Alternative Equipment Leak Monitoring Plan Guidance and Procedures

Background

The New Mexico Environment Department (NMED) published rules to reduce emissions from oil and gas sources under 20.2.50 NMAC (Oil and Gas Sector – Ozone Precursor Pollutants) in Issue 14 of the NM Register on July 26, 2022, with an effective date of August 5, 2022. One key piece of this regulation is the requirement for owners and operators of well sites, tank batteries, gathering and boosting stations, and associated piping and components to monitor their operations for equipment leaks using one or more of the following methods:

- Audio, visual, and olfactory (OVA) inspections;
- Optical Gas Imaging (OGI); or
- U.S. EPA method 21.

To encourage innovation and allow for the use of emerging technologies, NMED included provisions in the rule to allow owners and operators to propose Alternative Equipment Leak Monitoring Plans (AELMP). Research is currently being conducted by a variety of organizations to develop unique and novel methods to allow for identification of leaking components at oil and gas facilities. NMED acknowledges this is an evolving field and has developed the *Application Form for an Alternative Equipment Leaking Monitoring Plan* for owners and operators to propose equipment leak monitoring methods that provide an "equally effective and enforceable alternative monitoring plan" pursuant to 20.2.50.116.D NMAC.

Purpose

An owner or operator may comply with the equipment leak requirements of Subsection C of 20.2.50.116 NMAC through an equally effective and enforceable alternative monitoring plan, which may include the use of alternative monitoring methods and technologies, for use in lieu of, or in combination with, OGI and/or EPA Method 21, for equipment leaks and fugitive emissions detection as allowed under Subsection D of 20.2.50.116 NMAC.

This document provides an overview and guidance of the key elements considered for review of a proposed AELMP for approval by the Air Quality Bureau ("Bureau").

Criteria for AELMP Approval

The Bureau will review the following criteria for applications for AELMP approval:

AELPM Manufacturer Information	
AELPM Detection Method:	
AELMP Capabilities, Reliability, and Limitations	1) Commercial availability of proposed AELMP 2) Other approved applications or uses (e.g., pipeline monitoring) 3) Reliability (ability to detect emissions at what threshold and frequency, as well as identify or determine specific emission leak locations) 4) Capable of achieving emission reductions that are at least as effective as the emissions reductions achieved using OGI or Method 21 demonstrated through field test data and modeling (e.g. LDAR-Sim or FEAST) 5) Limitations/Restrictions (detection limits in ppm or kg/hr, probability of detection, weather/temperature/moisture considerations, maximum/minimum operating parameters, other) 6) Data quality indicators for precision and bias 7) Quality control and quality assurance procedures for proper operation 8) How does it work? 9) What is the method to quantify emissions?
AELMP Use, Maintenance, and Calibration	1) Description of where, when, and how the AELMP will be used to detect leaks 2) User's guide 3) Manufacturer-recommended maintenance/calibration 4) Calibration process 5) Field testing data availability
AELMP Recordkeeping	1) Frequency of data measurements 2) Data logging capabilities
AELMP Training	Training documentation or program, including any ongoing support provided
AELMP Field Testing and Modeling	Has testing and/or modeling (e.g. LDAR-Sim or FEAST) of the proposed AELMP been completed with associated documentation to demonstrate emission reductions at least as effective as those achieved using OGI or EPA Method 21?

Minimum Elements & Guidelines for AELMP Application and Review

Consistent with the AELMP Application Form, the following elements must be provided for the Bureau to consider the application complete and ready for evaluation to determine approval:

Item No.	Item	Item Description
1-3)	Company Information	Contact information for the applicant.
4-8)	Commercial Availability and Monitoring Frequency	Description, availability, platform, and monitoring frequency of the AELMP.
9)	AELMP approval by other regulatory authorities and for what purpose or application (for example, pipeline monitoring, emissions detected or simple presence of emissions)	It is important to understand the specific application(s) for which a proposed AELMP may have already been approved as that may inform the evaluation of the AELMP by the Bureau.
10)	The leak detection capabilities, reliability, and limitations of the proposed AELMP, including, but not limited to, the ability to	This information should include details on how the proposed AELMP identifies or detects emissions and what is necessary or required for it to do so, including capability and reliability in performing that function under various conditions. This information should be available or provided in easy-to-understand terms or language. Examples include the following:

