

**CalGEM Uncrewed Aerial Surveillance (Drone) Program, June 2021 through November 2024 – Results from CIPA Member Survey Data**



**Executive Summary**

CalGEM began the Uncrewed Aerial Surveillance (Drone) program in June 2021. Since that time approximately 250 Drone flights have occurred over several oil and gas facilities in the CalGEM Southern District region, primarily in Los Angeles and Orange counties.

The California Independent Petroleum Association (CIPA) solicited data from its members in the fall of 2024 to determine the accuracy of CalGEM’s Drone surveys. Data evaluated from CIPA member companies indicates that the surveys present false positive data approximately 98% of the time, rendering the Drone survey data unreliable and resulting in an ineffective, costly program that appears to miss the mark of the CalGEM Drone program stated mission.

**Findings**

CalGEM began Drone flights in mid-2021 as a means “to detect and mitigate fugitive methane emissions arising from oil, natural gas and geothermal operations to protect public health, safety and the environment”<sup>1</sup> in the LA Basin. CIPA collected data from six of its member operators in the LA Basin accounting for 86 drone surveys conducted between October 2021 through October 2024 across the basin.

Information reviewed for the 86 flights showed that CalGEM issued six “no action” letters and 80 “3357 Informational Request” letters. With each “3357 letter” issued by CalGEM, a heat map generated from drone data was included indicating background methane readings and areas of CalGEM concern where methane readings were above background, usually greater than 80 ppmm (parts per million meter). Per the orders in the 3357 letter, operators are required to investigate the potential sources of methane emissions and provide a written report of such investigations.

Data from the heat maps indicated that approximately 1,700 “hot spots” were depicted in the heat maps provided with the 3357 letters causing the operators to investigate the alleged methane emissions above background. Subsequent operator investigations found only 22 actual methane leaks above 80 ppmm background. This data indicates that CalGEM drones were presenting false positive readings 98% of the time.

Pergam Falcon Laser methane detectors utilized by CalGEM are attached to a drone that flies over the leases. Conversations with a technical representative from Pergam indicate

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<sup>1</sup> Excerpt from CalGEM Uncrewed Aerial Surveillance Program Mission statement.

that readings are most accurate when flown at 30 – 40 feet (9 – 12 meters) over points of interest, with accuracy diminishing rapidly with greater heights over the targets. Per published literature from Pergam, the maximum detection distance is 25 meters (82 feet) above the points of interest.<sup>2</sup> A review of the 3357 letters that were sent to operators indicates that drone flights were conducted at a height of 20 – 30 meters (66 – 98 feet) above the leases. These heights could significantly impact the accuracy and validity of the reported data, possibly resulting in a high percentage of false positives.

The heat maps provided by CalGEM in the 3357 letters provide information with respect to wind speed and direction at the time of the drone flights. Wind speed and direction has the potential to provide false positives when the data is reported. While the flights are confined to the actual oilfield lease boundaries, methane from offsite sources is not accounted for that could be introduced by wind. CalGEM has indicated that it is the responsibility of the operators to identify potential offsite sources of methane. Many flights were conducted adjacent to visible offsite sources such as roads/highways, corrals, or landfills, yet these offsite sources were not considered by CalGEM. By utilizing wind speed and direction data and observing offsite sources, CalGEM could be providing much more accurate and useful 3357 letters or even “no action letters”.

### **Conclusion**

CalGEM drone flights have resulted in mostly false data. Operators in CalGEM’s Southern District have spent tens-of-thousands of dollars and many, many personnel-hours in answering these 3357 letters that are providing false information nearly 100% of the time.

### **Recommendation**

A solution for CalGEM to accomplish its objective in protecting the public from health and environmental concerns would be to focus inspections with a “boots on the ground” approach. Accurate readings are consistently obtained by utilizing a handheld detector. In answering the 3357 letters, operators utilize a type of handheld detector, either by company personnel or a third party, in doing their investigations. This approach would have detected the very few leaks that actually existed.

Agencies in California that regulate air emissions, issue permits and ensure compliance utilize US EPA Method 21 as the standard in determining volatile organic compound leaks. Devices generally accepted by Method 21 are catalytic oxidation, flame ionization, infrared absorption, and photoionization detectors.<sup>3</sup> CalGEM should adopt Method 21.

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<sup>2</sup> From Pergam Technical Services brochure, [https://drive.google.com/file/d/1\\_UvpX\\_86As9ZWaoepSXvQIacj27P8VU1/view?usp=sharing](https://drive.google.com/file/d/1_UvpX_86As9ZWaoepSXvQIacj27P8VU1/view?usp=sharing)

<sup>3</sup> US EPA Method 21, [https://www.epa.gov/sites/default/files/2017-08/documents/method\\_21.pdf](https://www.epa.gov/sites/default/files/2017-08/documents/method_21.pdf)

All California oil producers have a goal to produce oil in a compliant, environmentally safe fashion. With CalGEM utilizing proven and efficient technologies such as Method 21 this goal will become more of a reality and result in better protection of the public.