean Value (Receptor)	Weight	Day/Night	Average
1	25.01.2024	7:00-7:59	44.14	A	Day	49.76
2	25.01.2024	8:00-8:59	52.16	A	Day	
3	25.01.2024	9:00-9:59	46.41	A	Day	
4	25.01.2024	10:00-10:59	48.95	A	Day	
5	25.01.2024	11:00-11:59	51.88	A	Day	
6	25.01.2024	12:00-12:59	58.86	A	Day	
7	25.01.2024	13:00-13:59	51.07	A	Day	
8	25.01.2024	14:00-14:59	54.74	A	Day	
9	25.01.2024	15:00-15:59	50.22	A	Day	
10	24.01.2024	16:00-16:59	49.78	A	Day	
11	24.01.2025	17:00-17:59	48.67	A	Day	
12	24.01.2026	18:00-18:59	46.61	A	Day	
13	24.01.2027	19:00-19:59	49.10	A	Day	
14	24.01.2028	20:00-20:59	45.60	A	Day	
15	24.01.2029	21:00-21:59	48.24	A	Day	
16	24.01.2024	22:00-22:59	38.58	A	Night	40.36
17	24.01.2024	23:00-23:59	37.37	A	Night	

18	25.01.2024	0:00-0:59	39.66	A	Night	
19	25.01.2024	1:00-1:59	40.73	A	Night	
20	25.01.2024	2:00-2:59	38.42	A	Night	
21	25.01.2024	3:00-3:59	39.47	A	Night	
22	25.01.2024	4:00-4:59	42.51	A	Night	
23	25.01.2024	5:00-5:59	42.02	A	Night	
24	25.01.2024	6:00-6:59	44.44	A	Night	
Average			46.23			

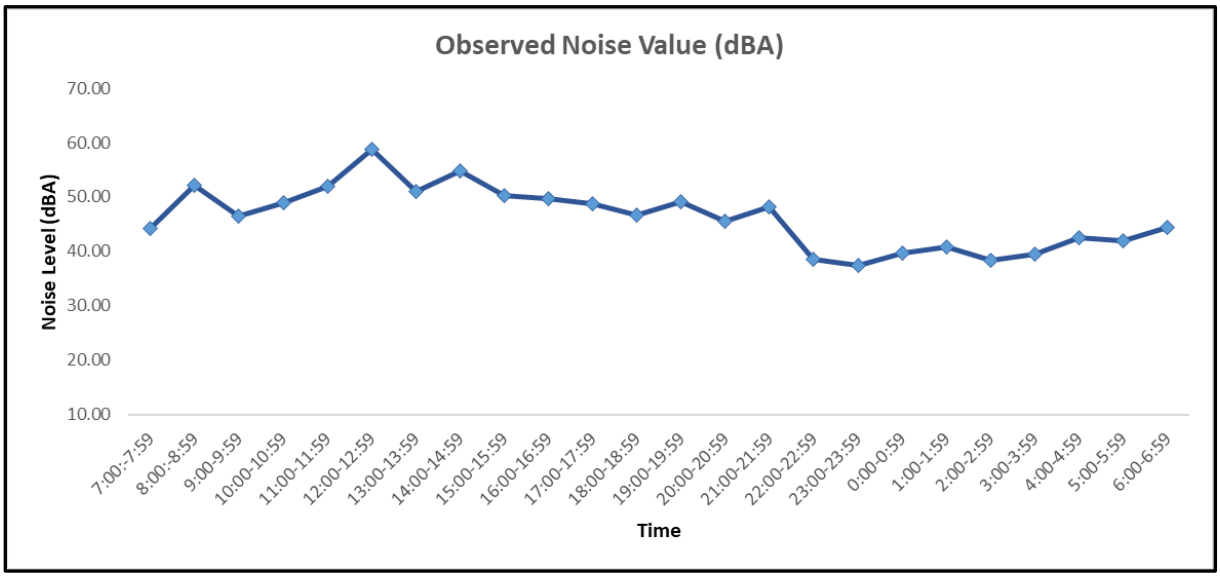


Figure 2.2.4: Noise Level at Point 2 (Near the Labor Camp)

Point	Taungdawgwin Solar Power Project	
	Day Time	Night Time
At source (In front of the main office)	46.64	41.87
Guideline Values for Industrial	**70**	**70**
At receptor (Near the labor camp)	49.76	40.36
Guideline Values for Residential	**55**	**45**
Baseline Results at Point 1 (Project Site)	52.92	41.55
Baseline Results at Point 2 (Project Site)	54.22	40.64
Previous Monitoring Result (At Source)	49.28	45.28
Previous Monitoring Result (At Receptor)	46.37	43.39

Table 2.2.3 Observed Ambient Noise Level Results from Selected Points

The observed values are compared with the National Environmental Quality (Emission) Guidelines as shown in **Table 2.2.3,** which indicates the separate level for industrial and residential points.

The observed noise values of daytime and night time at the project site point 1 (in front of the main office) (source) are 46.64 dB (A) and 41.87 dB (A). The observed noise values of daytime and night time at the project site point 2 (near the labor camp) (receptor) are 49.76 dB (A) and 40.36 dB (A). The observed daytime value and night time values for both point 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 on 24th to 25th January 2024. According to the data, the wind direction is as per following Error! Reference source not found.**3.1** to Error! Reference source not found.**3.2**.

