



August 8, 2025

Mr. Jordan Kannianen, Deputy Executive Director
North Dakota Industrial Commission
ATTN: Oil and Gas Research Program
State Capitol – 14th Floor
600 East Boulevard Avenue, Department 405
Bismarck, ND 58505-0840

Re: Quarter 4 (FINAL) Status Report – June 2025 through July 2025
Contract Number: G-060-117
Well Site Thief Hatch Methane Detectors – Phase II

Dear Mr. Kannianen:

On behalf of Blue Rock Solutions, LLC, dba Blue Comply, we are pleased to submit the fourth and final quarterly Status Report on the development of Well Site Thief Hatch Methane Detectors – Phase II as required under Contract Number G-060-117. While our original contract indicated a final submittal date of March 1, 2026 for the last Quarterly Report and May 1, 2026 for the Final Report, we are asking that we are allowed to close out the contract as we have met all of our anticipated milestones ahead of that end date. Therefore, our last Quarterly Report and Final Report would be due by September 1, 2025.

Project Description

This project is to further expand the capabilities of an existing methane detection device & associated software created in Phase I (Well Site Thief Hatch Methane Detectors), also known as Industrial Internet-of-Things Methane Sensing Apparatus (IMSA). This technology addresses the largest sources of methane leaks on an oil and gas production site - the storage tank thief hatches. This shall increase the reliability of gas monitoring, shorten response time for repairs, reduce liability for potential EPA charges and help with the public's perception of the environmental impacts by reducing emissions.

The outcome of this project is to achieve commercialization of the IMSA product, which can be accomplished by completing pilot projects with the Producers and fine tuning the product to their needs.

Another result of this project is to learn more regarding quantification (estimation of gas being released). This will still be an exploratory idea but we will have narrowed down the pathway to estimating the gas.

A final expected result is to evaluate other well site assets to determine additional opportunities to assist producers with detection and monitoring of methane gas emissions.

Quarterly Progress

Investigate and develop embedded system hardware to include industry standard wireless communication technologies/protocols, (i.e. Wireless HART, Bluetooth, LoRaWAN), to allow for direct integration to existing and / or new Producer's SCADA systems.

Quarter 1 - Generation 2 of the IMSA device has successfully been designed and tested to include LoRaWAN technology to integrate into existing SCADA systems.

Quarter 2 – Minor revisions were made to meet producer's final requirements for field installed pilot projects, and to meet final UL submission requirements.

Quarter 3 – Improved wireless technologies for seamless wireless transmission between sensor devices, cloud, and producers' SCADA. Analyzed tank pressure and weather data from other devices on site to verify methane and hatch measurements are accurate. Improved security of the communication chain and increased signal strength with exploration of a new antenna. Worked with SIM provider to hone in cellular signal processing – both in the US and overseas.

Quarter 4 – Completed revisions to allow for Over-The-Air updates. Also completed multiple upgrades to dashboard to increase the amount of information available to the end-user.

Investigate and develop additional power supply options to increase longevity through use of larger and higher capacity batteries, solar recharging and / or newly developed battery technologies.

Quarter 1 - Two options for increased power supply longevity have been successfully designed, including larger non-rechargeable batteries, and rechargeable batteries using an integrated solar charging circuit.

Quarter 2 – Revisions were made to meet final UL submission requirements.

Quarter 3 – Due to the lack of existing off-the-shelf battery options for our unique photovoltaic power system, custom rechargeable battery packs were designed using the latest Lithium-Ion battery technologies. Refinements to the solar charging circuitry have been added as additional safeguards for under-charging and over-charging through analog and digital controls. Process for patenting solar charging capabilities has been investigated.

Quarter 4 – Testing has been completed to determine optimum solar cell placement and orientation to maximize solar recharging. It was also verified that solar recharging still has a positive impact during instances where direct sunlight is not available. Changes were also made to the device firmware that drastically reduced the power consumed during “sleep” mode, thereby extending battery life.

Build and deploy updated devices to various producers as well as perform additional field testing at METEC (Methane Emissions Technology Evaluation Center – Colorado State University).

