

Summary Of Comments And EPA's Response To The November 2011 Proposed UST Rule

Introduction And Disclaimer

This document contains a summary of comments EPA received on its November 2011 proposed underground storage tank (UST) and state program approval (SPA) regulations and EPA's response to all comments received during the five month public comment period. The summary and response are divided into 25 sections as identified in the table of contents on the next page. The document supplements the preamble by explaining how EPA considered each of the comments received. It is not the regulations or preambles themselves. See the notice of final rulemaking in the *Federal Register* for the regulations and associated preambles.

EPA summarized the same or similar comments we received on the various topics. Some commenters did not support or oppose some proposals. These commenters are not included in the support or oppose portions of the summary of comments sections. One association commenter provided comments collated from multiple entities. This means the commenter may have had multiple different responses to the same question or topic. Because this commenter voiced multiple positions in some areas, the number of commenters may not add up to the number of comments in some sections.

In some areas of the final UST regulation, EPA made changes which caused some comments to no longer be applicable. Because these comments no longer apply, they may not directly be addressed in some sections. For example, some commenters suggested scenarios when tank and piping secondary containment testing should not be required, but since EPA explains in the response to comments that we are not requiring any tank or piping secondary containment testing in the final UST regulation, we did not directly address those comments.

This document is organized as follows: It describes the comments for each issue and then gives EPA's response to those comments. This is additional information about the regulations and is not a substitute for the final regulations published in the *Federal Register*.

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Proposal To Add Operator Training Requirements

Summary

- 83 commenters provided input on EPA's proposal to require operator training for three UST system operator classes – 5 supported it without comment; most generally supported it with changes
- Limits on number of USTs or facilities Class A or B operator is responsible for
 - Fairly even mix of yes and no responses
 - Limits ranged from 5 to 50 facilities
 - Various reasons provided not to impose limits
- Number of unattended regulated UST facilities in the United States
 - Most commenters indicated unknown or untracked
- Criteria to consider besides UST installation date for meeting training requirements
 - Take over date, hire date, or upgrade date
 - Type and size of business
 - Number of tanks at the facility
 - Date already established by the implementing agency
- Is phased-in schedule needed
 - Many commenters misunderstood implementation of the federal operator training requirements and voiced concerns with EPA not recognizing training dates established by implementing agencies
 - Most commenters generally did not like the phased-in plan
- Any training approaches prohibited by proposed regulatory language
 - Some commenters were concerned about prohibiting in-house training by only allowing independent organizations to develop and administer the evaluation component of the training
 - Others were concerned about potential impacts to existing operator training requirements
- Training approaches EPA should prohibit
 - Main suggestions were to restrict in-house training
 - Don't allow Class A and B to train Class C operators
 - Prohibit non site-specific training
 - Leave to the implementing agency to decide
- Exceptions EPA should consider for independent organizations to develop and administer the evaluation:
 - Many commenters requested allowing in-house training and allowing implementing agencies to retain programs already in place
- Other comments covered questions about how existing state operator training programs fit and recommendations to add training requirements

Limits On Number Of USTs Or Facilities A Class A Or B Operator Is Responsible For

EPA asked whether we should impose a limit on the number of USTs or facilities a Class A or B operator is responsible for, and if so, what should the limit be and why.

Twenty-three commenters provided input. Eight commenters responded no without explanation. Twelve commenters favored establishing a limit and suggested these limits on facilities for Class A and B operators, unless otherwise noted:

- 5 to 12 - with note of concern about limited span of control

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- 15 to 30 for Class B operators due to primary responsibility for daily operations
- 3 commenters indicated 50 - in consideration of facility size, number of tanks, or travel distance
- 1 commenter did not specify a limit but thought limit should be for those facilities directly under supervision by the designated operator

EPA received 14 comments opposed to establishing a limit on either operator class for these reasons:

- A company's structure should determine the level of responsiveness
- Businesses should have flexibility to decide what works best for their situation
- Responsibility of state to impose
- Not for anyone to determine the workload a person can handle
- Should be determined on a case-by-case basis based on various factors
- Unaware of any empirical evidence to dictate a limit – EPA can handle situations of noncompliance without a blanket limit
- Army National Guard facilities are unlike retail facilities – one operator with multiple facilities should not result in less attention to sites
- As long as designated operators can comply, states should be given flexibility to decide, if needed
- The true measure of the trained operator's effectiveness is if the facilities are in substantial compliance

Commenters: [0222, 0233, 0237, 0238, 0243, 0246, 0265, 0305, 0311, 0313, 0316, 0328, 0338, 0352, 0378, 0380, 0383, 0387, 0388, 0396, 0399, 0416, 0421]

Number Of Unattended Regulated UST Facilities In The United States

EPA asked how many regulated UST facilities are unattended in the United States.

Seven commenters provided input. Most indicated the count was unknown or their implementing agency did not track this information. Some commenters provided estimates ranging from 20 to 360 of unmanned facilities in their jurisdictions. As of the 2011 proposed UST regulation, EPA estimated the total number of active facilities was 212,000.

Commenters: [0233, 0237, 0238, 0243, 0305, 0313, 0336]

Criteria To Consider Besides UST Installation Date For Meeting Training Requirements

In the 2011 proposed UST regulation, EPA suggested basing the initial period for meeting the training requirement on the UST installation date. EPA asked if we should consider other criteria, and if so, what and why.

Thirteen commenters provided comments. Seven commenters provided no additional criteria and one concurred with the proposal, agreeing that the oldest tanks are the greatest risk for releases. Three commenters provided alternatives for phase-in schedule:

- Take over date, hire date, or upgrade date
- Type and size of business
- Number of tanks at the facility

Eight commenters said EPA should establish one date, which would be less confusing. One commenter suggested EPA use two years after the promulgation of the final UST regulation. Eight commenters

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thought EPA should use dates already established by implementing agencies. One commenter said states without established dates should meet the date of the final UST regulation. One commenter asked whether EPA would allow implementing agencies to adjust their established dates so they coincide with the final UST regulation.

Commenters: [0233, 0237, 0238, 0243, 0285, 0311, 0313, 0352, 0388, 0396, 0402, 0416, 0422]

Is Phased-in Schedule Needed

EPA asked whether there was a need for a phased-in schedule for operator training, and if so, whether EPA's proposed schedule is reasonable.

Twenty-six commenters responded. Six commenters supported a phased-in schedule; two opposed it without comment. Eight commenters thought a single date, one year after the final UST regulation is promulgated, is appropriate. One commenter stated most implementing agencies will have their operator training requirements in place by the time EPA publishes the final UST regulation and allowing an additional three years to comply is inappropriate. EPA received 21 comments indicating the phased-in allowance is unnecessary; many indicated that the time frame disregards implementing agencies with established operator training deadlines.

Commenters: [0233, 0237, 0238, 0242, 0243, 0246, 0261, 0265, 0311, 0313, 0316, 0319, 0339, 0348, 0352, 0368, 0387, 0388, 0396, 0399, 0402, 0413, 0416, 0420, 0421, 0422]

Any Training Approaches Prohibited

EPA asked if the 2011 proposed UST regulation prohibits training approaches currently available, and if so, which ones and why.

Eleven commenters provided input. Three commenters were concerned about prohibiting in-house training by only allowing independent organizations to develop and administer the evaluation component of training programs. Four commenters expressed concern about potential impacts of the federal operator training requirements on existing implementing agency specific requirements. One commenter said Class A and B operators should be allowed an option of potentially testing out of training prior to beginning training.

Commenters: [0222, 0237, 0238, 0243, 0265, 0311, 0313, 0320, 0338, 0352, 0396]

Should Any Training Approaches Be Prohibited

EPA asked whether we should prohibit particular training approaches currently available, and if so, which ones and why.

Fifteen commenters responded. One commenter supported the in-house training restriction. One opposed Class A and B operators training C operators; one suggested some portion of training be site specific, while five others wanted EPA to require only site-specific training. A couple commenters said implementing agencies should be responsible for deciding whether to prohibit training. One commenter stated EPA has an opportunity, via the final UST regulation, to ensure Class C training is conducted on site at facilities where operators work. One commenter said his implementing agency does not allow site-specific training for Class B operators. One commenter suggested Class B training should be general enough to ensure operators are aware of all potential compliance issues. Another commenter stated that requiring generalized training is a waste of time.

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Commenters: [0222, 0233, 0237, 0238, 0243, 0246, 0265, 0297, 0311, 0313, 0318, 0321, 0388, 0396, 0399]

Exceptions For Independent Organizations To Develop And Administer The Evaluation

In the 2011 proposed UST regulation, EPA stated that although operators can access any source for knowledge of UST systems, in order to address potential conflicts of interest, only independent organizations would be allowed to develop and administer the evaluation component of training programs and comparable examinations. EPA asked if there were cases where we should consider exceptions to this.

Twenty commenters responded. Eleven commenters thought EPA should either delete the requirement for an independent organization or allow in-house training. One commenter supported EPA allowing states to retain programs existing before promulgation of the final UST regulation. One commenter said this requirement is an exceptional idea to ensure whoever takes the test is the person certified.

Commenters: [0222, 0233, 0237, 0238, 0264, 0265, 0306, 0311, 0313, 0328, 0349, 0352, 0383, 0396, 0398, 0399, 0402, 0416, 0421, 0422]

Other Comments

EPA received a variety of other comments presented below.

Recognition Of Existing Implementing Agency Operator Training Programs

EPA received several comments regarding existing state operator training programs. Commenters expressed concern that the federal operator training requirements would negatively impact existing programs. Negative impacts included:

- Usurping states' requirements
- Need to modify programs that are already being implemented
- States will not be able to have differing requirements if they are prohibited by state law from being more stringent than federal requirements

One commenter said it was unreasonable and unlawful for EPA to require operator training until states have an operator training program in place.

Commenters provided examples of perceived impacts to existing programs; one commenter's implementing agency does not allow Class A or Class B operators to test Class C operators. Another commenter said his company is currently meeting a local requirement, which he thinks is more stringent than the proposed federal requirement for Class C operators. He expressed concern that federal requirements may create redundant and duplicative training requirements.

Some commenters understood that when federal operator training requirements become effective, the regulated community has to meet existing state operator training requirements and in most states, federal requirements will not apply. Other commenters misunderstood this and asked EPA to acknowledge state programs that meet the operator training guidelines. One commenter asked EPA to take into account the type and nature of his business. Another commenter suggested EPA convince state regulators to be less stringent than federal in setting state operator training requirements.

Commenters: [0222, 0265, 0285, 0298, 0312, 0313, 0316, 0337, 0341, 0349, 0352, 0364, 0380, 0393,

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0420, 0422, 0427]

Questions About Authority To Require Operator Training And Trust Responsibility To Tribes

Two commenters questioned EPA's authority to implement federal operator training requirements directly on UST system owners and operators. Two commenters also questioned EPA's trust responsibilities to tribes and the ability for tribes and tribal consortia to provide operator training.

Commenters: [0307, 0329, 0338, 0357, 0378]

Clarify Meaning Or Intent Of Various Terms And Concepts

EPA received numerous comments to clarify the meaning or EPA's intent in using various terms in the 2011 proposed UST regulation. These terms are: operator, out of compliance, contractors being Class A or B operators, training program, emergencies, day to day, and whether operators have to be on site.

Two commenters suggested EPA clarify the definition of operator in light of the creation of Class A, B, and C operator classes to distinguish it from a designated operator.

Three commenters asked EPA to clarify what is meant by the term out of compliance. Some commenters suggested EPA include language similar to what is in our grant guidelines, which link to EPA's significant operational compliance (SOC) document. One commenter believed the term is overly broad and has potential for constant retraining for minor infractions.

Several commenters provided comments on contractors serving as Class A or B operators. One commenter said that as defined, a Class A and B operator could not be a contractor. Another commenter suggested that EPA remove the term day to day regarding the Class B operator. The commenter expressed concern that including the term could prevent small businesses from using contractors as designated Class B operators. Another commenter requested EPA clearly state that owners and operators may designate contractors, as long as they meet requirements. One commenter stated EPA is allowing owners and operators to contract complete operations and responsibilities of facilities. Another commenter stated that his implementing agency prohibits use of contractors as Class A and B operators.

One commenter asked if the term training program means a formal process, such as a written test or practical demonstration, and whether it is required for Class A and B operators. Two commenters interpreted the wording in the 2011 proposed UST regulation to mean the implementing agency must establish and provide information for training programs. These commenters suggested the implementing agency should instead set requirements for training programs and allow others to provide the information. Another commenter stated it is important that EPA define the term to avoid confusion about who may develop and administer the evaluation component of training programs and comparable examinations.

One commenter said the term emergencies pertaining to Class C operators is too broad; it should be limited to activities related to a spill or release from an UST system. The commenter stated there is no justification in statute for EPA to require Class C operators respond to emergencies beyond these.

One commenter asked EPA to clarify that an operator does not have to be on site. Another commenter recommended the final UST regulation specify that UST owners and operators retain the ability to determine the number of Class A, B, and C operators at each site and their appropriate level of availability.

Commenters: [0222, 0238, 0303, 0313, 0316, 0338, 0339, 0343, 0346, 0352, 0364, 0380, 0399, 0421,

0422]

Modify Or Remove Indications Of Independent Trainer And Independent Organization

EPA received comments on the proposed language in § 280.242(a) and (b) about Class A and B operators receiving training from an independent trainer, and in § 280.242(d) and (e) about an independent organization administering and developing the evaluation component of a training program.

One commenter stated that the terms independent trainers and independent organizations are included in regulation, but their qualifications are not identified.

Specifically regarding the proposed language about an independent trainer, one commenter suggested EPA remove the requirement in § 280.242(b) for Class B operators to be trained by an independent trainer, since § 280.242(d) requires that only the evaluation of the training must be conducted by an independent organization. Another commenter said the language conflicted with our statement in the preamble to the 2011 proposed UST regulation, which states that EPA does not propose to restrict who may develop and administer the training program.

Regarding the proposed language about an independent organization, one commenter suggested requiring that such an organization is needed only to evaluate operator's competency. Another commenter provided an example of an operator paying membership to an association, which provided training, and asked whether this association would be considered an independent organization. EPA was also asked to recognize as independent organizations those government organizations such as Department of Defense, Service Components, and the Defense Logistics Agency, which are not within the office or unit of the individual responsible for tanks.

Commenters: [0306, 0313, 0399, 0415, 0421]

Change Initial And Annual Refresher Training And Mandatory Retraining Requirements

EPA received several comments on the initial training requirement and annual refresher training allowance. EPA also received comments on the proposed mandatory training requirement. Four commenters thought 30 days was insufficient for newly designated operators to complete initial operator training requirements.

Several commenters also thought 30 days was insufficient for operators to complete the mandatory retraining requirement in the event of noncompliance. One commenter indicated the period would be insufficient in states, which already instituted classroom training. Two commenters said retraining Class A and B operators to resolve the majority of violations would be excessive. One commenter stated only Class B operators should be retrained. One commenter suggested adding the phrase or another time frame acceptable to the implementing agency to the requirement so it is consistent with EPA's state grant guidelines. Two commenters indicated 30 days for implementing agencies and operators to agree on an appropriate training course will place an undue burden on implementing agencies. Several commenters suggested alternative time frames of 60 and 90 days for operators to be retrained, or at the discretion of the implementing agency.

