Public Quarterly Report

Date of Report: *December 31, 024 (1st Quarterly Report)*
Contract Number: *693JK32410006POTA*
Prepared for: *<Government Agency: DOT and Co-funders (if applicable)>*
Project Title: *Advanced Leak Detection Capabilities for Compressible Hydrocarbon Products*
Prepared by: *Flowstate Solutions*
Contact Information: *Braden Fitz-Gerald | braden.fitzgerald@flowstatesolutions.ai | 307-399-7516*
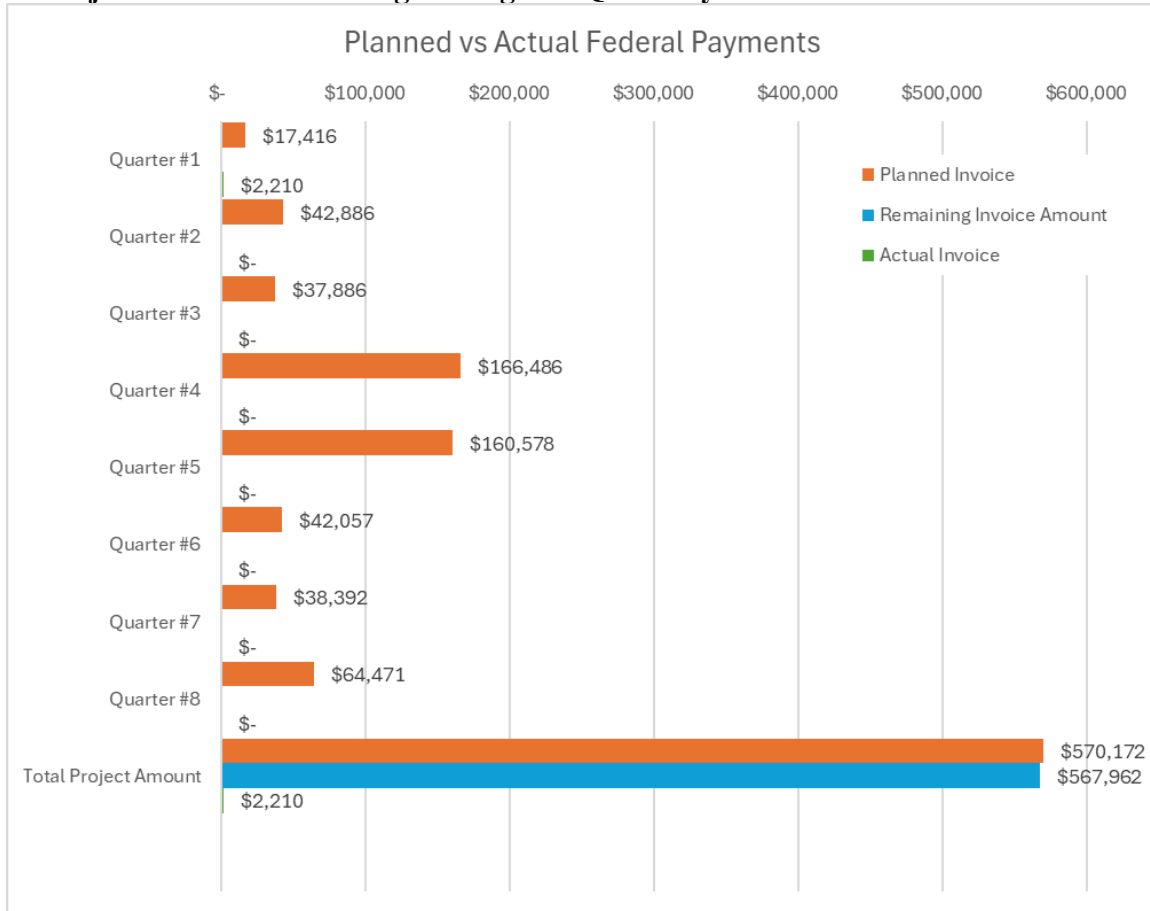**For quarterly period ending:** *December 31, 2024*

1: Items Completed During this Quarterly Period:

