




Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Regional Office No. VIII
DENR 8 Compound, Brgy. 2, Jones Extension, Tacloban City
Tel No: (053) 832-1088 / (053) 832-2319
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March 8, 2022
Vanessa Carlos
Mall Operations Manager
Robinsons Place, Marasbaras
Tacloban City

ENVIRONMENTAL MANAGEMENT BUREAU
RELEASED BY: 
DATE: 3/10/2022
TIME: 8:55am

Subject: **Letter of intent for the Adopt a Continuous Ambient Air Monitoring Station (CAAQMS) Program**

We are providing this letter of intent from **DENR-Environmental Management Bureau Region VIII** in respect to the **"Continuous Ambient Air Quality Monitoring Station (CAAQMS) Program"** with **Tadchem Marketing Company** as the third party. We appreciate the time and energy of your office in discussing this opportunity and the information that has been provided thus far.


As mentioned, the existing Air Quality Monitoring Station located in your area will be upgraded that would feature real-time data monitoring result. Likewise, we considered that it will not only bring unique value to your company but also to raise awareness regarding RA 8749 "Clean Air Act of 1999" to the public.

Also, as agreed during the meeting last February 28, 2022, the electricity and internet installation and usage will be charged to the third party.

Herewith, we are submitting to you the inception report and other details of the proposed project.

For your information and approval.

Sincerely yours,


ENGR. REYNALDO B. BARRA
OIC-Regional Director



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TADCHEM MARKETING



GOODS & SERVICES FOR THE OPERATION OF A CONTINUOUS AIR QUALITY MONITORING STATION

(Project Inception Report)

Contract No.: EMB-NNP-GOODS-01-2021

**TADCHEM MARKETING****OPERATION OF A CONTINUOUS AIR
QUALITY MONITORING STATION****TDC 082 - 21.09**Rev.
0Rev. Date:
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Name of Client : **ENVIRONMENTAL MANAGEMENT BUREAU REGION VIII
Department of Environment and Natural Resources**

Address : DENR 8 Compound, Jones Extension
Barangay 2, Tacloban City

Contract No. : **EMB - NNP - GOODS - 01 - 2021**

Project Description : **Goods & Services for the Operation of a Continuous Air
Quality Monitoring Station**

Subject : **Project Inception Report**

Date of Site Inspection : 29 September 2021

Attendance : DENR-EMB Region 8 Representative:
1) Mr. Arnel L. Ife
Sr. Environmental Management Specialist
2) Mr. Xavier R. Lubiano
Environmental Management Specialist I

Tadchem Marketing Representative:
1) Eugenio N. Balisacan
Sales Manager

Project Background:

The Environmental Management Bureau through EMB Regional Office 8 intends to engage the services of a service provider with the necessary expertise, experience, and capacity to supply, deliver, install, operate, calibrate, and maintain a Continuous Air Quality Monitoring System (CAQMS) for the purpose of providing the Bureau with real-time raw and processed Air Quality Monitoring Data for Particulate Matter (PM₁₀ and PM_{2.5}) and Meteorological Data (Ambient Temperature, Barometric Pressure, Relative Humidity, Wind Speed, Wind Direction, Precipitation, and Global Radiation).

The Environmental Management Bureau Region 8 awarded to Tadchem Marketing the contract for the Procurement of Goods & Services for the Operation of a Continuous Air Quality Monitoring Station after the conduct of a Negotiated Procurement, after two consecutive failed biddings, pursuant to Section 53.1 of the Revised Implementing Rules and Regulations of R.A. No. 9184.

The project coordination meeting was conducted at DENR-EMB Region 8 office and attended by EMB Region 8 representatives - Mr. Arnel L. Ife and Mr. Xavier R. Lubiano, and Mr. Eugenio N. Balisacan.

Project site inspection was conducted after wrap-up of the project coordination meeting.

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Project Coordination:

As the technical specifications of the CAQMS is the responsibility of the EMB, Tadchem Marketing proposed and discussed for approval the following:

- 1) ENVEA Model MP101M+OPM particulate monitor for the measurement/monitoring of particulate matter (PM), PM₁₀ and PM_{2.5}.
- 2) Met One Instruments meteorological sensors especially designed for monitoring ambient meteorological conditions.
- 3) ENVEA eSAM Environmental Data Acquisition System with XR® Air Quality Monitoring software.
- 4) Identification of the location of the shelter
- 5) Design and specifications of the shelter for the CAMS
- 6) Operational expenses for the power supply requirement and internet services of the CAMS shall be the responsibility of Tadchem Marketing.