Two commenters indicated annual refresher training was an unnecessary burden, while another commenter said it should be mandatory. Some commenters suggested different time frames for refresher training such as two years or more or every five years, even in the absence of a violation that would require retraining.

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Commenters: [0222, 0235, 0236, 0285, 0300, 0303, 0311, 0338, 0339, 0354, 0363, 0368, 0402, 0421, 0422]

Revise Or Remove Class C Must Be Employee

Several commenters requested EPA eliminate the requirement that Class C operators must be an employee. Some commenters provided examples where it may be impossible to meet the requirements such as at dealer locations, emergency generator tanks, facilities with lessee agreements, unmanned facilities, or nested contractors at typically unmanned manufacturing plants, which use contractors almost exclusively. Other commenters questioned EPA's rationale. One commenter questioned the benefit of EPA requiring UST owners to hire people directly, rather than hire trained experienced contractors as operators. Another commenter said EPA does not have the basis to categorically conclude contractors will do a poorer job than employees will. The commenter indicated this would also needlessly increase costs.

Commenters: [0238, 0243, 0264, 0304, 0313, 0338, 0340, 0349, 0352, 0380, 0382, 0398, 0399, 0422]

Remove All Individuals Meeting Definition Of Class C Operator Must Be Trained

EPA received comments on the proposed requirement that all individuals who meet the definition of Class C operator must be trained. One commenter wanted clarification on whether every employee who works in any capacity at an UST facility must be trained. Other commenters thought EPA should retain language in the state operator training grant guidelines requiring UST system owners and operators name only one individual be designated for each class.

Commenters: [0235, 0238, 0313, 0402]

Change Operator Designation

EPA received comments regarding operator designation. Commenters asked EPA to change the title of Designation of operators in § 280.241 to Designation of Class A, B, and C operators. Commenters also asked EPA to clarify that the primary work location of Class A and B operators does not have to be the UST site to which they are designated, and Class A and B operators can be designated for multiple facilities. One commenter suggested EPA allow implementing agencies to define the term designated operator.

Commenters: [0301, 0316, 0352, 0420]

Modify Recordkeeping Requirements

EPA received several comments on the proposed recordkeeping requirement. Some commenters noted what they considered potentially conflicting language in sections of the 2011 proposed UST regulation. The records associated with the list of designated operators must be maintained for three years, while the records for completion of initial training and retraining must be maintained for as long as Class A, B, and C operators are designated. Nine commenters said maintaining a list of designated operators for three years was unreasonable. Two commenters stated that maintaining records for as long as the operator is designated was sufficient. One commenter stated that recordkeeping requirements were beyond EPA's state operator training grant guidelines and EPA should not dictate this. One commenter suggested EPA clarify that no records must be physically maintained at the site. Another commenter requested EPA include a requirement that Class A or B operators must certify that Class C operators have received training.

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Commenters: [0235, 0303, 0333, 0313, 0338, 0339, 0368, 0380, 0382, 0399, 0402, 0412, 0422]

Change Designated Operator Curriculum

Several commenters provided comments on the curriculum for the operator classes. Comments included: Class A and B operator training courses should be a minimum of 8 hours and corrosion protection expertise and credentials are not sufficiently covered. Commenters also asked EPA to clarify the regulatory language for Class C operators so they are not subject to the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard. HAZWOPER is the recognized standard in the United States; it contains safety requirements employers and their subcontractors or public sector responders must meet in order to conduct cleanups or emergency response operations.

The commenter suggested changing the language to: At a minimum, the training program for the Class C operator must teach the Class C operator to take appropriate actions and/or notifications in response to....

Some commenters requested that EPA give special attention to or establish abbreviated curricula for certain types of UST systems. Commenters mentioned not requiring training altogether or requiring training just on applicable areas for:

- Temporary operating systems, since they are not dispensing fuel
- Exemption from Class C training at unmanned facilities
- Allowing signs for unmanned utility sites
- Not requiring training for rural agricultural storage facilities which typically have one employee who handles all activities

Other commenters requested EPA add specific topics to the operator class curriculum. These are:

- Microbial contamination
- Train Class C on proper delivery procedures to include providing automatic tank gauge slip to driver
- Ensure drivers remain with their trucks

Commenters: [0246, 0262, 0313, 0316, 0335, 0339, 0364, 0368, 0397, 0399, 0421, 0424]

Additional Requirements

Commenters suggested EPA add three other requirements for operator training – reciprocity; revocation of training programs or examinations; and maintenance of a site diagram – discussed below.

Reciprocity

Several commenters suggested EPA address reciprocity in the final UST regulation. Reciprocity is generally the acceptance of one UST implementing agency's operator training verification by another implementing agency. Most were in favor of EPA defining what constitutes reciprocity and promoting standardization between states. Commenters provided specific instances where EPA should offer reciprocity such as in substantially similar municipally enacted training programs. One commenter suggested banning reciprocity.

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One commenter suggested EPA add revocation of training programs or examinations to the final UST regulation in order to address, for example, trainers whose facilities are repeatedly failing inspections.

One commenter requested EPA require UST system owners and operators maintain a site diagram as indicated in Petroleum Equipment Institute (PEI) RP 900.

Commenters: [0235, 0246, 0281, 0330, 0339, 0363, 0412, 0420, 0421]

EPA Response

Based on comments received, EPA realizes many commenters misinterpreted our intent for the federal operator training requirements. They are intended to provide training requirements in jurisdictions, such as in Indian country, not covered by requirements in the Energy Policy Act of 2005 (EPAct). Existing compliance dates that implementing agencies have already established in order to meet EPA's operator training grant guidelines for states still apply. EPA is not allowing additional time for owners and operators in jurisdictions with existing operator training requirements to come into compliance.

EPA asked commenters if EPA should impose a limit on the number of USTs or facilities a Class A or B operator is responsible for, and if so, what should the limit be and why. Based on comments received, EPA in the final UST regulation is allowing an unlimited number of facilities Class A or B operators may be responsible for. Although EPA thinks there is a natural limit to the number of facilities an individual can adequately address, we do not have a basis to provide a limit at this time. EPA realizes that a designated Class A or B operator may oversee activities of one or more contractors performing listed tasks of the operator classes. Although these designated operators would not physically conduct the tasks themselves, they could nevertheless be responsible for day-to-day implementation of regulatory requirements. This further complicates establishing limits. Implementing agencies, if needed, may have to address this issue as their operator training programs mature.

EPA asked commenters how many regulated UST facilities are unattended in the United States. Although this information would better inform EPA about the relative population of these facilities, we did not receive a clear enough indication of the population to establish a credible estimate.

EPA stated in the 2011 proposed UST regulation that we planned to base the initial period for meeting the training requirement on the UST installation date. EPA asked whether we should consider other criteria, and if so, what and why. EPA also asked whether there was a need for a phased-in schedule for operator training, and if so, whether EPA's proposed schedule is reasonable. Commenters provided some suggested alternatives to phasing in operator training based on the date of UST installation, such as type and size of business and number of tanks at the facility. Commenters expressed strong support for establishing a single compliance date for operator training requirements, rather than phased-in schedules. EPA agrees it is simpler to establish a single compliance date for this requirement and is providing a single date in the final UST regulation. EPA is aligning implementation of operator training with the three year inspection requirement; this will make it easier for UST system owners and operators to comply. All UST system owners and operators must meet operator training requirements no later than three years after the effective date of the final UST regulation. By then, most states will have had operator training programs in place for some time. The final UST regulation will not affect these existing programs.

EPA asked if the 2011 proposed UST regulation prohibited training approaches currently available, and if so, which ones and why. EPA also asked whether we should prohibit particular training approaches currently available, and if so, which ones and why. Commenters identified two training approaches, which would be prohibited by EPA's 2011 proposed UST regulation: in-house training and existing

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operator training requirements. Responses to training approaches EPA should prohibit included: in-house training, non-site specific training, suggestions to both require general training for Class B operators and not require it because it was thought to be a waste of time, Class C operators being trained by Class A or B operators. One commenter wanted EPA to provide an opportunity for individuals planning to meet the requirement by completing a training program to be able to opt out by taking a test.

For the final UST regulation, EPA is removing the requirement that independent organizations must develop and administer the evaluation component. EPA originally proposed this requirement to address potential conflicts of interest; however, based on comments received, EPA realized the requirement was too far reaching and, inadvertently, prohibited use of in-house training entirely. This was not EPA's intent. As stated in the 2011 proposed UST regulation, EPA wants to provide flexibility for a variety of operator training approaches. Regarding potential impact on existing implementing agency operator training programs, in general, implementing agencies that meet the requirements of the operator training grant guidelines for states will not have to change their requirements.

EPA considered several prohibitions suggested by commenters. In the final UST regulation, EPA is continuing to allow both site-specific and general training for the Class B operator. EPA recognizes there are situations where obtaining general knowledge of related subject areas in the final UST regulation is beneficial. Class B operators completing this training would be designated for other UST facilities without taking additional training. Benefits for Class B operators completing specified training are equally compelling. In the final UST regulation, UST system owners and operators will be allowed to choose which approach best fits their needs. EPA is allowing Class C operators to be trained by either a Class A or B operator. EPA thinks this will help UST owners and operators comply with the operator training requirement. Finally, EPA thinks it is unnecessary to add a requirement for testing out of training programs. In § 280.242(e), the final UST regulation allows designated operators to pass an examination, rather than take the training.

In the 2011 proposed UST regulation, EPA stated operators could learn about UST systems through any source; but to address potential conflicts of interest, only independent organizations would be allowed to develop and administer the evaluation portion of training programs and comparable examinations. EPA asked if there were cases where we should consider exceptions to this proposed requirement. Many commenters did not support EPA keeping the independent organizations requirement. Except for retraining, EPA's final UST regulation removes the requirement that the evaluation portion of training programs must be developed and administered by an independent organization or delegated authority.

Other Comments

Recognition Of Existing State Operator Training Programs

Several commenters were concerned about impacts of federal operator training requirements on existing state operator training programs. Forty states currently have state program approval (SPA). In those states, owners and operators need to meet state requirements unless EPA revokes their SPA program. The SPA requirements in 40 CFR part 281 of the final UST regulation contain language that allows states meeting EPAct operator training requirements to obtain or reapply for SPA, as long as they meet the requirements in the 2005 operator training grant guidelines for states. Within three years after the final UST regulation is effective, states must meet EPAct's requirement for operator training; only after three years will EPA consider revoking SPA. In states without SPA, both EPA and state requirements apply. Owners and operators need to follow both requirements to be in compliance.

Questions About Authority To Require Operator Training

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EPA's authority to implement operator training requirements, which help achieve release prevention, is under the Solid Waste Disposal Act, 9003(a).

Consistent with EPA's Indian policy, the goals and objectives of the *Strategy For An EPA/Tribal Partnership To Implement Section 1529 Of The Energy Policy Act Of 2005* convey EPA's commitment to ensuring equal environmental protection in Indian country regarding underground storage tanks.

Objective 3: Implementing New UST Provisions Of The Energy Policy Act and Objective 4: Implementing UST Prevention Activities Through EPA and Tribal UST Programs of the strategy are most applicable to operator training. EPA is following these objectives by implementing operator training requirements in Indian country.

Who Can Provide The Training In Indian Country

EPA is allowing tribes and tribal consortia to provide Class A, B, and C operator training and certification directly to their members. The 2011 proposed UST regulation limited training from in-house sources. That led to confusion about whether tribes or tribal consortia can train operators at tribally owned facilities. To ensure tribes and tribal consortia can train their members, EPA is removing two potential hindrances in the final UST regulation. EPA is removing language in § 280.242(a) and (b) that Class A and B operators, respectively, be trained by an independent trainer. EPA is also removing the requirement that an independent organization must develop and administer the training program in § 280.242(d) and comparable examination in § 280.242(e).

Clarify Meaning Or Intent Of Various Terms And Concepts

EPA disagrees with commenters who suggested we clarify the definition of operator. We included definitions for Class A, B, and C operators to distinguish them from operator, as defined in the 1988 UST regulation. As the preamble to the 2011 proposed UST regulation stated, only if Class A, B, or C operators meet the definition of operator in the 1988 UST regulation will they be subject to the same responsibilities and liabilities as UST operators. The federal operator training requirements apply to individuals who are responsible for performing Class A, B, or C operator activities. If individuals serving as Class A, B, or C operators meet the definition of UST operator in the 1988 UST regulation, meeting training requirements in the final UST regulation changes nothing.

EPA disagrees with commenters who said that as defined, Class A and B operators cannot be contractors and the phrase day-to-day needs to be removed from the definition of Class B operator. In the preamble to the 2011 proposed UST regulation, EPA provided information about owners and operators designating contractors as Class A and B operators. The preamble cautioned that not all contractors might be eligible. It also stated that if contractors meet the definition of Class A, B, or C operators, then they could be designated as such. EPA disagrees that we are establishing a new precedent by allowing owners and operators to contract complete operations and emergency response of facilities. Commenters stated many facilities are using contractors to perform these tasks; EPA is simply acknowledging current business practices. The final federal operator training requirement merely states that those individuals who perform UST system tasks must be trained.

EPA wants UST compliance inspectors to determine violations consistent with our 2003 Significant Operational Compliance document, or subsequent revisions, and require retraining as warranted. EPA is prohibited from referencing such documents in regulation. Alternatively, EPA considered listing specific violations in the final UST regulation, but wanted to avoid the potential misperception that implementing agencies would be limited to enforcing only that list of violations. In the final UST regulation, implementing agencies have the discretion of determining whether Class A, B, or both designated operators are required to be retrained and which violations warrant retraining.

EPA agrees it is beneficial to clarify the definition of training program. The concept of evaluating the knowledge of trained Class A, B, and C operators is consistent with EPA's operator training grant guidelines for states and EPA is retaining this concept in the final UST regulation. However, EPA is adding the phrase "through testing, a practical demonstration, or another approach acceptable to the implementing agency" to the definition of training program. This makes it consistent with use of the phrase in § 280.242(d). EPA is removing the term established by in the definition. This eliminates the unintended limitation that training programs can only be established by implementing agencies. EPA intends that training programs and comparable examinations, which meet requirements in subpart J, are acceptable.

EPA is changing the term delegated authority to recognized authority. EPA is also using that term in § 280.244 regarding retraining requirements. In the preamble to the final UST regulation, EPA describes this term to include tribes as recognized by the U.S. Department of Interior Bureau of Indian Affairs.

EPA agrees with the commenter regarding the scope of emergencies Class C operators should address. EPA has no intention to require Class C operators receive training on anything other than emergencies or alarms caused by spills or releases resulting from operating an UST system. The final UST regulation combines § 280.242(c)(1)(i) with (c)(1)(ii), which means the end of § 280.242(c)(1) will read: emergencies or alarms caused by spills or releases from the UST system. EPA is also revising § 280.242(c)(2) to mirror this language. As a result, both training requirements pertaining to training programs and comparable examinations for Class C operators are consistent with language in the operator training grant guidelines for states. These changes make it clear that Class C operators must only be trained to respond to emergencies from UST system spills or releases.

Although periodic requirements such as release detection monitoring and corrosion protection equipment checks must be performed on UST systems, the final UST regulation is not requiring individual operator classes to be on site for set periods. EPA intends for the operator training requirements to ensure individuals who are responsible for UST system regulatory tasks are designated and complete required training. EPA realizes designated Class B operators may oversee contractors performing UST tasks listed under the Class B operator training requirements. However, Class B operators do not necessarily have to be at facilities on a daily basis even though they are responsible for day-to-day operations.

