NATIONAL ASPHALT PAVEMENT ASSOCIATION

A Supplement to SPCC Plan and Stormwater Management Guidance Manual, (IS-137)

Guidance for the Inspection of Aboveground Storage Tanks Containing Asphalt Cement at Asphalt Pavement Production Facilities

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National Asphalt Pavement Association

GUIDANCE FOR THE INSPECTION OF ABOVEGROUND STORAGE TANKS CONTAINING ASPHALT CEMENT AT ASPHALT PAVEMENT PRODUCTION FACILITIES

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Table of Contents

INTRODUCTION

This inspection guidance has been developed for aboveground storage tanks (ASTs) that hold petroleum asphalt cement (AC) which is a solid at ambient temperatures. In order for AC to be pumped and blended with aggregates (stone, sand, and fines) to be manufactured into asphalt paving material (APM), the AC must be stored at an elevated temperature. AC is typically heated above 250°F (121°C) and stored in ASTs.

Subpart B of the federal Oil Pollution Prevention regulations (40 CFR Part 112) establishes Spill Prevention, Control, and Countermeasure (SPCC) plan requirements for on-shore facilities. In October 2011, NAPA published an industry guidance document, SPCC Plan and Stormwater Management Guidance Manual, IS-137, which can be purchased from NAPA's online store *http://store.asphaltpavement.org/*. While providing specific SPCC guidance for asphalt pavement production facilities, IS-137 provides only general guidance regarding tank inspection protocols for the storage of petroleum AC. The current guidance document herewith provides more specific guidelines regarding inspection of ASTs storing AC. All other aspects of SPCC compliance should be undertaken in reference to the NAPA guidance or other suitable documents. EPA's SPCC requirements include periodic inspection and/or integrity testing of all ASTs that hold petroleum oil. The Oil Pollution Prevention definition of "petroleum oil" is "petroleum in any form, including but not limited to crude oil, fuel oil, mineral oil, sludge, oil refuse, and refined products." This definition does not provide any exceptions for petroleum AC products; therefore, most facilities where APM is produced will be subject to 40 CFR Part 112 Subpart B. However, storage silos for APM have been explicitly exempted from SPCC requirements. Although many states have exempted AC tanks from state-specific storage tank requirements, this does not relieve AC tank owners/operators from complying with federal requirements for SPCC plans.

The SPCC regulations require that periodic inspections and/or integrity testing of all ASTs holding petroleum oil be conducted and should be based on an industry standard **if available**. There are several recognized industry standards available for the inspection of ASTs. The two most common standards are the American Petroleum Institute (API) API 653 Tank Inspection, Repair, Alteration and Reconstruction and the Steel Tank Institute (STI) STI SP001 Standard for the Inspection of Aboveground Storage Tanks. While not the only industry standards, these two are the most commonly used and are recognized nationally.

Both API 653 and STI SP001 meet the intent of 40 CFR §112.8(c)(6) which requires each tank to be tested or inspected regularly. The regulation also requires the tank owner to determine the qualifications for the tank inspector and the frequency and type of testing. Frequency and type of testing should be established for all tanks (including AC tanks) by the performance of a "baseline" inspection.

Current industry standards for inspections of ASTs are limited regarding facilities that store AC because the API 653 and STI SP001 tank inspection standards are valid only for substances stored at temperatures below 200°F (93°C). Asphalt cement (AC) is stored at temperatures greater than 250°F (121°C); therefore, there is no current industry standard available for the inspection of AC tanks. Typical industry standards require that the inspection of ASTs be conducted by a "certified inspector." However, because there is no industry standard for the inspection of AC tanks, the guidance below outlines the types and frequency of AC tank inspections as well as the characteristics of a qualified inspector for AC tanks.

PURPOSE

This document is intended to serve as industry guidance and guidelines for complying with SPCC requirements for inspecting and testing ASTs that store AC at APM production facilities. It is recommended that the APM production facility-specific SPCC plan is revised or amended to include this industry tank inspection guidance, if the current SPCC plan is inadequate with regards to AC tank inspection provisions. The amendment can be in form of a letter to the tank owner or through a memo to the SPCC Plan itself (a formal rewrite of the SPCC Plan is not needed).

As background, EPA's Bulk Storage Container Inspection Fact Sheet (dated August 2013), provides information about potential tank inspection guidance when industry standards do not exist. In these cases, EPA recommends developing a hybrid inspection program.

According to EPA, a Professional Engineer (P.E.) does not need to certify an environmental equivalence justification for implementing a hybrid inspection program; however it is incumbent upon the facility operator to describe the procedures used in an inspection program and to keep records of these inspections and/or tests. In addition, this industry guidance document is not designed to replace any maintenance or inspection protocols designed for AC tanks by the tank manufacturers. Rather, it is intended to fulfill the need of providing industry guidance on tank inspection and/or testing under SPCC requirements, because an industry standard is not available.

The following pages excerpt a portion of EPA Office of Emergency Management's fact sheet on bulk storage container inspections. The full 11-page document can be downloaded from *www.epa.gov/oem/docs/oil/spcc/integrity-testing-factsheet.pdf*. The first page provides an overview of the fact sheet while pages 7 and 8 provide more specific guidance regarding hybrid inspection procedures. Note that page 7 of the fact sheet (last paragraph) states "You should clearly explain why current industry standards do not apply and how the hybrid inspection program meets the minimal recommended elements described below." Therefore, the STI SP001 standard used for other tank inspections at a facility will not apply for tanks storing AC at temperatures above 200°F (93°C).

Spill Prevention, Control and Countermeasure Plan (SPCC) Program

Bulk Storage Container Inspection Fact Sheet

The inspection requirements of the SPCC rule are designed to detect oil leaks, spills, or other potential integrity or structural issues before they can result in a discharge of oil to navigable waters of the U.S. or adjoining shorelines. Regularly scheduled inspections, evaluations, and testing of bulk oil storage containers by qualified personnel are critical parts of discharge prevention. A container integrity inspection and/or testing program may involve one or more of the following: an external visual **inspection** of containers, foundations, and supports; non-destructive **testing** (examination) to evaluate integrity of certain containers; and additional **evaluations**, as needed, to assess the containers' fitness for continued service. The type of inspection program and its scope will depend on site specific condition and the application of good engineering practices and this can be accomplished by following applicable industry standards.

What oil storage containers do I have to inspect at my facility?

Conduct integrity testing and routinely inspect the following aboveground bulk storage containers with a capacity of 55 gallons or more:

- Large (field-constructed or field-erected) and small (shop-built) bulk storage containers;
- Containers located on, partially in (partially buried, bunkered, or vaulted tanks), and off the ground wherever located; and
- Double-walled containers.

