OFFICE OF AIR QUALITY PLANNING AND STANDARDS
RESEARCH TRIANGLE PARK, NC 27711

1/14/2025

Mr. V Prentice
Insight M
928 Benecia Ave
Sunnyvale, CA 94085

Dear Mr. Prentice:

We are writing in response to your submission on behalf of Insight M, located in Sunnyvale, California, dated June 16, 2024, and subsequent correspondence dated January 13, 2025, in which you request the approval of "Alternative Test Method for Methane Detection Technology" under the New Source Performance Standards of Performance for Crude Oil and Natural Gas Facilities for which construction, modification or reconstruction commenced after December 6, 2022 (40 CFR Part 60, Subpart OOOOb). We are considering this request under 40 CFR 60.5398b(d), based on the information you have submitted (as described below). The EPA's Office of Air Quality Planning and Standards has been delegated certain authorities under this provision, including authority to consider and/or approve alternative test methods for methane detection technology.

As we understand, Insight M has developed a measurement solution that uses infrared spectroscopy methane detection technology affixed to a manned aircraft to identify and localize methane emissions emanating from equipment or other surfaces on the ground.

To support your submittal, you have provided the following documents associated with your submission:

- Alternative Test Method Application Executive Summary received on June 16, 2024, and updated January 13, 2025, which summarizes the information submitted to the EPA by Insight M and provides basic information about the company and technology.

- Description of Technology, received on June 16, 2024, and updated January 13, 2025, that details the relevant measurement technology including measurement theory, instrumentation, application, and known limitations. See §60.5398b(d)(3)(iii).

- Peer reviewed research articles received on June 16, 2024, as supporting evidence that this aerial measurement technology can appropriately identify and localize methane emissions. See §60.5398b(d)(3)(vi).
    - El Abbadi, S H, Chen, Z, Burdeau, P M, Rutherford, J S, Chen, Y, Zhang, Z, Sherwin, E D, Brandt, A R. 2024. Technological Maturity of Aircraft-Based Methane Sensing for Greenhouse Gas Mitigation. Environmental Science & Technology 53(22). DOI: https://doi.org/10.1021/acs.est.4c02439. Peer-reviewed research article summarizing the performance of airborne methane sensing technology on manned aircraft platforms, using a single blinded assessment model.
    - Conrad, B, Tyner, D, Johnson, M. 2023. Robust probabilities of detection and quantification uncertainty for aerial methane detection: Examples for three airborne technologies. Elsevier: https://doi.org/10.1016/j.rse.2023.113499. Peer-reviewed research article describing a new continuous probability of detection function and quantification uncertainty model for aircraft deployed technologies developed using fully-blinded and single-blind testing results.
    - Jones, B, Deiker, S. Systems and Methods for Detecting Gas Leaks. United States. Patent US 10,267,729. 2019. Patent for the underlying technology being implemented by Insight M.
    - Insight M. Methane Emissions Quantification Methodology. White Paper. April 22, 2024. White paper describing the non-proprietary quantification processes used by Insight M in their technology approach.
    - Insight M. Insight M's Operational History. Informational document describing high level operational history for Insight M.

- A sampling protocol titled "Formal Alternative Test Method Insight M LeakSurveyor." Final version received January 13, 2025, including all the required procedures and applicable quality assurance and control, which provides the company's qualifications that meets the requirements in §60.5398b(d)(2)(i) through §60.5398b(d)(2)(iv), and all information required for an alternative test method application according to §60.5398b(d)(3).

Your submission was determined complete on September 1, 2024.

Based on a review of the provided material and a recognition that Insight M meets the criteria found in §60.5398b(d)(2), we have determined that your LeakSurveyor methane detection technology meets the 10 kg/hr and 15 kg/hr all at 90% probability of detection using the protocol described above. Additionally, we are approving your solution and the associated protocol for use by an owner or operator of an affected facility provided the following caveats are met in the alternative periodic screening process as described in §60.5398b(b).

Furthermore, your LeakSurveyor Technology, may be used as an alternative to fugitive emissions monitoring under the New Source Performance Standards for Crude Oil and Natural Gas Facilities for which construction, modification or reconstruction commenced after

September 18, 2015, and on or before December 6, 2022 (40 CFR Part 60, Subpart OOOOa) provided the owner or operator using the solution complies with the requirements of §60.5371a and §60.5398b, including the notification, recordkeeping, and reporting requirements outlined in §60.5424b.

Because the alternative method may be used by owners and operators subject to the monitoring of fugitive emissions components affected facilities, and inspection and monitoring of covers and closed vent systems subject to 40 CFR part 60, Subparts OOOOa and OOOOb, we will post this letter as **MATM-004** on the EPA website at https://www.epa.gov/emc/oil-and-gas-alternative-test-methods for use by interested parties.

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If you should have any questions or require further information regarding this approval, please contact my staff at MethaneATM@epa.gov.

Sincerely,

STEFFAN JOHNSON

Digitally signed by STEFFAN JOHNSON
Date: 2025.01.14 15:01:35 -05'00'

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc:
Ned Shappley, OAQPS/AQAD
Karen Wesson, OAQPS/AQAD
Elizabeth Leturgey, OECA/OC
Greg Fried, OECA/AED
Regional Testing Contacts

Attachments (1)

Insight M - Alternative Test Method (MATM-004).pdf