National Work Group on Leak Detection Evaluations (NWGLDE) Meeting

New Orleans, LA, March 4-6, 2004

WEDNESDAY, MARCH 4, 2004

Welcome and introduction of visitors. A complete list of meeting attendees for the Wednesday and Thursday sessions is included at the end of these minutes.

TEAM UPDATES

ATG TEAM – John Cernero

- Team has had no new requests for review of ATG evaluations since the last meeting.
- Randy and Rob Barnes have requested re-review of the Alert Technologies models 2000X and 2000XB which were reviewed and rejected by Russ Brauksieck and Ellen Van Duzee several years ago. The manufacturer was notified that additional documentation would be needed in order to obtain NWGLDE listing, but the vendor has not submitted anything as of yet.

CITLDS TEAM – Shaheer Muhanna

- Team has had no requests for review of CITLDS evaluations since the last meeting.
- Following up on Warren Rogers' request from last meeting, Ken Wilcox has confirmed that additional makes/models of properly certified magnetostrictive ATG probes are acceptable for use with the Petronetwork System. The CITLDS team now plans to modify the Petronetwork listing to reflect this fact.

NVTTT TEAM – John Kneece

- Masstech 001 evaluation is still underway. John Kneece is leading this evaluation. The vendor is responding to John's last round of questions.
  - Note: This system is not currently on the "Under Review" list. Curt Johnson will have Jon Reeder update the "Under Review" list as soon as John Kneece provides Curt the necessary information.
- EDG system for testing large tanks is still under review. The vendor has not been responsive to John Kneece's request for information. This company has changed ownership since the evaluation was submitted for review. It is possible that the company is no longer pursuing an NWGLDE listing.

PIPELINE TEAM – John Kneece

- Tracer's "Seeper-Trace" method is still actively under review by the team.
- Masstech has submitted an evaluation for review. Because the evaluation was just submitted, the team has not yet begun review of this method.

SIR TEAM – Jon Reeder

- There has been no activity for this team since the last meeting. No methods are currently under review, and there is no news of SIR methods to be submitted in the near future.

INTERSTITIAL MONITORING METHODS TEAM – Tim Smith

- Advanced Fuel Filtration Systems' CVM vacuum monitoring system is currently under review. Scott and Mike are working on this review, and will discuss it further in the team meeting on Friday.
- The Ameron Hydrostatic Monitoring system for Dualloy piping is still under review. However, the system cannot be adequately reviewed until the protocol used to conduct the evaluation has been accepted. See "Protocols Under Review" section for further details.
- The Beaudreau EOS 100 discriminating sensor has been reviewed by Sharon and added to the list on 12/27/2003.
- The final version of EN 13160-2 (the European Standard for vacuum and pressure interstitial monitoring systems) has been accepted by the team. This protocol should be added to the list of acceptable test protocols. The team compared the final version of the protocol (May 2003 printing date) to the draft version already accepted by the group. The two versions were found to be identical except for minor editorial changes.
    - Note: Curt Johnson will have Jon Reeder add this protocol to the "List of Acceptable Protocols" as soon as Tim provides Curt the necessary data.
- Listings for Mallory Controls have been updated to include a statement that the company no longer sells or supports the equipment.
- Three models of EuroGuard vacuum leak detectors are currently under review. Tim Smith originally reviewed this equipment and determined that it could not be listed until he received some additional documentation. At Tim and Curt's request, the rest of the team reviewed the equipment and reached the same conclusion that Tim had. The vendor has been made aware of the additional documentation required, and has stated that they will provide this shortly. Issues with documentation include discrepancy between protocol dates and certification dates, no full test data in evaluation report, and multiple equipment model names on documents submitted.
- The Robert Shaw Industrial Products FSL Series float switch sensors are currently under review. Sharon is leading this review, and is currently following up with the vendor on some minor documentation issues.
- S. Bravo Company's listing has been updated to include the B-8600 Aboveground/Marina dispenser containment box. This box contains the same leak detection mechanism as the model B-2000 that was already listed.
- SGB has two leak detectors currently under review: DLR-G overpressure system for piping and VL.p vacuum system for tanks. Tim is leading the review for the DLR-G. Tim, Sharon, and Lamar are reviewing the VL.p. SGB has also requested that the listing for the VLX vacuum system for tanks be updated to include new pressure switch settings. Tim will update the listing and forward it to Curt and Curt will have Jon add it to the printed and web-based list.
- Spring Patents / Technology Marketing and Transfer is developing a vacuum-based leak detector, and has submitted many background documents to Mike Kadri for review. The vendor has indicated that they will use a new test protocol to evaluate their system. At this time no protocol or evaluation report has been submitted.
- Third-party evaluations of Veeder-Root's new Mag Sump sensors [models 857080-101(12"Gasoline); 857080-102 (24"Gasoline); 857080-111 (12"Diesel); 857080-112 (24" Diesel)] have been reviewed and found acceptable to add to the list. Listing was added on 12/23/2003.