Oil filled equipment is not a bulk storage container and, therefore, not subject to the integrity testing requirements of the SPCC rule.

§§112.8(c)(6), 112.12(c)(6)(i)
Test or inspect each aboveground container for integrity on a regular schedule and whenever you make material repairs. You must determine, in accordance with industry standards, the appropriate qualifications for personnel performing tests and inspections, the frequency and type of testing and inspections, which take into account container size, configuration, and design (such as containers that are: shop-built, field-erected, skid-mounted, elevated, equipped with a liner, double-walled, or partially buried). Examples of these integrity tests include, but are not limited to: visual inspection, hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or other systems of non-destructive testing. You must keep comparison records and you must also inspect the container's supports and foundations.

In addition, you must frequently inspect the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas. Records of inspections and tests kept under usual and customary business practices satisfy the recordkeeping requirements of this paragraph.

Note: The above text is an excerpt of the SPCC rule. Refer to the full text of 40 CFR part 112.

How do I inspect aboveground bulk storage containers?

The SPCC rule requires that you:

- Test or inspect **each** container for integrity on a regular schedule and whenever you make material repairs; and
- Frequently inspect the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas. This visual inspection is intended to be a routine walk-around and include the container's supports and foundations.
- Identify in your SPCC Plan the type and frequency of testing and inspection for each container and the appropriate qualifications of personnel performing the tests and inspections. You must retain testing and inspection records for 3 years. EPA recommends that formal test records or reports be retained for the life of the container.

Integrity testing is required for all aboveground bulk storage containers located at onshore facilities (except oil production facilities). Integrity testing is necessary to determine if the container (e.g. a tank) is suitable for continued use until the next formal inspection.

If you are the owner or operator of a Tier II qualified facility and you choose to deviate from a portion of an applicable industry standard, then you must have a PE certify the environmentally equivalent measures as described in §112.6(b)(4). You cannot deviate from applicable industry standards if you are the owner or operator of a Tier I qualified facility when following the requirements for Tier I qualified facilities in §112.6(a).[4]

Can I use a site-specific (hybrid) inspection program if no industry standard applies to my container?

Yes. However, it is likely that at least one industry standard will apply in most circumstances. Two commonly used steel tank inspection standards are STI SP001 and API 653. The scope of these two standards addresses many of the steel storage tanks in service at SPCC-regulated facilities and it is likely that one of these inspection standards can be applied.

If in the judgement of a PE or qualified facility owner/operator, no industry standard applies to a particular container, then the Plan preparer should consider the manufacturer's specifications and instructions for the proper use and maintenance of the equipment, appurtenance, or container. If no industry standards or manufacturer's instructions apply, the Plan preparer may also call upon his/her professional experience and/or consult with tank inspection professionals to develop site-specific inspection and testing requirements for the facility or equipment that are in accordance with good engineering practice and document them in the Plan.

Tip

Although existing industry standards are not specific to integrity testing of AFVO bulk storage containers or tanks operated at elevated temperatures (e.g. asphalt), facilities with these storage containers can follow API Standard 653, "Tank Inspection, Repair, Alteration, and Reconstruction" because the scope is written broadly to include any steel tank constructed in accordance with a tank specification.

A customized, site-specific (i.e., hybrid) inspection program should be based on relevant industry standards (in whole or in part) and other good engineering principles. The hybrid inspection program should be designed to measure the structural soundness of a container shell, bottom, and/or floor to contain oil, and may include leak testing to determine whether the container will discharge oil. API 653 and STI SP001 provide the foundation for integrity testing and inspecting containers, and in many cases it may still be appropriate to consider these standards when developing a hybrid inspection program.

A PE does not need to provide and certify an environmental equivalence justification for implementing a hybrid inspection program when industry standards do not apply to a container or the container is outside the scope of the standard. However, you must describe the procedures for this inspection program in your SPCC Plan and keep a record of inspections and tests for three years. EPA recommends that formal test records or reports be retained for the life of the container. These records can be helpful to inform changes in the inspection program.[4]

It is unlikely that qualified facility owner/operators will have bulk storage containers for which no industry standard applies. However, if you are the owner or operator of a qualified facility and you determine that no industry standard applies, then you should follow the procedures described above to develop an inspection program for bulk storage containers. No environmental equivalence determination is necessary in this case and a PE does not need to certify the hybrid inspection program; however, you should consider consulting with a tank inspection professional or a PE. You should also clearly explain why current industry standards do not apply and how the hybrid inspection program meets the minimal recommended elements described below.

What are some recommended elements for a site-specific integrity inspection and/or testing program (hybrid inspection program)?

[4] For more information on how to document an inspection program in your SPCC Plan see *Section 7.6.2* of the *SPCC Guidance for Regional Inspectors* at http://www.epa.gov/emergencies/content/spcc/spcc_guidance.htm.

The hybrid program should be designed to measure the structural soundness of a container shell, bottom, and/or floor to contain oil, and may include leak testing to determine whether the container will discharge oil. The components of a hybrid inspection program would likely include frequent visual inspections by the owner, as well as periodic inspections (plus testing as appropriate) by a certified inspector. Alternatively, the PE can recommend an inspection program following a specific standard, even when the standard does not specifically identify the container in its scope, if he believes that the inspection elements of that standard are appropriate for the container(s) at the facility and in accordance with good engineering practices.

Any hybrid inspection program should include an evaluation of the principal elements that would cause a tank to fail, and how the inspection program addresses finding such conditions, or prevents such conditions from continuing to the point of failure. For example, internal and external corrosion conditions must be considered, and a testing method developed to assure that the condition is identified and measured. Conditions that may lead to a structural failure should be identified, for example a failing foundation, and evaluation methods developed to identify the condition.

In all cases, careful consideration should be given to discovering such conditions that may not be identifiable from visual examination, such as the bottom of floor plates. Hybrid programs should also include evaluation of container modifications made since last examination that may degrade integrity or lead to failure.

For more information on how to document an inspection program in your SPCC Plan see *Section 7.6.2* of the *SPCC Guidance for Regional Inspectors at* http://www.epa.gov/emergencies/content/spcc/spcc_guidance.htm.

Recommended Elements for a Hybrid Inspection Program

Here is a partial list of items to consider regarding the elements of a hybrid inspection program.

For shop-built tanks:

- Visually inspect exterior of tank;
- Evaluate external pitting;
- Evaluate hoop stress and longitudinal stress risks where corrosion of the shell is present;
- Evaluate condition and operation of appurtenances;
- Evaluate welds;
- Establish corrosion rates and determine the inspection interval and suitability for continued service;
- Evaluate tank bottom where it is in contact with ground and no cathodic protection is provided;
- Evaluate the structural integrity of the foundation;
- Evaluate anchor bolts in areas where required; and
- Evaluate the tank to determine it is hydraulically sound and not leaking.

