National Work Group on Leak Detection Evaluations (NWGLDE) Meeting
Seattle, Washington, March 16-18, 2005

WEDNESDAY, March 16, 2005

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

TEAM UPDATES

ATG TEAM – John Cernero

- Team has had no requests for reviews since the last meeting.
- Issues with the definition of "throughput" were raised. These will be discussed during the meeting on Thursday.

CITLDS TEAM – Shaheer Muhanna

- Incon and EBW are combining their equipment, the Incon Box with the EBW Probe. According to vendor, it is only a name change. On the application, the vendor had substituted language changes, no physical changes. All the requested changes were made to the LIST.

NVTTT TEAM – John Kneece

- Two system reviews are on hold, EDB and MESA 2-D. The team is awaiting further submittals from manufacturers.
- Both the Wet Test and Ullage Test from Masstech, out of England, are close to being listed.
- No other non-volumetric reviews at this time.

PIPELINE TEAM – John Kneece

- Masstech Line Test procedure is still being reviewed.
- FE Petro increased the line capacity for both the mechanical and electronic line tests; list has been updated.
- Tanknology TLD1 needed further testing to increase line capacity, not yet returned for review.

SIR TEAM – Jon Reeder

- No new reviews for the SIR Team.
- The following concerns with SIR were raised:

    - When SIR is allowed, inventory control is sometimes not allowed or required.
    - Contractors are not always generating reports on a monthly basis. Sometimes the reports are generated all at once when requested by a state.
    - Are companies using electronic gauge readings or stick readings for SIR?

INTERSTITIAL MONITORING METHODS TEAM – Tim Smith

- Ameron International has not submitted final application. Third party testing has been completed.
- A letter will be sent within the month to Western Fiberglass for the final report or this review will be removed from the LIST. Some testing has occurred. However, this testing was inadequate as it was conducted on 25 ft of piping. To scale piping is statistically incorrect.
- Two companies have sensors that erroneously post diesel fuel results. The companies are: OPW Fuel Management System and Phoenix Technologies. Neither of the vapor monitoring protocols that NWGLDE accepts lists diesel as a test fuel. Notification to the companies and subsequent removal from NWGLDE's list for the diesel results is being accomplished. Related to this issue, Process Analyzers, LLC (formerly HNU Systems, Inc.) would like to have its Model 102 Photoionizer listed to include use with gasoline as well as diesel fuel and update its current Model 101 (i.e., DL-101) listing to add diesel fuel results. However, for the same reason of the protocols not specifying testing with diesel fuel, a new protocol will be required in order to list diesel results. Due to the historic complications involved with using and general state non-acceptance of vapor monitoring results on low volatility compounds like diesel fuel however, this will be a difficult issue to resolve. It was suggested that Process Analyzers test in field sites with known diesel releases having known concentrations of contamination and use photo-ionization detectors to verify the concentrations as a means of validating its equipment. The evaluation is still under review.
- Franklin Fuel Systems is still under review. Some modifications of the protocol were made. The learning curve in this method is not in the European Protocol. After all the reviewers' comments are complete, Shaheer Muhanna will forward the team's concerns to Franklin Fuel Systems. Franklin Fueling System will be discussed in the Team Meeting on Friday.
- There has been no new activity from Field Solutions, formerly Euro Tank. Scott will meet with them. They have not submitted testing documentation. AFS Thomas is listed as the contact.
- Spring Patents Third Party evaluation used stainless steel, not commonly found in the field. They provided some field-testing with only limited results. Concerns were raised that without field-testing, the protocol they used is inadequate. The European standards have no real life testing requirements. This system with vacuum levels so low does not fall under the European Protocols. Issues with modifications to protocols will be discussed later in the meeting.
- Veeder-Root has requested additional modifications to its Mag Sump Sensor. The company wants its listing to state that duplicative functionality of its sensor is independent of its variable lengths. the team asked for a Third-Party Evaluation to validate the claim regarding varying lengths of the sensors.
- 12th Edition of the LIST has added statement warning of excessive pressure/vacuum to Vacuum Methods. This statement is on each page, not just the reference page. The website does not yet have this statement added. Some manufacturers have a disclaimer on the tanks.

