

The New STI SP001 Tank Inspection Standard and Compliance with The New EPA SPCC Rule for Petroleum Storage Tanks

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Executive Summary

Inspection of Aboveground Storage Tanks (ASTs) is currently required by state regulation in only a handful of cases. Indirectly, however, there are many drivers for setting up a robust AST inspection program such as the Spills Prevention Controls and Countermeasures Program (SPCC) as well as RECRA, OSHA, CERCLA. Recognized and Generally Accepted Good Engineering Practice (RAGAGEP) also drives inspections because it is the benchmark by which a company or facility is judged when incidents occur.

The next major incentive for having a corporate tank inspection program is the revised (new) SPCC Rule. The Rule was recently litigated by the American Petroleum Institute, Marathon Oil Company, and the Petroleum Marketers Association of America, which delayed the compliance date for amendment of SPCC plans under the new rule, from August 17, 2002 to August 17, 2004. On June 17, 2004, EPA issued a proposed rule to further extend the planned amendment compliance date to August 17, 2005. When the rule is effective, it is anticipated that there will be many case example citations for those companies who do not have a tank inspection program. It is unlikely that the date of compliance for SPCC will be extended yet again.

Much of the debate and dispute over tank inspection compliance revolved about how to inspect small, “shop-fabricated tanks” vs. field-erected tanks. The industry complaint is that compliance with API 653, which is designed for large field-erected tanks, is “overkill” for shop tanks. The complaint also involves the relatively high cost per tank using the API 653 tank inspection standard for shop tanks.

EPA supports the development of a new standard, which is specifically designed to meet the tank integrity testing requirements in the Rule. Under request from EPA, the Steel Tank Institute (STI) drafted a first edition of a shop-fabricated tank inspection standard, STI SP-001¹, with input from various regulatory authorities. When the current draft hit the streets in September 2000, it was immediately recognized by some authorities and by some sectors of the shop-built tank universe, but it was also ignored by other sectors because they felt it was either too onerous or insufficient for their particular needs. It was revised in January of 2003. However, the revision process did not include important stakeholders from larger companies who own a significant population of shop-fabricated tanks such as our own.

For these reasons, a major new revision effort that uses a broad base of stakeholders is now in progress. The first meeting was held on July 14, 2004. A relatively high intensity effort (1 year approximately) will be made by STI to create a new, high quality tank inspection standard which can be used by those who have small and shop built petroleum ASTs. It should be more efficient and cost effective than API 653 for this purpose.

¹ STI SP 0-001 First Edition September 2000; Revised January 2003

I expect that the acceptance and use as well as the number of states adopting of STI SP001 will increase at a rate far greater than API 653. Already, there are a handful of states (approximately 6) which have adopted the current edition of STI SP001 for shop tank inspection and another half dozen states that are actively supporting the use of SP001.

Because of this fact, it is important to ensure that the document is consistent with the petroleum industry's concept of inspection principles for small tanks. Additionally, it offers an opportunity to lead the industry in the right direction by providing the opportunity to include risk based inspection principles.

Background

Key AST Inspection Drivers

There are many reasons to inspect ASTs including risk minimization, compliance with federal, state and local regulations, use of RAGAGEP (Recognized and Generally Accepted Good Engineering Practice) which is an implied requirement under other federal drivers, the protection of the employees and the public against serious incidents, and to prevent future regulatory escalation.

Federal Drivers (SPCC, Liability under CERCLA, RECRE, etc.)

In the past, there have been many regulations which imply the requirement to use RAGAGEP, which in turn implies compliance with industry practices. Mostly the liabilities for non compliance with tank inspection standards have been a result of federal investigations, such as by OSHA, after an incident. Other regulatory pressure has resulted from environmental incidents. A good example of this is the creation of the new Jeffrey Davis AST Act of Delaware of 2002, which resulted from a major spill from the Delaware Motiva Incident.

A new state group called NASAP (National Association of States AST Programs) was funded in 2003 by EPA to enhance discussion and development of state regulations that aim to protect the ongoing integrity of ASTs. The expectation is that this group will enhance regulatory implementation of industry tank inspection standards such as API 653 and STI SP001.

Finally, the most significant driver for a tank inspection program is the new SPCC Rule, which was amended to specifically require that ASTs at almost all facilities be inspected for mechanical integrity using RAGAGEP and recognized industry standards. The EPA is currently participating as a member on the STI committee for this work.

The Role of API 653 and Why It is Not Entirely Adequate

Up until September of 2000, the API 653 and API 12R1 were the sole industry wide tank inspection standards. API 653 was intended to inspect tanks constructed in accordance with API 650 or API 620 as well as other large field-erected tanks, while API 12R1 was designed for production tanks.

