

ITT Industries Space Systems Division

AIRBORNE LEAK DETECTION **For pipeline integrity management**



ITT Industries' Space Systems Division has applied its more than 50 years of remote sensing expertise to the natural gas industry to enhance pipeline integrity management.

ITT Industries will field test new airborne natural gas leak detection technology this fall and exhibit its capabilities to the natural gas industry at the International Pipeline Exposition in Calgary, Oct. 6-8, 2004. A new service called Airborne Natural Gas Emission Lidar (ANGEL) based on those capabilities will be commercially available through select channel partners during the first quarter of 2005.

The comprehensive ANGEL Service will allow pipeline monitoring that is 100 times faster and provides 30 times more right-of-way survey coverage than traditional inspection methods, such as hand-held flame ionization. "This pioneering service will provide accurate and comprehensive information to help meet today's tougher regulatory requirements, and ultimately improve public and environmental safety," said Daniel Brake, director of Active Imaging Solutions for ITT Industries Space Systems Division.

Flying approximately one-quarter mile above the pipeline right-of-way, the ANGEL system employs Differential Absorption Lidar, a highly sensitive active remote sensing technology, which is able to detect, quantify, image, and map methane and ethane gas emissions. A computer-controlled optical pointing and scanning system automatically maintains precise aim at the pipeline to help ensure accurate data capture and mapping to within 10 feet. Data is collected and analyzed in-flight and relayed back to ground staff when emissions exceed preset values. Post flight, ITT Industries scientists further analyze the data and provide certified findings, including unique GIS-ready datasets and geo-referenced digital imagery that complement and enhance other pipeline integrity management service findings.

The ANGEL system collects up to 360,000 laser measurements per minute that sample more than 500 million cubic feet of atmosphere – current methods sample less than one-tenth of a cubic foot of atmosphere per minute. Additionally, because the technology is airborne, virtually all accessibility issues, such as terrain conditions and property access, are eliminated.

Developed with the involvement of pipeline companies, industry trade associations and federal agencies including the Department of Energy National Energy Technology Laboratory, the ANGEL Service supports the directives of the Pipeline Safety Improvement Act of 2002.

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