Navigating Challenges in Site Remediation

Air monitoring success stories from environmental experts

aeroqual

We spoke to a cross-section of experienced environmental consultants, distilling their years of practice into a series of short interviews about some of their most memorable projects.

These consultants are at the forefront of their field, and we'd like to thank them for taking the time to share their experiences. The interviews that follow are packed with interesting findings and unique solutions. Each tells the story of how a creative approach to air monitoring was used to overcome challenging circumstances and deliver a successful project.

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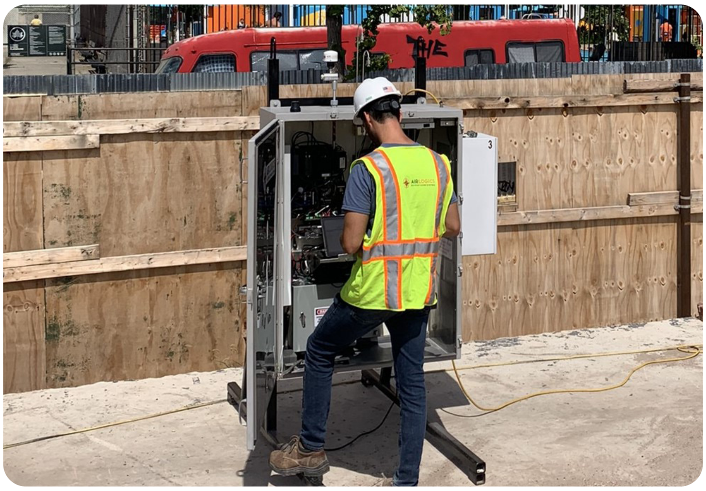
New York Brownfield Redevelopment

Marc Hudock: Operations Manager, AirLogics

1. Hi Marc, could you tell us about a memorable air monitoring project AirLogics has recently worked on?

A recent project that comes to mind is one that involved the remediation of a contaminated site in the New York City. Along with a dense population of sensitive receptors, our client had to prepare to encounter a mix of contaminants in a single particular area, which included our client's own waste and the waste from other neighboring sites. This mixed waste is referred to as "commingled plumes." In addition to the contaminants that they encountered in the subsurface, there were also multiple airborne background sources of contaminants in the neighborhood. Remediating a site with commingled plumes in the subsurface as well as various ambient sources of air pollution, presented a unique set of risk management, especially when it came to performing perimeter air monitoring. It can be difficult to accurately track data, assign responsibility, and respond accordingly. The highest priority for the remediator is to protect the off-site receptors from any off-site migration of emissions through the air, regardless of whose contamination it is. Secondarily, being able to document which contaminants were being detected and where it was coming from was important for managing future liability should anything arise.

It was very important to make sure the right sensors and instrumentation was deployed to meet this challenge. AirLogics built and deployed a highly sophisticated customized real-time perimeter monitoring system that could detect individual VOC compounds and that had the ability to attribute off and on-site contributions. The system included Aeroqual's PID, nephelometer, and communications system, which we married to a new-to-market field gas chromatograph (GC). The system was programmed so that once the PID hits a certain action level, it triggered the field GC, which provides speciation of VOCs. This allowed us to quickly separate VOC mixtures in air, even at lower detection levels. The actionable real-time data enabled the client to respond to an exceedance immediately, which is always one of the goals of any project. In all, we managed to create an elegant solution to a complex problem – and Aeroqual's technology was a key part of that.



"Given the challenging location, presence of commingling plumes, density of sensitive receptors, and a variety of different smelling off-site contaminants, our client wanted to do everything possible to reassure the community and avoid undue blame."

Marc Hudock
AirLogics

2. What regulations did you need to take into account for this project (if any)? How did these regulations affect how you approached the project?

Being a New York project, DER-10 was the big regulatory driver here. For ample cover from a risk management standpoint, we tend to encourage our clients to go above and beyond what is defined in DER-10. In this case, installing a wind station generated real-time updates on shifts in wind direction and speed, which can impact site contribution and response levels. We also recommend more stations than the minimum requirement of two. Given the challenging location, presence of commingling plumes, density of sensitive receptors, and a variety of different smelling off-site contaminants, our client wanted to do everything possible to reassure the community and avoid undue blame.

