COMPLIANCE

VISTA RESEARCH, INC. PIPELINE LEAK DETECTION

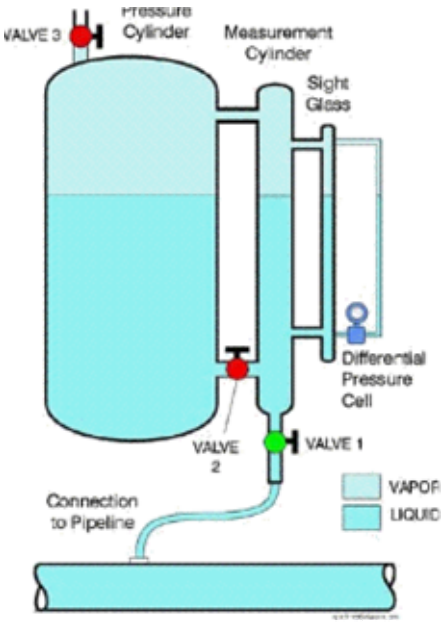
LEAD ACTIVITY
Naval Air Station (NAS) North Island

STATUS
Complete

MISSION
Detect small leaks in pressurized underground fuel pipelines

REQUIREMENT
In order to meet U.S. Environmental Protection Agency (EPA) regulatory standards and state underground storage tank (UST) regulations, an annual integrity test of pressurized piping at Navy fuel farms is required. A technology that accomplishes this annual testing quickly, cost-efficiently, and accurately would be beneficial.

DESCRIPTION
Through the Naval Facilities Engineering Command Southwest Division (SWDIV) New Technology Initiative (NTI) innovative technologies solicitation, the Navy entered into a cost-sharing contract with Vista Research, Inc. (Vista) to demonstrate an innovative leak detection system. Vista's pipeline leak detection technology compensates for thermal expansion and contraction of fuel in the pipeline (the main source of error affecting standard line integrity tests). This compensation is achieved through electronic data collection (although data can also be collected manually) and signal processing. Using Vista's technology, the time required for pipeline integrity testing can be reduced significantly. It is also not necessary to drain the line for leak detection since the fuel itself is part of the testing method.



Vista LT-100 System

In 1996, NAS North Island tested the Vista LT-100 (previously called the MALT - manual line tester) at the fuel farm. The Vista LT-100 is a leak detection system developed for use at bulk fuel farms. The Vista LT-100 is a self-contained system that can be installed permanently on line for periodic monitoring or used as a portable system and transported from line to line for tightness testing. The system consists of a

battery-based power source, a volumetric sensor unit, and a data acquisition unit. It takes about 2 hours to conduct a leak detection test. Vista also offers the HT-100 configuration (previously called the FALT - fully automatic line tester), a larger version of the LT-100 device. Vista claims that leak rates represented by extremely small volume changes in the line (down to approximately 4 milliliters) can be detected using its technology.

The third-party evaluation performed at NAS North Island indicated that the LT-100 could detect leaks smaller than 0.1 gallon per hour with a probability of detection greater than 95 percent and a probability of false detection less than 5 percent.

The LT-100 is now third-party-certified for use on piping with a maximum of 3,400 gallons and approved for use in California by the State Water Resources Control Board. NAS North Island has selected the Vista LT-100 for its annual integrity tests due to the capacity of its pipelines and site conditions.

ACCOMPLISHMENTS/CURRENT STATUS

Date	Activity
JAN 1996	Demonstration work plan finalized
FEB 1996	Field demonstration completed; LT-100 demonstration and third-party-certification completed; certification submitted to the State of California for final approval
JUL 1996	Final Demonstration Report completed and submitted
MAY 1997	NAS North Island received third-party certification results
OCT 1998	NAS North Island began using the LT-100 for annual testing at the fuel farm
JAN 1999	Continued using LT-100 for leak detection testing

FUTURE PLAN OF ACTION & MILESTONES

Not Applicable

COLLABORATION/TECHNOLOGY TRANSFER

The Vista leak detection technology has been installed at two Montreal airports. Leak detection tests using the LT-100 have also been conducted at several other airports, including Boston and Dallas.

BIBLIOGRAPHY

- Vendor brochure, Vista Research, Inc.
- Vista Research, Inc., Final Demonstration Report. August 1996.

RELATED GOVERNMENT INTERNET SITES

None available

RELATED NAVY GUIDEBOOK REQUIREMENTS

- 07008 Install Leak Detection on UST Piping

UPDATED: 01/23/02