

National Work Group on Leak Detection Evaluations Meeting
San Antonio, Tx. March 7-9, 2007

Attendees: Work group members and attendee's list by date attached.

March 7, 2007:

Team Leader Updates:

ATG/Volumetric TTT Method Team (Jon Reeder)

- Nothing new to report with ATG/VTT Listings
- Warren Rogers Petronetwork S3 Listing changed from a "Continuous SIR system" to a "Continual Reconciliation system" in order to more accurately reflect the system application.

AST (Jon Reeder)

- Review continues of Mass Technology mass-based system, however, the following issues need to be resolved:
 - There is a problem with the modified protocol used in the evaluation; the date of the protocol used was May 2006, the NWGLDE accepted protocol is October 2004 (ref.: "Alternative Test Procedures for Evaluating Leak Detection Methods: Mass-Based Leak Detection Systems for Aboveground Storage Tanks," Ken Wilcox Associates, October 20, 2004.) Ken Wilcox will be submitting the May 2006 protocol with markups showing what was changed from the October 2004 protocol. Jon asked for volunteers to assist in the review of the revised protocol; Helen and Greg volunteered to assist
 - Data was taken 24 hrs/day during the evaluation time period, however, only the nighttime data was used in the analysis.

CITLDS Team (Shaheer Muhanna)

- Nothing new to report with Continuous In-Tank Leak Detection System Listings.

NVTTT (John Kneece)

- Mesa Engineering review still on hold awaiting information on their proposed water detection system. They have proposed using an "off the shelf" water detector but have not submitted any documentation.

Pipeline (John Kneece)

- The latest on MassTech International's line tightness test method is that there has not been a response as yet from the company to the team's request for supporting documentation.

SIR Team (Jon Reeder)

- Nothing new to report with Statistical Inventory Reconciliation System Listings.

Sensor Team (Tim Smith)

- There are currently five evaluations under review: 1) Western Fiberglass, and Beaudreau Electric 3) Raychem Corp.’s LS-3 Sensor; 4) Veeder-Root’s Mag Sump Sensor (revision); and 5) Veeder-Root’s Float Sensor – 794380-430.
- Have received no updates or information from either Reitschle Thomas Puchiem or Spring Patents, Inc. However, plan to keep requests “Under Review” status for the near future.

Secondary Containment Test Methods (Scott Bacon)

- Veeder-Root’s Vacuum protocol has been accepted. (ref.: **“Evaluation Protocol for Vacuum-Wrapped Pressurized Portions of a Fuel Containment and Dispensing System”, Revision 3A, Jairus D. Flora, Jr., Ph.D., December 15, 2006.**)
- There are currently two evaluations under review: 1) Western Fiberglass (in conjunction with the sensor team), and Praxair Services, Inc.

Administration Team (Curt Johnson)

- The 14th Edition of the List published January 5, 2007.
- Web site upgrades include:
 - Quick-link Method Index added on website side bar.
 - Search engine available on every page with more comprehensive search capabilities.
 - New Links and documents added.
- There are no protocols currently under review.
- Bulk UST Team Assignment Clarification: If the submitted evaluation is mass-based, review will be assigned to Non-volumetric Team; if the submitted evaluation is volumetric-based, review will be assigned to Volumetric Team. Submittal type will be determined based on methodology.

Updated Team Assignments:

TEAM	LEADER	MEMBERS
Automatic Tank Gauging (ATG) and Volumetric Tank Tightness Test (VTTT) Methods	Jon Reeder	Greg Baretta Lamar Bradley
Continuous In-Tank Leak Detection Methods	Shaheer Muhanna	Helen Robbins
Non-Volumetric Tank Tightness Test Methods	John Kneece	Scott Bacon
Line Leak Detection Methods	John Kneece	Greg Baretta
Statistical Inventory Reconciliation (SIR) Methods	Lamar Bradley	Jon Reeder
Interstitial Monitoring and Out-of-Tank Detector Methods	Tim Smith	Scott Bacon Helen Robbins
Aboveground Storage Tank Methods	Jon Reeder	Helen Robbins Greg Baretta
Secondary Containment Test Methods	Scott Bacon	Shaheer Muhanna Tim Smith
List Administration and Surveys	Curt Johnson	Tim Smith Jon Reeder Scott Bacon

Vice-Chair Election:

- Following a brief campaign speech, Lamar Bradley was unanimously elected Vice-Chair of the workgroup.

