Application Note

Active vs. Passive Fenceline Monitoring for Compliance: A Practical Comparison

PICARRO

Successful compliance under the Hazardous Organic NESHAP (HON), Refinery Sector Rule (RSR), and Chemical Manufacturing Area Sources (CMAS) rules require more than just checking the compliance box, facilities need a monitoring program that simplifies the burdensome workflows operators have managed for years. They need a solution that, in real time, identifies when exceedances occur, pinpoints their origin, and equips teams with the tools to respond—while eliminating the hundreds of manual steps that make traditional programs slow and error-prone.

Below is a side-by-side comparison of passive and active monitoring, to help you make an informed decision on a compliance solution based on your facility's needs.

Feature	Active Monitoring, Method 301 (Picarro) 	Passive Monitoring, Method 325(A&B) & Method 327 
Data Frequency	Continuous (real-time)	14-day integrated average sample
Detection Speed	Immediate insight into concentration changes	Delay of 2+ weeks (sample collection, lab analysis)
Compound Precision	Parts-per-trillion, using a singular CRDS system	Parts-per-trillion, using multiple methods (cannisters and sorbent tubes)
Leak Localization	High (multiple sampling points, plume back trajectories, live trends)	Low (point-in-time, limited directional insight)
Operational Burden	Low: Automated data collection and analysis	High: Manual deployment, retrieval, shipping, lab processing, data processing, and reporting
Corrective Action Support	Immediate detection supports faster root cause analysis	Delayed detection increases regulatory and community risk

Feature	Active Monitoring, Method 301 (Picarro)	Passive Monitoring, Method 325(A&B) & Method 327
Regulatory Fit	Meets HON, MACT, and CMAS rules when using solely an Alternative Test Method (ATM) with real-time granularity	Compliant for HON, MACT, and CMAS rules when using both approved method 325A/B in conjunction with method 327
Data Visualization	Auto-uploaded onto a centralized cloud platform, highly customizable	Static reports, manual spreadsheets, and mapping required
Cost	Higher upfront investment, but lower total cost over time through automation	Lower upfront cost, but higher long-term spend from recurring vendor expenses
System Maintenance	Centralized system with minimal consumables	Regular replacement of tubes, cannisters, and field visits required

Choosing What's Right for Your Facility

Passive Monitoring can be a practical choice for facilities that need to get up and running immediately or are looking for a **short-term monitoring plan**. It may be appropriate during early compliance planning or when gathering baseline data. For some facilities with limited operational complexity, the periodic snapshots passive programs provide may be enough visibility to meet immediate needs. However, because passive systems are designed around intermittent sampling, they offer only a partial view of emissions. For facilities seeking deeper insight, faster response, or long-term confidence, a more comprehensive monitoring approach may be worth considering.

Active Monitoring, by contrast, is best suited for facilities that value **real-time awareness, faster response times, and operational efficiency.** Rather than relying on intermittent snapshots, our active monitoring approach delivers real-time visibility that enables operators to detect exceedances as they occur, trace their origin, and take swift corrective action before they escalate into larger problems. By automating data collection, analysis, and reporting, Active Monitoring removes the uncertainty and delay that are fundamentally baked into passive monitoring programs. The result is a monitoring approach that enhances compliance confidence, improves operational efficiency, and strengthens community trust—while reducing long-term costs through fewer manual processes and no recurring lab fees.

Bottom Line

Both methods satisfy the **technical requirements** of the HON, CMAS, and RSR rules. The key difference is in the **level of responsiveness, insight, and efficiency** they offer your operation.

Need help deciding which approach fits your facility's goals and risk profile? Our team of fenceline monitoring experts are available to guide you through the trade-offs.

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