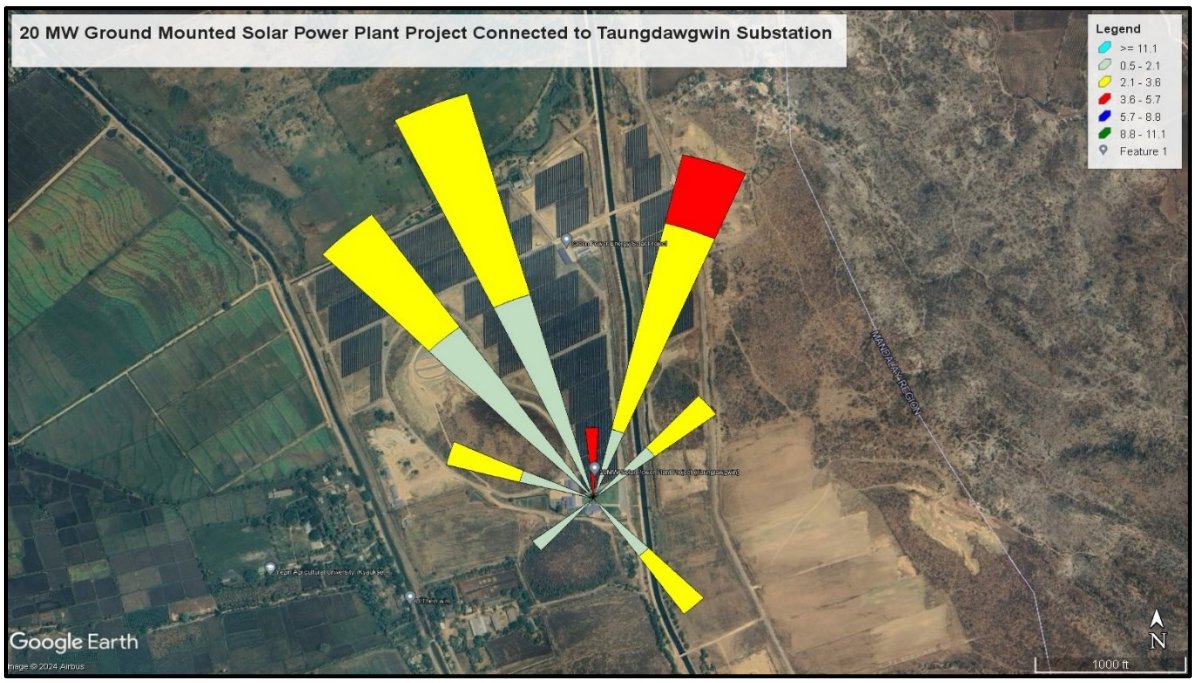
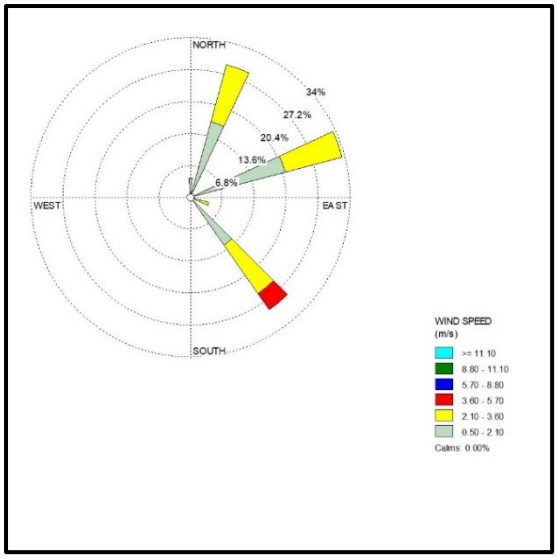


Figure 2.3.1: Wind Speed and Wind Direction (Blowing From) at Taungdawgwin Solar Power Project Site (24th to 25th January 2024)



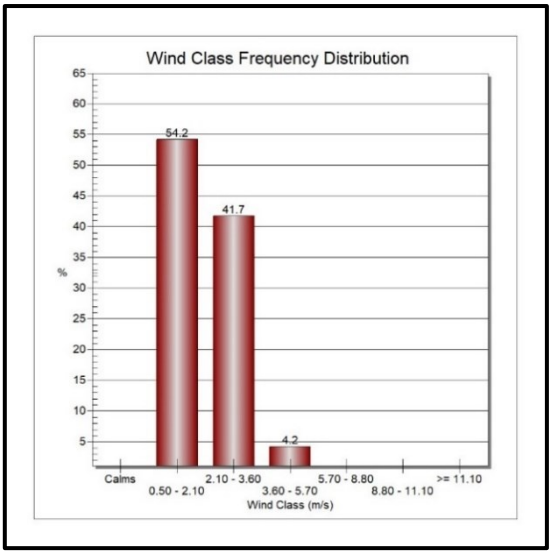


Figure 2.3.2: Wind Class Frequency Distribution at Taungdawgwin Solar Power Project Site (24th to 25th January 2024)

2.4 Water Quality Standards

Currently Myanmar does not have surface water quality standards for major rivers and its tributaries, natural and man-made streams or lakes, ground water, or reservoir water. Environmental conservation department is in the process of developing National Ambient Water Quality Standards based on the protection of aquatic life. It is recommended by the environmental specialist to compare the measured water quality results with the standards in **Table 2.4.1** below.