Modify Or Remove Requirement Associated With Independent Trainers And Independent Organizations

Based on various comments received, the final UST regulation makes several changes pertaining to two terms. The term independent trainer was intended to ensure Class A and B operators received external evaluation of their knowledge and skills. The term independent organization was intended to avoid potential conflicts of interest and ensure individuals receiving certification completed training. Both terms might unintentionally prohibit in-house training and potentially other viable training that could meet EPA's purpose of allowing a variety of valid training options.

EPA is deleting the term independent trainer from § 280.242(a) and (b). EPA also is removing the language: "The evaluation component of the training program must be developed and administered by an independent organization or the implementing agency or delegated authority." from § 280.242(d). EPA will also delete the language: "The examination must be developed and administered by an independent organization or the implementing agency or delegated authority." from § 280.242(e).

EPA is addressing the external evaluation and potential conflict of interest concern by adding the terms independent trainer and independent organization to the retraining requirement in § 280.244. EPA is

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modifying this section to include that the training program or comparable examination must be developed, administered, or both by an independent organization, the implementing agency, or recognized authority. These changes recognize most potential training approaches EPA is currently aware of and provides sufficient control for the implementing agency to address conflict of interest and other concerns during retraining.

Change Initial And Refresher Training And Mandatory Retraining

EPA disagrees with commenters that 30 days is insufficient for newly designated Class A and B operators to receive initial training. In the final UST regulation, EPA is keeping the 30 day time frame as proposed. This time frame is consistent with EPA's grant guidelines to states. The majority of states have successfully implemented state-specific requirements in this time frame.

Regarding comments that Class A and B retraining to resolve most violations would be excessive, EPA is allowing implementing agencies discretion to determine which operators must be retrained and which violations trigger retraining. As previously stated, EPA expects UST compliance inspectors, at a minimum, to follow EPA's Significant Operational Compliance document. EPA will update its inspection procedures to ensure consistent application with the retraining requirement.

In the final UST regulation, EPA is retaining the option for annual refresher training. EPA is providing this option in lieu of operators retraining in the event of noncompliance. EPA considered changing the time frame to two or five years as suggested, but determined that would be less protective of the environment and inconsistent with EPA's operator training grant guidelines for states.

Revise Or Remove Class C Must Be Employee

EPA agrees with commenters regarding changing the requirement that Class C operators must be employees. The final UST regulation removes the requirement. EPA does not intend to unnecessarily restrict UST system owners and operators who are lawfully operating their systems, by making them comply with this operator training requirement. EPA is allowing all methods owners and operators use to operate their facilities. Some are already using contractors to carry out tasks of Class A, B, and C operators.

Remove All Individuals Meeting Definition Of Class C Operator Must Be Trained

The final UST regulation retains the requirement that all individuals who meet the definition of Class C operator must be trained. EPA reiterates that a subset of employees at a facility meet the definition of Class C operator, and only those meeting the definition must meet the training requirement. Numerous employees who work at gasoline service stations do not control or monitor dispensing or sale of regulated substances or are responsible for initial alarms. EPA is further clarifying in the preamble to the final UST regulation that control of the dispensing operation described in definition of Class C operator might be misinterpreted as applying to anyone fueling a vehicle. The level of control EPA is targeting for training is beyond that exercised by customers when merely pumping gas.

Change Operator Designation

EPA agrees with the suggested change to the title of § 280.241 and is changing it to Designation of Class A, B, and C operators. This further distinguishes between Class A, B, and C operators and operator defined by the 1988 UST regulation. EPA disagrees that additional language is required in the final UST regulation for Class A and B operators to be designated for multiple facilities and not just their primary worksite. The final UST regulation in § 280.242 reiterates that "any individual designated for more than

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one operator class must successfully complete the required training program or comparable examination according to the operator class in which the individual is designated.” EPA is reiterating this in the preamble to the final UST regulation. Implementing agencies may define the term designated operator, if necessary.

Modify Recordkeeping Requirements

EPA agrees that certain changes are needed to the proposed recordkeeping requirements. In the final UST regulation, EPA is removing the requirement for owners and operators to maintain for three years a list of delegated operators. EPA agrees that maintaining records about currently designated operators is sufficient. EPA is retaining the statement that records must be maintained according to § 280.34 – Reporting and recordkeeping, which allows owners and operators to maintain records at a readily available alternative site and provide them to implementing agencies on request; this is instead of records being held at the UST site. In the final UST regulation, EPA is modifying § 280.245(b)(1) to read: “Records from classroom or field training programs (including Class C operator training provided by the Class A or B operator) or a comparable examination must...”. This clarifies that the requirement for a record of training also applies when Class A or B operators train Class C operators.

Change Designated Operator Curriculum

The operator training requirements in the 2011 proposed UST regulation closely follow EPA’s operator training grant guidelines. The grant guidelines provide the minimum subject areas that must be covered. EPA maintains it is unnecessary to establish a set period of time for individual operator class training. Training programs and comparable examinations need to be of sufficient length in order to cover material on the subject. EPA disagrees with comments that we should include the suggested level of specificity on expertise and credentials for corrosion protection training. EPA agrees with the suggestion to avoid potentially triggering the HAZWOPER training requirement in the Class C operator training requirement. That level of training is beyond the scope EPA intended for Class C operators. Therefore, EPA is clarifying in § 280.242(c)(1) and (2) that the appropriate action Class C operators can take includes providing notifications.

Although Class C operators are not specifically required to be trained to perform maintenance activities, the final UST regulation allows other subject areas that the implementing agency or owner and operator deem appropriate.

EPA considered establishing abbreviated curricula for certain types of UST systems, such as those in temporary closure status. Most of the federal UST requirements are not applicable. However, the concerns EPA expressed previously with requiring site specific training exclusively apply here, too. If a training program or comparable examination is not available, would the designated operator have to complete a training that covered topics beyond those required for USTs in temporary closure? The final UST regulation includes the option for Class B operators to obtain site-specific training. In addition, EPA anticipates most Class C operators will receive training by Class A or B operators and that training will be specific to the site.

EPA disagrees that training curricula should be changed to add the topics of microbial contamination and proper delivery procedures. Both issues are important, but microbial contamination is a fuels quality issue, which is beyond the scope of the intended training. Proper delivery is also an important topic that concerns the UST program. Owners and operators must address this issue by meeting § 280.30 of the 1988 UST regulation. EPA does not think a specific training requirement on proper delivery is needed for designated operators.

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Add Other Requirements

For reciprocity, EPA encouraged implementing agencies in the operator training grant guidelines for states to recognize training from other jurisdictions, but did not make it mandatory. EPA recognizes there is considerable effort required to review and ensure that training programs and examinations from one jurisdiction address another jurisdiction's requirements. Where EPA is the implementing agency, we think it is unnecessary to establish a reciprocity provision. Training programs or comparable examinations that meet applicable regulatory requirements would be acceptable to EPA.

EPA thinks it is unnecessary to add a provision regarding revocation of a training program or examination. EPA maintains that, to be acceptable, a training program or examination must meet the requirements specified in the regulation. Regulatory requirements include, but are not limited to:

- Covering and teaching on the purpose, methods, and function of topic areas listed in the final UST regulation by operator class
- Evaluating knowledge and skills to perform applicable tasks associated with the operator class
- Testing the existing knowledge of the specific operator class (the final UST regulation provides applicable requirements)

The final UST regulation allows implementing agencies to address problematic training programs or examinations. EPA is giving implementing agencies the discretion of specifying types of training or examinations that are acceptable to meet the retraining requirement.

EPA thinks it is important for owners and operators to maintain a site diagram similar to that required by PEI RP900. However, EPA is not requiring this in the final UST regulation.

Proposal To Add Secondary Containment And Interstitial Monitoring Requirements For New And Replaced Tanks And Piping And Under-Dispenser Containment (UDC) For New Dispenser Systems

Summary

- More than 50 commenters provided input on EPA's proposal to add secondary containment requirements for new and replaced tanks and piping and under-dispenser containment (UDC) requirements for new dispenser systems – 15 supported it; no one opposed it
- Repair versus replace for piping: Some commenters believed EPA should change the 50 percent value to some other value to determine when a repair becomes a replace for piping
- Under-dispenser containment: Some commenters wanted clarification about when the UDC requirement was triggered

Support

Fifteen commenters voiced their support for the proposal. Two of these commenters also supported EPA's proposal to require secondary containment for all new and replaced tanks and piping, rather than just new and replaced tanks and piping within 1,000 feet of a community water system (CWS) or potable drinking water well (PDWW). Five commenters supported 50 percent as the point where a repair becomes a replace for piping. Six commenters supported the proposed UDC requirement.

Commenters: [0238, 0269, 0289, 0298, 0308, 0312, 0313, 0316, 0326, 0337, 0338, 0341, 0343, 0349, 0363, 0378, 0393, 0409, 0412, 0413, 0418, 0427]

Oppose

Although some commenters suggested changes to the proposal, no commenters opposed the proposal.

Repair Versus Replace For Piping

Two commenters suggested the threshold for replacing piping should be 60 percent, since EPA's screening analysis indicated the cost of repair equaled the cost of replacement when about 60 percent of piping was repaired. Commenters also suggested:

- Use five feet rather than a percentage as the trigger for requiring replacement of piping, because 50 percent is too generous and difficult to measure;
- Be more stringent than 50 percent (no value indicated);
- Use both a percentage and footage, whichever is greater;
- Replace trigger should be limited to instances where excavation is needed;
- Replace trigger should be different for different types of piping materials (metal, fiberglass, and flexible plastic piping);
- Consider including dispenser system as part of the definition of replaced;
- Use the term replacement instead of replaced; and
- Consider the replace trigger be a per tank basis instead of a per submersible turbine pump basis.

Commenters: [0235, 0313, 0364, 0386, 0401, 0416]

Definition Of Secondary Containment

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Several commenters suggested adding a new definition for secondarily contained tank, revising secondary containment, or otherwise capturing the concept that tanks must have 360 degrees (100 percent) of containment. Two commenters suggested EPA clarify whether secondary containment included containment sumps. One commenter thought EPA's definition of secondary containment was vague.

Commenters: [0308, 0377, 0399, 0401, 0407, 0409]

Under-Dispenser Containment

Four commenters suggested EPA specify which equipment underneath the dispenser system needs to be replaced in order for the dispenser system to be considered new. Commenters also suggested:

- Add language requiring UDC to be compatible with the substance in the piping;
- Include more specific language in § 280.20(f) about equipment used to connect the dispenser to the UST system in addition to the information in the definitions at § 280.12;
- Clarify exactly what components make up a dispenser system;
- Require UDC to be constructed of nonmetal materials or be protected from corrosion;
- Require continuous monitoring for leaks from the dispenser system;
- Reference a testing protocol, since UDC must be liquid tight;
- Require periodic testing of UDC; and
- Discuss that vehicles hitting a dispenser or acts of God requiring dispenser replacement should not trigger the UDC requirement.

Commenters: [0242, 0289, 0298, 0312, 0313, 0316, 0368, 0371, 0399, 0400, 0418]

Data On The Number Of UST Systems Not Installed Within 1,000 Feet Of A CWS Or PDWW

EPA asked commenters to provide data on the number of UST systems not installed within 1,000 feet of a CWS or PDWW. Few commenters provided input on this question. Of those who did, commenters either indicated they did not know where to obtain this data or very few UST systems would be located farther than 1,000 feet from a CWS or PDWW.

Commenters: [0222, 0237, 0238, 0243, 0313, 0388]

Data On The Number Of Non-Motor Fuel Dispensers Connected To UST Systems

EPA asked commenters to provide data on the number of non-motor fuel dispensers connected to UST systems. Few commenters provided input on this question. Of those who did, commenters either indicated they did not know where to obtain this data or a very small percentage of UST systems with dispensers stored non-motor fuel, such as kerosene.

Commenters: [0222, 0237, 0238, 0243, 0313, 0388]

Data On The Typical Length Or Percent Of Piping Repaired During A Typical Repair

EPA asked commenters to provide data on the typical length or percent of piping repaired during a repair. Few commenters provided input on this question. Of those who did, commenters estimated two feet, five feet, and 10 percent. Several commenters indicated they did not know. A few commenters indicated the answer depended on the piping type – contractors repair fiberglass only at the area needing repair and typically replace flexible plastic piping from sump to sump.

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Commenters: [0222, 0237, 0243, 0313, 0328, 0388]

Data On The Cost, Types, And Frequencies Of Piping Repairs And Replacements

EPA asked commenters to provide data on the costs, types, and frequencies of piping repairs and replacements. Few commenters provided input on this question. Several commenters indicated they did not know. One commenter suggested a cost range between \$14,000 and \$80,000, depending on each piping run. One commenter suggested \$100,000 for three piping runs to four dispensers. One commenter indicated the costs of repairs vary greatly depending on construction material.

Commenters: [0222, 0237, 0243, 0313, 0328, 0388]

Regulatory Incentives To Encourage Owners And Operators To Move To Secondary Containment

EPA asked commenters whether there were regulatory incentives EPA should consider for encouraging owners and operators to move toward secondary containment. Three commenters indicated no. Ten commenters indicated yes and suggested:

- Provide tax or registration fee breaks or state fund co-pay reductions;
- Establish a date by which all UST systems must meet the secondary requirement (require retrofits);
- Allow owners and operators to obtain financial responsibility only for double walled systems;
- Require additional release detection monitoring (such as tightness testing) or financial responsibility for single walled tanks that reach a certain age (such as older than their warranty);
- Require more frequent walkthrough inspections for facilities without secondary containment and interstitial monitoring; and
- Consider incentives for double walled tanks and piping with continuous monitoring.

Commenters: [0233, 0237, 0238, 0239, 0242, 0265, 0266, 0300, 0307, 0313, 0388, 0393, 0399, 0427]

Other Types Of Piping For Which Secondary Containment Is Impractical Or Unnecessary

EPA asked commenters to provide input about whether there are types of piping (other than safe suction and piping associated with field-constructed USTs and airport hydrant refueling systems) for which secondary containment is unnecessary or impractical. Six commenters indicated no. Three commenters indicated yes and suggested:

- Require secondary containment for all suction piping;
- Require secondary containment for field-constructed USTs and airport hydrant refueling systems;
- Require secondary containment for tank top fittings, vent, and vapor recovery lines;
- Do not require secondary containment for copper piping associated with emergency generators (sometimes it is installed in a chase); and
- Do not require secondary containment for siphon and non-pressurized piping manifolds.

Commenters: [0237, 0238, 0243, 0313, 0328, 0396, 0399, 0404, 0413]

Other Comments

EPA also received these comments:

- Require secondary containment to be double walled and do not allow excavation, trench liners, or internally fitted liners;
- Add language that states meeting the Energy Policy Act of 2005 (EPAct) guidelines do not need to meet requirements in the revised UST regulation;
- Allow some lead time for outreach and education instead of implementing immediately;
- Allow a variance process to address special circumstances;
- Require continuous interstitial electronic monitoring for new installs;
- Include a manufacturer certification clause in the event an owner or operator chooses to reinstall a secondarily contained tank that was previously installed – these reinstalls must meet new performance standards;
- Consider regulating dispensers;
- Define sump or containment sump;
- Define piping run; and
- Make editorial changes.