- The Western Fiberglass "Co-Flow" hydrostatic monitoring system for piping is still under review. However, the system cannot be adequately reviewed until the protocol used to conduct the evaluation has been accepted. See "Protocols Under Review" section for further details.

ABOVEGROUND STORAGE TANK METHODS TEAM– Mike Kadri

- Ken Wilcox Associates is still working on a protocol for evaluating aboveground storage tank (AST) methods. Ken recently revised the draft protocol to address the last set of comments from the Work Group. Mike is expecting Ken to deliver a copy of the revised protocol on 3/5/2004.
- One AST testing method was evaluated using the first draft of KWA's test protocol, but the Work Group did not review this evaluation because the protocol was not approved. A second system has been submitted to KWA for evaluation, so KWA will continue working to get their draft protocol finalized and accepted by the Work Group.

SECONDARY CONTAINMENT TESTING METHODS TEAM – Scott Bacon

- Ken Wilcox Associates has developed a draft protocol to evaluate hydrostatic test methods for tank-top sumps and under-dispenser containment. California's UST program staff is planning to work with KWA to have this protocol peer reviewed. The protocol is based on the water sensor portion of the EPA ATG protocol.

LIST ADMINISTRATION TEAM – Curt Johnson

- The Work Group has decided to issue annual editions of the List with a new year/version format.
- The latest version of the list has been formatted in the same manner as the web page. This new format will allow users to print updated pages off the website and directly substitute them with the older printed version they are replacing.
- Jon Reeder shared some statistics on NWGLDE.org website usage. The site gets approximately 100,000 hits per year, and the latest edition of the List is downloaded 20-30 times per month.

REVIEW OF TEAM ASSIGNMENTS

Because of the high workload the Interstitial Monitoring Methods team is currently facing, they requested assistance from other group members. Lamar, Shaheer, and Jon Reeder have agreed to help as needed.

PROTOCOLS UNDER REVIEW

1. The Test Procedure for the Evaluation of Double-walled Pipe with Liquid filled Interstice for Loss Prevention, May 27, 2003 (Ken Wilcox Associates) is still under review.
2. Secondary Containment Test Methods (Ken Wilcox Associates)
3. Aboveground Storage Tanks (Ken Wilcox Associates)
4. Line Leak Detectors used on large piping systems, such as high-volume truck stops. (Ken Wilcox Associates)

NEW BUSINESS

Modifications to the European Protocol (13160-2)
There is some concern about the extent to which an approved protocol can be modified before it should be considered a new protocol. This is particularly relevant with the European Protocol, which is very prescriptive in terms of leak detection system design and performance. The group agrees that this may become a problem. However, it was decided that there should be some flexibility. The following policy was agreed upon:

- Any deviations from an approved protocol should be checked with the appropriate Team prior to conducting the evaluation.
- The Team will decide if the requested deviations are equivalent to the original protocol. The Team will consult the entire Group on technical issues as necessary.
- All deviations should be documented in the third-party evaluation report. Documentation should include a description of each deviation, and an explanation as to why the resulting evaluation is equivalent to one conducted in accordance with the approved protocol.
- Any significant deviations should be briefly described in the "Comments" section of the equipment listing.