Table 2.4.1: Ambient water quality standards for the protection of aquatic life

Parameter	Unit	Concentration	Reference
Aluminum	mg/l	0.005 (if pH < 6.5) 0.1 (if pH > 6.5)	Australian and New Zealand guidelines for fresh and marine water quality. 2000. Australian and New Zealand Environment Conservation Council. Water Quality Guidelines for the Protection of Aquatic Life. 2016. Canadian Council of Ministers of the Environment. Metal mining technical guidance for environmental effects monitoring. 2012. Environment Canada.
Ammonia	mg/l	0.02	As above
Arsenic	mg/l	0.05	As above
Boron	mg/l	0.5	As above
Cadmium	mg/l	0.0002	As above
Chloride	mg/l	0.86	As above
Chromium	mg/l	0.01	As above

Parameter	Unit	Concentration	Reference
(hexavalent)			
Chromium (trivalent)	mg/l	0.0089	As above
Coliforms (total)	MPN/100ml	5000	As above
Coliforms (faecal)	MPN/100ml	1000	As above
Color	mg/l	Not significantly higher that seasonally adjusted background value	As above
Copper	mg/l	0.002	As above
Cyanide (free)	mg/l	0.005	As above
Dissolved oxygen	mg/l	6	As above
Ethanol	mg/l	1.4	As above
Fluoride	mg/l	0.2	As above
Iron	mg/l	0.3	As above
Lead	mg/l	0.001	As above
Manganese	mg/l	0.05	As above
Mercury	mg/l	0.0001	As above
Molybdenum	mg/l	0.073	As above
Naphthalene	mg/l	0.016	As above
Nickel	mg/l	0.015	As above
Nitrate	mg/l	5	As above
Nitrite	mg/l	0.06	As above
Oil & grease	-	Substantially absent, no iridescent sheen	As above
pH	-	6.5-9	As above
Phenols	mg/l	0.004	As above
Phosphorus	mg/l	0.15	As above
Selenium (total)	mg/l	0.005	As above
Silver	mg/l	0.0001	As above
Sulphide	mg/l	0.002	As above
Temperature	°C	< 2 increase	As above
Thallium	mg/l	0.004	As above
Total suspended solids	mg/l	10	As above
Tributyltin	mg/l	0.000008	As above
Turbidity	-	< 10% change	As above
Uranium	mg/l	0.015	As above
Zinc	mg/l	0.005	As above

2.5 Water quality

Surface water quality were recorded by on-site sampling was done at two selected locations and laboratory analysis at three selected locations systematically. The field surveys for environmental quality monitoring and sampling were done during 24th January 2024.

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

Water Quality Measurement

Surveyor: Aung Moe Oo	**Date: 24.01.2024**
Location: Surface Water (from Myo Gyi Dam Channel)	**Time: 15:00**
Lat. & Long.: 21°26'54.43"N, 96°17'12.94"E	**Instrument: Horiba U-50**
Temperature: 27.87°C	

Onsite Surface Water Measurement Results

Sr. No.	pH	Electrical Conductivity			DO (mg/l)	Turbidity (NTU)	Remarks
		EC (ms/cm)	TDS (g/l)	Salinity (ppt)			
1	7.96	1.43	0.62	0.1	4.43	5.92	-

Water Quality Measurement

Surveyor: Aung Moe Oo	**Date: 24.01.2024**
Location: Ground Water (from the project site)	**Time: 15:30**
Lat. & Long.: 21°26'34.49"N, 96°16'55.23"E	**Instrument: Horiba U-50**
Temperature: 25.23°C	

Onsite Ground Water Measurement Results

Sr. No.	pH	Electrical Conductivity			DO (mg/l)	Turbidity (NTU)	Remarks
		EC (ms/cm)	TDS (g/l)	Salinity (ppt)			
1	7.71	1.13	0.58	0.5	3.19	6.63	-

Table 2.5.1: Comparison of Surface Water Quality, Ground Water Quality and Waste Water Quality with Guidelines

Parameter	Unit	SWQ	GWQ	WWQ	International and National Guideline			
					A	B	C	D
Dissolved Oxygen (DO)	mg/l	4.43	4.43	-	-	-	6	-
Oil and Grease	mg/l	1	8	7	-	-	Substantially absent	10
Total Coliform	MPN/ml	-	< 0.3	24 x 10^3	-	-	5	400
Total Dissolved Solids	mg/l	620	580	-	-	No guideline	-	-
Turbidity	NTU	5.92	6.63	-	-	Not	<10	-

						mentioned		
Biochemical Oxygen Demand (BOD)	mg/l	1.31	0.38	5.59	-	-	-	30
Chemical Oxygen Demand (COD)	mg/l	15.20	6.1	36.80	-	-	-	125
Total Nitrogen	mg/l	2.33	2.1	4.31	-	-	-	10
Total Phosphorus	mg/l	0.005	0.007	0.01	-	-	-	2
Total Suspended Solids	mg/l	5	8	31	-	-	10	50
Potassium	mg/l	23.41	44.65	-	-	-	-	-
Water Quality Result of Previous Monitoring								
Parameter	**Unit**	**SWQ**	**GWQ**	**WWQ**	**International and National Guideline**			
					A	**B**	**C**	**D**
Dissolved Oxygen (DO)	mg/l	5.37	4.82	-	-	-	6	-
Oil and Grease	mg/l	Nil	2	4	-	-	Substantially absent	10
Total Coliform	MPN/ml	-	230	11000	-	-	5	400
Total Dissolved Solids	mg/l	172	616	-	-	No guideline	-	-
Turbidity	NTU	4.28	10.22	-	-	Not mentioned	<10	-
Biochemical Oxygen Demand (BOD)	mg/l	0.47	0.5	0.49	-	-	-	30
Chemical Oxygen Demand (COD)	mg/l	1.2	1.2	1.6	-	-	-	125
Total Nitrogen	mg/l	0.48	0.48	0.83	-	-	-	10
Total Phosphorus	mg/l	0.014	0.018	0.02	-	-	-	2
Total Suspended Solids	mg/l	6.4	5.8	7.8	-	-	10	50
Potassium	mg/l	0.61	ND	-	-	-	-	-