Commenters: [0235, 0238, 0313, 0326, 0344, 0368, 0399, 0401, 0422]

EPA Response

Based on broad support for the proposal, the final UST regulation requires owners and operators to install secondary containment for new and replaced tanks and piping and perform interstitial monitoring at least once every 30 days. In addition, EPA is setting the threshold at 50 percent for when a repair becomes a replace for each piping run. EPA understands why commenters would like to decrease the percentage, but EPA wants to maintain reasonable flexibility for owners and operators as they repair their piping. In order to keep the requirement simple, EPA decided not to include both a percentage and footage. EPA disagrees with commenters who suggested increasing the percentage above 50 percent because 50 percent provides adequate flexibility while continuing to protect the environment. EPA disagrees with the commenter who suggested the requirement to replace piping be triggered on a per tank basis instead of a per submersible turbine pump (STP) basis because a single tank could be compartmentalized, resulting in multiple piping runs coming from different STPs on the same tank. EPA considers these piping runs to be individual piping runs, each of which could trigger the 50 percent replacement trigger. One commenter suggested requiring continuous interstitial monitoring for secondarily contained UST systems. The final UST regulation does not require continuous interstitial monitoring because existing single walled UST systems may perform release detection monitoring once every 30 days. EPA believes it would be unfair to require owners and operators of secondarily contained UST systems have continuous interstitial monitoring while older single walled USTs can perform release detection once every 30 days.

The final UST regulation requires under-dispenser containment for all new dispenser systems. In addition, based on comments received and to add clarity to the final UST regulation, EPA is defining dispenser in addition to dispenser system. Dispenser means equipment located aboveground that dispenses regulated substances from the UST system. Some commenters believe EPA should clarify which pieces of equipment are underneath the dispenser. The final UST regulation contains a clear list of equipment. EPA considers the following equipment necessary to connect the dispenser and underground storage tank system: check valves, shear valves, unburied risers or flexible connectors, or other transitional components underneath the dispenser which connect it to the underground piping. EPA agrees with commenters suggesting we require UDC to be compatible with the substance in the piping. The final UST regulation achieves this through the compatibility requirement where UDC is part of the containment system which is, by definition, part of the UST system. EPA is not requiring UDC be made of specific material, nor are we requiring corrosion protection because both the 1988 and final UST

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regulations require corrosion protection only for components that routinely contain regulated substances and are in contact with the ground. EPA agrees with commenters who suggested requiring periodic testing of UDC, but only in cases where owners and operators use UDC for secondary containment and interstitial monitoring of piping. EPA disagrees with commenters who wanted to require continuous monitoring of the UDC. Owners and operators must visually check these containment sums annually as part of walkthrough inspections. In addition, if UDC is used for secondary containment and interstitial monitoring of piping, it must be tested once every three years according to the periodic testing requirements in § 280.35. Finally, vehicles hitting dispensers and other circumstances, such as acts of God, may trigger the UDC requirement if owners and operators install both a new dispenser and the equipment necessary to connect the dispenser to the UST system.

While EPA acknowledges secondarily contained piping generally uses containment sums for secondary containment and interstitial monitoring at transition points and end points, we are not explicitly requiring sums as part of secondary containment for piping. Some piping vendors may develop or have already developed piping that is secondarily contained from one end to the other, resulting in secondarily contained piping with interstitial monitoring without the use of containment sums. EPA does not want to discourage the development and use of newer technologies capable of meeting the secondary containment and interstitial monitoring requirements without containment sums.

Because EPA agrees with commenters who suggested containment sums be added to the definition of secondary containment, we are adding containment sums used interstitial monitoring of piping to the definition. EPA understands why some commenters wanted to add 360 degree containment for tanks to one or more of the following areas of the final UST regulation: the secondary containment definition, a new definition for secondary containment tank, or in the new UST system construction requirements. However, EPA is not adding this language to the final UST regulation because the regulation relies on codes of practice to establish criteria for tanks to be considered secondarily contained. EPA is continuing this reliance in the final UST regulation.

EPA solicited data through the comment process for the:

- Number of USTs not installed within 1,000 feet of a CWS or PDWW;
- Number of non-motor fuel dispensers connected to UST systems;
- Typical length or percent of piping repaired during a typical repair; and
- Costs, types, and frequencies of piping repairs and replacements.

EPA received little data on these topics. As a result, we are not changing these areas in the final UST regulation.

EPA also asked commenters about potential incentives for owners and operators to move toward secondary containment. Because EPA wants to minimize the financial burden on owners and operators, EPA is not requiring retrofits of existing systems or additional release detection methods for older single walled systems. In addition, EPA has no control over reducing taxes or registration fees and does not control the ability to obtain financial responsibility; as a result, we are not taking action in these areas.

Several commenters were concerned about owners and operators having to meet both EPA requirements and state requirements for secondary containment. Forty states and territories currently have state program approval (SPA). In those states, owners and operators need to meet state requirements until or unless EPA revokes a state's SPA program. The revised SPA requirements contain language that allows a state meeting the EPAct requirement to obtain or reapply for SPA without specifically meeting the UST regulation for secondary containment. States have three years after the final UST regulation is effective

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to meet the EPAct requirement for secondary containment; only then will EPA consider withdrawing SPA. In states without SPA, both EPA and state requirements apply. Owners and operators will continue to follow both requirements to be in compliance.

One commenter suggested requiring secondary containment for all new and replaced tanks and piping, including vent lines and tank top fittings. EPA is not requiring secondary containment in all cases. For example, secondary containment is not practical for larger diameter, long runs of piping such as those with airport hydrant refueling systems or attached to field-constructed tanks. Secondary containment is not practical in these cases because of sloping needed for interstitial monitoring and corrosion resulting from moisture in the interstitial space. In addition, secondary containment is not always necessary to protect the environment. For example: EPA's overfill requirements ensure tank top fittings are not exposed to regulated substances; vent and vapor recovery lines contain vapors rather than liquids; and safe suction piping drains back to the tank when a breach occurs in the wall. One commenter suggested copper piping associated with emergency generators should not have to be secondarily contained. This type of piping is typically suction piping and, if designed properly, meets the secondary containment exclusion for safe suction piping. Manifold piping (or siphon bars) is also typically similar to safe suction piping and, if designed like safe suction piping, does not require secondary containment.

Some commenters suggested EPA add definitions of containment sump and piping. EPA agrees with commenters wanting to add a definition of containment sump and is adding this definition to the final UST regulation. EPA does not believe it is necessary to define piping run but explains this term further in the preamble to the final UST regulation.

One commenter suggested restricting installations to double walled tanks and piping only and not allow excavation liners or internally fitted liners for secondary containment. However, because the 1988 UST regulation allows other options for secondary containment, such as excavation liners, EPA is continuing to allow owners and operators flexibility in meeting the secondary containment and interstitial monitoring requirements in the final UST regulation.

One commenter suggested EPA regulate dispensers in the final UST regulation. EPA cannot regulate dispensers because Subtitle I of the Solid Waste Disposal Act does not give EPA the authority to impose prevention requirements on aboveground components associated with UST systems.

One commenter suggested EPA add replaced dispenser systems to the definition of replaced. Because EPAct only required UDC for new dispenser systems, we believe it is unnecessary to define replaced as it applies to dispenser systems.

One commenter suggested EPA add a variance to the secondary containment requirement to account for unique situations. EPA believes a variance is not needed because implementing agencies can use their enforcement discretion for unique circumstances.

One commenter suggested building in some lead time after the final UST regulation is effective to allow for education about the new secondary containment and UDC requirements. EPA does not believe it is necessary to allow additional lead time for implementing the secondary containment requirement beyond the effective date of the final UST regulation because most states already implement these requirements. In addition, there is a 90 day lag time between the final UST regulation publication date and effective date for owners and operators in states without secondary containment requirements and in Indian country. This 90 day time frame allows EPA to educate owners and operators about the new requirement.

However, due to comments received during interagency review, EPA will implement this requirement 180 days after the effective date of the UST regulation because of the large capital expenditure associated with installing new secondarily-contained tanks, piping, and under-dispenser containment. The 180 days

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will allow owners and operators with concrete plans for installing a new UST system, but who have not yet applied for or obtained approvals or permits, to install the UST system they planned to install.

One commenter suggested requiring manufacturer certification of a tank or pipe removed from the ground and then reinstalled in the ground at the current site or at a new site. EPA believes the new UST system performance standards at § 280.20 apply to any UST system installed, whether new or used. Therefore, recertification is not necessary in the final UST regulation because owners and operators must meet the design, construction, installation, and notification requirements for each tank and pipe installation.

Proposal To Add Periodic Walkthrough Inspection Requirements

Summary

- More than 90 commenters provided input on EPA's proposal to add periodic walkthrough inspection requirements at UST facilities – 20 supported it; 12 opposed it; 27 opposed parts of it
 - Some opposed 30 day inspections of containment sums
 - Others believed requiring inspections of cathodic protection both every 30 days and every 60 days was duplicative
 - Some suggested additions or deletions to the items inspected during a walkthrough inspection

Support

Fifteen commenters voiced their support of the proposal. Four commenters supported periodic walkthrough inspections, as long as they were according to Petroleum Equipment Institute's (PEI) Recommended Practice RP900. One commenter supported the proposal as long as owners and operators are trained on safety, purpose, and proper care of equipment along with disposal of liquids found in containment areas.

Commenters: [0227, 0233, 0238, 0242, 0243, 0246, 0247, 0276, 0302, 0326, 0341, 0352, 0378, 0379, 0393, 0399, 0400, 0407, 0409, 0424]

Oppose

Twelve commenters opposed requirements for periodic walkthrough inspections at UST facilities. Twenty-seven commenters suggested 30 day inspections of containment sums were not necessary because:

- Some are monitored with sensors;
- Seals, O-rings, and gaskets could be ruined resulting in surface water intrusion;
- Containment sums could be located in high traffic areas resulting in inspector safety issues;
- Containment sum lids are heavy and difficult to lift; and
- Weather conditions may not allow 30 day inspections of some areas due to snow, ice, etc.

Several commenters expressed concern about the feasibility of conducting 30 day walkthrough inspections at noncommercial, remote, low throughput facilities, such as emergency generator sites.

Some commenters made the following specific comments about why EPA should not require periodic walkthrough inspections:

- Owners and operators already engage in routine equipment inspection as standard business practice;
- Mandating a top down requirement with rigid time frames will be more confusing and not allow flexibility;
- Would be a safety hazard for the person inspecting;
- Would require technical expertise to inspect;
- Would be unduly onerous and physically burdensome;
- Would be time consuming for owners and operators to perform; and
- Would cost far more than EPA estimates and will accomplish little or nothing to reduce leaks.

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Commenters: [0208, 0222, 0236, 0298, 0301, 0303, 0312, 0314, 0322, 0327, 0328, 0333, 0338, 0344, 0346, 0348, 0352, 0363, 0364, 0365, 0368, 0371, 0380, 0383, 0384, 0385, 0386, 0387, 0392, 0393, 0404, 0413, 0415, 0416, 0418, 0421, 0422, 0427]

Thirty Day Inspection Frequency

EPA asked commenters to provide input about whether the proposed 30 day frequency for conducting walkthrough inspections was an appropriate time frame. Twelve commenters believed a 30 day walkthrough inspection frequency was an appropriate time frame; although some commenters added a caveat to their response with an exception for remote facilities – these facilities should be allowed to conduct inspections at less frequent intervals. Ten commenters suggested a quarterly time frame. Other suggestions included 60 days, semiannual, annual, and different time frames for different activities, such as the different time frames listed in PEI RP900. Several commenters suggested checking spill containment devices at each delivery. Another suggested checking dispenser areas when filters are changed. Some commenters suggested less frequent walkthrough inspections for remote facilities and where owners and operators use sensors in sumps. Some commenters suggested annual checks of containment sumps would be adequate. Several commenters believed the 30 day proposal was arbitrary. Several commenters suggested owners and operators of temporarily out of service facilities could conduct less frequent walkthrough inspections, such as 60 days or quarterly.

Nine commenters suggested changing 30 days to monthly, or 30 days plus or minus 7 days, because owners and operators tend to operate on monthly business schedules. A 30 day inspection requirement would mean facilities could be out of compliance if the walkthrough was conducted at the beginning of each month.

Commenters: [0208, 0222, 0227, 0233, 0236, 0237, 0238, 0243, 0262, 0265, 0284, 0287, 0300, 0301, 0304, 0305, 0311, 0312, 0313, 0316, 0326, 0327, 0328, 0333, 0339, 0340, 0341, 0342, 0343, 0346, 0350, 0352, 0363, 0364, 0365, 0368, 0371, 0372, 0379, 0380, 0383, 0386, 0387, 0392, 0396, 0399, 0402, 0421, 0422, 0425]

One Year Recordkeeping Time Frame

EPA asked commenters to provide input on the proposed one year recordkeeping time frame. Eight commenters indicated a one year recordkeeping time frame was adequate. Two commenters suggested keeping records for two years. Six commenters suggested three years. One commenter suggested owners and operators should be able to maintain records electronically. One commenter opposed the monthly log because it would be onerous and would not be productive or cost effective.

Commenters: [0222, 0227, 0233, 0237, 0238, 0243, 0304, 0311, 0313, 0315, 0316, 0328, 0346, 0388, 0396, 0399]

Implementation Time Frame

EPA asked commenters to provide input on the proposed immediate implementation time frame. Eight commenters indicated an immediate implementation time frame was reasonable. Eight commenters suggested allowing one year for implementation. Three commenters suggested between three and six months. Three commenters suggested there should be a grace period, but did not indicate what the time frame should be. Other suggestions included two years, three years, and delay until operator training requirements take effect.

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Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0287, 0304, 0311, 0313, 0316, 0327, 0328, 0344, 0349, 0352, 0363, 0368, 0380, 0396, 0399, 0421]

Items The Walkthrough Inspection Proposes To Check

EPA asked commenters to provide input about whether the items EPA proposed owners and operators check during the walkthrough inspection were appropriate and whether EPA should add or remove any items from the list. Seven commenters indicated the items were appropriate. Thirty-one commenters believed EPA should add or remove one or more items from the walkthrough inspection.

Suggested additions:

- Shear valves
- Dispenser equipment
- Alarm history for leak detection
- Fill pipe for obstructions
- Observation wells for signs of release
- Tank top fittings for tightness
- Signs of spillage
- Proper placement of sump sensors
- Overfill for operability
- Water in the tank
- Properly marked fill lid
- Microbial corrosion

Suggested removals:

- Containment sumps that use continuous monitoring (18 commenters)
- Containment sumps (5 commenters)
- Impressed current rectifiers since they are checked every 60 days (9 commenters)
- Release detection records
- Release detection since it is already monitored every 30 days
- ATGs not in alarm
- Spill buckets with interstitial monitoring
- Monitoring or observation wells

Commenters: [0222, 0237, 0238, 0243, 0246, 0264, 0300, 0301, 0304, 0305, 0311, 0312, 0313, 0316, 0327, 0328, 0335, 0340, 0341, 0342, 0349, 0352, 0363, 0365, 0378, 0383, 0385, 0386, 0392, 0393, 0396, 0399, 0411, 0421, 0422, 0427]

Other Codes Of Practice For Walkthrough Inspections

EPA asked commenters to provide input about whether there were other codes of practice that should be included for conducting walkthrough inspections. Six commenters indicated they were not aware of other codes of practice. Two commenters indicated there were other codes of practice, but did not specify what those codes were. One commenter identified state and federal requirements as another code of practice. Three commenters identified PEI RP500, *Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment*, as a code of practice EPA could use for walkthrough inspections. One commenter suggested adding Steel Tank Institute's (STI) R-111, *Storage Tank Maintenance*, as an option for meeting the walkthrough inspection requirement.

