Section IV Public Page

Hazardous Liquids Airborne Lidar Observation Study (HALOS)

Under contract with the DOT/PHMSA, ITT is studying and implementing ways in which the existing Airborne Natural Gas Emission Lidar (ANGEL) Service can be used in times of emergency to rapidly fly over and inspect pipeline networks. During the current phase of the effort ITT is focused on increasing the speed at which leak location and imagery data is reported to the customer. This Rapid Emergency Response effort consists of four separate efforts:

1) ANGEL Emergency Response Rapid Data Processing Study
2) Rapid Flight Planning Implementation
3) Real-Time (In The Air) Data Processing Study
4) Midwave Infra-Red (MWIR) Camera Flight Tests

ANGEL Emergency Response Rapid Data Processing Study - This effort is ongoing. Early efforts to baseline the entire Ground Data Processing workflow have led to a variety of improvements. Improvements in the area of a field-deployable data processing software are complete and time-trials of improvements are in process. Analysis of rapid data processing trades (speed vs. accuracy) have been conducted and are currently being written up for inclusion in the Final Report. A third party independent review of the Ground Data Processing approach is currently underway and will be completed by early November.

Rapid Flight Planning Implementation – Following a two day off-site review of existing flight planning procedures, a number of areas of potential improvement were identified. Implementation of these flight planning improvements is complete and has resulted in major improvements in the overall time it takes to plan an inspection route and get that information into the aircraft. The write-up of the effort for the Final Report is nearly complete.

Real-Time (In The Air) Data Processing Study – This effort is well underway and focused on identifying potential improvements to the data processing software and hardware to make future real-time processing on the aircraft a reality.

Midwave Infra-Red (MWIR) Camera Flight Tests – early theoretical studies have been completed and ground tests are underway to characterize and modify the selected camera. Preparations for preliminary flight tests of the equipment in early November are under way.

On September 28, Steve Stearns presented a paper at the International Pipeline Conference 2006 in Calgary, Alberta, Canada. The title of the IPC2006 Proceeding paper was Airborne DIAL (Differential Absorption Lidar) for Broad Area Hazardous Liquid Leak Detection. This paper was written and presented to discuss results from our ongoing DOT-funded HALOS project with the Pipeline community.

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