SWQ = from Myo Gyi Dam Channel
GWQ = from the project site

WWQ = from the discharge water channel of the project site

A= WHO (Normally found in fresh water/surface water/ground water)
B= WHO (DW) (Health based guideline by the WHO)
C= Ambient water quality standards for the protection of aquatic life
D= National Environmental Quality Emission Guideline (Electric Power Transmission and Distribution)

According to the comparison of water quality results and the guidelines, all other parameters of surface water, ground water and waste water are below the limit except Total Coliform Count and Total Suspended Solids of waste water from the waste water drainage of the project site. The reason that the waste water in this drainage is higher than the guideline is not because of the project works or domestic waste of the project site but because of the natural condition. However, these waste water should be released into the final out let only after getting settled in the sedimentation ponds and drainage should be made for water to flow well by removing any blockage in the channel.

Photo Record for Water Quality Sampling

Figure 2.5.1: On-site Water Quality Measuring of Surface Water

Figure 2.5.2: Water Quality Sampling of Surface Water

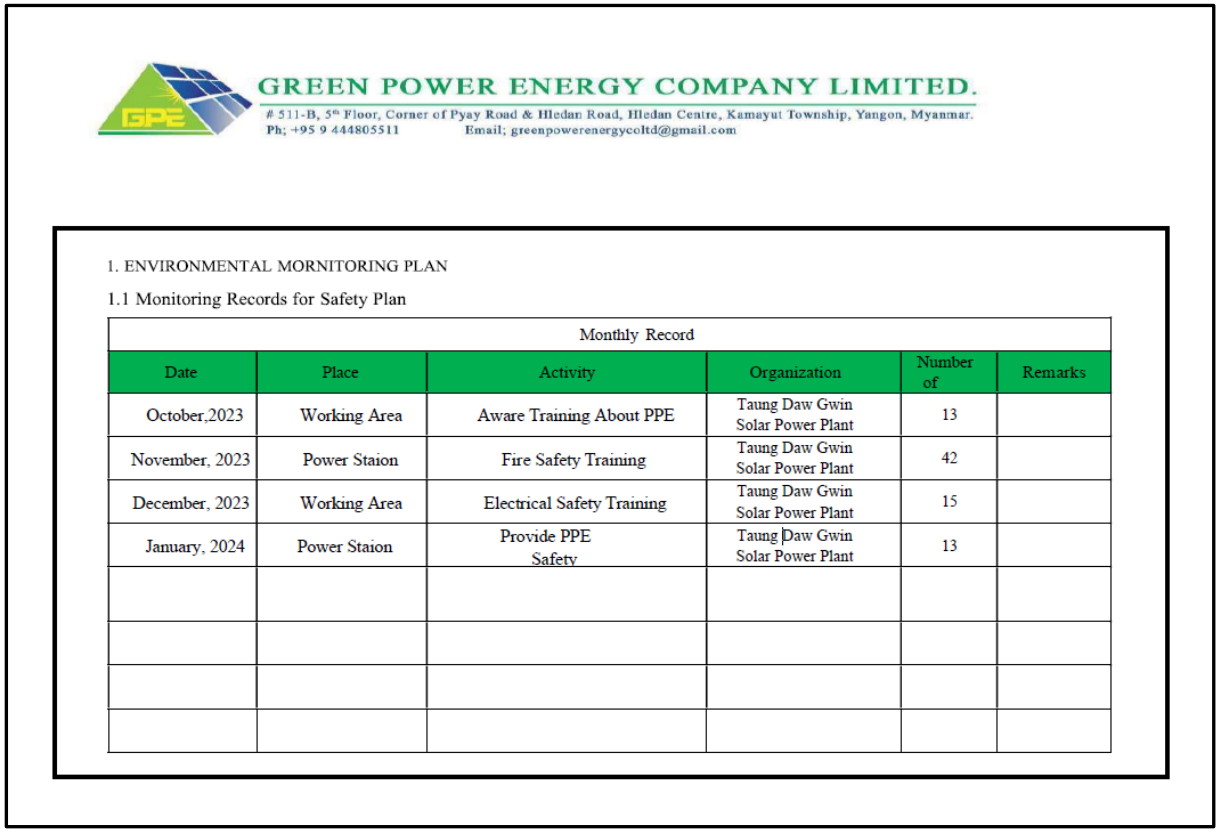
Figure 2.5.3: On-site Water Quality Measuring of Ground Water

