

Case Study

Thai Government Agency Uses Mobile Monitoring System to Accurately Track Air Pollution

The Department of Industrial Works (DIW), a division in the Thai government, is responsible for ensuring companies comply with environmental protection legislation.



Project

Department of Industrial Works (DIW) Thailand

Location

Thailand

Date

2016

Services

AQM65 compact air quality monitor

Measurements

SO₂, CO, NO₂, NO_x, VOC's and PM₁₀

Sector

Petrochemical



The customer

The Department of Industrial Works (DIW), a division of the Thailand Ministry of Industry, is the Thai government agency responsible for managing corporate industries. Amongst many other activities the DIW is responsible for ensuring companies comply with environmental protection legislation. Annually, the DIW inspects approximately 10,000 factories to ensure they comply with environmental emissions standards and other official legislation.

The problem

Industrial growth has created high levels of air pollution in Thailand especially surrounding large industrial estates. The Map Ta Phut Industrial Estate is a large industrial park located in Rayong Province. It is the country's largest industrial estate and the world's eighth largest petrochemical industrial hub.

In 2009, the development of sixty five new projects in the Map Ta Phut Industrial Estate, worth an estimated US\$8 billion, were suspended due to a ruling from the Supreme Administrative Court. The ruling followed a number of protests and legal actions by local communities and environment groups over the adverse health effects due to pollution from the industrial estate.

The challenge for the DIW was to provide a mobile sensor unit that is able to be deployed rapidly and collect high resolution, accurate air quality data in response to complaints received from the communities surrounding the industrial estate. Real time data is crucial to investigating air quality complaints and assessing the impact of industrial pollution, which detracts from people's quality of life and impacts on Thailand's desirability as a tourist destination.

This is a common problem with air quality networks, where restrictions on site numbers, locations, size, costs, and data resolution may miss the complexity needed to assess the level of commercial compliance or the effectiveness of pollution abatement strategies.



The solution

To meet this need Aeroqual's local distributor Thai Mahal Advance Technology Co. Ltd., worked with the DIW to design a mobile monitoring solution using Aeroqual's AQM 65 ambient air monitoring station. The solution needed to be compact, easy to operate, highly mobile, low cost, low maintenance and able to be installed in a 4x4 vehicle.

The AQM 65 was chosen due to its lower cost compared to conventional technologies. Its modular design meant that it was easily configured to measure primary air quality pollutants. For the DIW project the AQM 65 was configured to continuously measure SO_2 , CO , NO_2 , NO_x , VOC's and PM_{10} . Its lightweight and compact size also meant the AQM 65 was ideal for installation into a monitoring vehicle.



The unit was integrated with an LED display, allowing for real time data analysis. In addition a cellular modem was added so pollution data could be sent directly to the environmental control centre. Thai Mahal Advance Technology Co. Ltd. also equipped the monitoring vehicle with an Aeroqual AirCal8000 Module allowing the DIW to perform in-field calibrations on the AQM 65 ensuring the accuracy of all field measurements.

Evaluation

For quality assurance AQM 65 was initially operated alongside one of the Environmental Research and Training Centre's (ERTC) air quality reference stations. The DIW reported that they were very pleased with the AQM 65 data and that it was comparable to ERTC's mobile reference station.

The DIW now has an air quality monitoring platform that is truly mobile, stable and accurate. They described the AQM 65 unit as very fast to respond to pollutants and an excellent choice for investigating air quality complaints. The mobile response vehicle has also increased the speed at which air quality complaints are investigated and helps to establish the DIW's reputation as an organisation that takes environmental protection seriously.

