



# Completion of Development of Robotics Systems for Inspecting Unpiggable Transmission Pipelines

DTPH56-10-T-000008

## PHMSA ACCOMPLISHMENTS

**Pipeline and Hazardous Materials Safety Administration**

**Pipeline Safety Research and Development**

**Technology Development for Improved Corrosion Mitigation**

### Project Abstract

The Explorer 20/26 robot is a second generation commercial prototype that is 14 feet long and weighs over 800 lbs. With cameras installed on each end, the device contains a high resolution Magnetic Flux Leakage sensor for pipeline inspection activities. Its tetherless design allows the robot to be controlled wirelessly and can articulate and transform its orientation to traverse valves and other obstructions that cause certain pipelines to be unpiggable. Work on the Explorer 20/26 follows the same development path of the Explorer 6/8, another technology project co-sponsored by PHMSA and the Northeast Gas Association/NYSEARCH.

**PHMSA Funding:** \$1,708,831

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### NET Improvement

This work led to the commercial deployment and deployment of the first ever robotic inspection platform (Explorer) and integrated Magnetic Flux Leakage sensor capable of internal unpiggable gas pipeline inspection through many internal obstructions including plug valves. Explorer is an untethered, modular, remotely controllable, self-powered inspection robot for the visual and nondestructive inspection of 20" and 26" natural gas transmission and distribution system pipelines.

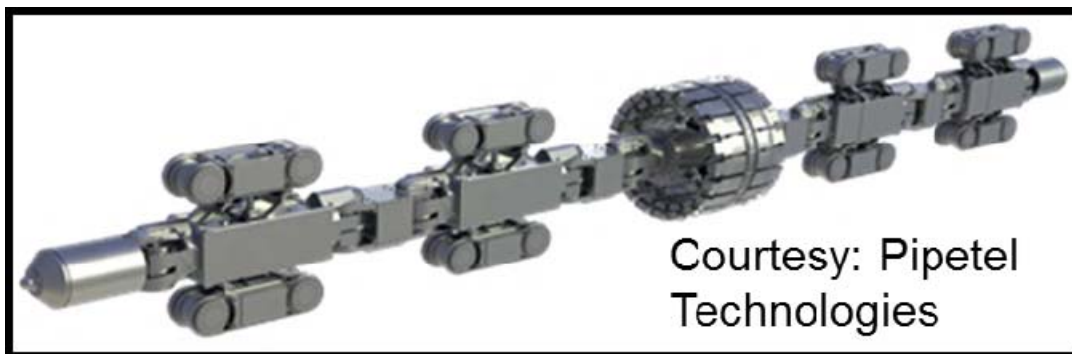
**US Patent under DOT Contract:**  
N/A

### Commercial Partner

**Pipetel Technologies**  
<http://www.pipetelone.com/>

### Contact

James Merritt  
[james.merritt@dot.gov](mailto:james.merritt@dot.gov)



Courtesy: Pipetel Technologies