Quarterly Status and Progress Report
13 January 2005

Hazardous Liquids Airborne Lidar Observation Study (HALOS)

During the initial stage of this project, the ITT Industries team has begun work on a variety of early deliverables and worked with RSPA to refine the program schedule and define the scope of project deliverables. In this project, with support of RSPA, ITT Industries intends to extend its current Airborne Natural Gas Emission Lidar (ANGEL) technology to create a conceptual design for an airborne hazardous liquid leak detection system. Early efforts have focused on project management activities, creating a library of pipeline right-of-way spectral field information, developing an overview of potential aircraft platforms for future sensor systems, and preparing for a kickoff meeting with RSPA.

The ANGEL system has been built to remotely detect, quantify, and precisely locate hydrocarbon gas leaks from natural gas transmission pipelines. This system uses advanced lasers that have been spectrally tuned to detect natural gas. In addition to leak detection and quantification, the ANGEL system's automatic pointing and scanning subsystem will be leveraged. Finally, this initiative the ITT team will also utilize ANGEL's high-resolution color video subsystem that allows the identification of pipeline threats and risks and provides visual context to the leak detection data.

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