ABOVEGROUND STORAGE TANK METHODS TEAM – Mike Kadri

- No aboveground reviews to date.
- The team has directed a few inquirers to Ken Wilcox Associates.
- The Protocol is approved.
- New reviews may be submitted if the Florida regulatory changes are passed. Florida regulates aboveground tanks and the regulatory changes require all release detection methods used be on the NWGLDE LIST.
- The ASTSWMO Aboveground Tank Workgroup is active. More states may expand their regulatory authority to aboveground tanks.

SECONDARY CONTAINMENT TESTING METHODS TEAM – Scott Bacon

- Scott Bacon has reviewed the Ken Wilcox protocol for secondary containment at the dispenser and finds it adequate.
- If Florida regulatory changes pass, testing of all secondary containment will be required upon installation and annually by Test 1, Test 2, or another NWGLDE listed method.
- Crompco may attend October meeting to discuss testing of spill buckets. They use pressure decay, the Sherlock method.
- Liquid tests could be evaluated under current secondary containment protocol, however vacuum tests could not.

LIST ADMINISTRATION TEAM – Curt Johnson

- We have the 12th Edition of the LIST on CD for distribution. It is not yet on the website.
- Whether or not to have viewers accept a disclaimer before viewing the LIST will be discussed later in the meeting.
- Members will continue to let Curt Johnson know what is under review and when it is no longer under review. Whenever a spec sheet is produced, have a reminder attached for Curt.
- Curt will e-mail spreadsheet to be updated with who is reviewing what. The spreadsheet may also be e-mailed to former members to have a record of reviewers. The Work Group has had to ask former members for support more than once.
- A file management system is being developed. Russ Brauksieck will send 4 drawers of files to Tim Smith.
- Website has no issues that are not listed later in the agenda.

PROTOCOLS UNDER REVIEW

- Alternate Procedures for Evaluation of Vacuum Based Enhanced Leak Detection Methods: Evaluation of Vacuum Based Enhanced Leak Detection (ELD) Methods for New Installations – one time tightness test, not similar to European Standard.
- Secondary Containment Test Method not submitted to Work Group yet. It has not been peer reviewed. Work Group expects only minor revisions.

REVIEW OF TEAM ASSIGNMENTS

ATG – John Cernero (Chair), Mike Kadri, Jon Reeder, Lamar Bradley
CITLDS – Shaheer Muhanna (Chair), Helen Robbins
NVTT – John Kneece (Chair), Scott Bacon
IM & Out of Tank – Tim Smith (Chair), Scott Bacon, Helen Robbins
Because of the high workload the Interstitial Monitoring Methods team will continue to get assistance from Lamar Bradley, Shaheer Muhanna, and Jon Reeder
PIPELINE – John Kneece (Chair), John Cernero
SIR – Jon Reeder (Chair), Lamar Bradley
AST – Mike Kadri (Chair), John Cernero, Jon Reeder
SECONDARY CONTAINMENT – Scott Bacon (Chair), Shaheer Muhanna, Tim Smith
ADMINISTRATION – Curt Johnson (Chair), Tim Smith, Scott Bacon

NEW BUSINESS

New Business included discussion of modifications and versions of release detection methods. The Work Group discussed what modifications should be allowed before a new third party evaluation and updated listing is required. Several companies have new versions of methods listed that include minor software changes, however, the Work Group does not always know the extent of these changes.

As an example of this, Chris Basher of Minnesota wrote a letter to the Work Group with concerns about the Vista HT 100 System – Bulk Pipeline Leak Detection 1998 Evaluation by Ken Wilcox. HT 100 Version 1.0 and Version 1.1 are used at large hydrant systems, airports, and military facilities. There is no version number listed in the HT 100 third party evaluation. Chris Basher of Minnesota wrote of concerns with the testing time period, and the software and hardware changes over the years that Vista refers to as versions.

Final item of the day was a discussion of the one-hour pre-test for Petro Tite. Stephen Purpora is scheduled to give a presentation Thursday morning to request the 1-hour pre-test requirement be removed from listing when Petro Tite test used on rigid piping.

END OF WEDNESDAY MEETING

THURSDAY, March 17, 2005

Jon Reeder presented Ken Wilcox with a 1987 copy of Ken Wilcox's book U.S.T. Systems Leak Detection & Monitoring.