3. Which contaminants did you measure on this project? Why these contaminants?

Our primary concerns in terms of measuring pollutants were both chlorinated solvents and BTEX benzene, toluene, ethylbenzene, and xylene. Chlorinated solvents are commonly found at dry cleaner locations and other industrial sites. Our client was responsible for the BTEX constituents. We also monitored dust levels, as required by DER-10.

4. Was there anything particularly challenging about this project?

Building custom systems equipped to handle the unique requirements of the site location and getting them deployed on time presented a challenge. Programming the system so that the PID would trigger the GC at the appropriate time was challenging. The Aeroqual components enabled us to more easily meet many of these challenges. We also got a helping hand from another partner, Specto Technology.

We also had to be mindful of appropriately protecting the instruments from theft or vandalism. Initially, there were discussions about installing the units on the sidewalk, which may have created a security issue. In the end, we were able to install the monitoring units right inside the edge of the property (still constituting perimeter monitoring), encased in robust lockable housing, which allowed them to be deployed 24/7 with minimal risk.

5. How did you approach solving project challenges? Are there any interesting air monitoring techniques or approaches you'd like to mention?

From a technology standpoint, building the custom monitoring system is what allowed us to remedy the issue of commingling plumes effectively. Adding the field GC, which was auto triggered by the Aeroqual PID, allowed us to monitor a range of VOCs at the same time. This provided the backbone of what turned out to be an effective monitoring operation. To my knowledge, deploying this type of solution, with two instruments installed in one, and having one trigger the other, is not all that common. Based on results, if we were to encounter a similar problem on any future project, we wouldn't hesitate to deploy the same sort of solution.

6. How did the project location impact monitoring? Were there sensitive receptors close by?

The project took place in a very populous neighborhood of New York City. Everything from public parks to schools, buses, garbage trucks, businesses, restaurants, and more. Even outside of the DER-10 requirements, our client wanted to proceed as responsibly as possible to protect the local community.

7. Are there any other project highlights that come to mind?

Just the level of confidence from all parties throughout the project: the confidence our client had in us, the confidence that the community developed with our client, and the fact the client opted to deploy an above-and-beyond kind of solution.

In addition to protecting themselves from litigation, like any responsible operator, our client generated goodwill in the community by deploying a robust monitoring solution beyond anything they'd likely seen previously. The custom solution provided a lot more data than just a PID, which led to a successful project.

In calculating the point where the PID would trigger the field GC, the action level ended up being a lot higher than we were expecting. Preparing for a lower action level than what was required resulted in the instrument being triggered far less often.

In the past, when it came to changing out carrier gas cartridges on the field GC, we'd be transporting heavy 60-pound cylinders on-site. But with advancements in field GC technology, we were able to use a portable cartridge smaller than a can of soda – a win for both health and safety, and sustainability.

World Trade Center Deconstruction

Gary Hunt:
Vice President & Technical Director Air Sciences, TRC Companies, Inc.

1. Hi Gary, could you tell us about a memorable air monitoring project you've worked on at TRC?

In my 45-year career, including 24 years at TRC, one of the most unique projects I have worked on was air monitoring during the deconstruction of the Deutsche Bank world headquarters in Lower Manhattan. The building itself was damaged in the 9/11 World Trade Center (WTC) disaster, depositing large quantities of dust and debris in the building interior, and rendering it unfit for occupancy.

In 2005, as part of ongoing efforts to clean up the Lower Manhattan area, the decision was made to remove the building, and we were brought in to help ensure this happened as safely as possible. Given the extent of contaminated dust and debris, there was significant concern that removal of the building could impact nearby receptors. Even without the added dust and contaminated particulate, working in a congested downtown area in one of the largest cities in the world also meant you couldn't just demolish the building. It meant taking the building down literally piece-by-piece, and careful removal of the debris for off-site disposal.