Note: NWGLDE policy memo #3 has been revised to reflect this policy.

Proposed Change of Time Slot for Vendor Presentation
Curt proposed that the vendor presentations be scheduled for Wednesday afternoon for future NWGLDE meetings that immediately follow the National UST/LUST conference. Curt notes that the revised schedule may be more convenient for the vendors who attend the conference, and may also allow more regulators to attend the presentations. After extensive discussion of this issue, the Group decided to keep the vendor presentations on Thursday morning.

END OF WEDNESDAY MEETING

THURSDAY, MARCH 5, 2004

VENDOR PRESENTATIONS

Everett Spring – Vigilant Leak Detection System
The Vigilant Leak Detection System is a continuous vacuum monitor that can be used to detect leaks in the primary and secondary containment of double-walled tanks and piping. Everett's presentation focused on the challenges of accurately quantifying vacuum leaks in double-walled systems. He explained how vacuum levels decrease in predictable ways as the result of a leak. This decrease in vacuum can be shown graphically as a curve. The Vigilant system samples 5 distinct points along the curve and uses these points to

define the slope of the line. The slope of the line correlates to the leak rate of the system being tested.

Everett went on to explain that there are several interferences to accurate vacuum-based leak detection, including natural decay (permeation), limitations of the testing instrumentation, and other "noise" in the system. The decrease in vacuum due to the sum of all interferences can be expressed graphically as a curve. Different UST systems have different characteristics, so the Vigilant system utilizes a series of tests to establish a "fingerprint" for the specific UST system being tested. The fingerprint takes into account the particular interferences and interstitial volume of the system being tested. The slope of the line observed during testing is compared to the system's "fingerprint" in order to determine if the system is leaking.

Everett has provided the Work Group with background literature on the Vigilant system, and plans to submit a test protocol and third-party evaluation results sometime soon.

Manfred Fiech – Euroguard Leak Preventer

Euroguard is the U.S. distributor for ASF Thomas vacuum and overpressure leak detection systems for double-walled tanks and piping. ASF Thomas has built vacuum and overpressure leak detection systems in Europe and throughout the world since 1964. The company has approximately 1.1 million units installed worldwide. Euroguard, based in Florida, has marketed the ASF Thomas leak detectors in the U.S. for about 10 years. They are currently seeking Work Group listing for three leak detector models.

Manfred Fiech of Euroguard and Frank MacPherson of ASF THOMAS made this presentation. The presentation focused on the history of the ASF Thomas company and the range of leak detection products they offer. The presenters discussed the various certifications that the Euroguard / ASF Thomas leak detectors have earned worldwide, including Bavaria, the Berlin Institute, and the German TUV. The presenters also brought in a sample leak detector and demonstrated the required annual functional test for this system.

Greg Young – Vaporless Manufacturing

Vaporless Manufacturing, Inc. (VMI) has developed the ISM-4080, a new product that works with the VMI-99 series mechanical line leak detectors (LLDs). VMI LLDs have been included on the NWGLDE's List for 14 years. The ISM-4080 is a device that adds electronically controlled pump shutdown and sump liquid monitoring (via float switch sensor) to the VMI-99 series LLDs. The ISM-4080 can also activate the turbine pump as needed to run more frequent line testing and reduce the occurrence of false alarms caused by thermal contraction. The ISM-4080 was designed for a low retrofit installation cost, and can typically operate using existing sump sensor wiring. The ISM-4080 does not adversely impact the operation of VMI-99 series LLDs, even in the event that the ISM-4080 fails for any reason.