VENDOR PRESENTATIONS

Stephen Purpora – Petro Tite Line Tester

This presentation focused on Stephen's request to remove the one-hour pre-test requirement on the NWGLDE LIST for the Petro Tite Line Test when used to test rigid piping. Stephen distributed to the Work Group twelve documents dating from 1986 to the present. These documents included company bulletins from both Purpora Engineering and Heath Consultants. Stephen discussed the history of the Petro Tite Line Test. The Pipeline Team will review the listing in light of the information presented by Mr. Purpora and the Third Party testing reports.

Douglas M. Johnson, President, Cambria Corporation- EOS110 Discriminating Sensor

Douglas introduced his new Black Box Genesis – EOS 110. This sensor records all activity of the sensor. He promoted this sensor for offering independent, inviolable recording of sensor history, for recording significant events with time stamp, recording continuity of operation, and offering protection for all parties. Each sensor can be configured to report air/water/fuel; water only; fuel only; or all liquids as fuel. Questions raised included who would have access to this data, would problems arise with second parties having access to this data, could enforcement be taken if owners did not have ready access to information being stored?

Doug Mann – Vista

Doug Mann brought three topics for discussion: the Bulk UST Method reevaluated and submitted to the Work Group, the New AST Protocol, and the Protocol Change listed for afternoon discussion. According to Mr. Mann, Vista reevaluated their method for use on larger diameter tanks. There were nominal changes in performance. According to Joe Maresca, Vista had already submitted LRDP24 and LRDP10 evaluation results to the Work Group. A Third Party Evaluation had been submitted in the past. A former member of the Work Group had done some review of it. Curt suggested Vista resubmits the evaluation and the Work Group would review it as quickly as possible.

With respect to the AST Protocol, in 2002 Vista worked with Ken Wilcox on this Doug asked where the Work Group is going with respect to AST methods. Mike Kadri brought up that until recently we had no protocol. The protocol with 24 tests had gone to two aboveground tank testers – Masstech and Vista. Both felt protocol was too stringent. If resubmitted, the Vista evaluation would be reviewed in accordance with the one approved protocol.

Finally, Vista was concerned about the afternoon agenda item that mentioned Vista. The agenda item was just an example of afternoon discussions with respect to disclaimers.

Ken Wilcox – Ken Wilcox Associates

Ken Wilcox opened with remarks on the Aboveground Storage Tank (AST) protocol. Mr. Wilcox believes there are more than just lab tests and field tests. There is also the option of going to tank owners and asking for test data. For bulk pipelines much data exists. Standard deviation can be looked at to estimate performance. Ken sees this as a team effort and solicited Work Group continued input into protocol development. Ken Wilcox followed next with a presentation on "Low Volatility Vapor Monitoring."

It was asked if the difficulty is strictly discriminating diesel. Ken responded that everything that they have done up to now is to determine if the sensor can detect diesel alone. Ken has concerns when there are other substances present. It was suggested to test at a site with known diesel levels. If it is picked up with the sensor then good, if not we cannot accept. Ken added the background might be 300-ppm diesel. Sensor may not pick that level up. Tim Smith suggested adding a paragraph about lab testing.

Ken Wilcox asked if the Work Group wanted a Letter or Testing for Large Pipeline Addendum.

For the Large Pipeline Addendum (Truck stop Size) Ken stated, number of tests reduced to 25 tests for rigid, 25 tests for flex; no distinction between diesel and gasoline; temperature range from –25 to +25; and one circulation can produce up to 6 tests. With respect to approvals, Ken stated Ameron was in a holding pattern. New protocol is twice as much work. Western Fiberglass is only company that has resubmitted. Stephen Purpora trying to get things rolling for large truck stops. Ken is asking to use extra thirty feet of rigid pipe under driveway? John K has this in his notes and will follow up.

