



Rapid Odor Response Guide

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Why Response Time Matters in Odor Events



When odor complaints or emission events arise, response time is a defining factor.

And every second that passes is an opportunity to be transparent, proactive and build trust with your regulators and community.

Public expectations for environmental investigations have evolved. Traditional odor panels or analytical sampling can take days or weeks for results, long after the event has passed.

We've seen this play out across the country:

1,000+ COMPLAINTS LOGGED BUT
WITH NO CLEAR ANSWERS

Leaving operators without a clear picture of what happened or if their facility was even responsible. The challenge is not from lack of effort, it's the approach. Traditional methods can't provide the real-time visibility needed for swift response. That's why leading operators are shifting to rapid, data-backed investigations that deliver answers in real-time and replace speculation with scientific proof.

Gaps in Traditional Air Monitoring



E-Noses, odor panels and bag analysis can tell you that odor exists but not the source or composition. Analytical sampling around the fence line can tell you that emissions may have spiked but only if the timing is perfect and results still often arrive weeks later.

These approaches are falling short when it comes to public expectations and regulator transparency. But new technology like [Montrose's Mobile Lab](#) bring a science-based approach, providing real-time lab grade data in the field. This means instant clarity, faster root cause analysis and more trust built with the community.

	CONVENTIONAL MONITORING APPROACH	ADVANCED MONITORING APPROACH
METHOD	Odor panels, bag analysis	Mobile PTR-MS lab, continuous air sampling, lab grade chemical fingerprinting
TIMING	Days to weeks post event	Minutes to hours, data collected as the event occurs
ACCURACY	General "odor map"	Source specific chemical fingerprints, pinpoint vents, processes or facilities
OUTCOME	Disputes, community distrust	Verified source attribution, faster corrective action, reduced complaints
DATA INTEGRITY	Subjective human input	Quantifiable, traceable and defensible real-time data

How Montrose's Rapid Response Framework Works



Montrose's Rapid Response Framework turns odor and emissions events into opportunities for clarity and action. It pairs mobile lab technology with deep statistical analysis, giving operators a clear, defensible picture of root cause, composition and magnitude.

STEP 1

DEPLOY THE MOBILE LAB

When complaints come in, the Mobile PTR-TOF-MS Lab can be on-site quickly. It functions as a full analytical laboratory in the field, detecting more than 500 chemical compounds per second, including VOCs and sulfur species at parts-per-trillion sensitivity.

The result: Real-time, lab grade visibility into what's actually in the air to get to the root cause of your problem.

STEP 2

CAPTURE & MAP DATA

Continuous one-second sampling generates a real-time emissions map, showing plume movement and intensity. Operators gain confidence in root-cause identification early in the response.

STEP 3

FINGERPRINT EACH SOURCE

Each potential emitter source is sampled to capture its chemical signature, creating a unique fingerprint of every source.

How Montrose's Rapid Response Framework Works



STEP 4

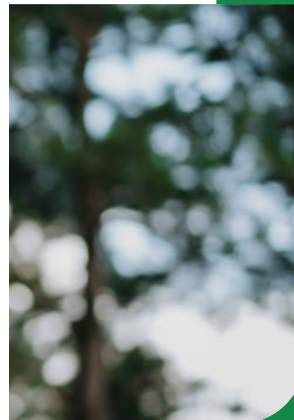
RUN STATISTICAL ANALYSIS (PCA)

If needed, advanced multivariate analysis (MVA) algorithms can classify and distinguish plumes based on compound patterns, revealing how each fingerprint contributes to the overall odor profile.

STEP 5

ATTRIBUTE AND ADVISE

Facilities receive a quantitative attribution model.



- 43% from the facility down the road
- 27% from this process vent
- 18% from this surge tank

The data speaks for itself, guiding mitigation, informing regulators and restoring trust.

Case Study



RAPID RESPONSE IN ACTION: MILPITAS, CALIFORNIA

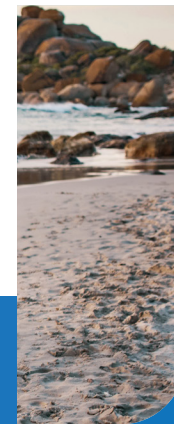
For years, odor complaints dominated community discussions, over 1,200 per year, with no consensus on the source.

Traditional nasal ranger studies pointed fingers at everything from landfills to wastewater plants to compost sites. But nothing was conclusive. Montrose partnered with Milpitas, bringing answers and clarity that were sorely needed.

Each facility process was fingerprinted, and PCA analysis of the community's plumes revealed multiple distinct odor sources contributing to the odors being detected in the community.

For the first time, both regulators and operators had a clear, defensible understanding of the true sources. That clarity allowed coordinated action, informed upgrades and a measurable reduction in complaints.

[Read More](#)



RECLAMATION AND CLOSURE

- 13 mobile deployments across the city
- 40+ stationary samples collected at facilities
- 550+ compounds tracked at part per trillion granularity
- Sampling every 1 second to map plumes in detail

How to Build Rapid Response Into Your Sites Process



A successful rapid response program starts before the next complaint.

HERE'S HOW TO BUILD IT:

1

Define triggers: Set clear activation criteria, such as odor threshold, number of complaints and concentration spikes, that automatically initiates a response.

2

Establish command: Clearly define who is responsible for deployment, data review and communication. Decision speed and transparency are critical.

3

Partner for speed: Speed matters almost as much as accuracy. Choose partners, like Montrose, who are equipped with real-time, mobile technology.

4

Centralize your data: Keep every event, plume, and sample in one system for transparency and trend analysis.

5

Close the loop: Translate every investigation into process insight. Use data to get ahead of potential problems and document every corrective action.

The Payoff Behind Mobile Monitoring



Real-time data changes the relationship between operators, regulators, and the public. Instead of reacting to complaints, you address them with verified information and targeted actions. This is what protects credibility. And ultimately, your license to operate.

QUANTITATIVE IMPACT

- Investigation time reduced by up to 80% from traditional methods
- Root cause identified fast, the first time
- Fewer regulatory and community escalations

QUALITATIVE IMPACT

- Takes teams from reactive defense to proactive management
- Builds credibility with regulators and the public
- Strengthens ESG transparency and technical reputation

Real-time data doesn't just protect compliance, it protects confidence. Want to see how a Rapid Response setup could work at your facility? We'll show you how Montrose helps teams move from guesswork to defensible data before the next complaint arrives.

[Explore Mobile Monitoring with Montrose](#)



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