Item #	Task #	Activity/Deliverable	Title	Federal Cost	Cost Share
2	12	1st Quarterly Status Report	Submit 1st quarterly report	$2,210	$1,633

2: Items Not-Completed During this Quarterly Period:

Item #	Task #	Activity/Deliverable	Title	Federal Cost	Cost Share
1	1	Identify and finalize partnerships with pipeline operators to access data, facilitate physical withdrawal tests, and gain domain expertise. This is critical for obtaining real-world data and conducting physical tests.	Establish Partnerships	$15,206	$20,893

3: Project Financial Tracking During this Quarterly Period:

Planned vs Actual Federal Payments

■ Planned Invoice		
■ Remaining Invoice Amount		
■ Actual Invoice		

Quarter #1: $17,416 / $2,210
Quarter #2: $42,886 / $-
Quarter #3: $37,886 / $-
Quarter #4: $166,486 / $-
Quarter #5: $160,578 / $-
Quarter #6: $42,057 / $-
Quarter #7: $38,392 / $-
Quarter #8: $64,471 / $-
Total Project Amount: $570,172 / $567,962 / $2,210

4: Project Technical Status –

Item #2, Task #12, Submit 1st Quarterly Report
During this quarter, we completed Item #2, Task #12, as outlined in Attachment #3, which corresponds to Item #1 in the Team Project Activities section (Project Discussion and Planning). Below is a summary of the work completed and associated activities:

Work Completed
1. **Development of Project Plan**: A comprehensive project plan was created, detailing timelines, objectives, deliverables, and key milestones for successful execution. This plan serves as the foundational roadmap for the project.
2. **Technical Advisory Panel (TAP) Assembly**: The TAP was assembled, comprising experts across relevant disciplines to provide guidance and technical oversight throughout the project duration.

3. **Kickoff Meeting**: A virtual kickoff meeting was hosted with all key stakeholders, including project partners and TAP members. The meeting outlined the project's goals, deliverables, timelines, and expectations, ensuring alignment among all parties.
4. *Partner Coordination*: Initial coordination activities with project partners commenced, focusing on identifying specific project needs, resource allocation, and execution strategies. This includes defining roles, responsibilities, and cost-sharing contributions.

5: Project Schedule –

Item #1, Task #1, Establish Partnerships, Deliverable #1 - Finalize Partnerships and Contracting Agreements
Reason for Delay
During this reporting period, we did not complete Item #1, Task #1, as outlined in Attachment #3. While project partners have been successfully identified, the negotiation and finalization of agreements have taken longer than anticipated due to the following reasons:

1. **Delays in Agreement Finalization**:
    o Factors such as holiday schedules, personnel transitions, and organizational changes within one partner's structure have contributed to slower-than-expected progress.
    o While agreement finalization and asset selection are taking longer than planned, there is no indication that this partner will be unable to contribute. However, these delays may impact the scheduling for data collection and validation activities.
2. **Partner Engagement**:
    o Another partner is fully committed to the project, and efforts are underway to identify the appropriate personnel for agreement review and finalization. Initial drafts outlining the nature of the partnerships have been prepared and are in the process of being reviewed.

Impact on Schedule
While the delays in finalizing agreements may have downstream effects on data collection and validation withdrawal scheduling, we are actively mitigating these risks by continuing discussions with both partners and prioritizing agreement execution in the next quarter.

Item #4, Task #5, Technical and Literature Review, Deliverable #3 - Technical Experiment Design Including Literature Review
Progress Update
This task is well underway and on schedule. Our principal data scientist has outlined a comprehensive research scope and is actively working on:
- Hydraulic modeling methods.
- Machine learning approaches for anomaly detection and forecasting.
- Physics-informed machine learning solutions.

This work is currently being synthesized into a gap analysis to guide experiment design.

Impact on Schedule
This task is progressing as planned and is expected to be completed on time.

Overall Schedule Status
The project is slightly behind schedule due to delays in finalizing partnerships and agreements (Item #1, Task #1). However, significant progress has been made on technical tasks, and we are confident that adjustments in subsequent quarters will keep the project on track for successful completion.