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Unmanned Aerial Vehicle Systems/Landfill Methane Leak Detection: U.S. Environmental Protection Agency Approves Alternative Test Method (SnifferDRONE)

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The United States Environmental Protection Agency ("EPA") approved in a December 15th letter an unmanned aerial system ("UAS" [i.e., a drone]) as an alternative method to determine compliance with the surface methane operational standards in the Federal landfill regulations.

The approval for the use of the SnifferDRONE was provided in a letter from Steffan Johnson, EPA Group Leader – Measurement Technology Group to David Barron, Chief Technology Officer, Sniffer Robotics, LLC.

EPA's December 15th letter states that the new method would be used as an alternative to the surface emission monitoring procedures currently set forth in the following Federal landfill regulations:

- 40 CFR Part 60, Subparts WWW, XXX, and Cf (Emission Guidelines),
- 40 CFR Part 62, Subpart OOO (Federal Plan), and
- 40 CFR Part 63, Subpart AAAA.

The referenced regulations require that certain affected landfills (i.e., some with a gas collection and control system installed to comply with the applicable landfill standard) must perform SEM test procedures on a quarterly basis to demonstrate compliance with the 500 parts per million above background concentration operational standard at the surface of the landfill.

Sniffer requested approval for use of a UAS-based alternative to conduct the SEM. The alternative was stated to replicate the SEM-related testing requirements. Specifically, it would replicate Method 21 in the Federal landfill regulations to the extent possible that use a UAS-based approach:

. . . in order to improve safety and performance by automating a portion of the SEM procedures.

Note that previous posts in this blog have noted the expanding use and/or ability of unmanned aerial vehicle systems (i.e., Drones) to assist in a variety of activities in the environmental and energy areas. A February 20, 2021, Environmental Council of the States report notes that state environmental agencies have used drones to undertake activities such as:

- Surveillance

- Enforcement
- Permit support documentation
- Waste and landfill inspections
- Illegal dumping of chemicals, oils, or waste tires
- General emergency response functions including facility discharges, train derailments, truck accidents, and oil spills
- Investigation of unusual events

The Arkansas Department of Energy & Environment – Division of Environmental Quality is one of the state environmental/energy agencies utilizing drones. See a link here to Dan Pearson's DEQ Arkansas Environmental Federation presentation describing the agency's utilization of drones.

Environmental service firms have also begun using drones for various applications. An example is Pollution Management, Inc., which operates drones to collect data for a number of reasons such as production of aerial imagery in 3-D surfaces of project sites (See previous post here).

The December 15th letter to Sniffer in its approval of the alternative test method includes the following components:

- Background
- Proposed Alternative Test Method
- Justification (including results of side-by-side testing – existing SEM procedures verses UAV-based alternatives)
- Determination

A copy of the letter can be downloaded here.