It also meant establishing a robust monitoring program around the building for the duration of the removal. This turned out to be a period of about six years, from 2005 through to 2011, with a total budget from start to finish of about $22 million.

2. What regulations did you need to take into account for this project (if any)? How did these regulations affect how you approached the project?

At the time, there weren't a lot of regulations governing air monitoring during the demolition or deconstruction of a building in New York. However, the U.S. EPA was keenly invested, as were we, in making sure dust and contaminants present within the building were not released into the environment. We wrote a fairly detailed Air Monitoring/ Quality Assurance Plan in 2005 that was reviewed and approved by the EPA before work began on the monitoring project itself.

> "Deconstruction of the Deutsche Bank world headquarters in Lower Manhattan, damaged in the 9/11 World Trade Center disaster, meant establishing a robust air monitoring program around the building for the duration of the removal – a period of about six years, with a total budget of about $22 million."
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> **Gary Hunt**
> TRC Companies, Inc.

3. Which contaminants did you measure on this project? Why these contaminants?

We were monitoring a range of pollutants associated with the dust created by the collapse of the World Trade Center. The principal parameter we were focused on was particulate matter – inhalable particulate, $PM_{2.5}$, PM_{10}. We were also looking for other contaminants in the air believed to be contained in the dust created, including asbestos, silica, and a number of heavy metals. In addition, monitoring was also conducted for a number of compounds potentially in the WTC and released on 9/11, including polychlorinated biphenyls (PCBs) and elemental mercury. Lastly, polycyclic aromatic hydrocarbons (PAHs), and dioxins and furans were also monitored, as these organics may have been formed during fires on 9/11 and heat generated in the aftermath including while debris smoldered.

4. What sort of equipment did you use on the project?

For the particulate monitors, we purchased Portable Environmental Beta-Attenuation Mass Monitors (E-BAMS) from a company called MetOne, which we felt was the best technology available at the time to suit our application. With monitors being moved around a fair bit as the building came down, we knew they had to be as portable as possible. Fortunately, we were able to run the monitors off line power and hence avoid the need for cumbersome marine batteries.

To collect samples for organics and metals, which we then sent to a lab in New Jersey, we ran Tisch high-volume samplers, calculating levels as a 24-hour time-weighted average. We collected samples for organics (PAHs and dioxins/furans) on-site using a high-volume sampler fitted with a particulate filter and a sorbent trap. At each location, we had a series of individual monitors, for PM_{10}, one for $PM_{2.5}$, high-volume samplers for metals, PAHs, and dioxins and furans, and then a low-volume sampler for PCBs. For asbestos and silica, we collected samples using National Institute for Occupational Safety and Health (NIOSH) type methods and low-volume samplers. We also had a Lumex analyzer monitoring mercury in real-time, along with sorbent tube samples for total mercury. These samples were analyzed in an off-site laboratory.

In all, it was a pretty sophisticated monitoring program, measuring a range of parameters using a number of different techniques.

5. Was there anything particularly challenging about this project?

Working with U.S. EPA who had direct oversight to ensure the project was completed in accordance with the agreed-upon air monitoring/quality assurance plan meant following a strict set of protocols. If silica levels rose above accepted limits, we had to prepare a detailed report, including corrective actions, and submit it for agency review within one hour of receipt of results. Not all compounds had quite that tight a turnaround but putting that report together within the hour was always a challenge.

If the EPA wasn't comfortable with the corrective action plan, it could initiate work stoppages, delaying the project and adding significant expense for lost labor. In that way, the network was responsible for not only protecting nearby receptors, but also monitoring the performance of the deconstruction project itself, ensuring the project progressed safely without undue delays. Lastly, the project took place amidst the human emotion and political landscape that emerged in the aftermath of the WTC disaster.

6. How did the project location impact monitoring? Were there sensitive receptors close by?

Operating in such a densely populated area meant there were a lot of receptors nearby. On all four sides of the building were people that could potentially be impacted by any release of dust or air toxics. This was not only true at ground level, but also at elevation. Since the deconstruction began at elevation, we had to be conscious of potential receptors at a range of heights as the project moved through stages.

