EPA's Supplemental Proposal to Reduce Pollution from Oil and Natural Gas Operations to Fight the Climate Crisis and Protect Public Health:
Using Optical Gas Imaging in Leak Detection (Appendix K)

Fact Sheet

Summary

- The U.S. Environmental Protection Agency (EPA) is proposing to update, strengthen and expand its November 2021 proposal that would secure major climate and health benefits for all Americans by reducing emissions of methane and other harmful air pollution from both new and existing sources in the oil and natural gas industry.
- In a supplemental proposal signed November 8, 2022, EPA would achieve more comprehensive emissions reductions from oil and natural gas facilities by improving standards in the 2021 proposal and adding proposed requirements for sources not previously covered by the rules.
- The supplemental proposal also includes updates to the proposed protocol for using optical gas imaging (OGI), also known as "Appendix K." OGI identifies methane leaks and other emissions using a thermal infrared camera.
- The proposed Appendix K would apply only if a rule specifies that Appendix K should be used. Under the supplemental proposal for the oil and natural gas industry, it would apply to OGI surveys used to detect leaks at onshore natural gas processing plants.
- The proposed Appendix K includes requirements for the performance of infrared cameras, operator training, developing operating envelopes for surveys, monitoring plans, and recordkeeping. Operating envelope refers to the range of conditions within which a survey must be conducted to achieve the quality objective.
- To develop the proposed Appendix K requirements, EPA conducted a literature review of technology development and examined current applications of OGI technology. EPA commissioned laboratory studies and OGI technology evaluations and hosted a virtual workshop to gather input on OGI use and rule development.
- EPA will take public comment for 60 days after the rule is published in the Federal Register. The Agency also will hold a virtual public hearing.

Proposed Requirements

- After reviewing public comments on the November proposal, EPA is proposing several changes to Appendix K:

Operator Standards

Training

- The supplemental proposal would require OGI operators to complete initial classroom training followed by refresher training every two years. That training can be online or in person. Initial field training with a senior OGI camera operator would last at least 30 hours, followed by a final field test lasting at least two hours. The field training requirements would allow for 10 percent missed leaks if there are more than 10 leaks total during the final field test. Trainees who fail the final field test may repeat the test after the senior OGI camera operator provides instruction on performance improvement

Senior Operator Requirements

- The supplemental proposal would define "senior OGI camera operator" as operators who have logged 1,400 survey hours during their career, including 40 hours in the past 12 months, and who have developed or completed the classroom training. Senior OGI operators who performed monitoring as part of initial field training, retraining, or while auditing other operators could include those monitoring hours in determining senior OGI camera operator classification.

Audits

- All OGI operators would be required to complete a two-hour audit four times a year. Operators who do not pass the audit would need to retrain for at least 16 hours with a senior OGI camera operator, followed by a final field test. Operators would need to complete initial training again if the operator fails two consecutive audits.

Inactive Operators

- OGI camera operators who have been inactive would be eligible to retrain instead of completing the initial training.

Previous Experience

- EPA is proposing to grandfather current OGI camera operators to reduce the amount of initial training required.

- Operators with previous classroom training would not be required to take the initial classroom training. However, operators may have to take biennial classroom training if they took the previous classroom training more than two years before Appendix K is finalized.

- Operators with previous field experience may be eligible to complete the retraining requirements in lieu of completing the initial field training requirements. Retraining consists of eight survey hours with a senior OGI camera operator conducting side-by-side surveys, eight hours of independent survey performance observed by a senior OGI camera operator, and a final monitoring survey test.

Requirements for using OGI - technical details

Dwell Time

- Dwell time is the time required to survey a scene to provide adequate probability of leak detection. Dwell time is the active time the operator is looking for potential leaks and does not begin until the scene is in focus and steady.

- EPA is proposing to reduce the dwell time (the active time an operator is looking for potential leaks when the scene is in focus and steady) to two seconds per component in the field of view.

Documentation

- OGI camera operators would have the flexibility to use either video clips or a photo to document a leak. OGI camera operators could also use full videos in place of clips.

- The proposal clarifies which records must be kept on-site and the length of time that records must be kept.

Camera requirements

- EPA is proposing to require that an OGI camera must be capable of methane emissions of 17 grams per hour and either butane emissions of 5.0 grams per hour or propane emissions of 18 grams per hour at a viewing distance of 2 meters and a delta-T of 5 degrees Celsius in an environment of calm wind conditions.

- EPA is clarifying that initial camera certifications and ”operating envelope” determinations could be conducted by the owner or operator, the camera manufacturer, or a third party. An operating envelope is the range of conditions in which a survey must be conducted. *Rest Breaks*

- The supplemental proposal would require rest breaks every 30 minutes for all OGI operators to reduce physical, mental, and eye fatigue.

Response Factors

- Response factors are used as a reference to propane to determine the camera’s ability to detect fugitive emissions. The supplemental proposal includes a

procedure for developing camera model response factors. EPA is adding this procedure as an annex to the Appendix.

For More Information

- Read the supplemental proposal and additional fact sheets.