New Business:

Alternative Fuels

The group briefly discussed two main issues of concern related to alternative fuels:

- 1) Compatibility – The group decided that we would not address material compatibility issues; it is up to each individual manufacturer to determine whether their equipment is compatible with the stored liquid product. It was generally felt states will likely address compatibility issues through their normal regulatory processes.
- 2) Functionality – The main concern is whether the equipment will be able to produce consistent results in alternative fuels that will meet the EPA 95/5 functionality criteria.

Several strategies to address how the work group would deal with the equipment functionality issues were discussed:

- Wait for vendor feedback on the need for testing their equipment.
- Refer to current statement on the List which reads: “Other liquids with known coefficients of expansion and density may be tested after consultation with the manufacturer.”
- Require either testing of the equipment in the alternative fuels or a statement from the manufacturer that the equipment will function correctly in the alternative fuel.

Some team members were concerned with “applicability” in the listings and the confusion that may exist with your average field inspector over whether that means compatibility, functionality, or both. The group agreed that some clarification that the Listings only address functionality issues and not material compatibility will have to be provided within each listing and possibly the general disclaimer on the web site.

In discussion of requirements for testing specific equipment, the group agreed that for sensors the current requirement is to test the sensor in the fluid that it was designed to detect and therefore the sensors will only be listed for the fluids they are specifically tested in. There was also general agreement that line leak detectors, both electronic and mechanical, should function properly in the various alternative fuels, however this will be discussed further with Ken Wilcox and the vendors attending the open portion of the meeting on March 8th. The real concern for the group is the lack of a water sensor in the alternative fuel probes and the effect of the absorption of water by ethanol. Specifically, will the probe be able to detect a small amount of water ingress in high water table areas?

The following points of discussion were formulated for the open meeting with the vendors:

- Water float sensor concern with tank testing and tank gauges (VTT and NVTT)
- Need for evaluation of mechanical line leak detectors in ethanol and biodiesel.

- How will vendors address variance in co-efficient of expansion, specific gravity, and viscosity in biodiesel from load-to-load?

End of Meeting- March 7

March 8, 2007:

NOTES FROM THE OPEN MEETING WITH THE VENDORS

Open Meeting Presentations and Discussions

Discussion with Dr. Warren Rogers of Warren Rogers and Associates

Dr. Rogers was not able to attend the meeting so the planned discussion was canceled.

Topic-Alternative Fuels and How They May Affect NWGLDE Listings

Alan Betts (Veeder-Root): Would like to see a revision to V/R listing for ATGs, CITLDS, and ELLD systems to add E85 under the applicability section. Request is due to a mid-western state regulatory request for proof of compatibility. V/R would like to revise their listing to reflect E85/E100 ethanol use to satisfy states concerns since many states use the NWGLDE listings for applicability. Reference was made to supporting documentation from Ken Wilcox justifying the listing for E85/E100 based on similar properties (such as thermal expansion) between ethanol and gasoline. Alan stated that the standard probes are good for up to E20, any higher and the V/R Alternative Fuel probe would have to be used. If the standard probes are used in liquids with greater than 20% ethanol, the probe will continue to work until failure of either the shaft or float in which case the probe would stop sensing. All of the V/R consoles sold within the last 10 years are capable of using the alternative fuel probes; the only difference is the coefficient of expansion would have to be changed in the console program (even if the coefficient of expansion was not changed, the probe would still be able to detect a leak within the 3rd party criteria per KWA). Software version 11 or higher will be necessary for the console to be able to identify the alternative fuel probe. Software version does not affect the leak detection algorithms since they have not been changed for many years, only affects the consoles ability to detect a probe.

Also requesting a change to listing for 0 to 100% biodiesel. This would apply only to soy-based biodiesel, would still have to test other types of biodiesel on an individual basis due to possible specific gravity differences. V/R and KWA felt that small variances of specific gravity between biodiesel batches or blends may not matter within a range.

