



U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

# PHMSA Accomplishments

## Pipeline Safety Research & Development

Development, Field Testing & Commercialization of a Crack & Mechanical Damage Sensor for Unpiggable Natural Gas Transmission Pipelines **DTPH56-13-T-000006**



### Main Objective

The project objective was to further develop and thoroughly demonstrate a cracking and mechanical damage sensor in the inspection of unpiggable natural gas pipelines. The sensors will be integrated into the Explorer family of robotic devices, though only the mechanical damage sensor reached commercial success.

### NET Improvement

The research supported the launch of the Laser Deformation Sensor (LDS) on the Explorer family of robotic inspection tools. The LDS is a laser-based sensor that allows the identification of any mechanical damage or ovality issues in hard to inspect/unpiggable natural gas pipelines. Unlike traditional caliper-based mechanical damage sensors found on smart pigs, this sensor has no moving parts, requires minimal power to operate, is very light, and occupies very little space. These are all important attributes for effectively operating in unpiggable systems. LDS identifies mechanical damage or ovality issues at an accuracy level comparable to or better than traditional calipers.

### Commercial Partner



An **Intero** company

### PHMSA Funding

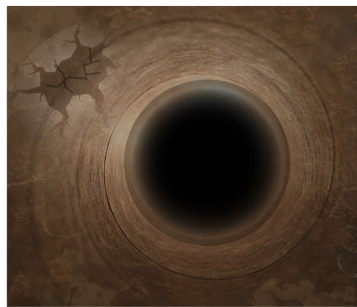
\$840,396

### Public Project Page

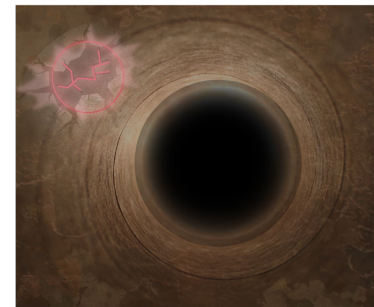
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### US Patent under DOT Contract

N/A



A dent observed by the camera on Explorer



The same dent measured by the LDS

For more information about PHMSA accomplishments, click [here](#)