Greg Young is requesting that the NWGLDE listing for VMI-99 series LLDs be modified to include a statement that the ISM-4080 can be installed without impacting the performance of the LLD. Greg notes that there is no accepted protocol to follow when trying to prove that installing an additional piece of equipment does not adversely impact the performance of an approved piece of equipment. VMI contracted with Ken Wilcox Associates to conduct some basic performance testing with the ISM-4080, and results indicated that there was no impact to the performance of the VMI-99 series LLD. VMI would like their listing modified based on this testing. The LLD team agreed to this modification in principle, but would like to see a written statement from the third-party evaluator.

> **Note:** The listing for VMI-99 series LLDs was modified on March 11, 2004 to include the following statement – *"Functionality and operability of the 99 LD-2000 and 99 LD-2200 are unchanged by installation of the Leak Detection Sensor (piston switch) that supports the VMI ISM-4080 and ISM-4081 Integrated Shutdown Module"*

Ken Wilcox – Ken Wilcox Associates
Ken Wilcox spoke briefly on a variety of topics, as listed below:

Modifications to the European Protocol
Ken stated that the European Protocol is very prescriptive, and that it would need to be modified in order to accommodate the innovative vacuum-based leak detection systems currently being developed by several U.S. manufacturers. The use of a float switch sensor instead of a liquid stop valve was discussed as an example of the types of modifications that will be requested. Note: The Work Group extensively discussed the issue of protocol modification during Wednesday's "New Business" portion of the meeting. See page 4 of these notes for more details.

KWA's Brine Monitoring Evaluation Protocol
Ken briefly discussed some of the challenges of evaluating hydrostatic monitoring systems for use on pressurized piping. KWA's draft protocol is currently under review by the work group, and Ken wonders how that review is progressing. There were a few issues with the draft protocol that have yet to be resolved, and Ken is requesting guidance from the Group on these. The Interstitial Monitoring Methods Team will continue working with KWA in an effort to finalize the protocol. Note: Jon Reeder has agreed to take the lead on review of this protocol.

KWA's Enhanced Leak Detection Evaluation Protocol
Ken briefly discussed a test apparatus he has developed that can evaluate very precise vacuum-based tightness test methods. The apparatus is essentially a series of small steel vessels that can be connected in a variety of ways to create test chambers of various volumes. The resulting test chambers are very stable, and can hold extreme vacuum (below 1 torr) for extended time periods. Very small leaks (0.005 gph vapor equivalent) can be introduced into the test chamber by using precisely calibrated orifices. Ken states

that initial testing has indicated that vacuum testing can be very sensitive when done correctly. 0.005 gph leaks in the test apparatus can be found in a matter of minutes.

Adequacy of EPA Protocols
Ken talked about some deficiencies in existing EPA evaluation protocols. He noted that some of the protocols do not address all of the issues that may affect leak detection system performance. Ken feels that additional testing should be required in some cases. Ken Wilcox Associates has done testing above and beyond the EPA evaluation protocol in certain cases, particularly with SIR evaluations.

OPEN DISCUSSION PERIOD

European Protocol – There was some discussion of the European Protocol and its applicability to the types of UST systems typically installed in the U.S. Ken Wilcox commented that his lab had several problems when initially trying to run testing in accordance with the European Protocol, but he is now able to run the testing fairly easily.

Development of New Evaluation Protocols – Developing new protocols that can be used to evaluate new types of leak detection systems is a difficult, time-consuming, and expensive process. The NWGLDE cannot be responsible for writing evaluation protocols, but must be able to review them to ensure that they are sufficiently stringent. Without detailed NWGLDE review of evaluation protocols, our listing becomes little more than a "rubber stamp".

NWGLDE Meeting Schedule – Industry representatives at the meeting suggested that NWGLDE meetings should be scheduled so that they do not conflict with PEI or other major industry shows.