7. How did you approach solving project challenges? Are there any interesting air monitoring techniques or approaches you'd like to mention?

Monitoring at different elevations, as high up as 28 stories right down to ground level, meant regularly moving the monitoring equipment as the building slowly came down. As you remove the upper floors, you have to shift the monitoring equipment to be consistent with the height of the building. This meant installing rooftop monitors off-site at adjacent properties in various wind directions from the site. It was a challenge in itself finding suitable rooftops that met siting criteria for monitoring, locations at the correct elevation where you can get representative data in a congested urban environment. Thankfully, there was goodwill in the community around the project site and neighboring building owners were willing to allow us to place the monitors at elevation as needed.

Another challenge was communicating with the monitoring equipment. Back then, we communicated with the continuous particulate monitors using cell phone modems. That network was in place during the entire project term because we wanted to be able to download the data remotely, without having to go up to elevation to manually retrieve data. Since each 24-hour monitoring day began and ended at midnight, we would download data at midnight. Without remote data access, manual data access was the only other option, and we didn't want to put our people in an unsafe position by sending them up onto scaffolding at that late hour. While remote communication was essential, using cell phone modems in a densely populated city, especially in 2005, was not without difficulty. Now, of course, we could do it all through the cloud.

8. If you were to carry out the same project again, using today's monitoring technology, what sort of equipment would you have used and how might it have made the job easier?

With respect to the particulate monitors, which were the best available at the time, we probably would use smaller, lighter weight monitors now. We'd still have the cyclones in there to define particle size, but the samplers would likely be much more portable, allowing us to move them from location to location more easily. With the high-volume samplers, we'd probably still use something similar to measure things like dioxins and furans, metals, and PAHs.

One area where we'd now have improved sensitivity is in the laboratory where we sent samples for analysis. With enhanced detection limits, we'd now be able to collect smaller volume samples to get the same results.

We've used Aeroqual's Cloud system on a number of our other projects, enabling us to oversee the monitoring network, create reports, and track data in real time. We probably would've used something like that, rather than using cell phone modems to communicate with the monitors, but a comparable product wasn't available then. Today we could set pre-alert levels and automatically notify people by text in the event of an exceedance. Generating reports would also be a lot faster and simpler.

9. Are there any other project highlights that come to mind?

Despite the challenging nature of the project, the overall data capture on the network was quite high. When you combine taking the building down piece-by-piece, the changing monitoring elevation, unpredictable wind conditions, densely populated location, and technological limitations of the era, capturing greater than 90-95% valid data stands out as a highlight.

Even though it technically involved a deconstruction, in another sense this was a remediation project – the site was unfit for use while the contaminated building was present, and restored once it was safely removed. Being able to play our part in the restoration of downtown Manhattan, especially on such a unique and complex project, was immensely rewarding.

Jamaica Bay Redevelopment Project

Greg Wyka: Senior Project Geologist, Langan

1. Hi Greg, could you tell us about a memorable air monitoring project Langan has recently been involved in?

Langan's New York office is responsible for the investigation and clean-up of all kinds of contaminated properties throughout New York City. One project that's been particularly exciting from an air monitoring perspective is the Jamaica Bay Landing redevelopment project, also known as Alafia, in East New York. A former state facility, the land has since been earmarked for a massive affordable housing project spanning 27 acres. The site is being subdivided into multiple development parcels that will be constructed in a phased sequence over many years, probably through to 2030. Once completed, the site will be home to 2,400 apartments, retail space, an urban farm, an outpatient clinic, and a series of public roadways, among other features. It's a massive project that will have a hugely positive impact on the local community.

2. What regulations did you need to consider for this project (if any)? How did these regulations affect how you approached the project?

