

AQRP Monthly Technical Report

PROJECT TITLE	Improving Emission Rates Estimates of Commercial Marine Vessels	PROJECT #	24-003
PROJECT PARTICIPANTS	University of Houston, Ramboll, FluxSense	DATE SUBMITTED	05/09/2025
REPORTING PERIOD	From: 04/01/2025 To: 04/30/2025	REPORT #	9

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task for reporting period

- Conducted sampling on April 1, 9, 10, and 11 and logged ~150 discrete plumes across these four days. The total number of uniquely identified pushboat plumes for the project was ~390.
- Conducted final calibrations.
- Removed the heaviest equipment (FluxSense instruments, Aroma-VOC, and the Teledyne T640 and enclosure) from the boat on April 16 using the crane at the Seabrook Ship Yard. (see images below).
- Made plans to remove the boat on May 1st and deliver it back to the University of Houston (UH) campus.

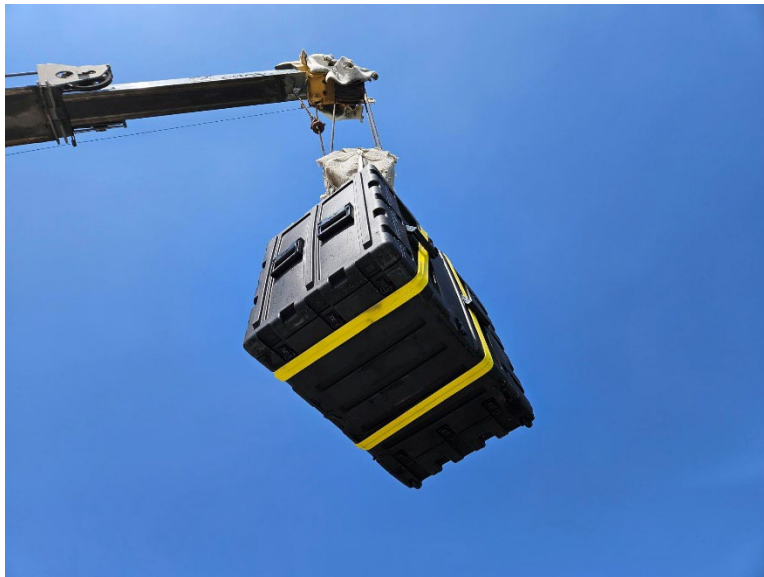


Figure 1. Unloading equipment from the boat on April 16, 2025.



Figure 2. Unloading equipment from the boat on April 16, 2025.

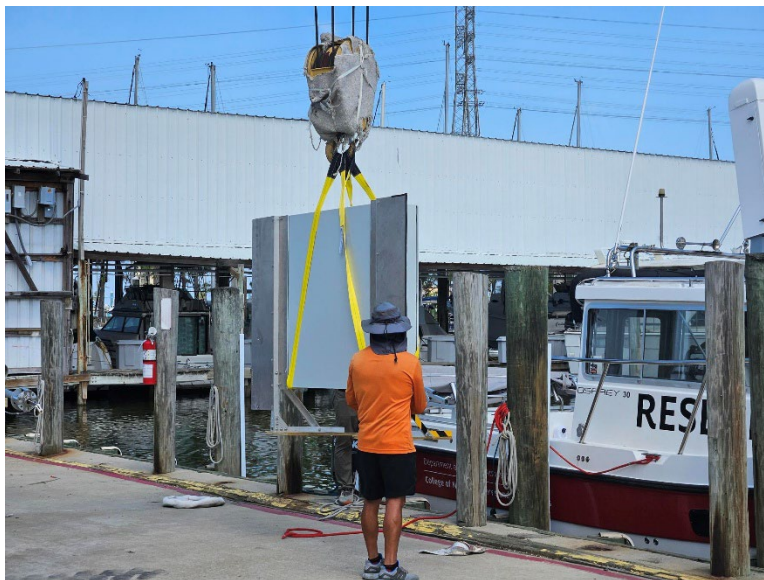


Figure 3. Unloading the FluxSense instrument from the boat on April 16, 2025.

Preliminary Analysis

- Preliminary calculations by Ramboll using nominally corrected Level 0 data indicate that most plumes sampled are relatively close to Environmental Protection Agency ratios, however, some are notably different.

Data Collected

Yes

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

- The nitrogen dioxide (NO₂) analyzer has been applying more internal smoothing to the data than is desired, and changing settings per Teledyne technical support does not appear to address the issues. Will discuss the impacts to data with Ramboll.

Goals and Anticipated Issues for the Succeeding Reporting Period

- Remove the boat from the water and have it delivered back to the UH campus.
- Have a meeting with FluxSense and Ramboll to discuss the data collected and determine plans for analysis.
- Extract precise plume times for easier identification and cross-referencing with ship identification logs.
- Finalize data and share with project partners.

Detailed Analysis of the Progress of the Task Order to Date

None

Do you have any publications related to this project currently under development? If so, please provide a working title, and the journals you plan to submit to.

Yes No

Do you have any publications related to this project currently under review by a journal? If so, what is the working title and the journal name? Have you sent a copy of the article to your AQRP Project Manager and your TCEQ Liaison?

Yes No

Do you have any bibliographic publications (ie: publications that cite the project) related to this project that have been published? If so, please list the reference information. List all items for the lifetime of the project.

Yes No

Do you have any presentations related to this project currently under development? If so, please provide working title, and the conference you plan to present it (this does not include presentations for the AQRP Workshop).

Yes No

Do you have any presentations related to this project that have been published? If so, please list reference information. List all items for the lifetime of the project.

Yes No

Have any personnel changes occurred that were not listed in the original proposal? If so, please include a detailed description of the personnel change(s) below.

Yes No

Are any delays expected in the progress of the research? If so, please include a detailed description of the potential delay below.

Yes No

Describe any possible concerns/issues (technical or non-technical) that AQRP should be made aware of.

N/A

**Are you anticipating using all the available funds allocated to this project by the end date?
If not, why and approximately what is the amount to be returned?**

Yes **No**

Submitted to AQRP by
James Flynn