Figure 2.5.4: Water Quality Sampling of Ground Water

Figure 2.5.5: Water Quality Sampling of Waste Water

3. ENVIRONMENTAL MONITORING PLAN

3.1 Monitoring records for Safety Plan



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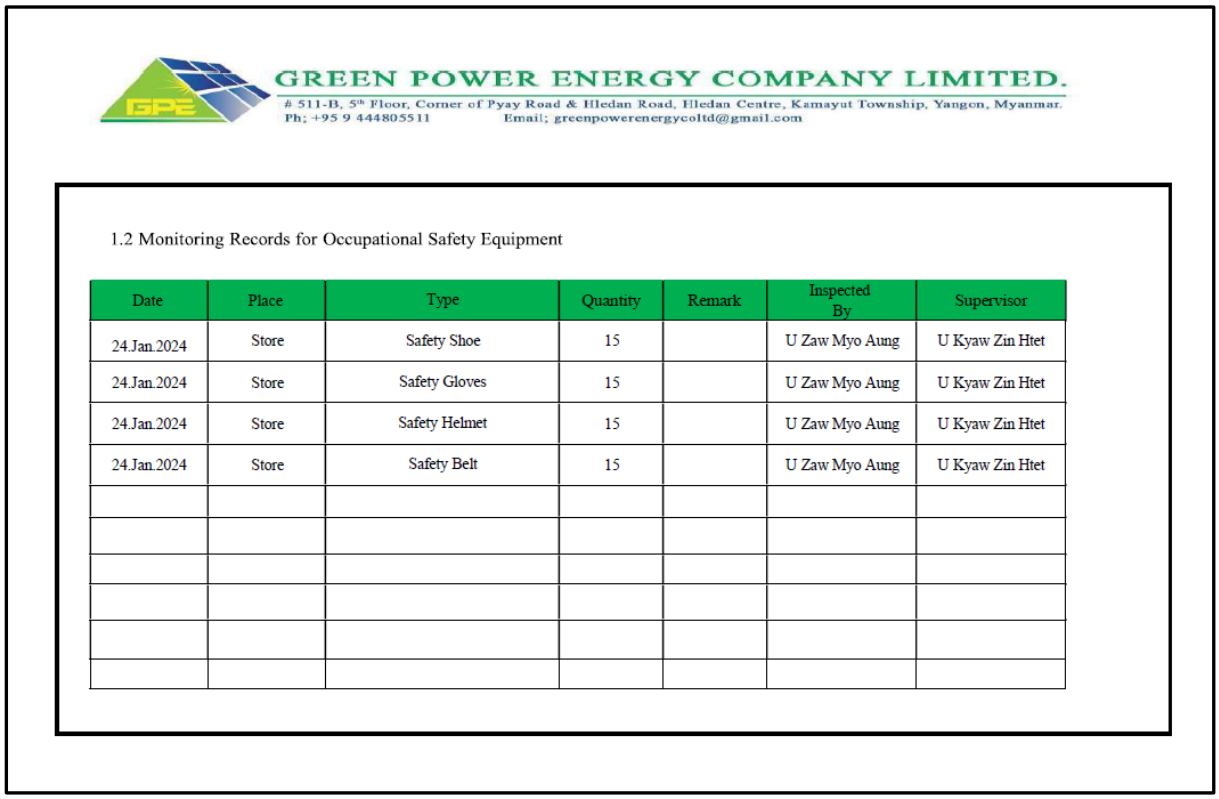
1. ENVIRONMENTAL MORNITORING PLAN

1.1 Monitoring Records for Safety Plan

Monthly Record					
Date	Place	Activity	Organization	Number of	Remarks
October,2023	Working Area	Aware Training About PPE	Taung Daw Gwin Solar Power Plant	13	
November, 2023	Power Staion	Fire Safety Training	Taung Daw Gwin Solar Power Plant	42	
December, 2023	Working Area	Electrical Safety Training	Taung Daw Gwin Solar Power Plant	15	
January, 2024	Power Staion	Provide PPE Safety	Taung Daw Gwin Solar Power Plant	13	



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1.2 Monitoring Records for Occupational Safety Equipment

Date	Place	Type	Quantity	Remark	Inspected By	Supervisor
24.Jan.2024	Store	Safety Shoe	15		U Zaw Myo Aung	U Kyaw Zin Htet
24.Jan.2024	Store	Safety Gloves	15		U Zaw Myo Aung	U Kyaw Zin Htet
24.Jan.2024	Store	Safety Helmet	15		U Zaw Myo Aung	U Kyaw Zin Htet
24.Jan.2024	Store	Safety Belt	15		U Zaw Myo Aung	U Kyaw Zin Htet

Records of Health and Safety Plan Activities

Emergency Contact List Attached in the Project Site

အရေးပေါ်အခြေအနေတုံ့ပြန်မှု အစီအစဉ်

စီမံကိန်းလုပ်ငန်းအတွင်းမှ အရေးကြီး ဆက်သွယ်ရမည့် ဖုန်းနံပါတ်များ		
အမည်	ရာထူး	ဖုန်းနံပါတ်
ဦးကျော်ဇင်ထက်	စက်ရုံမှူး	09 259 201 955
ဦးဇော်မိုးအောင်	ဒု-စက်ရုံမှူး	09 777 858 349
ဦးမိုးမင်းမြတ်	လုပ်ငန်းခွင်အန္တရာယ်ကင်းရှင်းရေးအရာရှိ	09 792 707 988
ဦးနေမင်းထွန်း	ကြီးကြပ်ရေးမှူး	09 449 872 330
ဦးကောင်းမြတ်သူ	ရှေးဦးသူနာပြု	09 674 685 343
ဦးစိုးမင်းဟိန်း	အရေးပေါ်အခြေအနေ ထိန်းချုပ်ရေးမှူး	09 689279663

