

Best Practices in Community Air Monitoring Webinar Q & A

Attendee	Question	Answer	Who Answered
Amy Marie Acardi-Dey	Can you review / discuss how air monitoring is validated and quality control samples for air monitoring?	Air monitoring is validated based on the accuracy of the instrument and calibration records of the devices you are using. There are many "consumer grade" devices that will give you data, but their accuracy and ability to calibrate eliminate them from our applications. Many instruments require an annual factory calibration and a periodic field calibration to ensure the accuracy of the device. The CAM systems should only use devices that meet the site accuracy requirements based on the data quality objectives of the project. Both factory calibration and field calibration records should be maintained to the manufacture specs or site specs to ensure the quality of your data.	Matthew Decker
Amy Marie Acardi-Dey	On health based air criteria slide, if the state/federal air regulations are an order of magnitude lower than OSHA, why wouldn't these regulations also apply to OSHA workers? It seems like the OSHA PELs are not appropriate.	Your question is a good one. The answer lies between the responsibilities of the two different agencies: EPA and OSHA. With the exception of vapor intrusion into the occupational setting, occupational worker health and safety is the responsibility of OSHA. EPA lacks such authority with CERCLA/RCRA. The OSHA PELs were originally created in 1970 from the ACGIH Threshold Limit Values. TLVs are limited to worker exposure (typically reasonably healthy adults 18-65) and focus on exposure profiles of 40 hour weeks, 52 weeks a year for a 40 year working lifetime). EPA risk profiles focus on all people from infants to the elderly and look at exposures up to 24/7 52 weeks/year for a lifetime. Thus the EPA air criteria thresholds are much lower than the OSHA PELs based on both addressing different cohorts- OSHA limited to workers and EPA focused on the Public	Deborah Barsotti, Ph. D., DABT
Jim Blasting, Ambient Environmental, Inc., Senior Consultant	does it really 'make sense' to use these very low numbers for a 6-12 month project? I thought you mentioned that these are 30-year exposure calculations.	Again remember these health-based criteria are NOT regulations. That being said, all potential exposures to off-site receptors should be considered no matter how short the project duration. The distinction I provided was for those projects longer than one year, which is considered chronic or long-term exposure, and the cancer endpoint MUST be considered. However, for exposure durations less than one year, the cancer endpoint is not the endpoint of concern. For this exposure duration, the most appropriate endpoint is based on noncancer effects on target tissue, e.g., kidney, liver, or CNS. The health-based criteria based on noncarcinogenic reference concentration (RfC) for projects less than 1 year should be adjusted for daily emissions (8/24 hours) and days per year. The project-specific RfC represents a daily "safe" threshold that, if exceeded in a day, may be of concern for adverse health impacts. As discussed, if the chemical is classified as a carcinogen and there is not a noncancer reference concentration (RfC), then the IUR calculation needs to be extrapolated to the actual duration, e.g., a half or full year, which will proportionally increase the health based criteria, e.g., 60 or 30 fold as well as the daily emissions 8 or 10 hr/day.	Deborah Barsotti, Ph. D., DABT
John Brennan, JS Held LLC, Senior Vice President	Will the NJDEP proposed perimeter guidance require perimeter air monitoring for all remediation sites or will there be specific criteria?	In general, as part of remedial project planning, it is my understanding that PAM should be considered for ALL remediation sites. If there is justification via the conceptual site model that there are no emissions (exposure pathway) created during the selected remediation or it is a very short duration, it should be documented and provided in the PAMP/RAP. To my knowledge, there will be no specific criteria to exclude PAM.	Deborah Barsotti, Ph. D., DABT
James Fetterman, Kleinfelder, Staff Geologist	How long will the air monitoring system typically last on an internal power source i.e. a battery?	Our Greenlight system operates on an external 12V - 55Ah AGM battery that powers all the equipment in the station. A single battery will power the station for twelve to fourteen hours with a full charge. The more devices you are operating may reduce that runtime. The pumps on the DTIs and MiniRaes draw the most power from the battery, but a fully charged battery will last you a full workday. Batteries are collected at the end of the work shift and charged overnight to be reused the next day. Proper battery charging and handling will ensure the best results.	Matthew Decker
John Guzewish, HDR, Project Manager	Can you have Matt discuss some of the power limitations/options for the remote monitoring equipment	Power options include daily 12V battery swaps on most of our deployments. Batteries are set up at the start of the work shift and are collected and charged overnight to be used the following day. We also offer solar configuration, which is designed for long-term projects with limited staffing onsite. Our solar setups are designed to run the entire station autonomously 24/7. Larger solar panels are installed at each location with a minimum of 3 -110Ah batteries.	Matthew Decker