Air Quality Monitoring System (AQMS):

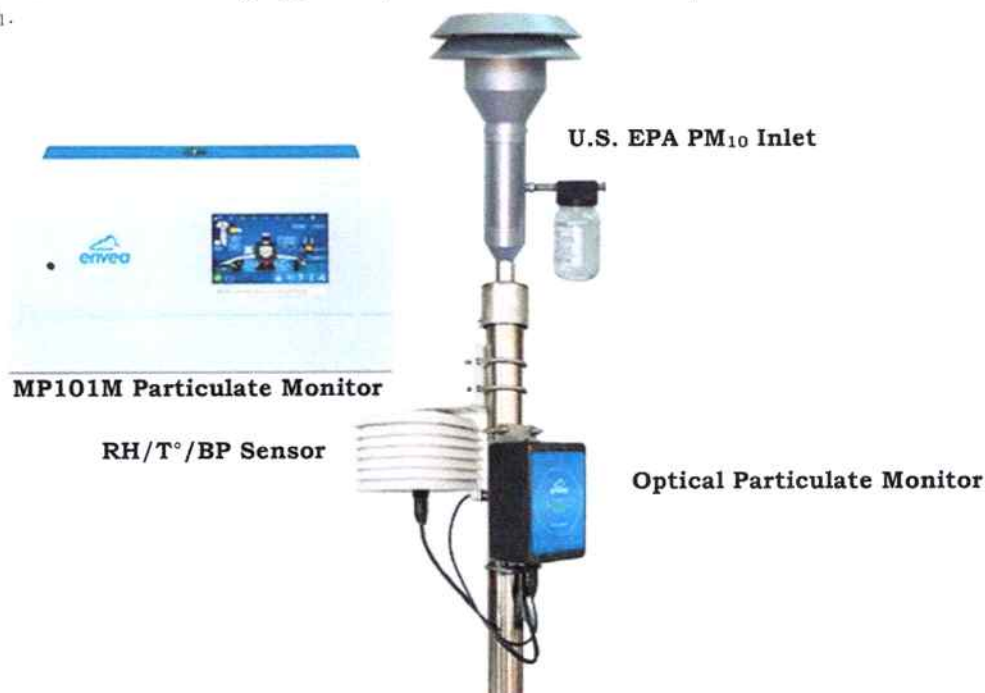
1) Particulate Monitor for the monitoring of Particulate Matter (PM), PM₁₀ and PM_{2.5}.

The ENVEA Model MP101M with OPM option shall be used for the monitoring of particulate matter (PM), PM₁₀ and PM_{2.5}.

The MP101M beta attenuation instrument is compliant with EN16450 for PM₁₀ European Standards, QAL1 certified by the TÜV, and approved as Federal Automated Equivalent Method (FEM) with designation number EQPM-0404-151.

The Optical Particulate Monitor (OPM) principle is based on the measurement of the light scattered by the particles. A powerful algorithm is applied to continuously convert the signal into mass concentration.

The combination of both technologies – beta attenuation measurement technique and light scattering technique, provides simultaneously approved particulate measurement plus real-time indication of PM₁₀, PM_{2.5} and PM₁.



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2) Meteorological/Weather sensors for the monitoring of Ambient Temperature, Barometric Pressure, Relative Humidity, Wind Speed, Wind Direction, Precipitation, and Solar Radiation.

Tadchem Marketing shall install Met One Instruments, Inc. meteorological sensors for the measurement of wind speed, wind direction, ambient temperature, barometric pressure, relative humidity, precipitation/rainfall, and solar radiation.

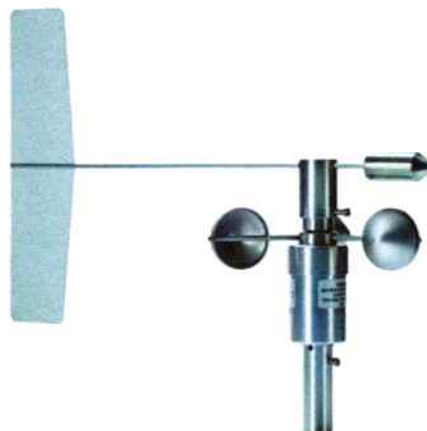
The **Met One** meteorological/weather station is specifically designed for monitoring ambient meteorological conditions. The meteorological/weather station includes high quality meteorological sensors, all required signal cables and mounting hardware, meteorological tripod/tower, and a data acquisition system or signal translator.