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Commenters: [0222, 0233, 0237, 0238, 0243, 0304, 0311, 0313, 0328, 0332, 0396, 0399, 0400]

Specialized Training For Walkthrough Inspections

EPA asked commenters to provide input about whether owners and operators need specialized training to conduct walkthrough inspections. Two commenters thought owners and operators needed specialized training, but did not indicate what that training should be. One commenter thought owners and operators needed Occupational Safety and Health Administration (OSHA) and confined space training. Eight commenters believed the proposed operator training requirements for Class A or Class B operators would be adequate. Ten commenters did not think owners and operators needed additional training to conduct walkthrough inspections.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0304, 0305, 0311, 0313, 0316, 0336, 0339, 0352, 0378, 0380, 0396, 0399]

Water Removal

EPA asked commenters to provide input on whether EPA should allow owners and operators to retain water in contained sumps when the following two conditions exist: an anode is connected to metal components to protect them from corrosion, and the sump is not used for interstitial monitoring. Eight commenters said no and eight commenters said yes. One commenter suggested requiring water removal only for new sumps.

Commenters: [0222, 0233, 0235, 0237, 0238, 0243, 0311, 0313, 0316, 0341, 0352, 0378, 0396, 0388, 0399]

Other Comments

EPA also received these comments:

- Concern about a lack of data to support walkthrough inspections, whether the benefits outweigh the costs, and whether conducting walkthrough inspections will prevent releases;
- Concern that the estimated time to complete walkthrough inspections is not long enough and the cost for owners and operators to conduct the inspection is low;
- Idea that walkthrough inspections and operator training are symbiotic;
- Concern there is no reference about who should conduct walkthrough inspections;
- Walkthrough inspections should be a physical check, not a records check;
- Suggestion to use professional engineers in the UST program to develop and certify testing and inspection protocols;
- Suggestion to require UST site diagrams;
- Suggestion to require repairs when problems are found;
- Suggestion to allow some period of time for removing liquids if found during a walkthrough inspection;
- Concern that one type of walkthrough inspection is not suitable for all UST sites;
- Concern about how to dispose of liquids found during the walkthrough inspection;
- Concern about a lack of consistency in walkthrough inspections from state to state;
- Suggestion to allow daily leak detection records to substitute for parts of the walkthrough inspection, especially where sump lids are removed;
- Need for owners to check the fill cap daily to make sure it is securely on the fill pipe is a problem

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- for truck plazas and truck stops because of multiple deliveries each day;
- Suggestion to allow for an option to inspect a sump without removing the lid;
- Request to provide clear guidance about what constitutes a leak in a containment sump and what extent of contamination is reportable and needs to be investigated; and
- Suggestion to allow PEI RP900 to fully satisfy the walkthrough inspection requirement.

Commenters: [0235, 0236, 0238, 0247, 0301, 0304, 0312, 0313, 0322, 0327, 0348, 0349, 0352, 0364, 0365, 0368, 0371, 0379, 0380, 0384, 0386, 0387, 0392, 0393, 0400, 0403, 0407, 0411, 0416, 0427]

EPA Response

Based on comments EPA received about proposed periodic walkthrough inspections, EPA is revising the requirement to better align the inspections with existing codes of practice and to allow some aspects of the inspection to occur at the same time as other activities required by the final UST regulation. EPA believes periodic walkthrough inspections are important in preventing and quickly detecting releases from UST systems. As one commenter noted, walkthrough inspections and operator training are symbiotic. Both are important in helping prevent releases to the environment. The final UST regulation requires owners and operators conduct walkthrough inspection as follows:

- Every 30 days:
 - Check spill prevention equipment for damage and remove liquid or debris; check for and remove obstructions in the fill pipe; check the fill cap to ensure it is securely on the fill pipe; and for double walled spill buckets with interstitial monitoring, check for a leak in the interstitial area (exception: owners and operators of spill prevention equipment at UST systems receiving deliveries at intervals greater than 30 days may check that equipment prior to each delivery)
 - Check release detection equipment to ensure it is operating with no alarms or unusual operation conditions present and ensure release detection records are reviewed and current
- Annually:
 - Visually check containment sums for damage and leaks to the containment area or releases to the environment; remove liquid (in contained sums) or debris; and for double walled containment sums with interstitial monitoring, check for a leak in the interstitial area
 - Check hand held release detection equipment, such as bailers and tank gauge sticks for operability and serviceability

In addition, the final UST regulation allows owners and operators to conduct operation and maintenance walkthrough inspections according to a standard code of practice developed by a nationally recognized association or independent testing laboratory or according to requirements developed by the implementing agency. The inspections must check equipment in a manner comparable to the walkthrough inspection requirements described above.

Based on the many comments EPA received about the proposed 30 day containment sump checks, EPA is changing those inspections to now occur on an annual frequency, aligning them with the same time when containment sums are opened to test release detection equipment. EPA agrees with commenters concerned about the physical burdens of lifting lids and safety of the people performing inspections in high traffic areas. Also, EPA is changing the periodic inspection of hand held release detection equipment from every 30 days to annual, which means it will coincide with other release detection equipment operation and maintenance checks.

EPA received some comments indicating the proposed 30 day cathodic protection checks conflict with the 60 day requirement already in the 1988 UST regulation. Based on comments, EPA is not requiring the 30 day cathodic protection check. Rather, we will keep the cathodic protection checks at the 60 day interval specified in the 1988 UST regulation. Therefore, owners and operators must continue to perform only the 60 day impressed current cathodic protection inspections to ensure equipment is running properly and to keep the most recent three records of those inspections (see § 280.31).

A few commenters questioned the need for checking monitoring and observation wells to make sure they are secure. Owners and operators do not often access these wells, unless they are used for release detection. When used, EPA believes owners and operators will secure monitoring wells following each 30 day release detection monitoring event. Therefore, EPA is not including monitoring and observation wells as part of the periodic walkthrough inspection.

Based on comments EPA received about noncommercial UST systems, EPA is allowing additional flexibility in the final UST regulation for inspecting spill prevention equipment at UST systems where filling occurs infrequently. In cases where filling activities occur at intervals greater than 30 days, owners and operators may inspect spill containment equipment prior to each delivery, instead of at least once every 30 days. This exception to the 30 day walkthrough inspection requirement will still provide appropriate environmental protection because the purpose of spill containment equipment is to catch drips and spills that may occur when delivery personnel disconnect the delivery hose from the fill pipe.

Walkthrough inspections require 30 day inspections of spill containment equipment and release detection equipment. EPA believes these inspections are needed at least once every 30 days for release detection to ensure the equipment is operating, check release detection records, and determine whether the tank or piping is leaking. In addition, 30 day inspections (or before each delivery, as applicable) of spill containment equipment will ensure these devices contain small drips and spills that occur when the delivery hose is disconnected from the fill pipe. Because EPA is decreasing the scope of the activities performed during the 30 day portion of the walkthrough inspection, the time to conduct an inspection will be significantly reduced and should alleviate commenter's concerns about the time needed to conduct an inspection.

One commenter expressed concern about a lack of data to support walkthrough inspections, whether the benefits outweigh the costs and whether conducting walkthrough inspections will prevent releases. EPA asked states with walkthrough inspection requirements whether their programs were effective. All states who had been implementing the program for a while indicated they believed walkthrough inspections were effective. States indicated walkthrough inspections identify problems more quickly, decrease the chance of a spill or release, and increase understanding and compliance with the UST requirements. EPA thinks walkthrough inspections will be effective in helping prevent and detect releases. Cost and benefit information can be found in the document titled *Assessment Of The Potential Costs, Benefits, And Other Impacts Of The Final Revisions To EPA's Underground Storage Tank Regulations* for the regulation in the UST docket (ID No. EPA-HQ-UST-2011-0301).

Most commenters supported a one year recordkeeping requirement for walkthrough inspections. The one year recordkeeping time frame is consistent with the 30 day release detection monitoring recordkeeping requirement in the 1988 UST regulation. EPA agrees and, in the final UST regulation, is requiring owners and operators maintain records of walkthrough inspections for one year. The record must include a list of each area checked, whether each area checked was acceptable or needed to have any action taken, a description of actions taken to correct an issue, and delivery records if owners and operators check spill prevention equipment less frequently than every 30 days. In addition, both the 1988 UST regulation and today's final UST regulation provide owners and operators with flexibility to maintain their records.

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electronically.

EPA proposed to implement the walkthrough inspection requirement on the effective date of today's final UST regulation. However, based on comments received, and to align implementation of all operation and maintenance requirements, EPA is modifying the proposal to require owners and operators to begin conducting walkthrough inspections three years after the effective date of the final UST regulation. Three years aligns the implementation of multiple operation and maintenance requirements and allows owners and operators ample time to understand their walkthrough inspection responsibilities.

EPA received multiple comments suggesting the 30 day inspection requirement be changed to a monthly requirement. After careful consideration, EPA is keeping the 30 day inspection requirement. Thirty days provides owners and operators with clarity about the inspection time frame by specifying the maximum number of days between walkthrough inspections. EPA is not moving to monthly inspections because owners and operators could misinterpret monthly and go sixty or more days without conducting a walkthrough inspection. For example, an owner or operator could inappropriately inspect on January 31, then again on February 1, and then not inspect again until March 31. If an owner or operator continued this practice, six inspections would occur one day apart and six inspections would occur about 60 days apart. While this could be considered inspecting monthly, it is not inspecting consistently on or about the same time each month. EPA wants to ensure the walkthrough inspection frequency is consistent, rather than allow the more inconsistent monthly option in this example. Since 30 days is the average length of a month, EPA's intent with requiring 30 days is to ensure owners and operators conduct walkthrough inspections on or about the same time each month.

The final UST regulation requires periodic walkthrough inspections for all UST systems, except those in temporary closure. Temporarily closed UST systems should not dispense regulated substances or receive deliveries. In addition, owners and operators are not required to perform release detection monitoring if the UST system is empty. Therefore, walkthrough inspections are not practical for UST systems in temporary closure.

One commenter expressed concern that there was no reference about who should conduct the walkthrough inspections. The final UST regulation allows flexibility for owners and operators to conduct walkthrough inspections themselves or hire a third party. EPA believes operators trained as either Class A or Class B operators have adequate knowledge to perform the walkthrough inspection.

One commenter believed the walkthrough inspection should be a physical check, not just a records check. EPA agrees. The new walkthrough inspection requirement is both a physical check (spill containment, containment sumps, and release detection equipment) and a records check (release detection). Another commenter suggested EPA allow daily records to substitute for parts of the walkthrough inspection, especially when sump lids are removed. EPA does not believe records are a substitute for a physical check. However, we did decrease the frequency of lifting containment sump lids from every 30 days to annual.

One commenter suggested EPA require repairs when problems are found. Although not explicitly stated, EPA expects owners and operators to fix problems they find during the walkthrough inspection. Failure to fix a problem means the facility is out of compliance.

Some commenters raised concerns about disposing of liquids owners and operators discover during the inspection. For spill prevention equipment and containment sumps to operate as intended, those areas must be free of liquids. In the past, when owners or operators found liquids in those areas, they needed to remove the liquids so the equipment would operate properly (and meet the 1988 UST regulation). The final UST regulation is requiring those areas be inspected periodically; as a result, owners and operators

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may discover the liquid sooner, but the responsibility to remove the liquid remains the same. EPA expects owners and operators to properly dispose of the liquid (according to federal, state, and local requirements) as soon as practicable after discovery. One commenter suggested EPA allow some period of time to remove the liquids once they are found. EPA did not specify a time frame for removing liquids but expects owners and operators to remove liquids as quickly as practical when they are found. For example, liquid in a spill bucket means the spill bucket may not be able to contain drips and spills that occur when the delivery hose is disconnected from the fill pipe.

Commenters were evenly split about allowing water to remain in a containment sump not used for interstitial monitoring and where cathodic protection (sacrificial anode) is present in the sump. EPA is requiring removal of liquids found in containment sums because some equipment in the sump is not designed for use under water. In addition, one commenter suggested EPA allow some period of time for owners and operators to remove liquids from containment sums and spill containment equipment after liquids are discovered. EPA expects owners and operators to remove liquids as soon as practicable after discovery. However, in the final UST regulation, EPA is not specifying minimum or maximum time frames for removing liquids.

Most commenters believed either EPA's proposed operator training requirements were adequate or owners and operators did not need additional training to conduct walkthrough inspections. EPA believes operators trained through EPA's operator training requirement will conduct most walkthrough inspections. Therefore, EPA is not requiring owners and operators take additional training for walkthrough inspections. One commenter suggested owners and operators may need OSHA confined space training to perform walkthrough inspections. EPA does not believe owners and operators need to have confined space training, since the inspection does not require owners and operators enter a confined space.

Some commenters suggested adding items to the walkthrough inspection. Some of the suggested additions, such as checking overfill equipment for operability, are covered under other operation and maintenance requirements in the final UST regulation. Other suggested additions, such as checking for a properly marked fill lid, are beyond the scope of the UST regulation. A few suggested additions, such as having owners and operators check for microbial corrosion, are challenging for owners and operators to perform. EPA is adding the suggestion of checking for and removing obstructions in the fill pipe, because obstructions in the fill pipe will cause a shutoff device to operate improperly. EPA believes the items for the 30 day and annual walkthrough inspections in the final UST regulation are adequate to better protect the environment. One commenter suggested that checking the fill cap daily to make sure it is securely on the fill pipe is a problem at facilities that received multiple deliveries each day. However, EPA is only requiring the check of the fill cap once each 30 days.

One commenter suggested EPA require owners and operators maintain a site diagram. While helpful, EPA believes a site diagram is unnecessary for conducting walkthrough inspections, and we are not requiring owners and operators maintain such a diagram.

One commenter suggested EPA allow an option for checking sums without removing the lid. EPA agreed with this commenter and revised the language to allow inspecting sums without removing lids as long as the method meets all of the requirements under the walkthrough inspection without removing the lid.

One commenter was concerned about the lack of consistency in walkthrough inspections from state to state. EPA understands this concern, but the underground storage tank program is state delegated. States may choose to be more stringent than the EPA requirement. Owners and operators in states with more stringent requirements will have to meet the state requirement too.

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One commenter suggested EPA require repairs when owners and operators discover problems during the walkthrough inspection. According to the repair requirements in § 280.33, EPA expects owners and operators to repair problems when discovered and restore the UST system to proper operating condition. Owners and operators who fail to repair problems are out of compliance with the UST requirements.

One commenter suggested EPA require reporting of releases found during the walkthrough inspection, if the release meets the criteria for reporting. EPA's reporting requirements are clearly described in subpart E of both the 1988 UST regulation and the final UST regulation. EPA believes it is unnecessary to reiterate those requirements as part of the walkthrough inspection requirement.