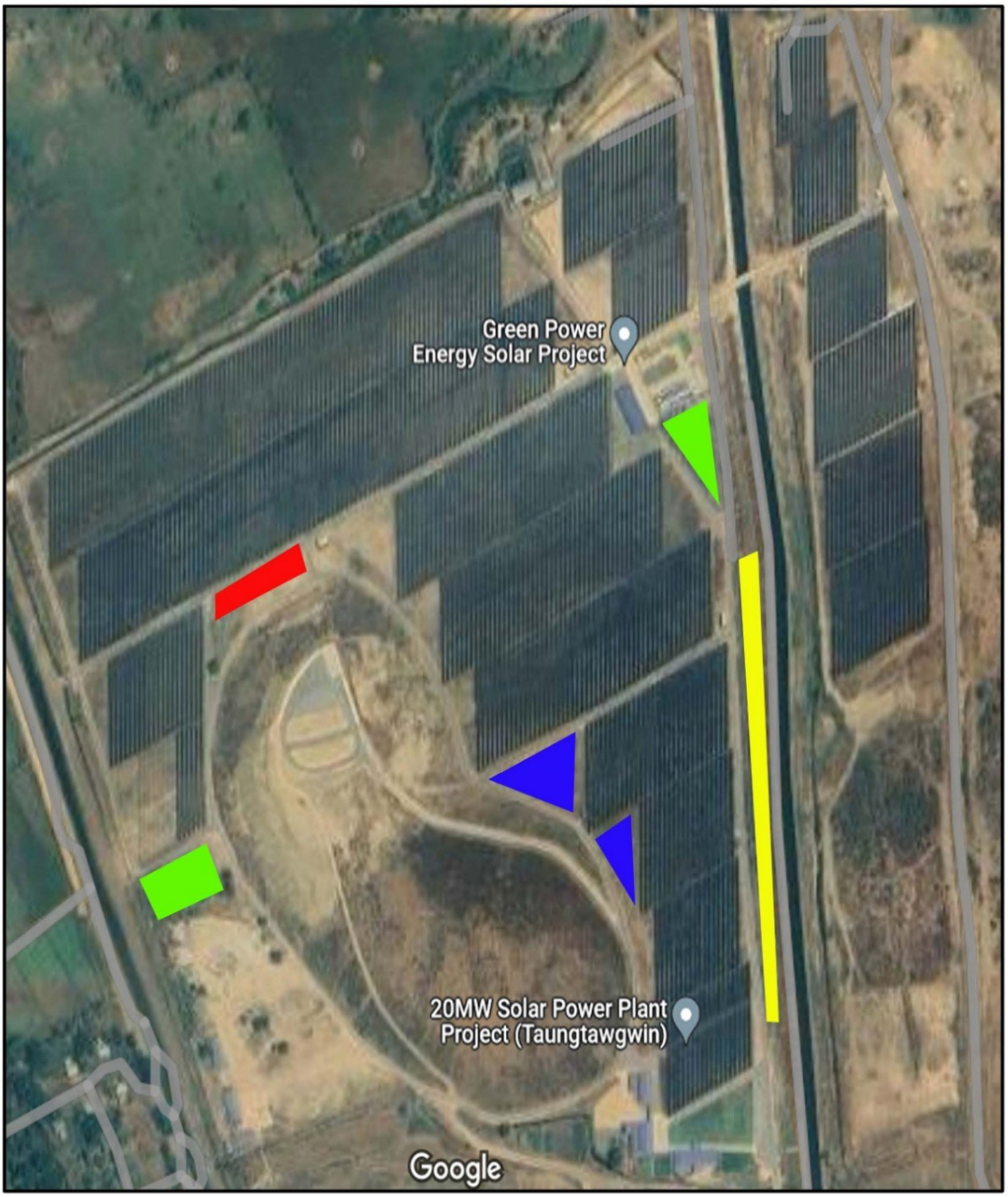
အရေးကြီး ဆက်သွယ်ရမည့် ဒေသတွင်းဖုန်းနံပါတ်များ		
အမည်(ဌာန)	အကြောင်းအရာ	ဖုန်းနံပါတ်
မြို့နယ်မီးသတ်ဌာန	မီးလောင်ခြင်းအတွက်	09 267 780 853
ဟိုက်နယ်ရဲစခန်း	လုံမြုံမှုရေးကိစ္စများအတွက်	09 757 757 042
အနီးဆုံးဆေးခန်း (သံရွာ/အာရောဂျံ)	ထိခိုက်ဒဏ်ရာရသူများအတွက်	09 780 573 818
အနီးဆုံးဆေးရုံ (သံရွာ)	ထိခိုက်ဒဏ်ရာရသူများအတွက်	09 421 209 833
မြို့နယ်လျှပ်စစ်ဌာန	လျှပ်စစ်မီးကိစ္စ	09 661 906 744
မြို့နယ်အထွေထွေ အုပ်ချုပ်ရေးဌာန	အထွေထွေ အုပ်ချုပ်ရေးကိစ္စ	

Fire Extinguisher Check List

No	Date	Description	Location	Number	Unit	Remarks
1	03/01/2024	Fire Extinguisher (50Kg)	Power Station	2	Nos	
2	03/01/2024	Fire Extinguisher (10Kg)	Power Station	3	Nos	
3	03/01/2024	Fire Extinguisher (10Kg)	Briefing Hall	3	Nos	
4	03/01/2024	Fire Extinguisher (10Kg)	Office	2	Nos	
5	03/01/2024	Fire Extinguisher (5Kg)	6Unit (1)	3	Nos	
6	03/01/2024	Fire Extinguisher (5Kg)	6Unit (2)	3	Nos	
7	03/01/2024	Fire Extinguisher (5Kg)	6Unit (3)	3	Nos	
8	03/01/2024	Fire Extinguisher (5Kg)	6Unit (4)	3	Nos	
9	03/01/2024	Fire Extinguisher (5Kg)	Staff Housing	3	Nos	
10	03/01/2024	Fire Extinguisher (5Kg)	Store	3	Nos	
11	03/01/2024	Fire Extinguisher (5Kg)	Messing	3	Nos	
12	03/01/2024	Fire Extinguisher (10Kg)	Kitchen Room	2	Nos	
13	03/01/2024	Fire Extinguisher (5Kg)	Main Gate	1	Nos	
14	03/01/2024	Fire Extinguisher (5Kg)	Gate (1)	1	Nos	
15	03/01/2024	Fire Extinguisher (5Kg)	Gate (2)	1	Nos	
16	03/01/2024	Fire Extinguisher (5Kg)	On Hill Gate	1	Nos	
17	03/01/2024	Fire Extinguisher (5Kg)	Tower	1	Nos	
18	03/01/2024	Fire Extinguisher (10Kg)	Box X'mer (1)	3	Nos	
19	03/01/2024	Fire Extinguisher (10Kg)	Box X'mer (2)	3	Nos	
20	03/01/2024	Fire Extinguisher (10Kg)	Box X'mer (3)	3	Nos	
21	03/01/2024	Fire Extinguisher (10Kg)	Box X'mer (4)	3	Nos	
	Total			**50**	**Nos**	

