

# NYSEARCH Spotlight

Dedicated to serving its utility member companies with focus on natural gas RD&D, technology development & commercialization, and joint industry collaboration

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## Another field test successfully completed for project entitled sUAS survey of submerged pipe

A second field test was conducted in the Rochester Gas & Electric territory at the end of September. In that test, three sUAS leak detection methods; aerial, floating, and submerged were deployed and demonstrated. The picture shows the drone deployed for aerial detection. In addition, methane sensor information is-being analyzed from the data collected by the OPLS and Pergam sensors that were used during the aerial and floating evaluations. This trial of submerged and remotely operated underwater vehicle (ROV) demonstrated the ability to search for other physical attributes of a leak from submerged pipe. This approach takes the place of using underwater methane sensors which are not currently available. The ROV's 12MP photo production and 4k video capability were evaluated with underwater rising bubbles produced by simulated pipeline methane leaks. Flow rates from 0.5scfh down to 0.01scfh were released with visual detection confirmed even in murky water. A formal review of these test results is pending with project funders.

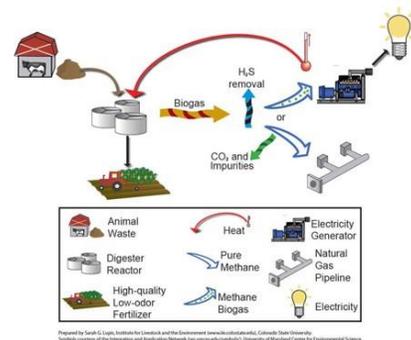


## Field work begins at RG&E for First Pass Leak Detection

The first field test to evaluate the practical application of First Pass Leak Detection (FPLD) was completed in early October in RG&E territory. The project objective is to evaluate improvements to leak survey effectiveness by optimizing the use of multiple instruments and data acquisition techniques to maximize the detection of pipeline leaks predominantly for walking survey to achieve maximum leak detection in a single pass. Three (3) native leaks were found as well as three (3) NYSEARCH additive marker gas (AMD) leak simulations releasing 0.5 - 1.0scfh of gas. Detection of the leaks were recorded with GPS directly on the map route survey location. Post processing analysis of leaks were completed from all three (3) methane detection instruments into a mapped composite output confirmed all leaks were revealed and inspected. The lessons learned and improvements will be incorporated into the FPLD approach as shown below. A formal review of these results is pending with project funders.

## NYSEARCH leads Decarbonization workshop for NYPSC

In October, NYSEARCH had the opportunity to present on our Decarbonization work to the New York Public Service Commission. Over 40 participants joined the call including some of our New York based members and their teams. The main purpose was to educate regulators on how the gas distribution sector is approaching decarbonization through a research perspective. Several active NYSEARCH programs related to decarbonization were presented and lively discussions occurred. A recording of the presentation is available at this [link](#) for those interested in viewing.



## Natural gas dispersion study with blended hydrogen testing continues

This NYSEARCH study investigates the effect of hydrogen on the dispersion of methane-hydrogen gas mixtures in various experimental settings, specifically representative of residential structures. The benchtop testing for this project has been completed and the picture on the right shows the experimental setup used to investigate the physics of the hydrogen-methane gas mixtures. Blends up to 20% hydrogen were examined. The results from the benchtop testing show that hydrogen and methane remain a homogeneous mixture as the gas disperses. Further, no separation of natural gas and hydrogen was observed at lower flow rates.

Testing will continue to examine hydrogen blend dispersion behavior in full scale residential structures. Key findings from benchtop testing will aid in the analysis of results from full scale testing. The wider goal of this work will help determine if the current guidelines on methane detector placement within residential structures can remain the same for blended hydrogen gas or will need to be updated to accommodate for any different dispersion characteristics identified.



## Field test completed for Surface Expression Measurement Technique and Process

The first field test to evaluate the surface expression technique for application to multiple leak area grids was completed in mid-October in ConEdison territory. This field test marks the first test in the second phase of work

for this program. The objective of this phase is to advance investigation to optimize the surface expression technique, including various measurement techniques for: 1) additional field test configurations, 2) more in-depth field testing for statistical confirmation and 3) development of training technique instructions. The field test was comprised of actual known leaks within the ConEd territory. At one leak location, a twelve (12) grid matrix that covered a large leak migration pattern was used to measure the methane emissions. NYSEARCH included additive marker gas (AMD) of known amounts and compared findings applied to native leak measurements. Measurement of controlled releases helps to determine accuracy and improvements to the overall process. The field test results are being analyzed and will be reviewed with project funders.