Monitoring Technology Compatibility Assessment

Long Path Technologies

March 2024

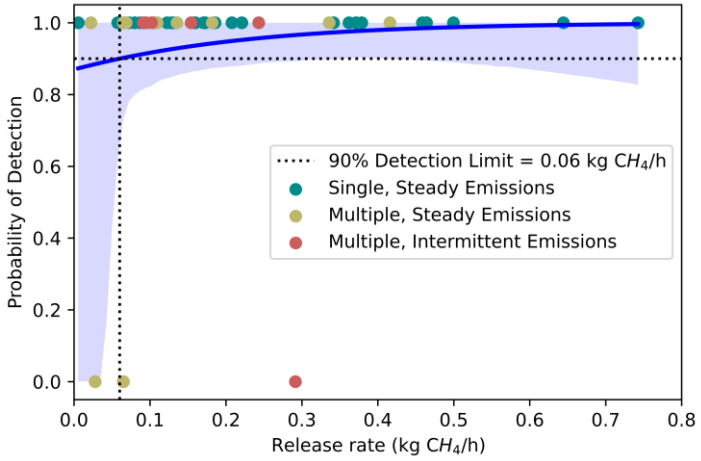
Purpose

The MiQ Foundation, as the Standard holder, has developed this monitoring technology compatibility assessment to streamline market research conducted by Operators and other stakeholders to assess the compatibility of methane monitoring technologies against the requirements in the Monitoring Technology Deployment pillar of the MiQ Standard.

This document does not endorse or reflect the personal views of the MiQ Foundation and is not intended to be exhaustive. The sole aim of this document is to provide stakeholders with an impartial summary mapping the characteristics of methane monitoring technologies and methods to MiQ requirements. This document does not guarantee that a monitoring technology or method will be compliant for a specific deployment of that technology or method. MiQ Auditors may reference the information in this document while conducting MiQ Audits, but still must assess each deployment individually. MiQ encourages Operators to carry out additional independent assessments of technologies and methods for their specific deployments.

MiQ has conducted the following assessment based on best available data, vendor-provided documentation, and published studies at the time of preparation. MiQ reserves the right to make updates to the documentation on a periodic basis to conform with new MiQ Standard updates and updated vendor documentation.

MiQ is not liable for any information provided or technology capabilities guaranteed by the technology provider.

CRITERIA	STANDARD REFERENCE	DESCRIPTION
GENERAL INFORMATION		
Name		LongPath Technologies
MiQ Application	Section 3.2.1	Facility Scale Inspection
Deployment Method	Section 4.1 – *Table 3 Detection Technology Specification (Bullet 2)*	Continuous Monitoring Systems (CMS) – Line Sensor System or Open Path Sensor System
Sensor	Section 4.1 – *Table 3 Detection Technology Specification (Bullet 1)*	LongPath utilizes an open path, laser-based line sensor in tandem with atmospheric inversion modelling to detect and quantify emissions.
PERFORMANCE SPECIFICATIONS		
Emission Source Coverage	Section 3.2.1- *Item 1*	LongPath Sensors measures emissions from all sources, including elevated sources and underground sources (buried pipelines) once methane reaches the atmosphere.
Measurement Frequency	Section 3.2.1- *Item 1*	Continuous. LongPath sensors measure concentration at a sub-1-minute timescale and emission rate at the 10-minute timescale
Attribution Level	Section 3.2.1- *Item 4*	Site/Equipment Level
Published Test Protocol	Section 4.1 – *Table 3 Detection Technology Specification (Bullet 4)*	See Attached (Alden 2019 and Coburn 2020)
MDL @ 90% PoD (Min MiQ MDL requirement is 25kg/hr)	Section 3.2.1- *Item 3*	0.06 kg/hr. See Equivalency Determination below for additional detail.
PoD Curve	Section 3.2.1- *Item 3*	 Figure 1. *PoD Curve includes a range of emission characteristics from single to multiple leak points and from steady to intermittent leak profiles all proven in single-blind 3rd party testing.*
TECHNOLOGY LIMITATIONS		
Operational Limitations	Section 4.1 – *Table 3 Detection Technology Specification (Bullet 3)*	Eligible *monitoring areas* are limited to sites and facilities within ~20 square mile area around the central node.
Environmental Limitations	Section 4.1 – *Table 3 Detection Technology Specification (Bullet 3)*	Presence of low wind (< 1m/s), and temperatures outside of -15 to 44 deg C range influence the quantification sensitivity of LongPath sensors.
EQUIVALENCY DETERMINATION		
Applicability	Section 3.2.3	An Operator using CMS over a subset of Sites (<100%) can implement a deployment strategy for Source Level and/or Facility Scale inspections that differs from the pre-defined strategies in Table 2 of the MTD Subsidiary Document 3 of the MiQ Standard.

		Please refer to the MiQ Equivalency Table for additional information or contact MiQ.
RECONCILIATION CONDISERATIONS		
Reconciliation	MI Section 3.3 – *Item 4*	LongPath can attribute emissions at the site or equipment level (accomplished through additional retroreflective mirrors) of a *monitored area*. A Producer/Operator utilizing the sensors may need to follow up with a ground inspection to attribute emissions accurately to an individual source if the emissions timeseries and SCADA are unable to confirm the source via a desktop study. This technology quantifies emission rate using an atmospheric inversion algorithm which takes into consideration concentration measurements from the long-range line sensor (open path) laser and micrometeorological properties of the atmosphere. Producers/Operators can use either the emission rate provided by Longpath or engineering calculations, whichever is deemed best available data, to quantify detected emissions. Due to the nature of continuous monitoring technologies, Operators can set alerting thresholds and get real time data of detected events via email, SCADA and/or dashboard. This data allows Operators to infer emission duration and emission source. Causal Examination using operational and maintenance data may be required to understand the cause and origin of a detected event.
ADDITIONAL DOCUMENTS		
		See Attached

Document Status

Table: Version History

Version	Date	Summary of Change
1.0	2023-08	First Publication