4. Environmental Monitoring Record for Reforestation (Plantation)

စီမံကိန်းကြောင့် ပျက်စီးသွားသောနေရာများတွင် ဒေသနှင့်ကိုက်ညီသော သစ်ပင်များစိုက်ပျိုးထားခြင်း မြေပုံ



	စပျစ်စိုက်ခင်း အပင်(၄၀၀)		သရက်ပင်စိုက်ခင် အပင် (၃၀)
	နဂါးမောက်စိုက်ခင်း အပင် (၁၁၀၀)		
	သဘော်သီးပင်စိုက်ခင်း အပင် (၃၀၀)		

5. Records for CSR activities

2. Records for CSR activities

Date	Place	Type	Amount (MMK)/Activites	Received By
October,2022	တောင်တော်တောင်	တောင်တော်ဘုရားလမ်း အသစ်ဖောက်လုပ်ခြင်း		
November,2022	သံရွာဆေးရုံ	Renovated Civil & Electrical Work in Thanywa Hospital		
December,2022	သံရွာဆေးရုံ	ဆေးဝါးလှူတန်းခြင်း		
January,2023	တောင်တော်တောင်	တောင်တော်တောင်တက်လမ်းသို့ မီးကြိုးသွယ်တန်းပေးခြင်း		
October,2023	ကျောက်ဆည်မြို့	ကျောက်ဆည်မြို့ဆင်အကအလှပြုံင်ပွဲလှူတန်းခြင်း		
November,2023	သံရွာဆေးရုံ	ဆေးပစ္စည်းမျိုးစုံနှင့်မြွေဆိပ်ဖြေဆေး(၄၄)လုံး		
Decmber,2023	GPE Company	အနီးနားပတ်ဝန်းကျင်ရှိကျေးရွာလူကြီးများကို မုန့်ဟင်းခါးကျွေးမွေးလှူတန်းခြင်း		
January,2023	အမှတ်(၂)	အမှတ်(၂) မူလတန်းကျောင်းသို့ ကျောင်းစုံညီပွဲတော်အတွက်ရုံပုံငွေလှူတန်းခြင်း		
January,2023	အမှတ်(၄)	အမှတ်(၄) မူလတန်းကျောင်းသို့ ကျောင်းစုံညီပွဲတော်အတွက်ရုံပုံငွေလှူတန်းခြင်း		

Photo Records of CSR Activities

6. Records for GRM

3. Monitoring Records for GRM

Monthly Record					
Date	Place	Activity	Organization or Individual	Action Plan	Recorded by
September, 2023	Office	-	-	-	U Kyaw Zin Htet
October, 2023	Office	-	-	-	U Kyaw Zin Htet
November, 2023	Office	-	-	-	U Kyaw Zin Htet
December, 2023	Office	-	-	-	U Kyaw Zin Htet
January, 2024	Office	-	-	-	U Kyaw Zin Htet
February, 2024	Office	-	-	-	U Kyaw Zin Htet

GRM Organization of Taungdawgwin Solar Power Project Site

မကျေလည်မှုများ ဖြေရှင်းရေး ကော်မတီ			
စဉ်	အမည်	တာဝန်	ဌာန
၁	ဦးကျော်စိုး	ဥက္ကဋ္ဌ	ဝါတပ်
၂	ဦးဇော်မျိုးအောင်	အတွင်းရေးမှူး	GPE Co., Ltd
၃	ဦးရွှေမန်း	အဖွဲ့ဝင် (၁)	မြစ်သားမြို့နယ်၊ လွန်ကျော် အမှတ်(၃)
၄	ဦးအောင်ကြည်	အဖွဲ့ဝင် (၂)	မြစ်သားမြို့နယ်၊ လွန်ကျော် အမှတ်(၃)
၅	ဦးမျိုးညွှန့်	အဖွဲ့ဝင် (၃)	GPE Co., Ltd

7. Records for waste disposal

GREEN POWER ENERGY COMPANY LIMITED.

511-B, 5th Floor, Corner of Pyay Road & Hledan Road, Hledan Centre, Kamayut Township, Yangon, Myanmar.
Ph; +95 9 444805511 Email; greenpowerenergycoltd@gmail.com

4. Records for Waste Disposal

Date	Place	Type	Amount	Inspected By
15.Oct.2023	ဝန်ထမ်းလိုင်းများ / ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	58 Kg	U Zaw Myo Aung
31.Oct.2023	ဝန်ထမ်းလိုင်းများ /ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	40 Kg	U Zaw Myo Aung
15.Nov.2023	ဝန်ထမ်းလိုင်းများ /ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	53 Kg	U Zaw Myo Aung
30.Nov.2023	ဝန်ထမ်းလိုင်းများ /ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	50 Kg	U Zaw Myo Aung
15.Dec.2023	ဝန်ထမ်းလိုင်းများ /ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	47 Kg	U Zaw Myo Aung
31.Dec.2023	ဝန်ထမ်းလိုင်းများ / ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	45 Kg	U Zaw Myo Aung
15.Jan.2024	ဝန်ထမ်းလိုင်းများ / ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	52 Kg	U Zaw Myo Aung
31.Jan.2024	ဝန်ထမ်းလိုင်းများ / ရုံး	အမှိုက်စို / အမှိုက်ခြောက်	49 Kg	U Zaw Myo Aung