A few commenters questioned whether walkthrough inspections would be effective in preventing and detecting releases. EPA asked some state implementing agencies with operator training programs already in place whether their walkthrough inspection requirements were effective.¹ Those states where the program has been in place long enough to evaluate indicated their programs are effective. State implementing agencies indicated walkthrough inspections identify and resolve problems more quickly, decrease the chance of a potential spill or release, and increase understanding and compliance with the regulation. Based on this information, EPA believes walkthrough inspections will be effective in preventing and detecting releases.

Several commenters suggested adding PEI RP500 to the list of codes of practice owners and operators may follow if conducting the walkthrough inspection according to a code of practice. EPA is not adding this code of practice because it applies to above ground dispensing components, which EPA's UST requirements do not regulate. One commenter suggested adding STI R-111 to the list of codes of practice that may be followed if conducting the walkthrough inspection according to a code of practice. EPA is not adding this code of practice because the content of the standard focuses on water and contaminants in the tank along with compatibility and does not fit well into EPA's periodic walkthrough inspection requirement.

One commenter suggested EPA allow the use of professional engineers to develop and certify testing and inspection protocols. Both the 1998 and revised UST regulation rely on codes of practice developed by nationally recognized associations or independent testing laboratories, manufacturer's requirements or instructions, and requirements determined by the implementing agency to be as protective of human health and the environment. EPA believes these options provide test and inspection protocols that are consistent at both the local and national level. Specifically allowing individual professional engineers to develop and certify their own testing and inspection protocols has a great potential to make testing and inspections inconsistent both locally and nationally. Professional engineers may participate in standard-making activities, assist in developing manufacturer's requirements, and participate in other activities that develop testing and inspection requirements under the current regulatory scheme. For these reasons, EPA believes it is unnecessary for professional engineers to develop and certify testing and inspection protocols.

¹ Work Order No. 1004, Task 2, Subtask a – State walkthrough Underground Storage Tank Inspections, SKEO, 1/31/2013.

Proposal To Add Periodic Testing Requirements For Spill Prevention Equipment

Summary

- More than 65 commenters provided input on EPA's proposal to add periodic testing requirements for spill prevention equipment – 10 supported it; 6 opposed it
 - Several commenters questioned whether spill prevention equipment testing was necessary or cost effective
- Test frequency: 13 supported a 12 month frequency; 15 supported a three year frequency
 - Several commenters suggested aligning the testing frequency for all operation and maintenance requirements
- One year implementation: most commenters supported it
- Other comments
 - Explain how to dispose of the test liquid after testing
 - Do not exclude double walled spill buckets using periodic interstitial monitoring from testing

Support

Ten commenters voiced their support of the proposal.

Commenters: [0289, 0333, 0343, 0348, 0393, 0399, 0400, 0412, 0409, 0422]

Oppose

Six commenters opposed any requirements to test spill prevention equipment. Two commenters questioned whether spill bucket testing was necessary or cost effective. One commenter suggested delaying spill prevention equipment testing requirements until the Energy Policy Act of 2005 requirements are fully implemented to see if those requirements were adequate.

Commenters: [0298, 0312, 0338, 0371, 0383, 0392, 0416, 0418, 0427]

Test Frequency

EPA solicited comments on whether the proposed 12 month test frequency was appropriate for spill prevention equipment testing. Thirteen commenters supported EPA's proposed 12 month test frequency. Fifteen commenters recommended three year testing. Three commenters indicated that a three year test frequency would be appropriate for low throughput facilities (such as emergency generator USTs or UST systems with monthly throughputs less than 10,000 gallons). Other commenters suggested: a two year frequency; at installation and after repairs only; at installation, within five years, then annually; and using other activities that might indicate a problem (such as periodic walkthrough inspections) as the trigger for testing. One commenter suggested testing double walled spill prevention devices not using interstitial monitoring once every 10 years. Several commenters also suggested aligning all of the proposed operation and maintenance testing (spill, overfill, and secondary containment testing) to the same frequency.

Commenters: [0222, 0233, 0235, 0236, 0237, 0238, 0243, 0264, 0284, 0287, 0290, 0305, 0306, 0308, 0311, 0313, 0316, 0326, 0327, 0328, 0333, 0339, 0341, 0342, 0349, 0350, 0363, 0374, 0380, 0383, 0388, 0396, 0399, 0402, 0404, 0413, 0416]

One Year Implementation

EPA asked commenters to provide input on the proposed one year implementation time frame for testing spill prevention equipment. Twelve commenters believed a one year implementation was reasonable. Two commenters suggested two years and one suggested three years. Two commenters did not agree with the one year implementation time frame but did not suggest an alternative. Some commenters also suggested EPA align implementation for periodic spill, overfill, and secondary containment testing.

Commenters: [0222, 0233, 0237, 0238, 0243, 0287, 0290, 0311, 0313, 0316, 0328, 0349, 0364, 0394, 0396, 0399, 0427]

Spill Prevention Equipment Test Methods

EPA asked commenters to provide input about whether there are other acceptable methods in addition to vacuum, pressure, and liquid testing methods. Five commenters responded to this question. None of the commenters were aware of additional methods.

Commenters: [0237, 0238, 0243, 0311, 0313]

Other Comments

Five commenters expressed concern about disposal of the spill prevention equipment test liquid following the test and indicated EPA needs to specify how to dispose of this liquid. Three commenters recommended EPA require testing of double walled spill prevention equipment because these devices can leak around the collar connecting the equipment to the fill pipe.

EPA also received these comments:

- Concern about potential down times associated with testing;
- Suggestion that owners and operators could or should be able to conduct testing themselves;
- Concern about costs of replacement when spill prevention equipment fails a test;
- Lack of data to support a spill prevention equipment testing requirement;
- Concern about testing aboveground spill containment because leakage would be seen and EPA may not have authority to regulate aboveground spill prevention equipment;
- Suggestion to use professional engineers in the UST program to develop and certify testing and inspection protocols;
- Concern about keeping records demonstrating spill prevention equipment is double walled and periodically monitored for the life of the equipment;
- Concern about the lack of codes of practice or performance standards for testing spill prevention equipment;
- Suggestion to provide additional details about the testing requirement and the use of vacuum, pressure, and liquid options of testing;
- Concern that EPA is requiring double walled spill prevention equipment to have continuous interstitial monitoring instead of allowing these devices to perform periodic testing or no testing;
- Suggestion to exclude spill buckets as an example of spill prevention equipment;
- Suggestion to keep the most recent record; and
- Editorial suggestions.

Commenters: [0298, 0300, 0303, 0312, 0313, 0317, 0326, 0338, 0339, 0342, 0364, 0368, 0371, 0386, 0392; 0394, 0399, 0400, 0404, 0407, 0415, 0418, 0421, 0424]

EPA Response

Based on the comments received, EPA is revising the 2011 proposed UST regulation to require owners and operators have spill prevention equipment tested at least once every three years. EPA disagrees with commenters who indicated testing of spill prevention equipment only at installation or testing less frequently than every three years is adequate to protect human health and the environment. Spill prevention equipment degrades over time and can result in releases to the environment. In addition, EPA is not requiring periodic secondary containment testing of double walled spill containment equipment where the integrity of both walls is periodically checked.

EPA believes that a three year testing frequency, when combined with periodic visual checks (via the walkthrough inspection) will ensure spill prevention equipment continues to operate properly. EPA is not requiring annual testing as proposed in the November 2011 proposed UST regulation because of the additional burden it would place on UST system owners and operators. Instead, to decrease the burden on owners and operators, EPA is aligning the implementation of spill prevention equipment testing with other new operation and maintenance requirements; this means owners and operators must conduct the first test within three years of the effective date of the final UST regulation. In addition, EPA is aligning the inspection or test frequency, recordkeeping, and implementation of the new operation and maintenance requirements to the extent possible in the final UST regulation.

For recordkeeping, EPA believes a three year requirement for UST system owners and operators to maintain records is adequate. The Energy Policy Act of 2005 requires UST facilities be inspected for compliance at least once every three years. Since the spill prevention equipment testing requirement is once every three years, inspectors should only need to see the testing conducted since their last visit.

The final UST regulation includes vacuum, pressure, and liquid testing as methods for testing spill prevention equipment. Commenters did not suggest additional methods for this list.

Several commenters raised concerns about disposing of the spill prevention equipment test liquid following the test. EPA contacted several vendors to determine whether they included disposal of the test liquid as part of the spill prevention equipment testing. Some vendors include the handling of the test liquid as part of the test; they carry the test liquid with them and reuse it several times before disposal. Others charge a separate cost or make sure the owner or operator has drums on site to dispose of the test liquid. In addition, some vendors use vacuum testing, which eliminates the liquid from the test. In estimating costs for the final UST regulation, EPA accounted for water disposal costs .

A few commenters raised concerns about facility down time and replacement costs for spill prevention equipment as a result of periodic testing. EPA acknowledges that, in instances where spill prevention equipment is in the line of traffic, there could be a small amount of facility down time as a result of testing; but EPA believes the benefit to the environment far outweighs the potential down time. To minimize the effects of down time, owners and operators can also schedule the testing during low traffic times at the facility or when other routine maintenance occurs. In addition, EPA expects owners and operators to have properly functioning spill prevention equipment at all times and fix problems when they are discovered. The spill prevention equipment test may uncover a problem earlier, resulting in repair or replacement (and better protection from spills) sooner rather than later, and more quickly detect or prevent releases of regulated substances to the environment.

EPA disagrees with commenters who said there was a lack of data supporting requiring periodic testing of spill prevention equipment. As noted in the preamble to the final UST regulation, two draft causes of release studies indicate that UST spills account for about 15 percent of releases from UST systems.

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Properly operating spill prevention equipment prevents small leaks, such as drips and spills that occur when the delivery hose is disconnected from the fill pipe, from reaching the environment.

One commenter suggested EPA allow the use of professional engineers to develop and certify testing and inspection protocols. Both the 1988 and the revised UST regulations rely on codes of practice developed by nationally recognized associations or independent testing laboratories, manufacturer's requirements or instructions, and requirements determined by the implementing agency to be as protective of human health and the environment. EPA believes these options provide test and inspection protocols that are consistent at both the local and national level. Specifically allowing individual professional engineers to develop and certify their own testing and inspection protocols has a significant potential to make testing and inspections inconsistent both locally and nationally. Professional engineers may participate in standard-making activities, assist in developing manufacturer's requirements, and participate in other activities that develop testing and inspection requirements under the current regulatory framework. For these reasons, EPA believes it is unnecessary for professional engineers to develop and certify testing and inspection protocols.

In 2012, the Petroleum Equipment Institute (PEI) issued its recommended practice PEI RP1200, *Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities*. EPA reviewed this code of practice, believes it to be adequate for periodic testing of spill prevention equipment, and is adding it to the final UST regulation. This code of practice contains information about vacuum and liquid methods as well as how to perform spill containment equipment testing.

Several commenters expressed concerns about the lack of performance standards for testing spill prevention equipment and suggested EPA set minimum performance standards. It is very difficult for EPA to set a single performance standard because spill prevention equipment is manufactured in many shapes and sizes. Therefore, EPA is relying on test methods in codes of practice, developed by manufacturers, or set by the implementing agency to establish the criteria for passing or failing a test. For example, PEI's RP1200 established one-eighth of one inch change over one hour as a pass or fail criteria for spill prevention equipment.

Several commenters recommended that EPA allow owners and operators to perform periodic spill containment equipment testing. EPA does not prohibit owners and operators testing this equipment themselves, but they must follow a code of practice, manufacturer's instructions, or requirements developed by the implementing agency. Because of this, EPA expects most owners and operators will hire contractors to conduct the testing.

EPA disagrees with commenters who believe the Agency does not have the authority to require testing for aboveground spill prevention devices or that testing these devices should not be required. The definition of UST system in § 280.12 includes containment system, but does not specify if the containment system is underground or not. However, the definition specifies that piping and ancillary equipment must be underground. Although EPA does not believe aboveground spill prevention equipment is commonly used at UST facilities, it is part of the containment system for the UST system. Therefore, EPA has the authority to regulate and require testing of aboveground spill containment systems. The final UST regulation requires operation and maintenance of both aboveground and underground spill containment equipment.

Commenters suggested EPA require periodic or no monitoring of the interstitial area of double walled spill containment equipment instead of requiring continuous monitoring. EPA agrees with commenters that periodic monitoring of double walled spill prevention equipment is adequate to protect human health and the environment. The final UST regulation allows periodic monitoring of double walled spill

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prevention equipment in lieu of three year testing. EPA interprets periodic monitoring to mean no less frequent than the frequency for the periodic walkthrough inspections. That means double walled spill prevention equipment must be monitored at least every 30 days or before each delivery for USTs receiving infrequent deliveries. Several commenters suggested requiring testing of all spill containment equipment, including double walled equipment. However, EPA believes owners and operators using double walled spill prevention equipment, and who check the integrity of both walls periodically, is protective of the environment and a reasonable alternative to periodic testing. Owners and operators who discontinue periodic monitoring of their double walled spill prevention equipment must begin conducting testing (and maintain test records) within 30 days of discontinuing the periodic monitoring of the equipment.

EPA agrees with commenters wanting to keep records demonstrating that the spill prevention equipment is double walled and monitored periodically for only three years instead of for as long as periodic interstitial monitoring is used in lieu of periodic spill prevention equipment testing. Owners and operators no longer need to keep these records once periodic monitoring ends because periodic testing of the spill containment equipment must begin within 30 days of discontinuing the periodic interstitial monitoring.

EPA disagrees with excluding spill buckets as a method of spill prevention because spill buckets are the most common type of spill prevention equipment.

EPA reviewed and accepted appropriate editorial changes to the spill containment equipment testing proposal.

Proposal To Add Periodic Testing Requirements For Overfill Prevention Equipment

Summary

- More than 50 commenters provided input on EPA's proposal to add periodic testing requirements for overfill prevention equipment – 7 supported it; 7 opposed it
- Test frequency: 16 supported three years; 15 supported annual
- Recordkeeping: Most commenters supported keeping test records for three years
- Other comments
 - Concern about whether testing would damage equipment during removal
 - Testing should not require the tank to approach an overfill condition

Support

Seven commenters voiced their support of the proposal.

Commenters: [0343, 0393, 0399, 0404, 0409, 0412, 0422]

Oppose

Three commenters opposed any requirements to test overfill prevention equipment. Three commenters supported overfill prevention equipment testing at installation but opposed periodic testing. One commenter opposed testing unless there is some indication of a failure or damage observed during an inspection. One commenter suggested delaying overfill prevention equipment testing requirements until the Energy Policy Act of 2005 requirements are fully implemented to see if those requirements were adequate.

Commenters: [0298, 0312, 0348, 0363, 0371, 0418, 0427]

Test Frequency

EPA solicited comments on whether the proposed three year testing was an appropriate frequency for overfill testing. Sixteen commenters believed three years was appropriate. Fifteen commenters suggested that annual testing would be more appropriate. Several commenters believed testing should occur only at installation. Other suggestions included a two year frequency and using a time frame based on environmental risk. Several commenters also suggested aligning all of the proposed operation and maintenance testing (spill, overfill, and secondary containment testing) to the same frequency.

