

Project Title: Non-Destructive Testing and Evaluation (NDT&E)

Principal Investigator:

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Student Involvement: Graduate and undergraduate students

Project Objective: Perform a comprehensive literature search on potential NDT modalities available for inspecting hydrogen transportation systems.

Project Abstract: Information is lacking about failure mechanisms associated with various hydrogen transportation systems, the types of typical failures, and critical locations where they may occur. Although one may consider these systems to be related to carbon-reinforced pressure vessels, their specific uses, material interactions with hydrogen, and unique in-service accumulated damages are expected to impose certain NDE restrictions and limitations that pressure vessels used in the aerospace industry may not suffer from. Therefore, in consultation with public safety authorities and experts, researchers must evaluate, select, and bring in various suitable NDE methods for an effective and synergistically integrated approach to the NDE of these different components.

Anticipated Benefits: A comprehensive list of NDE modalities capable and suitable for inspecting hydrogen transportation systems will be provided.

Modal Orientation: Hydrogen transportation systems

Relationship to other Research/Projects: The proposed project is related to the development of a rural hydrogen transportation test bed that will demonstrate, evaluate and promote hydrogen-based technologies in a real-world environment.

Technology Transfer Activities:

1. Technical reports showing findings, conclusions and recommendations; and
2. Technical papers for publication in conference proceedings and journals.

Transportation Research Board Keywords: Composite Storage Cylinders, Non-Destructive Testing and Evaluation