While nearly all the projects we work on are enrolled in a regulatory program, either through the City or the State of New York, this site is unique. The project itself came to us under the authority of the Empire State Development Corporation (ESD), with assistance from the New York State Division of Homes and Community Renewal (HCR). The air monitoring requirements, typical of sites under the jurisdiction of the City of New York, New York State Department of Environmental Conservation (NYSDEC) and/or New York State Department of Health (NYSDOH), were codified in a Restrictive Declaration that is assigned to the project site.

For this reason, we followed NYSDEC's guidance document for site investigation and remediation (DER-10), which includes Community Air Monitoring Plan (CAMP) protocols. The CAMP requirements are also reflected in our remedial action work plans and construction health and safety work plans, which were reviewed and approved by Empire State Development and HCR before we could start work.

3. How did the project location impact monitoring?

The site is located at a low elevation next to Jamaica Bay to the west of JFK Airport. The site was landfilled with historic fill prior to the development of the former state facility. In New York and other urban areas, historic fill is very common. We don't really know what it's composed of exactly, but there are some measurables we know to look for when we encounter it.

4. Which contaminants did you measure on this project? Why these contaminants?

One thing we do know about historic fill is that it contains heavy metals and polycyclic aromatic hydrocarbons (PAHs). The site was a salt marsh before it was landfilled and underlying the historic fill are natural organic deposits. We discovered the organic deposits under about 10 feet of clean soil that was imported to construct the former state facility. This site history led us to not only sample soil vapor for volatile organic compounds (VOCs) but also for methane, which is a combustible gas and can potentially put buildings and their occupants at risk. Methane was detected in soil vapor at concentrations that warranted mitigation according to ESD and HCR. Because of our investigation findings, methane monitoring was added to the CAMP, in addition to the standard particulate matter (PM_{10}) and VOC monitoring.

5. Was there anything particularly challenging about this project?

We've had a pretty smooth run so far, with zero methane detected. It's not too surprising, given the size of the site and the fact that methane will quickly dissipate into the atmosphere if any is released during construction.

In terms of logistical challenges, we need to arrive before construction begins each day to set up and calibrate equipment. We monitor throughout the day, keeping a close eye out for alerts, and then pack up once the workday is finished. This makes portability and ease of deployment key as we transition to the next phase of development.

6. How did you approach solving project challenges? Are there any interesting air monitoring techniques or approaches you'd like to mention?

For this project, we had to quickly figure out a solution that would enable us to reliably monitor methane levels. What we ended up doing was installing a multi-gas meter in our CAMP enclosures alongside the DustTraks and PIDs, which has worked out well.

We've been using another vendor's devices for the first development phase, but we'll be deploying Aeroqual's systems in the next phase of development. It's a huge win to be able to deploy a compact system on-site, especially one as large as this, with less frequent calibration equipment, lighter external batteries, and Aeroqual's new methane module, all of which will make things a lot easier.

Another interesting solution that will have an impact stems from our first ever project using Aeroqual's monitoring stations. Our team loved the technology and found the stations extremely easy to use in the field, but wanted to find a way to merge this technology with a more streamlined data summary process. We worked with another vendor who would send us a summary sheet of monitoring data that we could plug directly into our daily reports, which was a huge timesaver. Aeroqual took our suggestions on board and has since found a way to fully automate the data processing side of things with Aeroqual Site Contribution. So, what started as a potential challenge become a real advantage long-term. We provided some input on what we'd like to see and Aeroqual ran with it, developing the platform further into something even better and easier to use.

7. Are there any other project highlights that come to mind?

The project's still a work in progress, but in thinking about the future, we're very much looking forward to using Aeroqual Site Contribution and automating most if not all data. Aeroqual's monitors are also housed in durable weather-proof enclosures that we can leave on site, saving time on transporting, charging, and reinstalling them each day. We're also looking forward to not having to calibrate the instrumentation on a daily basis, saving our field staff even more time. It means we can automate our data collection, simplify deployment, and do more infrequent calibrations without compromising on data quality.