For field-erected tanks:

- Evaluate foundation;
- Evaluate settlement;
- Determine safe product fill height;
- Determine shell corrosion rate and remaining life;
- Determine bottom corrosion rate and remaining life;
- Determine the inspection interval and suitability for continued service;
- Evaluate welds;
- Evaluate coatings and linings;
- Evaluate repairs for risk of brittle fracture; and
- Evaluate the tank to determine it is hydraulically sound and not leaking.

SCOPE

This industry guidance has been developed specifically for ASTs designed and built to hold AC products stored at temperatures greater than 200°F (93°C). Storage tanks that hold other regulated substances at temperatures less than or equal to 200°F, such as gasoline, diesel, heating oil, and used oil, will need to be inspected using an industry standard appropriate for those tanks and materials. This guidance is not intended to cover underground storage tanks.

The API 653 standard may be used for the inspection of field-erected tanks and some shop-built tanks constructed to API 650 standards. Shop-built tanks with a capacity of 60,000 gallons or less and constructed to UL 142 standards may also be inspected using the STI SP001 standard. Therefore, STI SP001 may be used for the majority of an APM facility's ASTs, e.g., those holding gasoline, diesel, heating oil, used oil, lubricants, and other types of regulated substances.

NOTE: Any reference to "asphalt cement (AC)" in this guidance document **does not necessarily include** asphalt emulsions, cutbacks, and tack coats. Although these types of materials are petroleum-containing liquids, they may or may not be subject to this inspection guidance, especially depending upon storage conditions, e.g., temperature and other factors. This guidance document is applicable to storage of asphaltic materials that are purposefully heated to temperatures greater than 250°F (121°C) and are typically a solid at ambient temperatures. This guidance is not meant to be followed for tanks storing petroleum materials that remain liquid at ambient temperature.

RECOMMENDED INSPECTION AND EVALUATION PROCEDURES

These recommended inspection procedures and guidelines are written for several audiences including inspectors, company employees, and facility owners. Knowledgeable tank inspectors are often trained to conduct inspections of other aboveground storage tanks, typically in conformance with STI or API standards. A company employee or their designee will likely be conducting daily, quarterly, annual, and/or other periodic inspections. The facility owner or operator will be responsible for managing and remediating potential problems identified during these inspections. Since the purpose of any tank inspection program is to identify and track the tank's condition over time, to identify deficiencies that need to be addressed, and to prioritize and manage the resolution of these insufficiencies — the inspector, company employees, and management each need to be aware of these recommended inspection and evaluation guidelines.

Monitoring an AC tank's condition over time is a primary goal of the inspection process. Because AC tanks are often encased in insulation to maintain the elevated temperature necessary for AC to be pumped, the tank's metal shell is not normally visible to the

inspector. This makes it necessary, in some cases, to evaluate the condition of the tank indirectly.

TANK INSPECTIONS — TYPE AND FREQUENCY

Several different types of tank inspections are recommended for APM production facilities. In December 2013, the EPA Office of Emergency Management released its SPCC Guidance for Regional Inspectors (EPA 550-B-13-002) available at *www.epa.gov/oem/content/spcc/spcc_guidance.htm*. Reproduced on the following three pages is a portion of Table 7-1: "Summary of SPCC Inspection, Evaluation, and Integrity Testing Program Provisions and Associated Recordkeeping Requirements," from the guidance document. The table outlines some of the components, types, and timing of inspection and testing requirements. Because much of the EPA's inspection guidance is generic, the procedures listed in this industry guidance document likely provide more appropriate industry-specific assistance in understanding compliance obligations associated with the SPCC tank inspection provisions. **Any conflict between this industry guidance document and EPA Table 7-1 should always be resolved in favor of the EPA's guidance.**

Table 7-1: Summary of SPCC inspection, evaluation, and integrity testing program provisions and associated recordkeeping requirements.

Facility Component	Section(s)	Action	Method, Circumstance, and Required Action
(Text in italics indicates the frequency or circumstances for performing the activity, as specified in the SPCC rule.)			
General Requirements Applicable to All Facilities			
Bulk storage containers with no secondary containment and for which an impracticability determination has been made	112.7(d)	**Test**	Integrity testing. *Periodically.* Integrity testing is required for all bulk storage containers. In cases where no secondary containment is present because it is impracticable, good engineering practice may suggest more frequent testing than would otherwise be scheduled. Note that this includes bulk storage containers at oil production, drilling and workover facilities that are not typically subject to integrity testing requirements.
Valves and piping associated with bulk storage containers with no secondary containment and for which an impracticability determination has been made	112.7(d)	**Test**	Integrity and leak testing of valves and piping associated with containers that have no secondary containment as described in §112.7(c). *Periodically.*
Recordkeeping requirement	112.7(e)	**Record**	Keep written procedures and a signed record of inspections[105] and tests for a period of three years.[106] Records kept under usual and customary business practices will suffice. *For all actions.*
Lowermost **drain** and all **outlets** of tank car or tank truck at loading/unloading racks	112.7(h)(3)	**Inspect**	Visually inspect. *Prior to filling and departure of tank car or tank truck from loading/unloading racks.*

[105] Inspections include evaluations (e.g. brittle fracture evaluation) required under the regulation.

[106] Certain industry standards require recordkeeping beyond three years. Facility owners/operators should keep comparison records of integrity inspections and tests as directed in the standard, but no less than three years in accordance with the SPCC record retention requirement, in order to identify changing conditions of the oil storage container. EPA recommends that formal testing and inspection records or reports be retained for the life of the container.

Facility Component	Section(s)	Action	Method, Circumstance, and Required Action
Field-constructed **aboveground container**	112.7(i)	**Evaluate** **Corrective Action**	Evaluate potential for brittle fracture or other catastrophic failure. *When the container undergoes a repair, alteration, reconstruction or a change in service that might affect the risk of a discharge or failure due to brittle fracture or other catastrophe, or has discharged oil or failed due to brittle fracture failure or other catastrophic failure*. Based on the results of this evaluation, take appropriate action.
Onshore Facilities (Excluding Oil Production Facilities)[107]			
Diked areas	112.8(b)(1) & 112.8(b)(2) or 112.12(b)(1) & 112.12(b)(2)[108]	**Inspect** **Record**	Visually inspect content for presence of oil when draining into a watercourse. *Prior to draining.* Keep adequate records of such events.
Diked areas for bulk storage containers	112.8(c)(3) & 112.8(c)(3)	**Inspect** **Record**	Inspect retained rainwater to ensure that it will not cause a discharge as described in §112.1(b) when draining to storm sewer or open watercourse, lake or pond. *Prior to draining.* Keep adequate records of such events.
Buried *metallic* storage tank installed on or after January 10, 1974	112.8(c)(4) or 112.12(c)(4)	**Test**	Leak test. *Regularly*
Aboveground **bulk storage container**	112.8(c)(6) or 112.12(c)(6)	**Test or Inspect**	Test or inspect each container for integrity. *Following a regular schedule and whenever material repairs are made.* Determine scope, frequency of testing and qualification of personnel performing the test or inspection, in accordance with industry standards. Tests include, but are not limited to, visual inspection, hydrostatic testing or other non-destructive testing.
Aboveground **bulk storage container**	112.8(c)(6) or 112.12(c)(6)	**Inspect**	Inspect outside of container for signs of deterioration and discharges. *Frequently.*
Aboveground bulk storage container **supports and foundations**	112.8(c)(6) or 112.12(c)(6)	**Inspect**	Inspect container's supports and foundations. *Following a regular schedule and whenever material repairs are made.*