Alternative Fuel Open Session Questions/Discussion:

Jon Reeder (NWGLDE): What about water sensing with the alternative fuel probes?

Alan Betts (Veeder-Root): Can monitor for water after phase separation occurs. Leak detection based on top level of product so water ingress will just raise overall level and ingress should be detected.

Ken Wilcox (KWA): Will have up to 20% absorption of water in ethanol before separation occurs. Small water ingress will be within tolerance of system; large ingress will be detected by fuel float.

Curt Johnson (NWGLDE): The VTT protocol has a requirement to test water sensor; why is this in the protocol?

Ken Wilcox (KWA): That requirement was put in to make sure the sensor works, not really an important factor in leak detection certification; we don't flunk systems based on the water sensor capability. In the early days of leak detection, protocol writers had a limited knowledge of tank systems so some of the protocol criteria may not have been optimized.

Curt Johnson (NWGLDE): Concerning V/R request for the listing change; V/R used the generic term "biodiesel", however in the presentation specified soy-based biodiesel.

Alan Betts (Veeder-Root): Would like to keep generic and reference to manufacturer approval so V/R does not have to keep coming back to the work group for approval of different types of biodiesel. Manufacturer generated approval list will be referred to for various biodiesel feed stocks.

Curt Johnson (NWGLDE): Discussion needed on MLLD/ELLD and alternative fuels; any issues we may be missing? Why is V/R asking for a change in ELLD, not MLLD? There are different orifice sizes for diesel and gasoline, would there be a need for different orifice size in E85 and biodiesel?

Alan Betts (Veeder-Root): ELLD functionality should not be affected by E85 or biodiesel. Red Jacket has separate gasoline and diesel MLLDs which should work for E85 and biodiesel respectively. Will submit results from testing V/R has performed.

Greg Young (Vaporless): May have a viscosity issue with MLLD, alcohol, and biodiesel. Temperature dependant viscosity changes in biodiesel means that at low temperatures less fluid will pass through orifice, while at higher temperatures more fluid will pass through the orifice for the same amount of time. Whether it will work for similar fluids (gasoline/E85; diesel/biodiesel) is dependant on manufacturer parameters. Vaporless has performed testing to show their MLLDs can detect leaks for all fuels (0 to 100%: ethanol/methanol/biodiesel). Final testing would be a good idea by performing a leak induced functional test at start-up and annually.

Topic-Line Leak Detection Performance at Truck Stops/High-Volume Stations:

This topic was added to the agenda as a result of the presentation given during the UST/LUST EPA/NEIWPC- sponsored conference. The issue appears to be that line leak detection systems, both the ELLDs and the MLLDs, do not have enough "quiet time" to perform line testing at busy

truck stops and retail stations due to the constant dispensing of the motor fuels. Biggest issue appears to be resiliency and the fact that bleed back takes so long the detectors never have a chance to depressurize and reset, so they never have a chance to test. In large lines the system could take up to 15 minutes to reset. It was suggested that perhaps a new protocol should be developed to address large lines and busy stations with high flow. It was also suggested that the practice of doubling the tested line volume for determination of the maximum allowed line size may be too lenient; the system does not have enough time to reset. Other factors that were discussed that may increase leak detection reset times or prevent reset: elevation differences, dead ends, stubs, line size transitions, low spots which all lead to vapor entrapment.

It was suggested the issue with not having enough time to test may be resolved by initial start-up and annual testing to determine a site specific minimum testing time which can be used as a tool for determining if a station has enough downtime to test. Another solution suggested would be to install a dump valve in the system to release system pressure in order to reduce the overall required test time.

The Work Group determined that the issue with high volume stations not having enough quiet time to test is not a Work Group issue unless it is proposed to revise the current line leak protocol to limit line volumes. In order to agree to revise the protocol the EPA would have to be provided with data that shows it needs to be changed. It was generally agreed that revision of the protocol would not be useful for older equipment, but would be of value for the development and application of future equipment.