Janet Keating-Connolly, .	How do you handle deriving risk-based ambient air monitoring concentrations for constituents like PCBs that are regulated differently by EPA than by some states. For example, EPA does not consider non-cancer effects where Massachusetts does. This leads to inconsistencies especially where the toxicological data are lacking.	Complicated question - and you are correct - there are inconsistencies between EPA regions AND state programs. As you know, PCBs are regulated via TSCA, and there are PCB cleanup standards for surfaces and waste, e.g., 1 mg/kg for high occupancy PCB impacted materials, e.g., soil. Region 2 EPA has purview over these cleanups and does NOT delegate to states. However, states like NJDEP do require coordination with EPA Region 2 TSCA and the SRP requirements. To your question, EPA has multiple toxicity criteria for "PCBs," most being based on carcinogenesis. However, with PCB characterization, there are some noncancer PCB toxicity factors, e.g., PCB-specific congeners. However, there are multiple PCB carcinogenic toxicity criteria (IURs) differing upon the Aroclor-specific carcinogenic potency. For example, if you have Aroclor 1016 - the IUR is less potent a carcinogen than other Aroclors. EPA also has IURs for high, low, and lowest risk that differ over an order of magnitudes (See EPA RSL, residential air for IURs).	Deborah Barsotti, Ph. D., DABT
Janet Keating-Connolly, .	Is Deborah stating that we do not have to establish health based criteria for carcinogens if the exposure is less than 1 year? How do we know that a non-cancer risk based number is protective if the one-hit model is the underlying assumption of carcinogenesis?	Let me explain. Carcinogenesis is considered a long-term, chronic exposure phenomenon, i.e., greater than one year. Thus, the carcinogenic endpoint is relevant to exposures greater than one year. This is an NJDEP determination, as well as one for other states and EPA regions. In fact, when extrapolating the exposure duration, the noncancer endpoint is often more stringent. The noncancer endpoint is a "bright line," a daily exposure threshold above which there is concern for adverse health effects. For cancer, we are assessing cancer incidence probability, i.e., 10-4 to 10-6 risks. There are no absolutes, but it is likely for environmental contaminants that the noncancer endpoint would also be protective of cancer endpoints. However, that could be assessed for your COCs and included in the determination of your project-specific health-based objective. If the COC has cancer and noncancer endpoints, calculate the site-specific health-based criteria based on project duration and select the most stringent.	Deborah Barsotti, Ph. D., DABT
Janet Keating-Connolly, .	Is there an effective control method for mitigating the odors from cannabis growing?	In state-of-the-art, modern cannabis growing facilities, engineered odor mitigation measures can effectively control emissions, e.g., negative pressure, carbon filters for exhaust. Unfortunately, other measures are not effective without these engineer controls, such as odor masking agents (essential oils). There are some promising odor neutralizers that don't just mask the odor but chemically destroy it.	Deborah Barsotti, Ph. D., DABT
Janet Keating-Connolly, .	How do you manage the data from the field monitoring stations? What software/databases are used?	Data is collected at a constant interval from each device, typically every 15 seconds. It is then stored locally on the RTU (computer) in the station and on the cloud-based server. There is no more downloading from each device at the end of the work shift. The data is collected in real-time and sent to the server, where the Dashboard page will refresh every 60 seconds with the current site conditions. From the server, which is web-based and accessible from a website, the data can be viewed in a variety of intervals (raw data, 1 min averages, 5 min averages, 15 min averages, etc.) and downloaded into an Excel or CSV format. We also take that data and generate a compressed daily report that is downloadable each morning with the previous day's data. That data includes min, max, average readings for each device and station, the time of the highest reading at each station, and the weather data from the day. There is no software to download, and it's all compiled from the Greenlight system.	Matthew Decker
Janet Keating-Connolly, .	Which PCB analysis is for volatile PCBs? How do you separate that from PCB adhered to particulates?	Volatile PCBs may be reported by the modification to the sample collection procedure using a filter prior to a sorbent media. The analysis may be performed by using ECD, GC/MS, or Hi-Resolution MS and reporting Homologues and Congeners. Congeners analysis gives the identification of individual Bi-phenyls.	Will Elcoate

Jeffrey Levesque, Ramboll, Project Manager	Upcoming NJ Guidance question - one of the hardest decisions we need to make as PMs for remediation sites is the level/degree of air monitoring for PAM that will be conducted and associated costs (small excavation vs. very large site) - is there any specific information in the upcoming NJ guidance that provides specific insight on this?	I am not aware that the NJDEP PAM guidance will provide insight to inform that decision for PMs. I would suggest that you use the Conceptual Site Model that would include understanding the mass concentrations, the volume impacted, and the fate and transport of the COCs, as well as the duration of excavation, for example. Those decisions would not necessarily be based on the size but the potential risk of the emissions from the remedial action that would guide you.	Deborah Barsotti, Ph. D., DABT
Gerald Nicholls, Langan, Associate	What's the difference between purple and green bars on the coal ash chem chart?	Total Concentration of metals in Coal Ash is the green bar. The purple bar is the RSL for each metal.	Bruce Groves, CIH