[107] Note that §112.8 provisions apply to facilities that store petroleum oils and non-petroleum oils (excluding AFVO). §112.12 provisions apply to facilities storing AFVO (i.e., animal fats and oils and greases, and fish and marine mammal oils; and for vegetable oils, including oils from seeds, nuts, fruits, and kernels.) Also see alternative provisions in table under "Onshore Facilities (Excluding Production) – Animal Fats and Vegetable Oils."

[108] Sections 112.8(b)(2) and 112.12(b)(2) reference dike drainage procedures in §§112.8(c)(3)(ii)-(iv) and 112.12(c)(3)(ii)-(iv). These dike drainage procedures apply to any facility drainage that drains directly to a watercourse.

Facility Component	Section(s)	Action	Method, Circumstance, and Required Action
Diked areas around bulk containers	112.8(c)(6) or 112.12(c)(6)	**Inspect**	Inspect for signs of deterioration, discharges, or accumulation of oil inside diked areas. *Frequently*.
Steam return and exhaust lines	112.8(c)(7) or 112.12(c)(7)	**Monitor**	Monitor for leaks from defective internal heating coils. *On an ongoing or regular basis*.
Liquid level sensing devices	112.8(c)(8)(v) or 112.12(c)(8)(v)	**Test**	Test for proper operation. *Regularly.*
Effluent treatment facilities	112.8(c)(9) or 112.12(c)(9)	**Observe**	Detect possible system upsets that could cause a discharge. *Frequently.*
Bulk storage containers	112.8(c)(10) or 112.12(c)(10)	**Corrective Action**	Correct visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts. Remove any accumulations of oil in diked areas. *Promptly.*[109]
Buried piping[110]	112.8(d)(1) or 112.12(d)(1)	**Inspect** **Corrective Action**	Inspect for deterioration. *Whenever a section of buried line is exposed for any reason.* If corrosion damage is found, additional examination and corrective action must be undertaken as indicated by the magnitude of the damage.
	112.8(d)(4) or 112.12(d)(4)	**Test**	Integrity and leak testing. *At the time of installation, modification, construction, relocation, or replacement.*
All aboveground **valves, piping, and appurtenances**	112.8(d)(4) or 112.12(d)(4)	**Inspect**	During the inspection, assess general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. *Regularly.*
Onshore Oil Production Facilities (Excluding Drilling and Workover Facilities)			
Diked areas associated with tank batteries and separation and treating areas	112.9(b)(1)	**Inspect** **Corrective Action**	Visually inspect contents of dike area and take action in accordance with §112.8(c)(3)(ii), (iii), and (iv). *Prior to draining.* Remove accumulated oil on the rainwater and return it to storage or dispose of it in accordance with legally approved methods. *Prior to draining.*

109 "Prompt'' removal means beginning the cleanup of any accumulation of oil immediately after discovery of the discharge, or immediately after any actions to prevent fire or explosion or other threats to worker health and safety, but such actions may not be used to unreasonably delay such efforts (67 FR 47122, July 17, 2002).

110 Any buried piping connected to an exempt completely buried storage tank regulated under 40 CFR part 280 or 281 is also exempt from the SPCC rule.

Tank Inspection and Evaluation Schemes

An *AC Tank Risk Characterization*, as outlined in the next section, should be conducted on each AC tank if no periodic inspection program has previously been developed. An initial risk characterization can be conducted during a typical walk-through or periodic inspection, as outlined below. Identifying a tank's risk category will help to develop the appropriate type of periodic inspection and formal evaluation frequency.

Daily Awareness Reviews should be conducted each day the plant is in operation. This is an informal activity and usually does not require completion of a detailed inspection form. The daily awareness review is typically a simple walk-through by responsible facility personnel, such as the plant operator or foreperson, or a facility manager. During the walk-through, the individual should look for obvious signs of problems and will be able to note signs of tank leakage or overfill. Specific state or local governmental regulations may require more formal documentation of the daily review. There is nothing to preclude a company from requiring the daily walk-through to be detailed and logged accordingly.

Periodic Inspections are performed both to meet the periodic requirement of federal regulations, as well as to provide the owner/operator of the storage tank with timely information about the condition of each AST. While EPA regulations do not define "periodic," there are numerous industry codes and/or state/local regulations that specify a set interval between periodic (written) inspections, depending on the types of AST inspected. Due to the physical nature of the asphaltic material being stored, each AST containing AC should be periodically inspected:

1) At a minimum of annually;
2) According to the tank's Risk Category;
3) As required by state or local regulations; and/or
4) As deemed appropriate by the engineer certifying the facility's SPCC plan.

In addition, ASTs containing AC could also be inspected in conjunction with any other AST inspection frequency, e.g., consistent with the inspection frequency required for on-site ASTs containing liquid fuel.

The periodic inspection is a written assessment containing some detail about the external environment of the AST. The inspection may be carried out by facility personnel who are knowledgeable about AC tanks, the operations of the facility, and the facility's SPCC Plan. Individuals who have acquired or possess some of the experiences and credentials identified in the Qualifications section below would also be able to carry out an annual inspection. Because of the unique nature of AC and ASTs that hold the petroleum material, as well as site-specific

conditions, it is difficult to provide a standardized model inspection form. However, STI SP001 does provide a monthly inspection checklist for ASTs, such as those used to hold liquid fuel, that could easily be adapted for periodic inspection of AC ASTs. A copy of the checklist can be accessed through the EPA website, *http://www.epa.gov/OEM/docs/oil/spcc/sp001_5thedition_checklists.pdf*.

Formal Evaluations. Some type of a rigorous and formal evaluation should also be conducted on each AC storage tank to comply with the SPCC rule requirements. The frequency of such an evaluation can be determined by identifying a tank's risk category, as outlined above. This type of evaluation must be performed by a qualified AC tank evaluator who is knowledgeable about ASTs in general and AC tanks specifically. This individual must have the appropriate credentials and additional knowledge and training for inspecting asphalt cement tanks as identified in the Qualifications section below.