Quarter 1 - Two pilot projects have been deployed with Generation 1 devices. These will be replaced with Generation 2 devices in January 2025.

Quarter 2 – Generation 1 devices from Quarter 1 are scheduled to be replaced with Generation 2 devices on February 6th. Additional Generation 2 devices have been built in anticipation of potential upcoming pilot projects and/or installation at METEC.

Quarter 3 – Deployed Gen 2.0 and Gen 2.2 devices at two existing pilot projects that include the features of instantaneous hatch movements and greatly improved power usage for minimal maintenance, and integral solar charging. Did not deploy to METEC as the program had changed from the previous year. Additional Pilot projects are pending, waiting for final UL Listing to proceed.

Quarter 4 – Continued reaching out to potential pilot project partners. Attended methane mitigation conference to meet with operators and other entities involved with

methane mitigation technologies. Currently in process to begin testing at the NGIF Emissions Testing Facility at the University of Calgary. Lab testing and field testing expected to start the third week of September 2025.

Continue pursuit of Underwriters Laboratory and FCC certification for final products.

Quarter 1 - UL Listing is in progress.

Quarter 2 – Final Generation 2 design documents have been submitted to UL for final review. UL listing is expected in approximately 12-16 weeks.

Quarter 3 – Final review by UL has been completed. Devices are now being built and submitted to UL for laboratory testing. Additional scope was added by UL for an evaluation under UL 1741 for the charge controller and solar recharging. This required UL to contract a 3rd party testing group to test both our battery packs, and on-board photovoltaic charge controller for compliance under a new, recently revised UL standard. Testing is expected to be completed by July 2025.

Quarter 4 – UL testing has been delayed to staffing changes at UL. New date for testing completion and final UL Listing (barring any other complications) is August 31, 2025.

Explore other target areas of methane emissions such as gas cooling compressors, compressor buildings, etc.

Quarter 1 - Discussions with various producers have identified multiple additional opportunities. Device variations are currently being considered to address these opportunities.

Quarter 2 – Discussions continue with producers on methods to address additional opportunities.

Quarter 3 – Developed plans for slight modifications to devices so they can be used inside a building or structure on site. In talks with potential client to place devices within an equipment building.

Quarter 4 – Developed final design concepts for a wired version of our device for use in other indoor applications. Also developed initial design concepts for a wireless “position-only” device that still allows for monitoring of hatch position (no methane detection).

Initiate research related to quantification (estimation of gas being released measured as standard cubic feet per minute).

Quarter 1 – Blue Comply is working with North Dakota State University's College of Engineering to develop a means to establish a path toward quantification.

Quarter 2 – Work with North Dakota State University continues with lab testing and information gathering to move towards potential quantification. Blue Comply has also established an internal lab test bench that will eventually be utilized for gathering potential quantification data.

Quarter 3 – Studied sensor calibration procedures through the use of Blue Comply's internal gas testing rig and NDSU's environmental test chamber. The effects of humidity on the non-dispersive infrared (NDIR) gas sensor must be investigated further at extreme humidity levels (above 98%). AI models are being developed to compensate for hydrogen present in both methane and water molecules but controlled testing for accurate quantification is yet to be completed.

Quarter 4 – Quantification models continue to evolve as more pilot project data becomes available. Upcoming testing at the NGIF Testing Facility at the University of Calgary will help develop some of the framework required to come up with a more accurate means of quantification.

Quarterly Expenditures

For the months of June 2025 through July 2025, the total expenditures are as listed below:

Direct Expenditures	\$119,533.48
In-Kind (465.00 hours @ \$175/hr)	\$ 36,400.00
TOTAL	\$155,933.48

Please refer to Attachment A – Expenditures (June 2025 through July 2025) for more detailed information in regard to incurred costs. Based on these expenditures, we are requesting FINAL payment from NDIC in the amount of \$37,713.94. This will bring our total requested amount of payment to \$450,000.

Respectfully submitted,

Blue Comply

A handwritten signature in black ink, appearing to read 'Troy Vareberg', written in a cursive style.

Troy D. Vareberg, PE

Enclosures:

Attachment A – Expenditures (June 2025 through July 2025)