The **Met One** meteorological/weather station is designed for the measurement of the following:

- Wind Speed
- Wind Direction
- Ambient Temperature
- Relative Humidity
- Barometric Pressure
- Rainfall (Precipitation)
- Solar Radiation



**AMBIENT TEMPERATURE/RELATIVE HUMIDITY/
BAROMETRIC PRESSURE COMBO-SENSOR**



WIND SPEED/DIRECTION SENSOR



**SOLAR RADIATION SENSOR
(PYRANOMETER)**



PRECIPITATION/RAIN GAUGE

3) Data Acquisition and Handling System (DAHS)

Tadchem Marketing shall install a Data Acquisition and Handling System (DAHS) of the Continuous Air Quality Monitoring System (CAMS) and shall comply with the interconnection and data transfer requirement of EMB Region 8:

- The networking computer/server shall be located at the EMB Region 8 office.
- The data from the CAMS shall be transmitted real-time to EMB Region 8 computer/server.
- The computer/server shall be able to interconnect with the existing DAHS of EMB Central Office for the data transfer.
- The networking system shall be complete with a monitor in which air quality data can be viewed real-time.
- Remote access shall be provided to two (2) authorized personnel of the Air Monitoring Section.

Typical DAHS Set-up:





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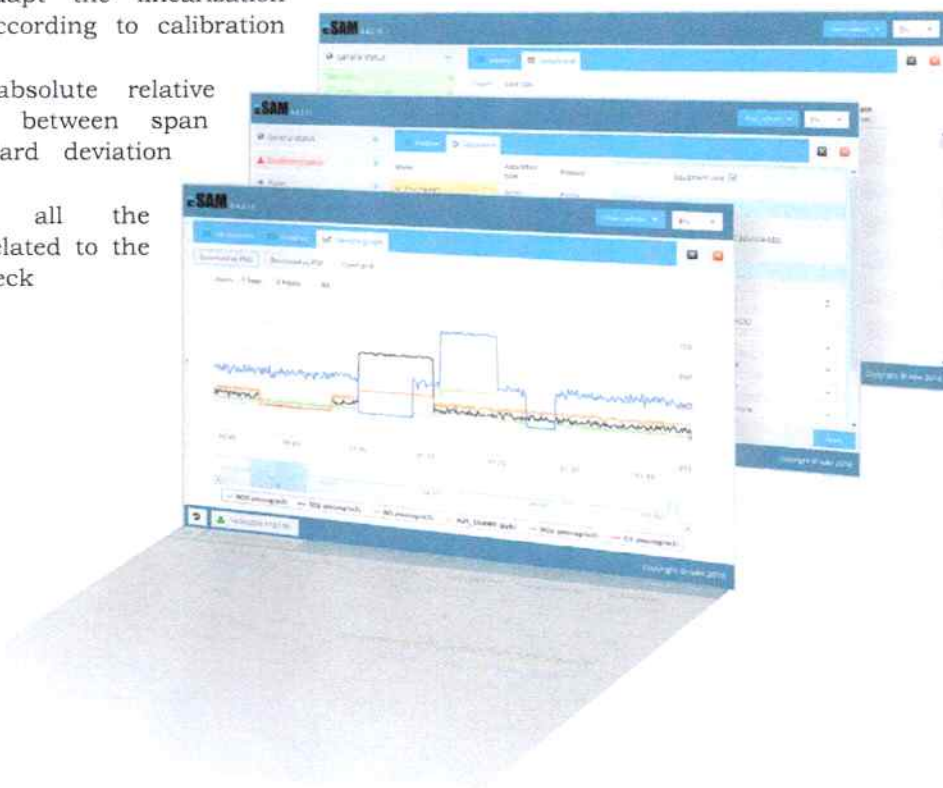
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eSAM – Environmental Data Acquisition System:

eSAM is a software that allows the continuous acquisition of data from various measurement equipment such as samplers, analyzers, micro-sensors, weather and noise sensors.