AC Tank Risk Categorization

The characteristics of asphalt cement and AC tanks are different from those encountered during typical STI SP001 and API 653 inspections. Asphalt cement is a viscous material that becomes solid at ambient temperatures, requiring it to be stored at temperatures greater than 250°F (121°C). Because of the elevated storage temperature, little to no moisture accumulation can occur on the tank shell or within the insulation material, resulting in minimal risk of corrosion unless a tank is left unheated or subjected to poor maintenance for an extended period of time. AC tanks are typically insulated and include a thin outer metal shell to keep the insulation intact.

Based on the characteristics of asphalt cement and AC tanks, the following risk characterization and categorization scheme has been developed and can be used as a subjective guide to set the type and frequency of periodic inspections and formal evaluations. A tank's risk category can be characterized during a cursory or more detailed inspection. Tank evaluations are more rigorous than periodic inspections and would require a "qualified evaluator" to assess a variety of tank and plant conditions identified in the sections below. A tank's risk category can be determined at any time; but once identified, it can provide a baseline to set a more formal tank evaluation frequency.

As identified in NAPA's *SPCC Plan and Stormwater Management Guidance Manual* (IS-137) and the EPA's SPCC rule, AC tanks require appropriate secondary containment or its environmental equivalence — taking into account the physicochemical properties of AC, the inability of AC to mobilize at ambient temperature, and the assurance, due to the secondary containment structure, that the material will not reach navigable waters of the U.S. Therefore, the type of secondary

containment (e.g., concrete structure, earthen berms, etc.) is not germane to characterizing an AC tank's risk category.

While not every single risk characterization criterion outlined below needs to be objectively met to determine a tank's appropriate risk category, the scheme below should be followed as a guide. AC tanks lacking a tank inspection program should be assessed and categorized according to the risk scheme below in order to develop a tank inspection frequency, as required under the SPCC rule.

In very few circumstances should an AC tank be in-service for longer than 20–25 years without undergoing a rigorous evaluation conducted by a qualified evaluator.

Category AC-1: Low Risk

Low risk tanks should undergo an inspection annually and a formal evaluation every 15 years. AC tanks by default are considered Low Risk (AC-1), provided the following two criteria are met:

- Age of tank is less than 25 years
- Tank is generally heated for more than 9 months out of each year, with an allowance for a single unheated period of up to 12 months

However, if during a risk characterization, two or more of the following criteria are met, a tank should be categorized under the Moderate Risk (AC-2) category below:

- Evidence of outer shell repair
- Evidence of structural repairs to the tank itself (welds)
- Evidence of residual asphalt from a breached tank
- Evidence of damage to foundation supports

Category AC-2: Moderate Risk

Moderate risk tanks should undergo an inspection annually and a formal evaluation every 10 years. Regardless of its condition, an AC tank shall be categorized as Moderate Risk (AC-2) if any of the following criteria are met:

- Age of tank is greater than 25 years
- Age of tanks is greater than 15 years AND tank is generally heated for less than 9 months but greater than 4 months out of each year, with an allowance for two unheated periods of up to 12 months each

Additionally, a tank shall be categorized as Moderate Risk (AC-2) if any two of the following criteria are met:

- Evidence of outer shell repair

- Evidence of structural repairs to the tank itself (welds)
- Evidence of residual asphalt from a breached tank
- Evidence of damage to foundation supports

Category AC-3: High Risk

High risk tanks shall undergo an inspection at least twice a year and a formal evaluation every 5 years. Regardless of its condition, an AC tank shall be categorized as High Risk (AC-3) if any of the following criteria is met:

- Age of tank is greater than 35 years
- Age of tank is greater than 25 years AND tank is generally heated for less than 4 months out of each year, with an allowance for two unheated periods of up to 12 months each

Additionally, a tank, regardless of its age or heating regime, should be categorized as high risk if at least three of the following criteria are met:

- Evidence of outer shell repair
- Evidence of structural repairs to the tank itself (welds)
- Evidence of residual asphalt from a breached tank
- Evidence of damage to foundation supports

INSPECTOR QUALIFICATIONS

Both of the previously referenced industry standards (STI and API) require an individual to have experience and training to be qualified as an inspector under those standards. STI and API both require a combination of education and practical hands-on tank experience in order to be classified as a Certified Inspector, including a four-year engineering degree or another relevant four-year technical degree combined with one year of experience. Additional experience can be substituted for the educational background for those without degrees. High school graduates must demonstrate three years of AST experience.

A qualified evaluator, authorized to conduct a rigorous and formal inspection of AC tanks is defined as:

- An individual certified as an inspector under the STI SP001 standard if the AC tanks have a capacity of 60,000 gallons or less, who has the equivalent of one year's experience with AC tanks.

OR

- An individual certified as an inspector under the API 653 standard if the AC tanks have been field-constructed or have a capacity greater than 60,000 gallons, who has the equivalent of one year's experience with AC tanks.

OR

- An employee whose assigned role, responsibilities, and education encompasses sufficient knowledge of plant construction, plant operation, ASTs, and who has at least one year's experience with AC tanks; and either: 1) demonstrates those qualifications to the satisfaction of the P.E. certifying the SPCC plan or its amendments; or 2) possesses certain qualifications that the P.E. certifying the plan has described or identified; or 3) meets the requirements specified under any Federal or appropriate state SPCC regulation.

A qualified evaluator is only needed to conduct a formal tank evaluation according to the frequency determined for each tank using the risk characterization scheme above.

Facility personnel who perform periodic tank inspections must demonstrate knowledge of the facility's SPCC plan, the operations of the facility, and the characteristics of AC, as well as any other criteria determined appropriate by the certifying P.E.

A qualified AC tank evaluator who conducts a tank evaluation may have a higher level of experience working with petroleum storage tanks in general, and AC tanks specifically, than the facility personnel who perform periodic tank inspections; although an individual could be qualified to conduct both periodic inspections and more rigorous evaluations.

It is recommended that the APM production facility-specific SPCC plan be revised or amended to include this industry tank-inspection guidance, or its equivalent, at the facility's next scheduled SPCC Plan recertification which is required to occur at least every five years. The amendment should also identify, if appropriate, the qualifications necessary for an employee to be considered a qualified evaluator as outlined in the document above.

AC TANK EVALUATION PROCEDURES

The procedures identified below have been developed to assist qualified evaluators in conducting a rigorous evaluation of AC tanks. Although the scope of this type of evaluation exceeds periodic inspection requirements under the SPCC rule, the rigorous evaluation will provide additional and detailed information to assess overall integrity of an AC tank. This type of evaluation should be conducted at a frequency consistent with an AC tank's risk category, as outlined above.

