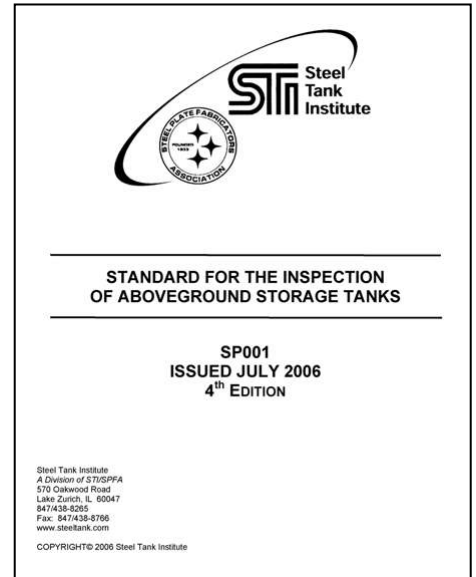


WHAT ABOVEGROUND STORAGE TANK OWNERS SHOULD KNOW ABOUT THE STI SP001 INSPECTION STANDARD



We regularly receive calls from people asking questions about the STI SP001 Standard for Inspection of Aboveground Storage Tanks. Typical questions include:

- Does my new tank comply with the standard?
- Do I need Certification by a Certified Inspector for my new 4,000 gallon AST?
- How often do I need to have my tanks inspected to comply with the standard?
- Can I, as the owner of the tank inspect the tank?
- Why can't my facilities technician or supervisor inspect my aboveground storage tanks (ASTs)?

Most of the answers to these questions are fairly simple and the callers can answer the questions themselves if they have a basic knowledge of the inspection standard and the intention of the standard. Therefore, we recommend that they purchase a copy of the SP001 Standard from the Steel Tank Institute. Below is a brief history of the STI SP001 inspection standard and a few easy to follow references to help our clients gain a basic understanding of the requirements.

HISTORY

The Steel Tank Institute (STI) developed the original SP001 “Standard for Inspection of In-service Shop Fabricated Aboveground Tanks for Storage of Flammable and Combustible Liquids” in 2000. (“Shop Fabricated Tanks” are built in a factory rather than being assembled on the job-site. “Field Erected Tanks” are assembled on-site and are covered by different provisions of the SPCC. This article concerns only Shop Fabricated Above Ground Tanks.) In 2005 the Federal Environmental Protection Agency (EPA) asked STI to form a more broadly based committee consisting of government organizations, petroleum service companies and general interest entities to review and amend the standard to serve as an inspection standard for Shop Fabricated and Small Field Erected Tanks. The committee revised the standard and issued it in July 2006 as the 4th Edition of STI SP001.

PURPOSE

On page 3 of the standard it states “This standard provides inspection and evaluation criteria required to determine the suitability for continued service of aboveground storage tanks until the next scheduled inspection. The purpose of conducting inspections is to identify the condition of and changes to the AST.”

It is important to note that the inspection standard SP001 does not apply to new AST installations. This standard is meant to give guidance to tank owners and inspectors evaluating **existing** ASTs, to assist them in determining if Shop Fabricated and Small Field Erected Tanks are suitable to be kept in operation and to determine how often they must be reinspected. The standard incorporates risk-based inspection considerations that tie the intensity and frequency of the inspections to the risks associated with different types of tank configurations.

TANK CATEGORIES

Among other factors, the standard takes a number of conditions into consideration such as; if the tank has a leak detection system, if it has secondary containment and if the steel bottom of the tank is in contact with the ground.

Based on many considerations, the standard classifies tanks into three categories. Depending on the risk a tank system poses to the environment if kept in service it is ranked as a category 1, 2 or 3 tank. Category 1 tanks pose the least amount of risk and category 3 the highest.

See table 5.4 of the standard, reproduced here, for examples of tank configuration and AST category. Please note that if the AST, other than its legs or supports, is in contact with the ground or a concrete slab, it is prone to corrosion and increased susceptibility to leakage. Shop Fabricated Tanks in contact with the ground or a concrete base are almost always vertical tanks. Such tanks are placed in Category 2 or 3. ASTs which are elevated, have a leak detection system, have spill control and have no part of the tank in contact with the ground (other than legs or supports) are classified as category 1 tanks.

TABLE 5.4 EXAMPLE TANK CONFIGURATION AND AST CATEGORY

TANK CONFIGURATION	TANK HAS CRDM	AST CATEGORY
AST in contact with ground	no	2 or 3
Elevated tank with spill control and with no part of AST in contact with ground	yes	1
Vertical tank with RPB and spill control	yes	1
Vertical tank with double bottom and spill control	yes	1
Vertical tank with RPB under tank and spill control	yes	1
Double-wall AST	yes	1
AST with secondary containment dike/berm	yes	1

Note: CRDM means Continuous Release Detection Method – or Leak Detection System
RPB means Release Prevention Barrier

INSPECTION TYPE AND FREQUENCY

The standard requires different inspection types and different inspection intervals based on the tank size, tank category, and the risk it poses.