Records for waste disposal


အမှိုက်ပြောက်
FIRE PROHIBITED


အမှိုက်ပြောက်
FIRE PROHIBITED
အမှိုက်ပုံ

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	: Taungdawgwin Solar Power Project
2	Location	: Myit Thar Township
3	Type of Sample	: Ground Water
4	Sample No.	: 00128/2024
5	Contact Person	: Ko Wunna Zaw
6	Phone No.	: 09-797005180
7	Date Received	: 25.01.2024
8	Date of Test Performed	: 27.01.2024
9	Date of Issued	: 01.02.2024
10	Result	:

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Oil and Grease	8	mg/L	NA	[a] 5520D, Soxhlet Extraction Method
2	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.

Tested By
Name : WYNE EI MON
Position : Laboratory Technician
Signature :.....

Approved By
Name : KYAWT KYAWT YIN
Position : Technical Consultant Manager
Signature :.....

Myanmar Innovation Group 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	: Taungdawgwin Solar Power Project
2	Location	: Myit Thar Township
3	Type of Sample	: Surface Water
4	Sample No.	: 00127/2024
5	Contact Person	: Ko Wunna Zaw
6	Phone No.	: 09-797005180
7	Date Received	: 25.01.2024
8	Date of Test Performed	: 29.01.2024
9	Date of Issued	: 01.02.2024
10	Result	:

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Oil and Grease	1	mg/L	NA	[a] 5520D, Soxhlet Extraction 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 :.....

Approved By
Name : KYAWT KYAWT YIN
Position : Technical Consultant Manager
Signature :.....

Myanmar Innovation Group Co., Ltd. PRO LAB

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 : Taungdawgwin Solar Power Project
2 Location : Myint Thar Township
3 Type of Sample : Waste Water
4 Sample No. : 00129/2024
5 Contact Person : Ko Wunna Zaw
6 Phone No. : 09-797005180
7 Date Received : 25.01.2024
8 Date of Test Performed : 27.01.2024
9 Date of Issued : 01.02.2024
10 Result :

No.	Parameter	Result	Unit	WHO STD 2018	Method
1	Oil and Grease	7	mg/L	-	[a] 5520D, Soxhlet Extraction Method
2	Total Coliform	24×10^3	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 : KYAWT KYAWT YIN
Position : Technical Consultant Manager
Signature :.....

Myanmar Innovation Group Co., Ltd. PRO LAB

LAB-FO-024-00

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/0036/2024

Date: 5-2-2024

ANALYTICAL TEST REPORT

Project Name: Taungdawgwin Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 – 11-1	Sampling Location	Myetthar Township
Sample number	1	Sampling Date	-
Sample type	Ground Water (GW)	Sample received date	25 – 1 - 2024
Comments			

Parameter	Result	Unit	Method reference	Instruments
pH	7.77	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Biological Oxygen Demand (BOD)	0.38	*mg/L*	Potetiometric	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	6.10	*mg/L*	Titrimetric	Titrator
Total Phosphorus	7	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Suspended Solid	8	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®
Total Nitrigen	2.10	mg/L	Kjeldahl Method	Kjeldahl Digestion and Distillation Unit
Potassium (K)	44.65	mg/L	ISO 14911:1998	Ion Chromatography (Thermo Scientific, DIONEX AQUION

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/0037/2024

Date: 5-2-2024

ANALYTICAL TEST REPORT

Project Name: Taungdawgwin Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 – 11-2	Sampling Location	Myetthar Township
Sample number	1	Sampling Date	-
Sample type	Waste Water (WW)	Sample received date	25 – 1 - 2024
Comments			

Parameter	Result	Unit	Method reference	Instruments
pH	7.79	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Biological Oxygen Demand (BOD)	5.59	*mg/L*	Potetiometric	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	36.80	*mg/L*	Titrimetric	Titrator
Total Phosphorus	99.36	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Suspended Solid	31	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®
Total Nitrigen	4.31	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

Approve

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/0038/2024

Date: 5-2-2024

ANALYTICAL TEST REPORT

Project Name: Taungdawgwin Solar Power Project

Customer Address : U Aung Moe Oo

Assignment number	WQL/2024 – 11-3	Sampling Location	Myetthar Township
Sample number	1	Sampling Date	-
Sample type	Surface Water (SW)	Sample received date	25 – 1 - 2024
Comments			

Parameter	Result	Unit	Method reference	Instruments
pH	8.13	-	ISO 10523:2008	ManTech Robot (PC-1300-475E)
Biological Oxygen Demand (BOD)	1.31	*mg/L*	Potetiometric	YSI Pro DO Tester
Chemical Oxygen Demand (COD)	15.20	*mg/L*	Titrimetric	Titrator
Total Phosphorus	4.60	ug/L	NS 4725	SFA(SKALAR SAN plus Analyzer) SA 3000/5000,SA 1100
Total Suspended Solid	5	mg/L	Potentiometric	TDS & EC meter (hold) PROZOR®
Total Nitrigen	2.33	mg/L	Kjeldahl Method	Kjeldahl Digestion and Distillation Unit
Potassium (K)	23.41	mg/L	ISO 14911:1998	Ion Chromatography (Thermo Scientific, DIONEX AQUION

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

Tested by

Signature :

Name : Dr. Thida Cho
Assistant Research Officer

Appro

Signature

Name : Dr. Thida Swe
Assistant Research Officer