Roy Owens, Owens Corning, Advanced Environmental Lead	What do you use to monitor Hex Chrome?	We would use real-time monitoring with PM10 (TSI DT11 or equivalent) along with confirmatory sampling using 37mm PVC cassettes. We prefer to use the analytical air sampling method OSHA 215 over the EPA "CARB" method. The frequency of sampling varies according to the site.	Matthew Decker
James Parker, ,	How do you address cumulative risk from various constituents as opposed to action levels for individual parameters.	This is dependent upon your regulatory program. NJDEP regulates each individual carcinogen at the 10-6 risk level - presumptive that the number of carcinogenic COCs present would not exceed a cumulative risk of 10-4. This is similar to other states. That being said, you can, if required or desired, demonstrate that the total risk ratio of the mass concentrations of all of the COC carcinogens extrapolated to risk-based dust criteria is below 10-4 risk.	Deborah Barsotti, Ph. D., DABT
David Puchalski, NewFields, Associate	Can you provide any comments on the NJDEP proposed Indoor Air standard for residential and non-residential building use?	In general, NJDEP relies upon the EPA to determine cancer or noncancer toxicity criteria, which is used with NJDEP standard default exposure assumptions for residential or nonresidential indoor air. Unlike other states, NJDEP has chosen not to develop their own toxicity criteria. NJDEP provides the source of the cancer (IUR) or noncancer (RIC) toxicity criteria on the webpage provide in my ppt presentation. In general, NJDEP follows the same toxicity criteria hierarchy - with the verified Integrated Risk Information System (IRIS) being the highest source. EPA and NJDEP are aligned in general with the toxicity criteria, but the indoor air standards differ slightly from the EPA RSLs because of different exposure assumptions used to calculate the indoor air criteria.	Deborah Barsotti, Ph. D., DABT
Henry Stahl, ,	What sort of actions or orders can prompt CAM activities?	That would depend upon the regulatory program but can include regulatory requirements, stakeholder pressure, and responsible parties' initiative.	Deborah Barsotti, Ph. D., DABT
Natalie Struble, Civil & Environmental Consultants, Inc., Project Manager	What does "overburdened" mean in reference to overburdened communities on that left-most map?	NJDEP defines the overburdened community as a census block group, according to the most recent census, that fit specific criteria including low income, identity as a minority, and are limited English speaking.	Deborah Barsotti, Ph. D., DABT
Natalie Struble, Civil & Environmental Consultants, Inc., Project Manager	Matt, could you speak more on the pelican cases and how you use those in areas where security/vandalism is a concern? You mentioned taking them down overnight - any suggestions for sites where overnight monitoring is required?	The Pelican case is a portable, waterproof enclosure mounted on a tripod during work activities to sample from the breathing zone. The Pelican case is equipped with metal grommets to place locks through and secure the station not to be opened. These cases are often used in areas where security may be a concern because you can take them off the tripod and put everything in a secure location overnight. For sites that need to run overnight, I'd recommend our lockable metal enclosure that would mount to a site fence or telephone pole. They are made to be outside and are secured with locks.	Matthew Decker
Brandon Vella, Roux, Scientist	Are there any methods being developed for analysis of PFAS in air?	Brandon: Thank you for your question. We currently support PFAS in other matrices and have been following the market and looking for the development of published/validated Air Methods. To date, the only published method from the EPA is a source (stack) testing method. (otm_45_semi-volatile_pfes_1-13-21.pdf) searchable on the internet. The properties of the compounds mean that the risk is weighted towards aerosols and particulate exposures. We have seen few requests for ambient monitoring and indoor air. We are not aware of any published methods. However, the protocols in the reference methods can be modified to support site specific-applications with a QA/QC demonstration of performance.	Will Elcoate
Connor Zingale, GZA GeoEnvironmental of New York, Engineer I	Is there any difference between capability or quality of the different air monitoring stations?	All our stations will operate the same way with our Greenlight software, which is capable of connecting with a variety of instruments. The Pelican case is a smaller form factor and is limited to two maybe three devices per station, whereas the metal enclosure has more room for more devices. Typically you'd have two to three instruments per station with a standard CAM system.	Matthew Decker
Josephine Bergersen-Lewis, Alpha Analytical, chemist	Is there a community air sampling group in Worcester Mass? Might be a little specific but I'm curious if there are options to getting involved or starting on..	Other than the federal or state monitoring networks, I am not aware of a community-based program. I know that a number of states like California and North Carolina have community PM10 monitoring programs. There is an organization platform at https://communityactionworks.org/about-us/	Matthew Decker Will Elcoate
Josephine Bergersen-Lewis, Alpha Analytical, chemist	What was the air sampling tool that was used in SF Bay area that created that map that was used?	Community Air Monitoring Activity California Air Resources Board This is the main site for the Community monitoring in CA and describes the CA program. They use continuous monitoring stations with testing capabilities based on area need. If you go to a location you can layer different test data from different stations. Purple air	Will Elcoate Bruce Groves, CIH