

# Public Quarterly Report

**Date of Report:** 6<sup>th</sup> Quarterly Report – March 31, 2024

**Contract Number:** 693JK32210006POTA

**Prepared for:** The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (DOT-PHMSA)

**Project Title:** Accelerating Pipeline Leak Detection Quantification Solutions Through Transparent and Rigorous Scientific Validation

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**For quarterly period ending: March 31, 2024**

## 1: Items Completed During this Quarterly Period:

<i>Item #</i>	<i>Task #</i>	<i>Activity/Deliverable</i>	<i>Title</i>	<i>Federal Cost</i>	<i>Cost Share</i>
12	5	Comprehensive experimental data sets from real world field sites.	Data collected from real world field sites		
13	5	Understanding how probability of detection varies in adverse field conditions	Analysis of field data		
14	xx	6th Quarterly Status Report			
		<b>6th Payable Milestone</b>			<b>\$ 22,798</b>
		<b>Total</b>			<b>\$ 22,798</b>

**2: Items Not Completed During this Quarterly Period:** Activity 12, Task 5, Comprehensive experimental data sets from real world field sites and Activity 13, Task 5, Understanding how probability of detection varies in adverse field conditions are in progress and will be billed in the next quarterly report.

### 3: Project Technical Status:

Slides from the Industry Advisory Board (IAB) meeting on February 1, 2024, can be found in **Appendix C**.

Follow on experiments were completed at United States Air Force Academy (USAFA) to support prior work from **Activity 9, Task 4.2** and to continue work for **Activity 12, Task 4.4** from March 3<sup>rd</sup> to 9<sup>th</sup> 2023. The objective of these experiments was to investigate the impact of complex urban conditions, slope/topography, and snow conditions on probability of detection for survey methods. **Appendix D** provides the experimental plan for the experiments that were conducted.

Papers for academic submission have been drafted in support of **Activity 15, Task 4.7**. A draft paper investigated the impact of gas composition can be found in **Appendix A**. The second paper investigating the impacts of soil type and soil moisture on probability of detection can be found in **Appendix B**.

**Activity 16, Task 5.1** – Field Trial Planning meetings have been conducted with Pipeline Operators (*redacted for public version*), who are interested in allowing testing on their sites. Testing sign offs by operator leadership teams are currently pending and will dictate when Field testing can occur. The dates discussed with each operator fall in the range of late April to mid-May.

### 4. Project Schedule

The project is progressing as scheduled.

#### **Appendix A:**

Draft Version Kolodziej, R. S., Venkata Rao, G., Tian, S., Zimmerle, D.J., Smits, K.M. “**Impacts of mixed hydrocarbon blends on probability of detection from belowground pipeline leaks.**” In Review, 2024. (*Redacted in Public report.*)

#### **Appendix B:**

Draft Version: Venkata Rao, G., Kolodziej, R. S., Uribe, J R., Zimmerle, D.J., Smits, K.M. “**Impact of Soil Water Saturation and Soil Heterogeneity on Methane Migration for Leak Detection and Quantification.**” In Review, 2024. (*Redacted in Public report.*)

#### **Appendix C:**

APPLIED Project TAP Meeting Slides from 2024-02-01 (*Redacted in Public report.*)

#### **Appendix D:**

USAFA Experimental Plan for experiments from 2024-03-03 to 2024-03-09 (*Redacted in Public report.*)