In Table 5.5 of SP0001 (see below), those portions pertaining to shop fabricated tanks up to 30,000 gallons have been highlighted showing inspection schedules for the different AST categories.

A Category 3 tank for example, with a capacity of 30,001 to 50,000 gallons must have a Formal External Inspection by a Certified AST Inspector, and a leak test by the owner every five years, plus a Formal Internal Inspection by a Certified AST Inspector every 10 years in addition to periodic inspections by the owner as required by the SPCC. Compare the vigorous inspection requirements above with Category 1 tanks, such as those made by Convault, with capacities up to 5,000 gallons which do not require any Formal External or Internal inspection by a Certified Inspector. Convault type tanks will only need to have Periodic Inspections by the owner or designated employee. Even tanks of 5,001 to 30,000 gallons capacity in the Category 1 classification will only require Formal External inspections once every 20 years when the owner performs required Periodic Inspections.

In Table 5.5 Use The Following Designations:

- P – Periodic AST inspection
- E – Formal External Inspection by Certified Inspector
- I – Formal Internal Inspection by Certified Inspector
- L – Leak test by owner or owner’s designee
- () indicates maximum inspection interval in years. For example, E (5) indicates formal external inspection every 5 years.

TABLE 5.5 TABLE OF INSPECTION SCHEDULES

AST Type and Size (US Gallons)		Category 1	Category 2	Category 3
Shop-Fabricated ASTs	0 – 1100 (0-4164 liters)	P	P	P, E&L(10)
	1101 - 5,000 (4168-18,927 liters)	P	P, E&L(10)	[P, E&L(5), I(10)] or [P, L(2), E(5)]
	5001 – 30,000 (18,931 – 113,562 liters)	[P, E (20)]	[P, E (10), I(20)] or [P, E (5), L(10)]	[P, E&L(5), I(10)] or [P, L(2), E(5)]
	30,001 – 50,000 (113,566-189,271 liters)	[P, E (20)]	P, E&L(5), I(15)	P, E&L(5), I(15)
Portable Containers		P	P	P**

** Owners shall either discontinue use of portable container for storage or have the portable container DOT (Department of Transportation) tested and recertified per following schedule (refer to Section 9.0): Plastic containers – every 7 years; steel portable container – every 12 years; Stainless Steel container – every 17 years.

PERIODIC INSPECTION REQUIREMENTS

Convault tanks of 5,000 gallons or less capacity are CATEGORY 1 TANKS. Owners of Convault ASTs of this size are NOT required to employ Certified AST Inspectors to inspect their tanks to comply with the standard's requirements, but can be in compliance with the standard by inspecting the tanks themselves or having their employees inspect them. Convault tanks larger than 5000 gallons, are also self-inspected and only require inspection by a Certified Inspector after 20 years of service.

What qualifications are required for the owner to self-inspect his tank, and how does he know what to inspect?

Section 4 of the SP001 standard defines the qualifications of the Owner's Inspector as follows: "Periodic inspections are to be performed by an owner's inspector. The personnel performing these inspections shall be knowledgeable of storage facility operations, the type of AST and its associated components, and characteristics of the liquid stored".

Section 6 of the standard explains what is meant by the PERIODIC AST INSPECTION – and what needs to be inspected and kept in the owner's AST records. These are simple and straight-forward tasks which can be performed by any competent owner or his employees. The standard makes it very easy to know what to do and what to check for by providing a check list in the standard's Appendix C. The first section requires filling in information about the owner and the ID of the tank. The second section is the SP001 Monthly Inspection Checklist which consists of 9 easy to check, Yes or No questions such as; is there water in primary or secondary containment, are there visible signs of leakage around the tank, concrete pad, or ground, are all tank openings properly sealed, etc. The third section is the SP001 Annual Inspection Checklist which contains 27 questions with Yes or No answers and a space for comments. It should be noted that the Periodic Inspection must be performed in addition to the Formal External Inspections.

Simply put, the periodic inspection requirements are visual, documented inspections conducted by an owner's inspector, to assess the general AST conditions, as best as possible, without suspending AST operations or removing the AST from service.

Convault strongly encourages the use of the Monthly and Annual Inspection Checklists provided in SP001, and, in fact, requires some of these items be checked on a weekly basis as part of the Convault warranty. A copy of Convault's weekly/monthly/yearly checklist is available online at <http://www.convault.com/pdfdoc/checklist.pdf>.

SUMMARY

- You are NOT required to employ Certified Inspectors to perform inspections on shop fabricated Convault ASTs up to 5,000 gallons for most installations.
- For shop fabricated Convault ASTs from 5,001 to 30,000 gallons you will need an External Inspection by a Certified Inspector once every 20 years for most installations.
- Monthly and yearly inspections by the tank owner or a designated employee are required by SP001, and Inspection Checklists are provided in Appendix C of the document.
- ConVault requires that the interstice be checked on a weekly basis.
- A newly installed Convault AST will meet all the requirements of the SP001 checklists.

If you have any questions about this article, please contact the Convault office by phone at 800-222-7099 or through our website at <http://www.convault.com>.