



Project

Anable Basin Development Project
Community District 2
Queens, NY

Application

Site Remediation

Scope

Continuous, real-time perimeter air monitoring, downwind and upwind, during the stabilization of a bulkhead containing historic fill.



Equipment and services

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2 x Aeroqual AQS 1 monitors
VOCs / PM₁₀

Consultants

Langan Engineering and
Environmental Services, Inc.

Supplier

Specto Technology

Date

April 2024 - current

Perimeter monitoring during a waterfront stabilization project in Queens

Preparing a work site located on unstable ground

When Langan, one of the world's leading engineering and environmental consulting firms, was recently engaged on a complex waterfront bulkhead stabilization project in Queens, New York, they sought out Aeroqual's real-time monitoring technology.

The bulkhead in question (a structure that helps retain water from coming up onto the surrounding land) was previously built up using concrete headwalls, timbers and fill, which deteriorated and eroded over time. As part of the stabilization process, the waterfront contractor had to remove all the remnant materials and install a temporary access pathway using timber mats to transport excavators and facilitate the stabilization work. The new bulkhead will consist of stone revetment and stone-filled gabion baskets. Langan developed a Soil and Materials Management Plan (SMMP) to control and document any impacts caused by earth-moving activities (e.g., contaminated soil, petroleum sheens on the water surface, dust pollution generated by construction activity).

Perimeter monitoring and early site characterization

As part of executing this plan, Langan consultants installed Aeroqual AQS 1 monitoring systems at upwind and downwind locations. These all-in-one monitors are designed to measure Volatile Organic Compounds (VOCs), dust and airborne particulate matter less than 10 micrometers in diameter (PM₁₀), and weather conditions that could impact site contribution. Exceedance limits for VOCs were set at 5 parts per million (PPM). Dust monitoring limits for PM₁₀ were set at 100 micrograms per cubic meter. Aeroqual AQS 1 systems were placed around the site at the commencement of ground intrusive work and Langan will continue to monitor pollution levels and produce daily reports for the duration of the 7-10 month construction period estimated for stabilization to be completed.

Along with perimeter monitoring of airborne contaminants, Langan screens for contamination in soil using a handheld photoionization detector (PID) and monitors the water's surface for evidence of petroleum sheen emanating from the shoreline. If a sheen is detected, Langan directs the waterfront contractor to install oil-absorbent booms and rearrange turbidity curtains to collect and contain any sheen. Although the waste classification was completed by others, Langan tracks and manifests exported loads of contaminated soil so they are transported to the proper receiving facility. Langan also monitors and tracks all imported fill used for the bulkhead stabilization work, including stone materials and aggregates. Langan will be collecting documentation endpoint samples at the base of excavation prior to installation of the new bulkhead to document remaining soil conditions.

Using Aeroqual software to auto-generate daily reports

The results of both perimeter air monitoring and daily field observations are packaged into a daily field report and shared with the New York State Department of Environmental Conservation (NYSDEC). In these reports, Langan documents soil imports and exports and progress with the stabilization work. Reports also contain Community Air Monitoring Plan (CAMP) data generated by Aeroqual OneView, Aeroqual's connected air monitoring software solution for environmental consultants. Aeroqual OneView generates these daily reports according to selectable regulatory requirements within the software, automating the reporting process and facilitating easy compliance.

"The automated reports generated by Aeroqual OneView are both comprehensive and easy to read, making daily reporting that much easier and allowing more time for other on-site activities. There's not much I would change about them, to be honest", shared **Langan Environmental Scientist, Carli Pireta**

Minimizing alerts through effective dust mitigation

In terms of alerts, Langan is yet to experience a double exceedance (where upwind and downwind contamination is detected) caused by ground intrusive work. This is in part due to strong dust mitigation efforts, including the use of polyethylene sheeting to shield earth piles from the rain and wind, and regular wetting down of areas of exposed soil and dust.

Project outcome

"The Aeroqual system is all-in-one, so rather than having to switch between devices we've got everything we need right there. Other brands we've used in the past also required daily calibration, while the Aeroqual system only needs calibrating every three months. That saves a whole lot of time over the life of a project and the easy calibration, plus the on-demand access to real-time data through the Aeroqual OneView app, provides a much smoother experience."

"I also like that the Aeroqual solution is compact and easy to transport. The batteries are also much lighter than monitoring systems we've used in the past."

By combining the Aeroqual AQS 1 with Aeroqual OneView, Langan was able to monitor site contribution, streamline daily reporting requirements, and execute an effective site monitoring plan.