Annual Equipment Testing Requirements – EPA requirements specify testing of line leak detectors in accordance with manufacturer's instructions. However, testing instructions vary significantly from one manufacturer to the next. EPA requirements do not specify "functional" testing of line leak detectors, but require "operational" testing instead. For electronic systems, operational testing may consist of a visual check of the monitoring panel status display. Many people in the UST industry feel this is not sufficient, but there is no known data comparing "functional" and "operational" test results. California is currently working on a study that may help quantify the difference between "operational" and "functional" test results. Insurance claims and State LUST Fund programs may also be a useful source of data. Greg Young (VMI) mentioned that other industries have conducted extensive studies showing the need for annual testing/calibration of pressure transducers, which are the functional element of most electronic line leak detectors. Greg Young can supply further information on this topic if needed.

Line Leak Detection on Large Lines (truck stops) – Pressurized piping runs on larger truck stops frequently exceed the volume capacity allowable per third-party certification of all the approved line leak detector models. Equipment manufacturers and owners of large facilities are interested in getting line leak detectors certified for use on larger

piping volumes. At the last NWGLDE meeting, Ken Wilcox presented an outline of field testing procedures he intended to use to certify line leak detectors on large truck stop lines. Ken has actually conducted some testing at large truck stops. He indicated that the lines had very large bleed-back volume, meaning the line leak detectors would rarely (if ever) go into leak sensing mode. Ken stated that this problem would be compounded by the fact that most large truck stops have very high throughput and very little quiet time.

NWGLDE DISCUSSION OF VENDOR PRESENTATIONS

Everett Spring – Vigilant Leak Detection System
After this presentation, the work group had a better understanding of the vacuum leak detection principles Mr. Spring discussed. There is some confusion as to whether the Vigilant system is a one-time tightness test or a continuous monitoring system. Also, it seems as though the Vigilant system may have only limited applications because of the high vacuum levels required for testing.

Manfred Fiech – Euroguard Leak Preventer
The work group is unclear on how to deal with equipment certifications that are based on the European protocol, but which predate the version of the protocol that we have reviewed and accepted. Do old certifications mean that the equipment meets the current standard? If not, how are the certifications different from one another? If Euroguard is planning to obtain listing based on older European certifications, they will need to provide documentation showing that these certifications are equivalent to EPA's test protocols. Mike Kadri will work with Euroguard and their parent company, ASF Thomas, to get the required documentation.

Greg Young – Vaporless Manufacturing
Based on Mr. Young's presentation, the work group is willing to update the listing for Vaporless VMI-99 series line leak detectors. However, Vaporless must first provide some type of documentation from Ken Wilcox, stating that the ISM-4080 does not interfere with the performance of the VMI-99 series leak detectors. John Kneece volunteered to be the contact for this update.

Ken Wilcox – Ken Wilcox Associates
Discussion of Ken Wilcox's presentation was limited because the group had spent time Wednesday afternoon discussing most of the issues Ken presented. (See Wednesday's notes regarding modification to the European Protocol and review status of KWA's *Test Procedure for the Evaluation of Double Wall Pipe With Liquid Filled Interstice for Loss Prevention.*)

END OF THURSDAY MEETING

OPERATION AND MAINTENANCE (O&M) COMMITTEE UPDATE

Many regulatory jurisdictions are required to be no more stringent than federal requirements. Because federal regulations specify leak detection equipment maintenance in accordance with manufacturer's instructions, it is important that regulators have access to these instructions. However, it is common for vendors to change recommended maintenance practices periodically, or to provide different answers on required maintenance depending on who is asking. Therefore, the O&M committee is interested in collecting manufacturer's recommended maintenance and testing procedures into one place that is easily accessible to regulators throughout the country.