INITIAL EVALUATION ASSESSMENT

To start an assessment, the qualified evaluator must first get an initial, overall view of the facility and the tank(s). View the tank(s) from a distance so that an overall impression is gained. Consider a tank(s) walk-around. Conduct the walk at a distance of at least 25 feet from the tank(s) for an initial evaluation. During this phase of the inspection there are several areas you should note.

- Evaluate Housekeeping. The housekeeping at a site is generally a good indicator of the care taken with equipment at the site.
- Identify the age and manufacturer of each tank.
- How is each AC tank situated on the site?
    - Are they in a tank farm with other ASTs?
    - Are they separate from other tanks on the site?
    - Are the tanks vertical or horizontal?
- Are the AC tanks in primary secondary containment or is the facility relying on general secondary containment?
    - Is the containment area shared with ASTs storing other products?
    - What is the overall visible appearance of the containment area?
    - Have overfills reduced the working volume of the containment area?
    - Has vegetation taken root inside the containment area?
- General condition of the tanks.
    - What is the condition of the tank insulation?
        - Have tears in or damage to the outer shell been repaired?

TANK FOUNDATION

Vertical tanks

The tank foundation for a vertical tank must be able to support the weight of a fully loaded tank. An AC tank that holds 30,000 gallons of AC weighs more than 250,000 pounds (125 tons). An unstable or shifting foundation can place stress on the shell, leading to failure.

The inspector will need to note the material used for the foundation. Observe whether there is cracking in a concrete foundation. Note whether there is settling of the foundation and whether or not the foundation remains level. Note whether there is pooling of water in and around the foundation, which could lead to corrosion and failure of supporting elements, or the tank bottom.

Inspection Guidance:

- **Evaluate the foundation upon which the vertical tank structures sit.**
    - Identify the material(s) used for the foundation and tank supports.

- Are there cracks or spalling in the footings or foundation?
- Is the foundation level or does there appear to be some settling?
- Is there corrosion in or around any of the tank supports or connections to the foundation?
- Is there sufficient drainage to prevent water pooling on the foundation or around the footings?

Horizontal tanks

Tank supports are used for horizontal tanks. There are two common types of supports.

- The saddle support — The inspector will focus on how the foundation and saddles have held up over time.
- The skid support or rail support — This type of support consists of two steel supports running the length of the tank on either side, at approximately the 5 o'clock and 7 o'clock positions. These supports rest on a series of footers. The footers are usually poured concrete. There may be three to seven individual footers for the skids on each tank, depending on the length and capacity of the tank.

Inspection Guidance:

- **Evaluate the foundation upon which the horizontal tank structures sit.**
  - Are the saddles or the skid rails resting on firmly supported footers and foundations?
  - Evaluate the position of the saddle supports relative to the length of the tank.
    - The position of the outer saddles with respect to the length of the tank is no more than a quarter of the tank length from each end of the tank. Depending on the length and weight of the tank when filled to capacity, it may be necessary to include one or more saddles between the outer saddles. These should be spaced evenly between the two outer saddles.
  - Check for deterioration of the footers and foundations, including cracking and settling.
  - Check whether the saddles are firmly placed against the bellybands of the tank.
    - Are there gaps between the saddles and the bellybands?
    - Look for vegetation that may have taken root between the tank and supports.
  - Check for evidence of corrosion on the saddles.
  - Inspect the entire surface of the external covering, including the underbelly.
    - If the paint appears to be relatively new, inspect the hard-to-reach areas to ensure they have been properly scraped, primed, and painted.

Tank Anchoring

Tank anchor bolts or other fasteners should be made either of steel or another material with the same resistive capability (such as reinforced strapping). Anchoring should also be able to accommodate tank expansion or contraction.

There are potential hazards for aboveground storage tanks that are not properly anchored or when anchor systems become damaged, which could result in a release. These hazards include:

Flooding

Horizontal Tank: An empty horizontal tank will float. Therefore, it is essential that a horizontal tank be anchored to prevent movement in the event a facility is flooded. The slightest movement has the potential to place stress on the tank shell and the attached piping. Movement may also affect the integrity of the equipment.

Vertical Tank: The center of gravity on a vertical tank changes as the volume of its contents decreases. It is most vulnerable to movement when the tank is empty.

Seismic Events

Even in areas where ground movement from seismic events is rare, there is a potential for minor earth tremors sufficient to cause structural damage to an AC tank.

Inspection Guidance:

- **Evaluate each AC tank to determine that it is properly and sufficiently anchored.**

  Consider whether tanks are in a floodplain and if so, whether they need to anchored from above. The weight of an AC tank will not necessarily hold it in place if the facility is flooded. Inspect to see if tie-downs are in place.

- **Evaluate the quality of the anchoring attachment at the tank and at the foundation.**
  - Is there any evidence of corrosion around the anchoring bolts or fasteners?
  - Has vegetation encroached within any anchoring system?

CATHODIC PROTECTION

Cathodic protection is used to prevent corrosion due to the interaction between a tank and its surrounding environment. External corrosion will happen in areas where differing

electrolytic potentials are present between the surface of the tank and its surrounding if the tank is in contact with a media that can transfer current. Tanks set on concrete footers or metallic skids set on concrete offer sufficient cathodic protection. Tanks placed directly on soil or engineered base material are still susceptible to corrosion.

A properly designed, constructed, and maintained foundation will prevent contact between the tank and a medium that can transfer ions that will cause the metal to corrode. AC tanks installed and maintained according to the manufacturer's recommendations will be protected against corrosion. In the case of a vertical tank, even with these precautions, the foundation must be maintained so that proper drainage occurs to eliminate the buildup of moisture below the tank. Therefore, it is very important that the ring-wall (if present) be in good repair.

Piping associated with AC tanks is usually installed above ground and is insulated; therefore, there is little opportunity for external corrosion to occur, unless the material covering the insulation becomes damaged. Even if the piping comes into contact with the ground, the insulation around the piping will protect it from corrosion, as long as the insulation is in good condition.

Inspection Guidance:

- **Determine whether cathodic protection of the tank and lines is installed.**
- **If cathodic protection is installed, intact, and adequate as determined by API Recommended Practice 651 "Cathodic Protection of Aboveground Petroleum Storage Tanks."**
    - What type of foundation or support is in contact with the AC tank?
    - What is the condition of the foundation or support?

GROUNDING

Many facilities use facility-wide grounding to ensure adequate grounding for aboveground storage tanks.