Commenters: [0222, 0233, 0237, 0238, 0243, 0287, 0289, 0298, 0308, 0312, 0313, 0316, 0326, 0328, 0341, 0342, 0363, 0368, 0371, 0383, 0388, 0396, 0399, 0400, 0402, 0404, 0413, 0421, 0427]

Recordkeeping

EPA asked commenters to provide input on the proposed three year recordkeeping time frame. Eleven commenters supported keeping three years. Four commenters suggested requiring owners and operators keep the two most recent tests. Other suggestions included keeping records for one year, the life of the UST, and the most recent record.

Commenters: [0222, 0233, 0237, 0238, 0243, 0287, 0311, 0313, 0316, 0328, 0396, 0399]

Three Year Implementation And Phase In Approach

EPA asked commenters to provide input on the proposed three year implementation and phase in approach based on tank age. Eleven commenters suggested EPA eliminate the phase in approach based on tank age and move to a single implementation date. Several commenters suggested giving older USTs the most time for implementation rather than the least time. Several commenters suggested basing the age-based phase in approach on the overfill equipment installation date rather than the tank installation date. Some commenters also suggested EPA align implementation for periodic spill, overfill, and secondary containment testing.

Commenters: [0243, 0262, 0289, 0302, 0313, 0341, 0348, 0349, 0368, 0388, 0396, 0402, 0422]

Other Comments

EPA also received these comments:

- Concern about potential damage to overfill prevention equipment because of removal and inspection;
- Concern about potential down times associated with testing;
- Cost of replacement when an overfill prevention device fails a test;
- Lack of data to support an overfill prevention equipment testing requirement;
- Suggestion to add inspection as an option due to concern about approaching an overfill condition in the tank when conducting testing;
- Suggestion to use professional engineers in the UST program to develop and certify testing and inspection protocols;
- Suggestion to think about how overfill operates and potentially coming up with new innovative ideas for overfill prevention methods; and
- Concern about the lack of codes of practice for testing overfill prevention equipment.

Commenters: [0242, 0246, 0298, 0303, 0312, 0333, 0364, 0368, 0371, 0386, 0394, 0398, 0399, 0402, 0424]

EPA Response

Based on the comments received, EPA is revising the 2011 proposed UST regulation to require owners and operators have overfill prevention devices inspected instead of tested at least once every three years. EPA agrees with commenters who suggested inspection rather than testing to avoid approaching an overfill condition in the tank. EPA disagrees that inspection of overfill prevention equipment only at installation or no inspection at all is adequate to protect human health and the environment because overfill prevention devices have moving parts that can degrade over time, contractors may interact with the device during routine activity at the tank, and the device can be tampered with. EPA believes a three year inspection frequency is adequate to ensure overfill prevention devices continue to operate properly. EPA is not requiring annual inspections, as proposed by some commenters, because of the additional burden it would place on UST system owners and operators.

Although keeping the most recent two records would provide a better history of past compliance, EPA believes a three year requirement for UST system owners and operators to keep records is adequate. The Energy Policy Act of 2005 requires UST facilities be inspected for compliance at least once every three years. Since the overfill prevention equipment inspection requirement is once every three years,

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regulatory inspectors will only need to see proof that an overfill prevention equipment inspection was conducted since the previous visit.

Due to strong support not to phase in overfill prevention equipment inspections based on the age of the tank, EPA is revising the 2011 proposed UST regulation so implementation is based on a single date. EPA is aligning implementation of overfill prevention equipment inspections with other new operation and maintenance requirements, which means the first inspection must be conducted within three years of the effective date of the final UST regulation. In addition, EPA is aligning the inspection or test frequency, recordkeeping, and implementation of the new operation and maintenance requirements to the extent possible in the final UST regulation.

Several commenters were concerned about potential damage when removing overfill prevention equipment for inspection. EPA asked several vendors who perform overfill prevention equipment inspections about the potential for damage during periodic overfill prevention equipment inspections. The vendors indicated that seals may need to be replaced when removing the equipment, but that overfill prevention equipment itself will not easily be damaged during removal or reinstallation. The vendors also indicated that replacing these seals will result in little or no cost to the owner and operator.

A few commenters raised concerns about periodic inspections causing facility down time and replacement costs for overfill prevention equipment. EPA acknowledges that, in instances where overfill equipment access points are in the line of traffic, there could be a small amount of facility down time as a result of conducting the inspection; but EPA believes the benefit to the environment far outweighs the cost of potential down time. To minimize the effects of down time, owners and operators can also schedule the inspection during low traffic times at the facility or when other routine maintenance occurs. In addition, EPA expects owners and operators to have properly functioning overfill prevention equipment at all times and fix problems when they are discovered. The overfill prevention equipment inspection may uncover a problem earlier, resulting in repair or replacement (and better protection from overfills) sooner rather than later.

EPA disagrees with commenters who said there was a lack of data supporting periodic inspection of overfill prevention equipment. As noted in the preamble to the final UST regulation, two draft causes of release studies indicate that UST overfills account for about 15 percent of releases at UST facilities. Properly operating overfill prevention devices will activate and alert delivery personnel before an overfill occurs.

One commenter suggested EPA consider alternatives to how overfill prevention equipment works. EPA is not aware of any new or innovative approaches to preventing overfills, but welcomes effective alternatives to traditional overfill prevention equipment if it becomes available.

One commenter suggested EPA allow the use of professional engineers to develop and certify testing and inspection protocols. Both the 1988 and revised UST regulations rely on codes of practice developed by nationally recognized associations or independent testing laboratories, manufacturer's requirements or instructions, and requirements determined by the implementing agency to be as protective of human health and the environment. EPA believes these options provide test and inspection protocols that are consistent at both the local and national level. Specifically allowing individual professional engineers to develop and certify their own testing and inspection protocols has a significant potential to make testing and inspections inconsistent both locally and nationally. Professional engineers may participate in standard-making activities, assist in developing manufacturer's requirements, and participate in other activities that develop testing and inspection requirements under the current regulatory framework. For these reasons, EPA believes it is unnecessary for professional engineers to develop and certify testing and inspection protocols.

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Finally, in 2012 the Petroleum Equipment Institute (PEI) issued its recommended practice PEI RP1200, *Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities*. EPA reviewed this code of practice, believes it to be adequate for periodic inspection of overfill prevention equipment, and added it to the final UST regulation.

Proposal To Add Periodic Secondary Containment Testing Requirements

Summary

- More than 80 commenters provided input on EPA's proposal to add periodic secondary containment testing requirements for tanks, piping, and containment sumps using interstitial monitoring for release detection – 7 supported it; more than 20 opposed it
- Some believed periodic secondary containment testing created a disincentive to upgrade older systems
- Some questioned whether testing was necessary or cost effective

Support

Seven commenters voiced their support of the proposal.

Commenters: [0308, 0343, 0372, 0393, 0404, 0409, 0412]

Oppose

Twenty commenters opposed any requirements for periodic secondary containment testing of tanks, piping, and sumps. Two commenters opposed testing containment sumps, because they can be visually inspected or have issues with testing existing containment sumps. One commenter opposed testing currently installed piping. Several commenters believed the record to support periodic secondary containment testing was inadequate. Some commenters noted these concerns with periodic secondary containment testing:

- Creates a disincentive for owners and operators to upgrade;
- Would be difficult to perform (are there methods for testing these areas?);
- Would be unfair to better systems;
- Could damage secondary containment equipment;
- Poses a significant burden while providing almost no increased environmental protection; and
- Penalizes early installers of secondary containment.

Commenters: [0222, 0244, 0247, 0287, 0298, 0306, 0312, 0313, 0326, 0327, 0333, 0338, 0341, 0348, 0349, 0352, 0363, 0364, 0365, 0368, 0371, 0374, 0383, 0384, 0407, 0415, 0416, 0418, 0422, 0427]

Testing On New Versus Existing UST Systems

Several commenters supported periodic testing of both new and existing secondary containment systems. Nine commenters did not believe it was good to apply periodic secondary containment testing to existing UST systems because standards were not in place for design and testing when these systems were installed. Several commenters asked whether secondary containment testing would apply to both existing and new UST systems, or just new UST systems.

Commenters: [0238, 0239, 0300, 0303, 0312, 0313, 0332, 0363, 0380, 0384, 0387, 0427]

Three Year Testing Frequency

EPA asked commenters to provide input on the proposed three year frequency for conducting secondary containment testing. Eight commenters believed a three year test frequency was adequate. Three

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commenters believed one year was more appropriate. Ten commenters believed a five year frequency was more appropriate. Other suggestions included one and two years. Several commenters suggested visual inspections instead of periodic testing. Some commenters also suggested aligning all operation and maintenance testing frequencies for ease of testing.

Commenters: [0222, 0236, 0287, 0289, 0306, 0311, 0313, 0314, 0316, 0328, 0339, 0341, 0350, 0363, 0387, 0388, 0396, 0399, 0402, 0407, 0412, 0421]

Three Year Recordkeeping Time Frame

EPA asked commenters to provide input on the proposed three year recordkeeping time frame. Six commenters indicated the three year recordkeeping time frame was adequate. Four commenters suggested keeping records of the last two tests. Other suggestions included keeping records for six years, the lifetime of the UST system, most recent year only, and the same period as other recordkeeping requirements. Several commenters expressed concern that the recordkeeping requirement does not specify the types of records owners and operators need to keep.

Commenters: [0222, 0233, 0237, 0238, 0243, 0287, 0298, 0311, 0312, 0313, 0316, 0328, 0363, 0371, 0396, 0388, 0399]

Three Year Implementation Time Frame and Phase In Approach

EPA asked commenters to provide input on the proposed three year implementation and phase in approach based on tank age. Eleven commenters suggested EPA eliminate the phase in approach based on tank age and move to a single implementation date. Several commenters suggested giving older USTs the most time for implementation rather than the least time. Some commenters also suggested EPA align implementation for periodic spill, overfill, and secondary containment testing.

Commenters: [0243, 0262, 0289, 0302, 0313, 0341, 0348, 0349, 0368, 0388, 0396, 0402, 0422]

Periodic Secondary Containment Testing For Tanks Using Continuous Interstitial Sensors

EPA asked commenters to provide input on whether the final UST regulation should require periodic secondary containment testing of tanks that use continuous interstitial sensors for release detection. Twelve commenters said no. One commenter said yes. Several commenters said no for discriminating sensors and yes for non-discriminating sensors.

Commenters: [0222, 0233, 0238, 0243, 0311, 0313, 0316, 0328, 0339, 0341, 0388, 0399, 0396]

Other Comments

EPA also received these comments:

- Suggestion EPA define continuous monitoring and interstitial monitoring;
- Question asking why there was a difference between periodic testing requirements for tanks using continuous monitoring versus piping continuous monitoring;
- Suggestion to require tanks with sensors to perform periodic secondary containment testing;
- Suggestion sensors not be considered as continuous monitoring – just vacuum, pressure, and liquid filled options;
- Request to clarify that sensors are considered continuous monitoring;

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- Suggestion the secondary containment testing requirement be removed when sensors are used for piping interstitial monitoring;
- Suggestion to allow sump and piping interstitial be flooded with water for testing;
- Suggestion the same testing not apply to smaller and low throughput UST systems;
- Concern about a potential loophole for sump testing if crossover tubing is used;
- Concern EPA did not consider allowing a double walled tank or pipe where one wall has failed to be allowed to be considered single walled;
- Suggestion EPA clarify that under dispenser containment (UDC) needs to be tested if used for interstitial monitoring;
- Suggestion to require testing of double walled containment sums;
- Suggestion to allow leak detection testing in lieu of secondary containment testing;
- Suggestion to allow UST program professional engineers to develop and certify testing and inspection protocols;
- Question about qualification requirements for testers;
- Question about how to dispose of test water;
- Question about whether sump penetrations need to be part of test (many would fail);
- Suggestion EPA require most recent test to be passing;
- Suggestion EPA provide additional details about the testing requirement and use of vacuum, pressure, and liquid options of testing;
- Concern about the lack of codes of practice and that there are no evaluated performance standards for testing secondary containment areas and a suggestion EPA set a minimum performance standard; and
- Editorial changes.

Commenters: [0210, 0236; 0238, 0239, 0242, 0243, 0264, 0267, 0298, 0312, 0313, 0316, 0317, 0326, 0332, 0334, 0336, 0339, 0342, 0344, 0349, 0352, 0364, 0368, 0371, 0372, 0375, 0377, 0383, 0386, 0392, 0394, 0396, 0399, 0400, 0401, 0404, 0409, 0415, 0421, 0422, 0424]

EPA Response

Based on the significant opposition commenters provided to the proposed periodic secondary containment testing, the final UST regulation does not require periodic secondary containment testing of secondarily contained tanks and piping. EPA agrees that secondarily contained UST systems using interstitial monitoring are more protective of the environment than single walled UST systems. In addition, EPA does not want to create a disincentive for owners and operators to replace older single walled UST systems with double walled systems. However, EPA disagrees with commenters who suggested no periodic testing for containment sums. These areas function similar to spill containment equipment, containing leaks from piping and other components in the sump. Containment sums can degrade over time, resulting in releases to the environment. In addition, containment sums have piping and other components that come through the containment sump walls, increasing the likelihood that these areas are not liquid tight. One commenter asked whether these penetration areas needed to be tested because many will fail. Containment sums need to be liquid tight so they will contain any regulated substances released from the primary wall of the piping. Therefore, the final UST regulation requires periodic testing for both new and existing containment sums used for interstitial monitoring. This testing includes the penetrations. Containment sums used for reasons other than interstitial monitoring of piping do not have to meet the periodic testing requirement. In addition, as with spill prevention equipment testing, EPA is not requiring periodic secondary containment testing of double walled containment sums where the integrity of both walls is periodically monitored. Periodically monitored means owners and operators must monitor the space between the two walls of the containment sump at a frequency consistent with, or more frequent than, the walkthrough inspection frequency. Owners and operators who discontinue

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periodic monitoring of double walled containment sumps must conduct a containment sump test (and maintain the test record) within 30 days of discontinuing the periodic monitoring. Finally, the final UST regulation requires secondary containment testing following any repair to the secondary containment areas of tanks and piping and as appropriate as part of release investigation and confirmation.

One commenter suggested that the same testing should not apply to small, lower throughput facilities. However, these facilities have releases to the environment just like larger facilities. Therefore, EPA is applying the same containment sump testing to both small, lower throughput facilities as for larger facilities.

The final UST regulation requires periodic testing of containment sumps at least once every three years. EPA believes a three year testing frequency, when combined with periodic visual checks via the walkthrough inspection, is adequate to ensure containment sumps continue to operate properly. In addition, three years is consistent with the spill and overfill prevention equipment testing requirements.

Based on strong opposition to phase in containment sump testing based on tank age, EPA is basing implementation on a single date. The final UST regulation aligns implementing periodic containment sump testing with other new operation and maintenance requirements; this means owners and operators must conduct the first test within three years of the effective date of the final UST regulation. In addition, EPA is aligning the test frequency, recordkeeping time frame, and implementation time frame for the new operation and maintenance requirements to the extent possible in the final UST regulation.

For recordkeeping, EPA believes a three year requirement for UST system owners and operators to maintain records is adequate. The Energy Policy Act of 2005 requires UST facilities be inspected for compliance at least once every three years. Since the containment sump testing requirement is once every three years, inspectors will only need to see the testing conducted since their last visit.

