

Public 10th Quarterly Report

Date of Report: 9th Quarterly Report – February 1, 2021

Contract Number: 693JK31810002

Prepared for: DOT

Project Title: On-Board Power and Thrust Generation for the Explorer Family of Robots for the Inspection of Unpiggable Natural Gas Pipelines

Prepared by: Northeast Gas Association

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For quarterly period ending: January 31, 2021

1: Items Completed During this Quarterly Period:

During this 10th Quarter the following tasks were completed.

<i>Item #</i>	<i>Task #</i>	<i>Activity/Deliverable</i>	<i>Title</i>	<i>Federal Cost</i>	<i>Cost Share</i>
41	2-K	Consultant	Technical management of project	\$1,884	\$1,884
42	3-K	NYSEARCH Project Management	Submit 8 th quarterly report	\$2,575	\$2,561
47	1.7-E	Explorer Integration	Integrate energy harvesting module on the Explorer 20/26 robot	\$13,622	\$13,678
48	1.8-D	System Redesign	Redesign system for robustness and reliability	\$39,375	\$39,375
49	2-L	Consultant	Technical management of project	\$1,884	\$1,884
50	3-L	NYSEARCH Project Management	Submit 10 th quarterly report	\$2,574	\$2,561
36	5-A	Peer Review #1	Prepare presentation and present. Submit presentation file.	\$1,000	\$0
37	5-B	Peer Review #2	Prepare presentation and present. Submit presentation file.	\$1,000	\$0

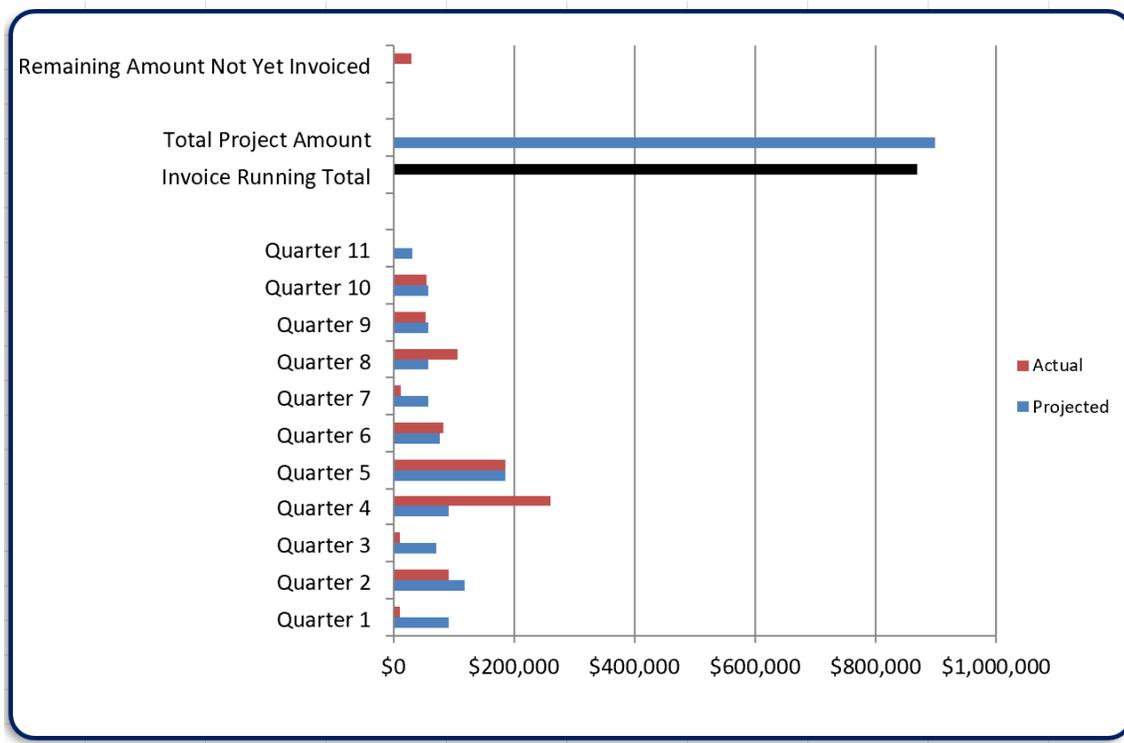
As seen, based on task completion, the project is on schedule.

2: Items Not-Completed During this Quarterly Period:

The project is on schedule.

3: Project Financial Tracking During this Quarterly Period:

QUARTERLY PAYABLE MILESTONES/INVOICES - 693JK31810002



4: Project Technical Status

Tasks 2-K and 3-K:

Completed earlier but not invoiced.

Task 1.7-E: Explorer Integration

The entire energy harvesting module was manufactured and assembled. Once assembled it was integrated on Explorer 20/26 and testing of the firmware, that controls the operation of the module and its interaction with the rest of the robot, was initiated. This testing is in progress and expected to be completed in early February.

The testing of the robot, with the energy harvesting module integrated on it, will take place in an experimental setup that has been built in the laboratory

Task 1.8-D: System Redesign

The firmware of the system is being modified and adapted as testing progresses. On the hardware side, a number of sensor assembly and motor wiring issues were identified and resolved.

Once the firmware is complete a full set of tests of the entire robot will be initiated. If any issues arise, the necessary system redesigns will be undertaken.

Task 2-L: Overall Technical Oversight – Consultant

Dr. Vradis oversees the entire development effort on a day-to-day basis. During this period, he worked with Invodane Engineering to review the results of the testing of the individual components during the assembly process and develop a program to address the design issues identified. He also updated the Project's Technical Advisory Board on the status of the project and received input in a December 2020 meeting.

Task 3-L: NYSEARCH Project Management

The NGA/NYSEARCH Executive Director, Daphne D'Zurko has the overall management responsibility for the project as the Team Project Manager. In this period, she was involved in updating the NGA funders on progress with the project, interacting with the PHMSA project manager, as well as in the submitting this tenth quarterly report.

5: Project Schedule

The project is on schedule. During the next period we will complete the testing of the entire energy harvesting system integrated on the Explorer 20/26 robot, thus concluding this project. Any issues identified during testing will be addressed and modifications will be made as needed.

6. BUSINESS ISSUES

We expect to complete the project as per project's timetable and within budget.