	identify specific leaks or locations, detection limits, and any restrictions on use, as well as supporting data	• What are the proposed AELMP's emission detection limitations or requirements and how are those impacted by any number of potential field conditions? For example, how effective is the AELMP under different types of weather, wind speed, temperature, topography, facility type or set-up, etc.? • What is the proven minimum detection limit (MDL) in ppm or kg/hr of the AELMP and under what conditions or requirements? • What is the probability of detection for finding leaks? • What is the maximum monitoring distance of the AELMP and how does distance affect emissions detectability and/or quantification abilities? Is there a manufacturer-recommended distance or range for using the AELMP? • Is the proposed AELMP capable of identifying specific emission locations (e.g., leaking component, tank thief hatch, pneumatic controller) or can it only indicate if emissions are detected at a site, facility or within a general area? If this varies, please explain, including factors that impact ability to identify specific emission locations. • A field demonstration(s) may be requested to confirm the AELMP's capabilities
11)	Leak identification and repair procedures	Description of field applications of the AELMP to find leaks. Examples include the following: • Will OGI or EPA Method 21 follow-up be needed on identified leaks? • How will identified leaks be repaired, and under what schedule?
12)	Documentation (e.g., field or test data, modeling) adequate to demonstrate the proposed AELMP is capable of achieving emission reductions that are at least as effective as the emission reductions achieved by the leak detection and repair provisions in 20.2.50.116 NMAC	As noted in this document, a proposed AELMP must be able to demonstrate it can achieve emission reductions that are at least as effective as the emissions reductions achieved using OGI or EPA Method 21. The Bureau assumes a certain level of emission reductions are achieved using these AELMPs on a periodic basis with increasing emission reductions under greater monitoring frequencies. • Testing under lab and field conditions is a primary way to demonstrate a proposed AELMP's emission reduction capabilities. The Bureau recognizes that field testing may be a challenge in terms of obtaining permissions or finding a willing partner. However, as an example, sites such as the Methane Emissions Technology Evaluation Center (METEC) at Colorado State University may be used to conduct field testing. Modeling may also be used to help demonstrate a proposed AELMP's emission reduction capabilities but should not be relied on exclusively for this demonstration (i.e., testing must be completed). Examples include the Fugitive Emissions Abatement Simulation Toolkit (FEAST) and LDAR-Sim models, which are open-source models/tools that model the effectiveness and cost-efficiency of various leak detection technologies and regimes.
13)	The frequency of measurements and data logging capabilities of the proposed AELMP	Considerations include how monitoring and emissions detection and quantification (if applicable) is performed, tracked and recorded using the proposed AELMP. Examples include the following: • Is monitoring and emissions detection done manually, automatically/autonomously, or both and how is that confirmed? • Is the monitoring completed on a periodic or continuous basis? • If the proposed AELMP quantifies emissions, does that occur continuously as emissions are detected or does the AELMP provide a "snapshot" or summary value from the detection? • Must be able to satisfy the recordkeeping and reporting requirements in Sections F and G of 20.2.50.116 NMAC, as applicable.

14)	Data quality indicators for precision and bias of the proposed AELMP	• These should be specific to helping confirm the detection and/or measurement performance of the proposed AELMP. • These indicators may be technology/program specific.
15)	Quality control and quality assurance procedures necessary to ensure proper operation of the proposed AELMP	• What are the calibration and/or maintenance requirements or procedures (manufacturer-recommended) for the AELMP and how often must they be performed? • What is the training and/or certification required to understand and properly operate the AELMP? Does the manufacturer offer training? Is it standardized?
16)	Documentation of the training and/or certification required to operate and understand the proposed AELMP	Documentation should be provided indicating how personnel operating the AELMP are trained and certified.
17)	Supplemental information on the proposed AELMP	This information should be provided in easy-to-understand terms or language and should cover any of the requests for supporting data/information/documentation identified above.
18)	Operation and Maintenance (O&M) Plan for the proposed AAMT	An Operation and Maintenance (O&M) Plan for the proposed AELMP that covers the following: • Standard operating procedures • Example recordkeeping format • Calibration and maintenance schedules for the AELMP

Process for AELMP Approval

The Bureau will review proposed AELMP applications within 90 days of receipt. The process for requesting an AELMP is as follows:

1) Submit a complete AELMP application and supporting documentation to [email address]. If any application material is considered Confidential Business Information (CBI), please submit an original application and a separate, redacted application for public notice purposes only.
2) The NMED AELMP team reviews application for completeness.
3) The NMED AELMP team completes evaluation of the proposed AELMP and drafts approval. The draft approval letter will be sent to the applicant for review that will outline the conditions or requirements for use of the AELMP.
4) The Bureau posts the AELMP approval letter on the Bureau's AELMP web page. Once an approval letter is issued, the AELMP may be used by anyone to meet 20.2.50.116 NMAC requirements provided the approval conditions are met.

Questions for Companies and Sources Considering Applying for an AELMP

1) QUESTION: Can a manufacturer of a proposed AELMP request Bureau approval of the AELMP or must it be done by an oil & gas company, consultant or service company interested in using or purchasing the AELMP?

   ANSWER: Any party may apply so long as the above-noted application criteria are met.

2) QUESTION: If a proposed AELMP uses infrared (IR) technology, is it already approved to meet requirements under Subsection D of 20.2.50.116 NMAC?

ANSWER: If the proposed AELMP uses technology that meets the definition of an optical gas imaging (OGI) instrument, it may be an acceptable AELMP if the requirements below are met:

- The Bureau will require the development and implementation of a monitoring plan for a non-handheld OGI camera used in a mobile monitoring platform or deployment method (for example, vehicle- mounted or aerial/drones) to instruct the use of the technology.
- The monitoring plan does not need to be provided to or approved by the Bureau prior to use of the OGI camera-based mobile monitoring system but must be made available upon request.
- The monitoring plan may be developed by the manufacturer or operator of the OGI camera-based mobile monitoring system and should include, at a minimum, the following:
    - A summary of how the monitoring system is operated and used.
    - A typical "observation path" that is focused on the field of view of the OGI camera being used by the system. The observation path description may be a simple schematic diagram or aerial photograph of the facility/site(s) being monitored, which should clearly identify the locations of components and equipment subject to monitoring, along with the maximum distance between the OGI camera and the equipment monitored (i.e., "observation path") to ensure all subject components and equipment are monitored.
    - The maximum viewing distance of the OGI camera being used by the system.
    - Typical rate of travel of the monitoring platform while conducting OGI observations.
    - Limitations affecting the ability of the system to monitor or detect emissions, such as adverse weather conditions, wind speed, etc. (see also #10 above under "Minimum Elements & Guidelines for AELMP Application and Review" for additional information).
    - Training and experience required to use the system.
    - Calibration and maintenance procedures for the system, including those recommended by the manufacturer.

AELMP Application Form

Applicants can contact the Bureau for an AELMP application form, which is also available on the Bureau's AELMP website. Applicants should ensure the application is complete before submittal. The Bureau will not review incomplete applications.

For More Information

Please send questions, comments, or concerns to the AELPM email at [email address]