Montana Wood Treatment Plant Remediation

Colin McCoy: Operations Manager, Tetra Tech

1. Hi Colin, could you tell us about a memorable air monitoring project Tetra Tech has recently worked on?

Last year we embarked on the final stage of a remediation project at the Montana Pole Treating Plant in Butte, Montana. A former wood treatment site, the plant once treated all the timber used for building hundreds of miles of underground mines in the area. The treatment process involved dipping the timber in a combination of diesel and a wood preservative called pentachlorophenol (PCP), which over time spilled into the soil, along with dioxin benzofuran, a toxic compound.

Upon discovery of the contamination, the U.S. EPA actioned a large-scale removal process, digging up sections and using bioremediation to begin the process of breaking down preservatives and diesel found in the soil. This project involved the final stage of remediation for about 25 acres of site, at a cost of about $6 million.

With the site located close to a residential area, our biggest objective on this project was to protect the neighborhood, along with ensuring the health and safety of our crew. We knew we needed to be able to receive live updates from our air monitors, enabling us to take fast action should pollution rise above safe levels. To make this happen, we chose to use Aeroqual's real-time monitors, tracking VOCs and airborne dust levels while keeping tabs on any weather shifts that may impact downwind communities. And it worked out great – Aeroqual helped with a lot of the development stuff on the back end and having access to real-time data on demand allowed us to move forward with confidence.

"The biggest highlight for us was being able to get real-time updates from the equipment itself whenever there was an exceedance. Previously, we might have had people driving all over the site monitoring dust levels with a handheld PID and a data ram. Not having to do that saved us a lot of time, energy, and expense – over 50% less than what we would normally spend."

Colin McCoy
Tetra Tech

2. What regulations did you need to take into account for this project (if any)? How did these regulations affect how you approached the project?

Along with the Occupational Safety and Health Administration (OSHA) standards for worker health, we were also mindful of the National Ambient Air Quality Standards (NAAQS) governing ambient air quality in Montana.

Wanting to do right by the local community and the folks who were working construction on the project had a huge impact on our overall approach. We took a very conservative view of what constituted a permissible exposure level, making sure our action limits were well below what the regulations enforced.

3. Which contaminants did you measure on this project? Why these contaminants?

The community sat downwind of an area where we were going to be digging out a lot of soil, and we didn't know how contaminated the excavation areas were going to be. It was important that we could monitor both VOCs and dust in real time.

Our on-site workers also wore personal monitors, both for added protection and to collect discrete samples to calculate a time-weighted average for an initial exposure reading, but the perimeter monitors installed were an essential part of protecting surrounding residents and putting the community at ease.

4. Was there anything particularly challenging about this project?

All in all, everything with the project went really smoothly. The residential location was made even more challenging from an air monitoring perspective thanks to an interstate that passes through the site, but the real-time monitors we chose were accurate and reliable and we didn't run into any major hiccups at all.

5. How did you approach solving project challenges? Are there any interesting air monitoring techniques or approaches you'd like to mention?

To ensure we'd done everything possible to protect the surrounding neighborhood, we set up the monitoring system to send out an automatic text message to our on-site personnel the moment an exceedance was detected. Ultimately, we found we never had to use this for VOCs, with only a couple of small spikes over the course of the project. When it came to monitoring dust levels, the combination of real-time alerts and setting action levels below regulatory limits meant that our crew was able to immediately stop work and take whatever action needed to reduce dust levels; like using a water truck to wet down the site, for example.

6. Are there any other project highlights that come to mind?

The biggest highlight for us was just being able to get real-time updates from the equipment itself whenever there was an exceedance. Knowing that we could just set the monitors up and the system would let us know what was happening without someone needing to watch over it constantly was super helpful. Previously, we might have had people driving all over the site monitoring dust levels with a handheld PID and a data ram. Not having to do that saved us a lot of time, energy, and expense – over 50% less than what we would normally spend. I've always believed in doing the best work you can for the lowest cost, and this real-time monitoring system was a win-win-win; for us, for the client, and for the community.

