A NEW ENVIRONMENTAL "DUE DILIGENCE" PROCEDURE
FOR DETERMINING THE INTEGRITY OF HYDRANT LINES, PIPELINES, LOADING RACKS AND STORAGE TANKS

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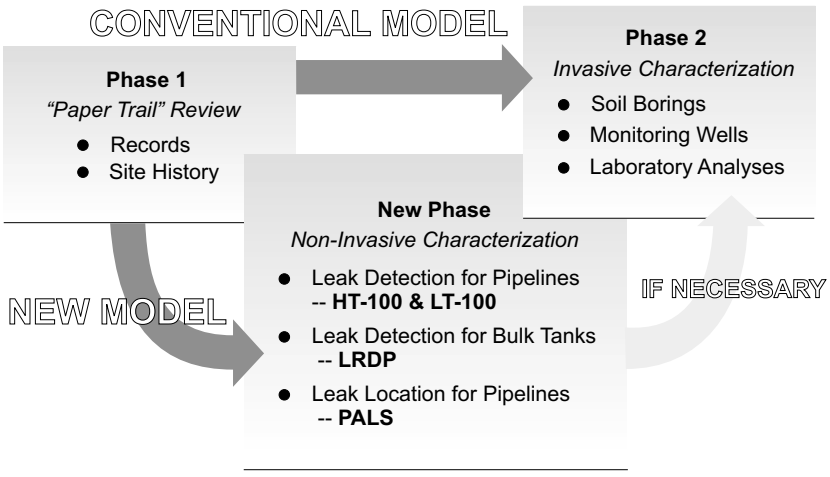
THE CONVENTIONAL DUE DILIGENCE MODEL

Environmental "due diligence" activities normally precede the transfer of any industrial property, with the responsibility for implementing these activities being negotiated between the buyer and the seller. Sites that include hydrant lines, pipelines, truck or railcar loading racks and/or storage tanks pose particular challenges. The current due diligence model is basically limited to two conventional phases. Phase 1 involves the standard review and analysis of records, aerial photographs, etc., and is likely to be followed, at some point, by Phase 2, which constitutes an invasive investigation (i.e., soil borings, hydro-punch, monitoring well installation, etc.) and sample analysis.

While the Phase 1 review of records is a useful first step, the actual risk analysis for such pipeline and tank systems is based on the type fieldwork done in Phase 2. Fieldwork normally begins with pressure tests of the pipeline or tank system and may be followed by soil sampling and analysis. Pressure tests, however, have the drawback of over-pressurizing a line and possibly causing a failure they were intended to detect. In addition, the accuracy of pressure tests is less than desirable in many cases. Depending upon the results of a pressure test, it may be necessary to use another leak detection method, such as soil analysis, to confirm the existence of a leak. In some cases, soil sampling is performed regardless of the outcome of a pressure test. Soil sampling can be costly and, where uncertainty exists regarding the presence and nature of underground utilities, safety can also be an issue.



A NEW MODEL THAT MINIMIZES THE NEED FOR INVASIVE PROCEDURES

Vista Research has developed an alternative model for conducting "due diligence" tests of hydrant lines, pipelines, rail and truck loading racks, and storage tanks. Following the standard due diligence format, the owner of the facility would proceed with a review of the records and of the results of all previous pressure tests conducted on the system in question. But rather than proceeding directly to invasive techniques, the next step would be to use Vista's **unique, non-invasive** procedure for testing

the integrity of the system. Vista performs the testing service using its own equipment—the HT-100 for lines with a contained volume greater than 3400 gallons, the LT-100 for lines containing under 3400 gallons (including loading racks), and the LRDP for underground and aboveground storage tanks—to provide a complete integrity profile of the entire system.

The Vista technologies provide assurance of pipeline integrity down to 0.0021% of the line volume, with a probability of detection, $P_{D,}$ of 95% and a probability of false alarm, $P_{FA,}$ of 5%, which is an industry-leading leak detection rate. For bulk tanks and loading rack systems, the detectable leak rate is a function of tank diameter. If one of the tests detects a leak in a pipeline, Vista's PALSystem can find the location of that leak. The PALS finds the leak without injecting gases (and without the subsequent wait for diffusion to occur), and typically **without expensive borings** and laboratory work.

Vista Research designs and documents a site-specific process and procedure for the owner's permanent records. These records can help provide a foundation for transactions such as property transfer negotiations and cost-share allocation associated with remediation efforts.

SUMMARY

A logical and cost-effective approach to characterizing risk is one that is based on the latest technologies as well as on the latest innovative applications of existing technologies. The Vista model incorporates both. Vista's non-invasive, low-risk leak **detection** systems (HT-100, LT-100 and LRDP) are far superior to methods that require over-pressurization of lines and tanks. Vista's leak **location** system (PALS) can find a leak without the need for purging the line, without waiting for indicator gases to diffuse into the surrounding soil, and without laboratory analysis of the collected soil samples. **The net result is greater accuracy, lower risk, and a shortened timeline.**