Jon Reeder reports that the NWGLDE website can hold up to 400 MB of data, so it may be possible to have PDF versions of O&M manuals online. However, posting O&M manuals may be problematic because multiple manuals exist for most equipment models, and some manuals are very large. Would we post the most recent version, or the version submitted with the original evaluation? How often would we update the O&M listing? Would we review the manuals and determine if they were adequate? Would we post the entire manual, or just a summary? Would we be liable if our O&M summary was incomplete or inaccurate?

Because of the potential problems associated with posting O&M manuals on the NWGLDE website, the work group decided not to undertake that project. It was agreed that regulators could access O&M manuals from vendor websites. The NWGLDE will help by continuing to post vendor's web addresses on listings whenever possible. The O&M committee will reconsider this course of action once the File Retention Committee has compiled all available documentation for listed equipment.

FILE RETENTION COMMITTEE UPDATE

Since the last NWGLDE meeting, the file retention committee has been considering the question of whether a file retention effort is actually necessary. Lamar Bradley gave a few recent examples where information from old equipment files was useful. (Barnes Brothers and Southeastern Liquid Analyzers were discussed as examples.) The work group reached a consensus that an effort should be made to retain files.

Once the work group decided that file retention was important, discussion centered on deciding how to approach the project. Tim Smith mentioned that U.S. EPA may be able to provide funding for scanning old files, but first he would need an estimate of how many files there were. All members seemed to agree that this would be a long-term project, and would take quite a bit of effort to complete. Challenges include collecting files from former members, eliminating duplication of files, and ensuring that each file scanned into archives is the complete record of that equipment's evaluation. The issue of confidential/proprietary information was also raised. Many states have laws requiring their employees to provide access to records upon public request. Jon Reeder mentioned that we could buy another web site with 500 MB storage capacity for $50/year. This site could be used to store the electronically archived equipment files under password-

protected access. Because they were not stored on any State's computer system, they would not need to be presented to the public upon request.

California has archived many equipment files, so Scott Bacon volunteered to provide the work group with a list of everything he has access to. The rest of the work group will then try to locate files for all remaining equipment. It will also be necessary to contact previous work group members and get some files from them. Once all files have been located, we can provide an estimate of total file size to Tim Smith. Tim will need this estimate when requesting funding from U.S. EPA.

Although this project is in its very early stages, the work group has agreed upon the following:

- Lamar Bradley is the lead for the File Retention Committee. He will coordinate the project.
- Team leaders will take a lead role in reviewing files for their particular equipment type. They will be responsible for eliminating duplication and ensuring that the complete file makes it into the electronic archive.
- Files for equipment that were rejected by the work group should be included in the archive.
- Organization of the electronic archive will follow the format used in the "Method Index" of the list.
- Tim will get cost estimates for indexing the files as done in the "Method Index", and also for adding sub-categories to each equipment file. Sub-categories could include "third-party report", "O&M manual", and "other".
- July 1, 2004 was selected as the deadline for coming up with an accurate estimate of the total size of files we need scanned.

NEW BUSINESS

Business Cards – We are running out of NWGLDE business cards. We have the option to either reorder the same cards at a low cost or redesign the cards at a higher cost. The group decided to order another batch of the same design. Tim Smith volunteered to take care of this.

Field Evaluation of Line Leak Detectors on Large Lines - During Ken Wilcox's presentation, he stated that he has observed significant bleed-back in large piping systems, such as those commonly found at truck stops. Capacity of these lines routinely exceeds the certified volume for most approved line leak detectors. Vendors are interested in raising the approved volume for their line leak detectors, but this can be problematic. Because of high activity level at large truck stops (little quiet time), and the high bleed-back volumes of large lines, mechanical line leak detectors rarely go into leak sensing mode when used at truck stops and other high throughput applications. There may be a problem in assuming that line leak detectors actually test the line hourly in all applications, particularly at high-volume facilities with large lines.

Next Meeting – Edgewater Hotel, Gatlinburg, Tennessee. Contact Lamar Bradley for information on this meeting.

Meeting Attendees – Wednesday, March 4, 2004

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