Ask plant management how the tanks are grounded prior to starting the inspection. It is not the function of the inspector to determine whether the grounding system is adequate. If there are questions concerning the adequacy of the grounding system, a person knowledgeable about NFPA 780 "Standard for the Installation of Lightning Protection Systems" should evaluate the ground system. Another good reference is API RP 545 "Recommended Practice for Lightning Protection of Aboveground Storage Tanks for Flammable and Combustible Liquids."

When inspecting AC tanks in the same containment area or in close proximity to aboveground tanks used for storage of flammable liquids, the AC tanks generally do not have to be grounded unless they are on concrete or on nonconductive supports.

Ground wires should be uninsulated so they may be easily inspected for mechanical damage.

Where the steel tank body is in contact with the earth, a zinc grounding rod should be used, not copper. Remember that grounding and cathodic protection <u>are NOT</u> the same.

Inspection Guidance:

- **Evaluate whether the tanks are grounded to minimize the impact of a lightning strike.**
    - Check to ensure the grounding mechanism is adequate.

TANK SHELL

Maintaining the tank's outer shell in good repair to prevent moisture infiltration into the insulation is essential to good maintenance for AC tanks.

Of primary concern with regard to insulation is that no opportunity exists for moisture to infiltrate past the insulation. Insulation will wick moisture to the tank shell. If moisture gets trapped between the insulation and tank shell, there is a high potential for rust and corrosion to develop where it cannot be seen. It should also be noted that the high heat at which tanks are maintained should reduce the opportunity for moisture to become trapped as it should evaporate readily so long as the tank shell is intact.

Inspection Guidance:

- **Evaluate whether the tank's outer shell has been damaged, exposing the insulation to moisture.**
    - If it is a steel shell that is coated to prevent rust, are there any signs of rust or peeling paint?
    - Has the tank shell been damaged in other ways that would allow moisture to intrude?
    - Make sure that the tank roof is also inspected for the same concerns.
- **Determine whether damage to the insulation has resulted in corrosion on the exterior tank shell.**
    - Do the repairs appear recent or do they have some age on them?
    - If they are older repairs, are they holding up or do they need attention?
- **Where damage is observed in the outer shell, inspection must be made to determine if moisture has been allowed to penetrate through the insulation and become trapped between the insulation and the tank shell, and thereby allowing corrosion on the inner tank.**
    - If corrosion is found on the inner tank, it will be necessary to schedule an Ultrasonic Thickness Test (UTT).

VENTING

There are two types of vents on a tank:

– *Atmospheric storage vents* allow for normal expansion and filling of the tank. According to NFPA 30:21.4.3.1, atmospheric storage tanks must be adequately vented during filling or emptying operations to prevent the development of vacuum or pressure that could exceed the design vacuum/pressure limits of the tank.

– *Emergency vents* allow for safe expansion of the product in the event the contents overheat. The most significant emergency potential where an emergency vent does not exist is explosion. Under the NFPA 30 "Flammable and Combustible Liquids Code," liquid AC is classified as a Class III-B liquid due to its flash point above 200°F (93°C). NFPA 30 **does not require** an emergency vent for Class III-B liquids **if** the tank holding the Class III-B liquid has a capacity of greater than12,000 gallons **and** is not sharing a diked area with, or lies in the drainage path of, tanks containing Class I or Class II liquids.

If a tank containing greater than 12,000 gallons of a Class III-B liquid is located within the same dike or drainage path with tanks containing Class I or Class II liquids, an emergency vent sized and installed in accordance with NFPA 30 is required. Similarly, a tank containing a Class III-B liquid, such as petroleum asphalt, with a volume of 12,000 gallons or less also requires an emergency vent in accordance with NFPA 30.

At some asphalt plants with secondary containment, both the AC tanks and the heater and burner fuel tanks are in the same containment; these AC tanks would require emergency vents.

Inspection Guidance:

- **Evaluate whether the asphalt tank's vent is open and allows for air to flow freely into and out of the tank.**
  - **Ensure it is not clogged with bird, insect or reptile nests, etc.**
- **Evaluate whether asphalt tanks with capacities of 12,000 gallons or less are adequately vented and include both atmospheric AND emergency vents.**

The Evaluator will need to consult a guide that has calculated the cubic feet per second the vent opening is required to be able to handle. Generally an 8-inch diameter emergency vent is sufficient for 8,000 to 12,000 gallon capacity tanks.

Tanks less than 8,000 gallons capacity may be able to use smaller diameter emergency vents. However, it is *always* necessary to consult a trusted guide or to perform the calculations yourself to determine an adequate emergency vent size.

- **Evaluate whether AC tank(s) share a containment area with tanks holding Class I or Class II liquids.**
    - **If so, confirm whether there is an appropriately sized emergency vent located on the AC tank.**

  For larger capacity tanks (greater than 12,000 gallons) the use of elongated bolts (minimum of 4-inch recommended) on the manway atop of the tank is approved by NFPA 30 for use as an emergency vent.

PIPING

Piping associated with an AC tank will convey either the hot AC or the liquid fuel used to heat the AC tanks. Pipes need to be elevated off the containment floor or tank base; direct contact with the floor is not appropriate. Pipes should be elevated using steel pipe supports — the use of concrete or wooden blocks should be avoided. Piping must be supported to prevent physical damage due to vibration, expansion, and contraction per NFPA 30:27.6.1.

Inspection Guidance:

- **Evaluate the tank's piping to determine that it is adequately supported.**

  Support of piping is determined by the length and diameter of the pipe. Piping supports are needed every 7–19 feet, based on the length and diameter. Standards for these supports can be found in ASTM B31.3 "Process Piping Guide." The inspector should inspect for whether the pipes are supported appropriate steel pipe supports or by cinderblock or wooden blocks, which are not approved supports. Vertical supports should be placed every 4–6 feet based on diameter of the pipe and not tied into the tank shell.

SPILL PREVENTION AND OVERFLOW

A significant number of AC releases are a result of overfilling the AC tank during delivery.

There are two critical components to preventing overfills:

- Have the means to determine the amount of AC in the tank prior to commencing the fill operation.
- Have the means for determining when the fill level is being approached and have a shut-off method.

Measuring to prevent overfill:

There are two common methods used to gauge the amount of AC in a storage tank.

- Measurement by automated gauges: it can be taken at a single location inside the tank or the liquid level can be monitored continuously. A number of different technologies and vendors are available to facilitate either method.
    - Single location measurements can be accomplished by using a high level or a high/high level. The advantage of a single location measurement device is that it can be installed and maintained at a relatively low cost. Techniques for achieving automated measurement at a single location can include mechanical switches, electronic switches, or optical sensors.
    - Continuous measurements utilize a standard level gauge with mechanical floats, servo units, or radar.
- The second method is to use a stick with graduated measurements, usually in inches, to measure the depth of product in the tank or the voided headspace above the liquid. This is commonly referred to as “sticking the tank.” The capacity for additional product is determined by difference between capacity of the tank and the quantity of product in the tank. Tank manufacturers provide charts or factors for tank owners to use in determining tank volumes.