End of Presentations

Petro Tite Discussion

The Work Group reviewed three options:
1. Leave the listing the way it is
2. Remove the 1-hour pre-test
3. Leave the 1-hour pre-test and apply to 3" line

Curt Johnson will review 2001 Revision and make sure the change didn't come from there. Mike Kadri will make effort to locate Third Party Evaluation to verify if the statement was in the full evaluation document. Scott Bacon will check their archives to see if the statement was added or with the original listing. The Pipeline Team will review the inputs and evaluations and recommend listing changes if appropriate.
VISTA Discussion

It was determined that an evaluation had been sent to a previous member of the Work Group. She may have asked for additional information never received it. In looking at the Under Review section of the 9th Edition of the LIST Vista was not there. The public Under Review section was discontinued in the 10th Edition. Curt will ask Beth for previous letters and review with respect to LRDP24. The review will be continued when

Vista resubmits their evaluation. The discussion of a disclaimer on changes to listings will be continued Friday in the scheduled discussion of the "straw man" letter. Another question raised concerned accepting evaluations done before an approved protocol. While the Work Group is not obligated to handle aboveground tanks, the protocol is being reviewed. Ken Wilcox added that this protocol was prepared for the vendor, not prepared for approval or review. Mike Kadri thought it was a good start. The Work Group will gather comments on recommended changes to the protocol.

New Business

Discussion of Equivalency of the Automatic Electronic Line Leak Detector (AELLD) and the Annual Line Tightness Test.

The question being, can the AELLD be used as an annual line test? Specifically the AELLD does not test at 1.5 times standard operating pressure. With AELLD the lines are tested at standard operating pressure. Jon Reeder pointed out this is not a linear, but exponential relationship. Looking at the AELLD evaluations, probably the first one, done by MRI, an equivalent pressure was used.

Listing currently reads:
3 g/hr at 10 psi
0.2 g/hr at 26 psi
0.1 g/hr 40 psi

Curt proposes:
3 g/hr at 10 psi – fed regulation *
0.2 g/hr at operating pressure 26 psi
0.1 g/hr at 1.5 operating pressure *

*Since leak rate varies function of pressure, equivalent leak rate used.

Everyone agrees with the changes Curt has made to the operating pressure statement.

Throughput – John Cernero

Curt Johnson had copy of e-mail; Robert Cutler of Region 10 has problems with Thresholds.

A definition of throughput is needed for CSLD Listings. The different vendors list different throughputs. How were these numbers derived, by tank or system? Are the limitations listed in the evaluations?

Per the revised 2000 CITLDS Protocol the throughput definition is the "Volume of Product Dispensed" per month. It was decided to put definition of throughput on website, checking to make sure it is consistent with other protocols if necessary. It was decided previously not to put the protocols on the website, no demand for this. Shaheer

Muhanna will send the definition to everyone then when agreed, it will be added to the website. Shaheer Muhanna will send John Cernero a copy of the definition to send to Robert Cutler of Region 10. John Cernero will e-mail response to Robert Cutler.

Clarification of Large Pipeline Listing

Mike Kadri suggested clarification of large pipeline listing. There is currently no regulatory leak rate on large pipelines, instead, the list shows percentages of capacity versus gal/hr leak rates. Should upper and lower limit examples be added to simplify the understanding of leak rates and help users compare one system with another? Curt suggested the listings for all large pipelines include this. John Kneece responded that there are not that many listings. The leak rate can be calculated by 0.002% times gallons capacity at what pressure. Calculations are present on some large pipeline tests. John Kneece will look at these and recommend list modifications.

END OF THURSDAY MEETING

FRIDAY, March 18, 2005

Protocol for Vacuum Enhanced Leak Detection

Everett Spring sent the protocol and evaluation together, "Standard Test Procedures for Evaluation of Leak Detection Methods." The Work Group had several concerns including that the testing must include physical testing. EPA "Physical Testing of Full Size Leak Detection Equipment" is the only document the Work Group has for guidance. The Work Group was also concerned that the testing did not include full size equipment, for example, highly polished stainless steel spheres were substituted for the tanks.

Scott Bacon presented a different protocol for enhanced leak detection systems. This protocol was submitted to the State of California by Wayne Perry. Manufacturers are okay with vacuum for test period. In California, the vacuum method is used to do pre-test before the system is buried. The evaluation data and field data are miles apart. A discussion followed of torr values and how long to hold certain torr values. What are the pass/fail criteria? The Work Group has to decide how to handle this protocol. It is a reasonable procedure with detailed theoretical function but no field correlations. Scott Bacon suggests we invite the vendor to our next meeting.

