

**PHMSA Pipeline Safety, R&D Program**

Contract Number: DTPH56-10-T-000014

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# Selection of Pipe Repair Methods

## **Composite Pipe Repair Systems**

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Operations Technology Development Program

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# Objective

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The research project will establish procedures and perform long-term tests to evaluate composite pipe repair methods, evaluate their performance in comparison to metallic repairs, and improve the selection and installation of the repair methods.

# Approach

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- a) Establish and modify testing protocols to evaluate long-term properties of the repair systems,
- b) Work with the suppliers and service providers to test and evaluate the performance of the repair systems available in the market,
- c) Work with the ASME PCC 2 Subcommittee on Composite Repair in developing and modifying the standards for testing and qualification of repair systems, and
- d) Provide operators with guidelines for selecting the appropriate repair methods.

# Benefits

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The results will allow operators to properly select repair systems based on sound engineering tests and will help reduce the risks associated with faulty or ineffective repairs.

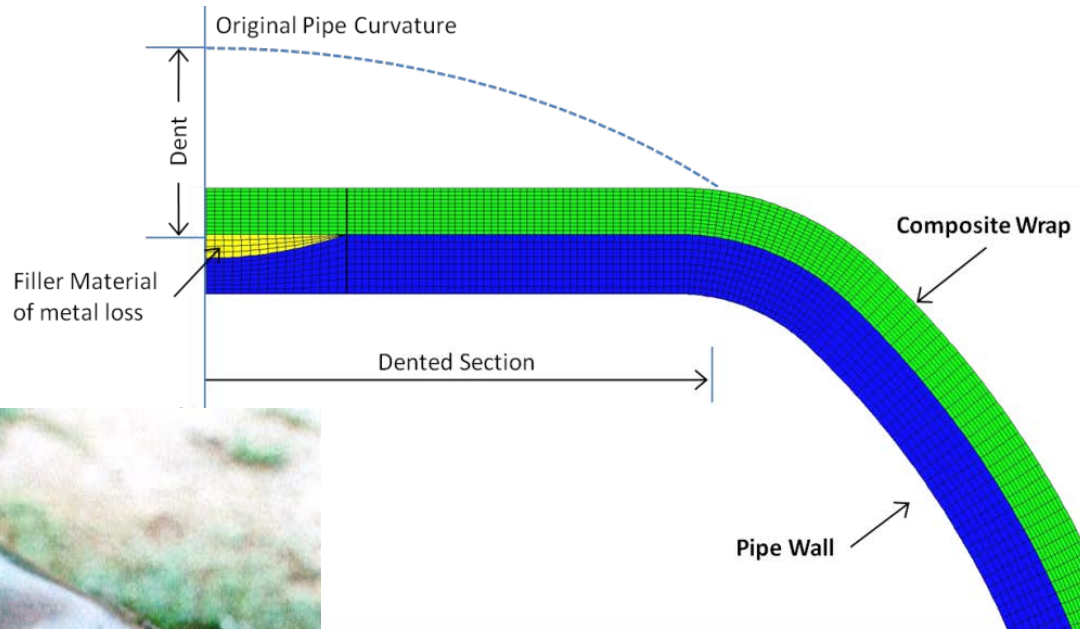
The work will benefit industries in the repair of natural gas and liquid transmission and gas distribution lines .

# Project Tasks

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- Identify Repair Methods and Properties,
- Tests and Procedures for Material Mechanical Properties,
- Tests and Procedures for Performance in Hydrostatic loading,
- Performance under Cyclic loading,
- Evaluate Performance under Outside Loads,
- Evaluate Cathodic Disbondment of Composites,
- Determine the Likelihood of Degradation,
- Guidelines and Testing Procedures.

# Task 1 - Identify Repair Methods and Properties



*FEA Modeling of dented pipe with metal loss*

# Long-Term Performance of Composite Repairs



*Long-term Hydrostatic pressure tests*