It is interesting to note that the API 650 Standard includes shop-fabricated tank standard (API 650 Appendix J) as well. However, most shop-fabricated tanks are not constructed to API 650 Appendix J tanks. Rather they are constructed to UL and STI standards. Some of the small tanks

are not even constructed to any recognized national tank standard. While all of the shop tanks can be inspected under the rules of API 653, it is an inefficient practice because API 653 was really intended for large API 650 tanks.

When the new SPCC Rule was being crafted, the EPA asked the STI to write a shop-fabricated tank inspection standard to address this gap. STI produced the first edition of this standard in September of 2000. This edition of the STI standard was quickly incorporated into state regulations in several states. It is also referenced in the preamble to the SPCC Rule.

API does not feel that this standard competes directly with API 653, and some committee members and API have provided comment to STI during its development. However, a number of API tank people have expressed concerns with the content and conservativeness of this standard. For this reason, the current revision effort offers a much more balanced approach and will be pivotal in establishing the STI standard as a key industry tank inspection standard.

Key Differences and Impacts of API 653 vs. STI SP001

There are some significant differences between API 653 and STI SP001. A few are listed here:

- The STI standard addresses double wall tanks and tanks with integral secondary containment pans as well as horizontal tanks. These are basically not within the scope of API 653.
- Inspection Interval: API 653 uses a performance based inspection interval, whereas the STI standard prescriptively sets the inspection interval to 10 years as normal and a maximum of a 5 year frequency for tanks with excessive corrosion.
- API 653 deals with not only inspection but considers design issues and provides a basic design review level of assessment such as for a change of service. The STI standard considers only inspection and assuring that the tank has not deteriorated or is not leaking.
- STI provides an Inspector Certification Course of its own that focuses on shop-fabricated tanks only. Also, the STI standard allows any API 653 Certified tank inspector to serve as an STI inspector. This assures minimal disruption with the API and its standards.
- API includes fitness for service assessments as well as risk based inspection to be included in the tank inspection assessment. This is not included in the STI standard.

Stakeholders

The first edition of STI SP001 Standard was developed with limited input from stakeholders who will have to comply with the SPCC, presumably by adopting the SP001 Standard. As a result, there was a lack of buy-in by some of the tank user community. The STI recognized this deficiency and called for the formation of a new consensus standards development process to revise the SP001 Standard. The first meeting was held in Chicago on July 14, 2004. The committee now has sufficient diversity to produce a credible, practical standard that can be used by all who must comply with the upcoming EPA SPCC Rule. The first meeting was balanced with many of the participants already qualified to perform AST inspections via the STI or API Certification processes, as follows:

- Regulators (6); 5 environmental and 1 fire type
- Manufacturers (6) of shop tanks

- Users (6) – petroleum marketers and retailers
 - Major Users (1) who have numerous shop-fabricated tanks
 - Inspectors (1)
 - Corrosion Engineers (1)
 - Petroleum marketers (3 – one oversees state financial responsibility)
- PEI (Petroleum Equipment Institute) indirectly represented through manufacturers who distribute and install petroleum equipment

One of the most significant aspects of stakeholder analysis is that the committee will now have the vote of a major petroleum company (CVX). The significance is that integrated oil companies have a large stake in the development of this standard because while they may have large field-erected tanks, they all have many small shop-fabricated tanks as well as the retail facilities which may use shop-fabricated ASTs.

The other significant aspect of stakeholder input is the required presence of regulatory persons on the committee. With the regulatory input, it is anticipated that acceptance of SP001 as a regulatory tool to ensure tank inspection compliance will be much more robust than with API 653, which to some extent, is not trusted by the regulatory community.

Conclusions

The revision of STI SP001 represents a unique opportunity to get the best elements of inspection incorporated yet do it in a way that is both efficient and cost effective. Since the SPCC Rule is the driver of tank inspections, the STI effort could not occur at a better time. It should be ready for the user when compliance with the SPCC Rule is required in 2005 or 2006.

The call for a good, consensus process also opens the door to best practices and cost effective standards. For example, a prescriptive 10-year internal inspection interval is simply not reasonable for all tanks. Rather, a risk based approach, which assesses corrosion rates as well as the potential to do environmental harm, allows the User to meet the intent of the Standard. At the first meeting, the concept of risk based inspection was introduced as well as analysis such as fitness for service being alternatives to the prescriptive approach when the User can justify and document the rationale.

While the outcome cannot be determined at this time, there is good committee balance and expertise on this committee, which leads me to believe that the final result will be a very good tank inspection standard appropriate for small tanks and shop-fabricated tanks which both the EPA and the User community will endorse.