Overfill prevention:

An attendant should be available and/or present to visually monitor the AC tank as it is being filled. The attendant must be able to shut off the flow of AC before an overfill can occur. There are several ways this requirement can be met.

- ALARMS: A tank can have an alarm that can be seen or heard over the noise of plant operations by the person overseeing the transfer. The level for the alarm should be set for no more than 95% of the tank’s capacity.
- AUTO SHUT-OFF: The facility can have a pumping system in place that will automatically stop product flow from the delivery vehicle when the AC level reaches 95% of the tank’s capacity. A responsible individual must remain at the site of the delivery even when an automated shut-off system is used. Auto shut-off equipment can include:
    - the use of a proximity switch that is float-activated to shut off the delivery pump;
    - radar-level sensors; or
    - gauge boards.
- NOTE: A manual gauge may be used as an overfill prevention device only if the P.E. who certifies the SPCC plan determines that it is environmentally equivalent.

Inspection Guidance:

- **For additional information, please refer to Section 3.1.5 in NAPA's SPCC Plan and Stormwater Management Guidance Manual (IS-137).**
- **Determine that a measurement device is present and ascertain that it is operational.**
- **Check that an alarm system is in place. Note on the inspection form or in the inspection report the type of system installed and whether the system is operational. If automated, check the automated shutdown systems and determine that they are functioning.**
    - Determine the method used for overfill protection.
    - If "sticking" is used, determine who (the tanker driver or a plant employee) will be on hand during delivery and identify the procedure(s) used to prevent overfills.
    - If the alarm system includes a high-level float alarm, check the maintenance record for cleaning the float pipe and sleeve, and ensure the alarm functions properly.

LEAK DETECTION

There is no federal requirement specifying the type of leak detection to be used for ASTs. State and local governments that regulate ASTs frequently exempt AC tanks from leak-detection requirements.

Leak-detection methods in use for non-AC tanks include interstitial monitoring, liquid or gas sensors, and acoustic sensing. These methods are not effective for AC tanks because of the AC's physical properties.

Horizontal tanks that rest on skids or saddles have the entire tank visible for inspection. This setup provides opportunity for visual confirmation that the insulating material on the outside of the tank has not degraded.

The base of a vertical tank cannot be visually inspected. However, a proper foundation capable of supporting the volume of the AC tank filled to capacity and the ancillary equipment would prevent an AC leak from spreading beyond the footprint of the tank bottom. Many tanks are manufactured with double bottoms to eliminate concerns surrounding leaks due to corrosion.

Inspection Guidance:

- **Evaluate the tank for leaks by visually inspecting the tank.**

LABELING

Labeling of ASTs is required under several different codes and by several federal agencies, not to mention state and local code requirements. All tanks must be clearly labeled.

The diamond designation that many are familiar with is designated by NFPA 704 Hazardous Materials Identification System (HMIS). The information on the tank must reflect the information provided by the AC supplier on the safety data sheet (SDS).

Labels used on tanks need to clearly identify the contents of each tank and its capacity. Written information should be clearly visible in numbers and letters at least 6 inches high, which will ensure compliance with all regulatory codes having jurisdiction over tank labeling.

Below is an example of proper labeling. The labeling can be on the tank, attached to the tank, or be on a stationary placard immediately adjacent to the tank. The lettering on the label should be at least 6 inches high.

ASPHALT CEMENT
20,000 GALLONS

Inspection Guidance:

- **Evaluate whether the tanks are appropriately labeled.**

RESPONSIBILITIES OF FACILITY OWNER AND/OR OPERATOR

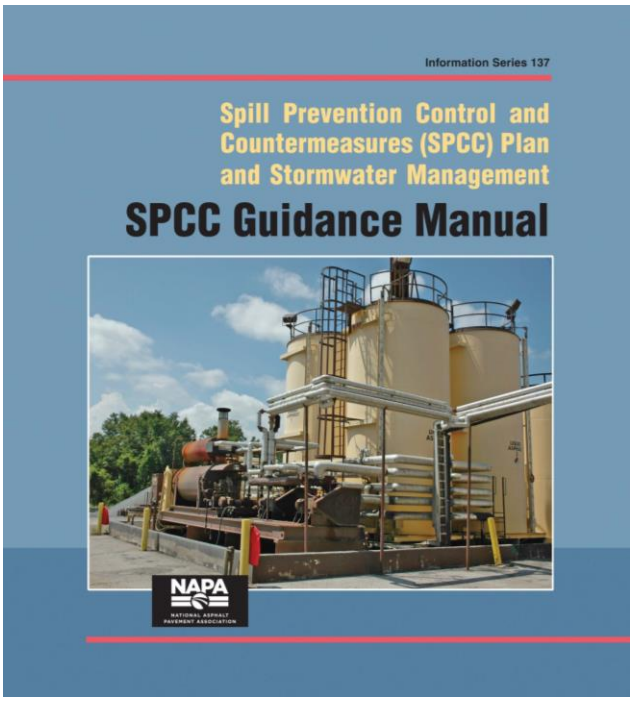
The owner and operator of facilities that have ASTs are generally very knowledgeable about their responsibilities to their employees. Employee safety has always been a key component of a well-maintained asphalt paving plant.

The owner and operator (or representative) must:

- Be aware of all local building and fire codes that affect the operation of the plant.
- Provide a safe site from which the inspection can proceed. Ladders and walkways must be maintained so they can safely support the weight of the inspector and any equipment they need to bring along.
- Provide access to all records the inspector needs to complete the inspection. This includes previous inspection results and the results of all tank and/or line integrity tests that have been conducted.
- Make certain that the inspector assigned to conduct periodic inspections of the facility's tanks is qualified to perform the periodic inspections. This is discussed in detail under the section Inspector Qualifications.
- Ensure that all safety protocols are followed, including, but not limited to, those for confined space entry, fall protection, and lockout/tagout.
- Make every effort to follow through with the findings of the tank inspector in order to keep the storage tank in compliance.

For more about SPCC preparedness —

Spill Prevention, Control, & Countermeasures (SPCC) Plan and Stormwater Management Guidance Manual (IS-137)



NAPA's *Spill Prevention, Control, & Countermeasures (SPCC) Plan and Stormwater Management Guidance Manual* will assist asphalt plants in complying with federal stormwater regulations. It will give plant operators the tools they need to understand changes in federal requirements, provide information to consulting Professional Engineers they may retain to understand industry-specific practices, create an appropriate program to address all contingency plan and stormwater requirements, provide routine inspection schedules, and prepare a document which can be kept onsite.

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