Environmental Data Acquisition System eSAM Technical Features:

- 1) Data Acquisition
 - Acquisition of instantaneous measurements at a configurable frequency ranging from 5 seconds to 24 hours.
 - Management of the metrological context: analyzers' parameters and internal failures, technical measurements, external signals (door opened, flow, etc.)
 - Real-time data display via web interface.
- 2) Data Qualification
 - Data pre-validation according to the metrological contest before sending to XR software.
- 3) Communication
 - Various communication modes: landline, GSM, IP, GPRS, Modbus, MQTT, IoT
 - Remote access
 - Bi-directional communication
 - Automatic polling at user-defined intervals
- 4) Calibration Management
 - Automatic management of calibration sessions
 - Ability to adapt the linearization parameters according to calibration results
 - Control of absolute relative drifts, drifts between span points, standard deviation rifts
 - Storage of all the information related to the calibration-check



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XR® Air Quality Monitoring Software:

XR is a software suite for the continuous management, control and monitoring of a network of fixed or mobile stations measuring air quality using various measuring instruments.



Environmental Data Acquisition and Processing Features:



- 1) Data Acquisition
 - Data acquisition from analyzers and other devices via digital or analog inputs
 - Calculations (scaling, adjustment, linearization, normalization); aggregation of the resulting data on various time period to determine averages
 - Management of failures, thresholds overruns and alarms
- 2) Communication
 - Automatic sending of an email, SMS, fac, etc. on failures or thresholds overruns
 - Communication management between the software and the data acquisition systems
 - Assignment of a quality code for raw and mean data (e.g. maintenance, calibration, drift, alert, failures....)
- 3) Supervision
 - System status display (failures, alarms, thresholds, overruns)
 - Multi-window display (slideshow)
 - Data display: raw, means, trends....
 - Supervision of configured parameters, remote monitoring of analyzers
 - Real-time data follow-up, interactive set-up, calibration and automatic results monitoring, remote testing
- 4) Data Validation (Manual/Automatic)
 - Tables and/or charts data display
 - Several validation levels with different level rights and logging
 - Actions traceability (data validation, invalidation, adjustment)
 - Quality codes for the data (maintenance, calibration, drift, alerts, failures....)
 - Automatic statistical analysis on previous pollution episode
 - Automatic data validation in real time
 - Set of customizable data validation rules
 - Back-up of the automatically validated data until final inspection
 - Traceability of the automatically validated actions
- 5) Report Management
 - Import of laboratory data, automatic or manual data export in various file formats: Excel, XML, HTML, PDF, CSV...
 - Automatic edition of compliant and customized reports according to local authorities' requirements
- 6) System Management and Security
 - Database: size control, automatic back-up, data archiving, cleaning, and restoring
 - Detailed management of access rights for different user profiles, system log-on via identification
 - Logging of any actions either carried out by the users or automatically operated by the software
 - Automatic UPS management in case of power failure
 - Reporting on system operations (failures, communication status, etc.)
- 7) Quality Assurance and Quality Control
 - Control charts management
 - Automatic management of calibration charts, analysis, and results checking
 - Three different control charts available simultaneously and automatically for each analyzer
 - Graphical display of monitor calibrations and historical data



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4) Shelter Location/Site

The AQMS site shall be at Robinsons Place Mall, Tabuan National Highway, Marasbaras, Tacloban City. The AQMS shall be installed at a corner portion of the carpark front of the mall and near the exit.



Existing particulate monitoring station shall be replaced with an AQMS.

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PROPOSED LOCATION OF AQMS



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5) AQMS Shelter

The Air Quality Monitoring System shelter shall have the minimum specifications as follows:

- a) Shelter Dimension:
 - i. Length – 6 Feet
 - ii. Width – 6 Feet
 - iii. Height – 7 Feet
- b) Material of Construction:
 - i. Roof and Flooring – Stainless Steel Checkered Plate
 - ii. Wall – Double Wall Aluminum Cladding with Insulation
 - iii. Door – Stainless Steel
 - iv. Roof Guard Rail – Stainless Steel Tube
 - v. Ladder – Stainless Steel
 - vi. Climate Control – 2 units 1.0 HP Air Conditioning Unit with Mechanical Timer

Typical AQMS Shelter:



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Proposed AQMS Shelter

**Shelter Decal to be Provided
by EMB Region 8**



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AQMS Shelter:



Prepared by:

[Signature]
**Technical/Project Team
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