End of Open Portion of Meeting

Discussion of Vendor Presentations

Listing change for V/R to add ethanol and biodiesel (neat and blends): For the change to the ATG listing, justification will have to be submitted from a third-party vendor that provides evidence that the leak detection equipment functions will continue to meet the EPA performance standards. Change to PLLD listing will require only a letter from V/R and third-party vendor stating equipment will work as intended. Decided to allow change to V/R ATG Listing for soy-based biodiesel and PLLD for ethanol and biodiesel with no additional submittal required. Change to ATG Listing for ethanol (neat and blends) will require more information on water detection and absorption before listing revision is considered.

In support of the proposed changes to the listings for alternative fuels the Work Group unanimously agreed to the following changes to:

1. Policy Memo #3, section III.A.5:
Delete the words: “an affidavit”
Change to: “justification.....must be included from a”
2. Addition to the comment section of the individual listings that include ethanol or biodiesel (neat and/or blends) under the “Applicability” section the following statement: “NWGLDE Listings apply to leak detection functionality only and not material compatibility. See disclaimer.” (with link to disclaimer web page)

3. Add to the “Applicability” section for the V/R ATG Listings the following: “biodiesel blends and 100% biodiesel as approved by the manufacturer.”
4. Add to the “Applicability” section for the V/R PLLD Listings the following: “ethanol blends, 100% ethanol, biodiesel blends, 100% biodiesel.”

Truck Stops/High Volume Stations: Discussion centered on possible needed protocol changes to address possible vapor entrapment issues and line doubling. Work Group decided this would be difficult to unless enough data was collected to show a need for a change, no action will be taken at this time. ELLD and MLLD systems will work and detect leaks if the designers work within the system parameters and design limits and the site has enough quiet time for the detector to reset and test. The problem appears to be a regulatory issue and should be addressed by state regulators on a case-by-case basis.

End of Meeting- March 8

March 9, 2007:

Discussion on Clarification of Certain Sensor Designations

This issue was brought up by Jon Reeder and Tim Smith of the Work Group due to the confusion over several different vendors using the same designation for their sensors (LS-7, LS-3, etc.) Many of these sensors are not associated within the third-party test documents with a particular vendor’s console; which makes it difficult to determine whether or not they will communicate correctly with a vendors console and be able to alert (alarm) the operator if the sensor is activated by the fluid it is designed to detect. The Work Group agreed that if a sensor was evaluated by a protocol that does not require a console for the evaluation and none is identified within the third-party evaluation, then it can be used with any vendor’s console. It was suggested that for field identification purposes where only the sensor model number is available, that a photo of each sensor be provided within each vendors NWGLDE Listing. This would assist in reducing the confusion between different vendors using the same model numbers.

Discussion on Decreasing Number of Members on Work Group

The Work Group discussed the possibility of not replacing the vacancy created by the retirement of Mike Kadri from the State of Michigan, mainly due to the groups reduced work load. The Group decided to keep the number of members at the normal level and actively pursue a new member due to the training time necessary for new members; need for more expertise in certain areas; and the need to be able to react to new industry trends and technologies. A revision to Policy Memo #2 (Filling work Group Vacancies), was proposed in order to address forecasted expertise requirements.

Discussion of LUSTLINE Articles

The group discussed topics for future articles that included: 1) NWGLDE disclaimers; 2) theory behind different types of continuous in-tank leak detection. Curt Johnson volunteered to write the first article and John Kneece volunteered to write the second article.

Old Business:

File Retention Committee Report

General question was proposed on whether we want to compile information on systems that were never submitted to the work group. Some of these systems were developed before the work group formation and never listed due to various factors (product discontinued, etc.). Work Group decided will list on a case-by-case basis.

Other Issues

Proposal forwarded to change the name and purpose of the Secondary Containment Testing Methods team to the Secondary Containment and Line Leak Detector Functionality Test Methods team. Purpose is to review submitted protocols and third-party evaluations for line leak detector functionality test equipment. Passed: 6 for, 1 against, 2 abstain.

Work Group decided to review the NWGLDE mission statement and address changes via e-mail system.

Next Meeting in Cocoa Beach, Florida/ September 26-28, 2007

San Antonio, Tx. - National Work Group Attendees (03/07-03/09/07)

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Guests: (03/07/07)

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Guests: (03/09/07)

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