The discussion continued on how to correct the protocol submitted by Spring. The changes would be similar to those experienced with the CITLDS Protocol, required field-testing, use of other materials to do the testing. Have to get the system to a target pressure, well below 10 torr. Concerns were raised with a low vacuum in laboratory, but not being able to achieve 10 torr in the field. The leak rate detected in laboratory tests

might not be reproducible in the field. Scott Bacon added that some systems first going through ELD in California took weeks to complete until contractors learned to build tight systems. California is using ELD only at installation, because of safety concerns once any fuel enters interstice.

Tim Smith asked if the Work Group should develop procedures for field-testing? This idea has been brought up before. There were lots of questions and few answers. For example: Who would establish testing criteria? How much testing? Is testing based on material, capacity? The listing does not say once the method is evaluated, it can be used to test whatever. What if you held the pressure established in laboratory testing, then everything in the field fails? If you try to match what was used in the laboratory, what kind of system could you use it on in the field? Like in the tightness test, if you cannot bring the pressure to 1.5 operating pressure, you fail before you start. With Enhanced Leak Detection, if you cannot meet initial vacuum, you do not start the test. Lamar Bradley concluded discussion with the Work Group has to ask for field-testing; otherwise there is no reference point. In addition, should certain lengths of piping be listed?
It was agreed the listing could only contain specifics of the evaluations. If the evaluation were done on polished stainless steel spheres of certain volumes, then the listing would be for the same. Listing should be specific to material and volume tested. Mike Kadri will deal with issue from here, members will e-mail concerns discussed today, Scott Bacon will put his thoughts in writing for Mike Kadri.

Next LUSTLINE Article

It was suggested the next LUSTLINE article be a CSLD question. Jon Reeder suggested "What is the deal with manifolded tanks and CSLD tank gauges." CSLD has passed evaluation for manifolded tanks. Automatic Tank Gauging (ATG) has not. With ATG, the siphon has to be broken before the test is run. Jon Reeder will be writing the article responding to the questions, what is throughput and how are manifolded tanks handled.

Scott Bacon also suggested an article about listing limitations. Methods are certified only for the conditions tested. Included in this would be whether or not ATG probes could be used for waste oil. Mike Kadri questions a third party certification for "waste oil" that was not used oil from a changing facility.
In conclusion it was decided the LUSTLINE article would address both question one; what is throughput and how are manifolded tanks handled and question two; how are listing limitations determined. Article due beginning of May.

After another extended conversation on throughput, it was decided to change tank to system in original definition in Shaheer Muhanna's CITLDS protocol.

Website Software Upgrade

Jon Reeder is requesting the Work Group purchase Microsoft Front Page 2003. It will help with the management of the website, optimize coding, create a better product for our end users. Lamar suggested going through OEM software.

Jon Reeder informed the Work Group the Computer Discussion Forum has 400 views left on the trial package. It was decided that the Work Group would not pursue this Discussion Forum.

Straw Man Letter

Not sending out letter, just adding to the disclaimer part of the NWGLDE LIST was suggested. It was suggested that the Work Group post the straw man letter on the website. Curt Johnson read the letter. Sending the letter might get the Work Group good feedback on contact information. Jon Reeder clarified the bullet to be "This LIST represents equipment and software tested at the time of evaluation." Seven Work Group members voted to send the letter to vendors. The discussion ended with the Work Group deciding to post the letter on the website in the package review checklist section and to mail it. The letter will come from Curt Johnson on ADEM letterhead and Scott Bacon will take responsibility for mailing it.

New Generation of Piping

Scott Bacon started a discussion on the new generation of piping that is somewhere between flexible and rigid. The classification is based on turn radius. Scott is referring to the piping as semi-rigid. The Work Group continued to discuss which Leak Detection Methods should be used to test this piping. Curt Johnson proposed changing the word pipeline to piping on the website. Jon Reeder described Pipe Day in Florida. All the piping was identified by its bend radius, the smaller the bend radius the lower the bulk modulus. Every manufacturer lists a bend radius not to be exceeded during installation. The Work Group discussed putting together a table for the characteristics of certain piping.

Next Meeting Details

The fall Work Group Meeting will be in Mystic, Connecticut. Conference room reservations have been made and a block of rooms reserved. Helen Robbins will forward more details closer to the time. John Cernero will take minutes at the meeting.

Team Meetings and Adjournment

Meeting Attendees – Wednesday – Friday, March 16-18, 2005

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Meeting Attendees – Thursday, March 17, 2005

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Additional Attendees – Thursday, March 17, 2004

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