Mercury-Impacted Remediation Manhattan

Michael Au: Project Engineer, Langan

1. Hi Michael, could you tell us about a memorable air monitoring project you've recently worked on at Langan?

An interesting one we're currently working on involves the remediation of a mercury-impacted property in downtown Manhattan. The site, which is about one acre in size, was previously identified to contain mercury- and petroleum-impacted soil from prior site use and is adjoined by several sensitive receptors, which presented certain challenges to remediation.

2. What regulations did you need to take into account for this project (if any)? How did these regulations affect how you approached the project?

The site is enrolled in the New York State Brownfield Cleanup Program, which is regulated by the Department of Environmental Conservation (DEC). DER-10 serves as the guiding regulatory framework under the NYSBCP, and a Remedial Action Work Plan (RAWP), including a site-specific Community Air Monitoring Plan (CAMP), was developed to govern the remediation of the site.

"When you combine that sort of portability with integrating the mercury meters into a single station, along with real-time cloud reporting, it equates to some major time and cost savings over the life of the project."

Michael Au
Langan

3. Which contaminants did you measure on this project? Why these contaminants?

After our site investigation, we identified two hot spots; one was an area of mercury-impacted soil, and the other was petroleum-impacted. Along with monitoring for particulates and volatile organic compounds (VOCs), our site-specific CAMP also included monitoring for mercury vapor during remedial activities.

4. How did the project location impact monitoring? Were there sensitive receptors close by?

The challenge was working in a densely populated area, with sensitive receptors adjoining the site. The community has been involved in the remediation of the site since the beginning of the project – reducing potential exposure through a robust air monitoring system while providing reassurance to the community through quality data was, and still is, a key factor to successfully implementing the remedy. We deliver monitoring updates to the community by maintaining and updating our project website with daily field reports and CAMP data. We also attend a monthly meeting with community members, regulators, and elected officials to present a summary of remediation progress.

5. Was there anything particularly challenging about this project?

While we've monitored for mercury vapor before, it's not a typical air quality concern on most sites, at least not to the same extent as here. Our typical CAMP setup under the New York State Department of Health (NYSDOH) generic CAMP includes monitoring for particulates and VOCs, but for this site, we had to find a way of integrating mercury meters into a remote telemetry system to provide real-time data and alerts.

The biggest challenge was probably the sheer amount of equipment we had to work with – running up to ten CAMP stations around the one-acre site. At times, we would have six on-site stations and up to four off-site stations, which meant mobilizing and maintaining upwards of 30 individual monitors at a time. It can get pretty labor-intensive for our field staff, costly for the client, and overall time-consuming to set up and calibrate that many monitors before the work could even begin each day.

6. How did you approach solving project challenges? Any interesting air monitoring techniques or approaches you'd like to mention?

With our previous equipment vendor, we needed to transport each CAMP station to and from the site each day for temporary storage and charging. We also encountered days in which there were large gaps of missing data as a result of telemetry malfunctions. So, to fill in the data gaps for each day, our field staff had to manually download the data from each of the 30 air monitoring units at the end of the day, which added to the already labor-intensive work.

In order to minimize setup/maintenance time and provide higher quality data to the community, we transitioned to Aeroqual's air monitoring solution and have been very pleased with the results. Our field staff love the equipment, as the stations are weatherproof and can be left outdoors, and we're working to incorporate the mercury meters within the existing stations again, which should cut setup time considerably.

Another thing that we've done to reassure the community is to proactively implement mitigation measures. So, even before an action level exceedance would come through on our air monitoring units, we'd be actively spraying down the soil with either a mercury vapor suppressant or odor/vapor suppressing foam.

7. Any other project highlights that come to mind?

Reducing our daily setup time was a big one, and we're hopeful of getting it down to about 15-20 minutes with the incorporation of mercury vapor meters into Aeroqual's system. The compact size of the Aeroqual batteries has been a game-changer, with our field staff able to hold two or three at a time, where the previous vendor's batteries weighed upwards of 50 pounds. When you combine that sort of portability with integrating the mercury meters into a single station, along with real-time cloud reporting, it equates to some major time and cost savings over the life of the project.

To learn more visit:
aeroqual.com

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