Some commenters expressed concern about testing existing systems because standards were not in place for design and testing when owners and operators installed these systems. EPA agrees with these commenters for older secondarily contained tanks and piping. However, EPA believes that both new and existing containment sumps used for interstitial monitoring need to be liquid tight so regulated substances can be contained and detected. EPA acknowledges that some containment sumps may not pass the initial test. Owners and operators will need to repair or replace failed containment. EPA believes liquid tight sumps prevent releases from reaching the environment. As with spill prevention equipment testing, EPA allows vacuum, pressure, or liquid filled methods to be used as options for testing containment sumps.

Some commenters suggested EPA add definitions for continuous monitoring and interstitial monitoring. Since the final UST regulation uses the concept of periodic monitoring rather than continuous monitoring, EPA is not defining continuous monitoring. The concept of interstitial monitoring was used in the 1988 UST regulation and remains the same in the final UST regulation. In addition, both the 1988 UST regulation and the final UST regulation describe interstitial monitoring in detail in the release detection part of the regulation. Therefore, EPA is not further defining interstitial monitoring. Based on commenter input, EPA is adding to the final UST regulation a definition of containment sump, which addresses comments about what constitutes a containment sump. The containment sump definition includes UDC resulting in a periodic testing requirement for UDC when used for interstitial monitoring of piping.

Some commenters raised concerns about disposal of test liquid following containment sump testing. EPA contacted several vendors to determine whether they included disposal of test liquid as part of the testing. Some vendors include handling of the test liquid as part of the test; they carry the test liquid with them and reuse it several times before disposal. Others charge a separate cost or make sure the owner or

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operator has drums on site to dispose of the test liquid. In addition, some vendors use vacuum testing, which eliminates the liquid from the test. EPA considered test liquid disposal in the final UST regulation.

A few commenters raised concerns about facility down time and replacement costs for containment sumps as a result of testing. EPA acknowledges that, in instances where access to the containment sump is in the line of traffic, there could be a small amount of facility down time as a result of testing; but EPA believes the benefit to the environment far outweighs the potential down time. To minimize the effects of down time, owners and operators can also schedule the testing during low traffic times at the facility or when other routine maintenance occurs that requires opening containment sumps. In addition, EPA expects owners and operators to have properly functioning containment sumps at all times when those containment sumps are used for piping interstitial monitoring and fix problems when they are discovered. The containment sump test may uncover a problem earlier, resulting in repair or replacement of the containment sump (and better protection from releases) sooner rather than later.

Several commenters suggested requiring testing of all containment sumps, including double walled. However, EPA believes owners and operators choosing to use double walled containment sumps, where the integrity of both walls is periodically monitored, is protective of the environment and a reasonable alternative to periodic testing.

One commenter asked about qualifications for testers. The final UST regulation does not specify qualifications for persons testing containment sumps. However, EPA expects testers to properly conduct tests according to a code of practice, manufacturer's instructions, or requirements established by the implementing agency.

One commenter suggested requiring the most recent test be a passing test. EPA agrees and, although the regulation does not explicitly say it, a passing test is implicit to every test in the UST regulation. Failure to have a passing test means the owner and operator out of compliance with the UST regulation.

One commenter suggested the final UST regulation allow professional engineers to develop and certify testing and inspection protocols. The final UST regulation relies on codes of practice developed by nationally recognized associations or independent testing laboratories, manufacturer's requirements or instructions, and requirements determined by the implementing agency to be as protective of human health and the environment. EPA believes these options provide test and inspection protocols that are consistent at both the local and national level. Specifically allowing individual professional engineers to develop and certify their own testing and inspection protocols will potentially make testing and inspections inconsistent both locally and nationally. Professional engineers may participate in standard-making activities, assist in developing manufacturer's requirements, and participate in other activities that develop testing and inspection requirements under the current regulatory framework. For these reasons, EPA believes it is unnecessary to include professional engineers in the final UST regulation.

In 2012, the Petroleum Equipment Institute (PEI) issued its recommended practice PEI RP1200, *Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities*. EPA reviewed this code of practice, believes it to be adequate for periodic testing of containment sumps, and is adding it to the final UST regulation. This code of practice contains information about vacuum and liquid methods as well as how to perform containment sump testing. One commenter suggested allowing containment sumps and piping interstitial areas to be flooded with water for testing. While EPA questions how to get the water back of the piping interstitial areas in some cases, if codes of practice would allow this method of testing, EPA would accept it.

Several commenters expressed concern about the lack of performance standards for testing secondary containment areas and suggested EPA set minimum performance standards. It is very difficult for EPA to

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set a single performance standard because containment sums are made in many shapes and sizes. Therefore, EPA relies on test methods in codes of practice, developed by manufacturers, or set by the implementing agency to establish criteria for passing or failing a test. For example, the 2012 edition of PEI RP1200 established one-eighth of an inch change over one hour as the pass or fail criteria for containment sums.

One commenter expressed concern about a loophole for testing containment sums. If owners and operators use crossover tubing in the sump, regulated substances will flow through the crossover tubing to another area where the substances will be detected, rather than flowing into and being detected in the sump. EPA understands when owners and operators use crossover tubing, the sump is not used for interstitial monitoring. Only containment sums used for interstitial monitoring need to meet the three year testing requirement.

Downgrading an UST system to single walled as one commenter suggested is less protective of the environment than secondarily contained UST systems. In addition, interstitial monitoring cannot be used if the UST system is downgraded to a single walled UST system, and a double walled tank downgraded to a single walled tank would likely not meet the manufacturer's design intentions or warranty.

Proposal To Add Periodic Release Detection Equipment Testing Requirements

Summary

- 42 commenters provided input on EPA's proposal to establish operation and maintenance requirements for release detection equipment – 24 supported it; 6 opposed it
- EPA received a variety of comments, and as a result, is making minor changes to the final requirements

Support

Twenty-four commenters, two of whom provided additional feedback, supported the proposal.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0283, 0284, 0302, 0311, 0313, 0316, 0338, 0341, 0343, 0348, 0388, 0396, 0399, 0363, 0404, 0413, 0422, 0427]

Oppose

Six commenters opposed the proposal. One commenter opposed the lack of testing ATG in tank probes. Another commenter said issues with installation are the main problem not, release detection equipment itself. This commenter asserted that EPA was basing its requirements on anecdotal information from California and other states, which he felt are pushing their walkthrough requirements. This commenter also said EPA was allowing unqualified, unskilled owners and operators to conduct maintenance and repairs on sophisticated equipment.

Several commenters believed testing requirements are unnecessary for other reasons:

- The requirements involve additional costs to facilities
- The 1988 UST regulation already requires installation, calibration, and operation and maintenance according to manufacturer's requirements
- As EPA acknowledges, most operators currently maintain release detection equipment
- Operator training will address identified concerns as well as improve significant operational compliance
- Two commenters had concerns regarding the annual testing frequency

Commenters: [0305, 0315, 0326, 0383, 0399, 0402]

Sufficiency Of Proposed Minimum Requirements

EPA asked whether the proposed minimum operation and maintenance requirements are sufficient to cover release detection equipment on regulated UST systems.

Thirteen commenters responded yes without additional comment. One commenter responded yes on the condition that equipment found to be defective or inoperable must be repaired within 30 days.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0311, 0313, 0363, 0388, 0396, 0399, 0413]

Additional Performance Tests To Consider

EPA asked whether there are additional performance tests we should consider.

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Eight commenters responded no. Three commenters suggested EPA add other requirements or restrictions. One commenter suggested EPA test interstitial monitoring equipment every 12 months. Another commenter asked EPA to require testing be performed only by a certified technician. The other commenter suggested EPA add a periodic check of software.

Commenters: [0222, 0233, 0238, 0243, 0311, 0313, 0338, 0396, 0399]

Other Comments

EPA also received these comments:

- Clarify what is meant by leak sensing O-ring
- Require automatic line leak detectors be tested to 3 gallons per hour at 10 pounds per square inch line pressure within one hour
- Change the term test to functionality test
- EPA should allow self-testing
- Make these changes to the regulatory language
 - Add recordkeeping requirement to § 280.40(a)(2) and (3) for clarity
 - Remove the term and in § 280.40(a)(3)
 - Add language to § 280.40(a)(3) to prohibit manufacturers from excluding electronic line leak detectors (ELLDs) from the annual test – no self-diagnostics are acceptable
 - Rewrite § 280.44 to prevent misinterpretation that all three requirements must be met
- Perform the simulated leak for the automatic line leak detector at the dispenser furthest from the tank
- Do not finalize without a code of practice available
- Concern about manufacturer's instructions possibly being written to circumvent requirements and that manufacturers should have the right to accept or reject any code developed by an independent agency
- Make various changes to testing frequency, phase-in period, and other indicated time frames
- Concern that checks by third-party service providers are more effective compared to long checklists that can be easily falsified
- Concern that the manner in which UST implementing agencies administer and enforce current requirements needs to be scrutinized

Commenters: [0243, 0248, 0287, 0289, 0290, 0305, 0306, 0313, 0316, 0326, 0328, 0338, 0343, 0368, 0394, 0404, 0407, 0416, 0422]

EPA Response

Based on the comments received, EPA is changing minor portions of the standardized operation and maintenance requirements for release detection equipment presented in the 2011 proposed UST regulations. These changes, reflected in the final UST regulation, include:

- Increasing time to implement the requirements to three years
- Adding handheld electronic equipment associated with vapor and groundwater monitoring
- Removing leak sensing O-ring from required components
- Changing the term line leak detector to automatic line leak detector
- Adding a note that Petroleum Equipment Institute's (PEI) RP1200 may be used to meet the testing requirements

Many commenters stated their support for EPA to standardize operation and maintenance requirements for release detection equipment. One supporter said that although he was not opposed to EPA's testing requirements, automatic line leak detectors must currently be tested and suggested that annual testing for all electronic and mechanical equipment may not be necessary. Another supporter questioned whether it is necessary to test all proposed components. This supporter said failures of most of the listed components are rarely or never the reason a release goes undetected. EPA agrees that the 1988 UST regulation requires annual testing of automatic line leak detectors according to the manufacturer's instructions. However, some manufacturers' instructions indicate no testing is required. In addition, release detection performance nationally remains well below an acceptable level. A broader focus on release detection equipment is necessary. With regard to exactly which components are responsible for poor performance of release detection, at this point no one knows for certain. EPA maintains that a standard for all release detection equipment is necessary to address release detection categorically. That is why EPA included standardized operation and maintenance requirements in the 2011 proposed UST regulation. Ensuring that all release detection equipment is performing properly increases the likelihood of the earliest detection of releases to the environment.

Some commenters opposed the proposed release detection requirements. One commenter stated that EPA is allowing unqualified, unskilled owners and operators to conduct maintenance and repairs on sophisticated equipment. EPA intends for qualified individuals to perform the work of meeting operation and maintenance requirements. Depending on the component, the qualified individual may be either a third-party service provider or an UST system owner or operator. EPA thinks it is unnecessary to prescribe who must test which release detection component.

EPA disagrees with the commenter who suggested that automatic tank gauge (ATG) probes should not be tested. These devices are one of the most critical components of an automatic tank gauging system. The ATG will not detect a release if the probe does not work. Although this component must be removed from the tank to be tested, most of the required testing activities specified can be accomplished by a relatively straightforward visual inspection or simple procedure.

One commenter suggested issues with installation are the main problem, rather than release detection equipment itself. This commenter said EPA was basing its requirements on anecdotal information from California and states, which he thought are pushing their walkthrough requirements. Periodic testing will identify installation issues associated with release detection equipment. EPA is not basing its operation and maintenance requirements on anecdotal information from California and states pushing walkthrough requirements. Rather, we are basing it on information from the California study, which supports EPA's position on release detection equipment testing requirements. Ken Wilcox and Associates, a leading authority in the United States on release detection equipment, conducted the California study.

In the regulatory impact analysis (RIA), EPA addressed costs associated with the operation and maintenance requirement for release detection equipment. One commenter stated that the 1988 UST regulation requires installation, calibration, and operation and maintenance according to manufacturer's requirements. As EPA discussed in the 2011 proposed UST regulation, we did not provide specifics in the 1988 UST regulation on minimum requirements to ensure adequate operation and maintenance of release detection equipment. In particular, see Section IV.B.5, which states: "As a result, operation and maintenance requirements vary greatly, even between similar types of equipment. Some manufacturers' requirements do not adequately address operation and maintenance. For example, some manufacturers only recommend operation and maintenance checks..." EPA maintains the position that tests should be mandatory and not optional.

EPA disagrees with the commenter who stated: "EPA acknowledges, most operators currently maintain

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release detection equipment.” EPA stated in the preamble to the 2011 proposed UST regulation: “Most owners and operators installed the required release detection equipment, but some owners and operators are not properly operating and maintaining their equipment. To achieve optimal performance from equipment and meet release detection requirements, it is important for UST system owners and operators to both install the equipment and properly operate and maintain it.”

EPA agrees with the commenter who stated that operator training helps improve release detection performance and will improve significant operational compliance at UST facilities. However, EPA disagrees that operator training alone will sufficiently address all identified concerns with release detection equipment. EPA maintains that, at a minimum, basic and standardized testing requirements are needed to increase the likelihood that all release detection equipment will function at optimal levels for as long as possible.

EPA asked whether the proposed minimum operation and maintenance requirements were sufficient to cover release detection equipment on regulated UST systems. Most commenters responded yes without further comment. One commenter responded yes on condition that defective or inoperable equipment must be repaired within 30 days. EPA decided this specific requirement is unnecessary. UST system owners and operators are required to provide a release detection method or combination of methods, which detect a release from any portion of the UST system containing product. If release detection equipment is found to be defective or inoperable, it does not meet requirements in § 280.40. Owners and operators have to repair or replace this equipment, regardless of whether or not that is specifically stated in the regulation.

EPA asked if there were additional performance tests we should consider. Eight commenters responded no. EPA received three suggested improvements, which included potential restrictions. EPA decided not to include testing of interstitial monitoring areas every 12 months as suggested. Sensors and pressure-vacuum pumps and gauges are parts of interstitial monitoring equipment; they are covered under the annual testing requirement. EPA is emphasizing that those interstitial areas, such as sump areas and under dispenser containment, are part of the release detection system. Owners and operators must conduct walkthrough inspections of these areas annually.

Another commenter requested that EPA require testing only by a certified technician. As previously stated, EPA thinks certain components can be tested by third-party service providers or UST system owners and operators. However, EPA thinks it is unnecessary to prescribe who must test specific components. In addition, EPA thinks that adding a periodic check of software is unnecessary. The requirement to verify system configuration of automatic tank gauging systems and other controllers indirectly covers testing software. This will ensure programming is set up properly and associated equipment responds as intended.

In the 2011 proposed UST regulation, EPA suggested phasing out groundwater and vapor monitoring as methods of release detection. However, EPA is continuing to allow these methods with some restrictions, as indicated in the final UST regulation. For those owners and operators choosing groundwater or vapor monitoring as their method of release detection, EPA is requiring that hand-held electronic equipment such as photoionization devices meet the operation and maintenance requirements for release detection equipment. Non electronic hand-held devices such as measuring sticks and groundwater bailers will be covered under the walkthrough inspection requirements.

EPA received a variety of other comments. Commenters asked EPA to clarify what is meant by a leak sensing O-ring. The O-ring is specific to the functional element on mechanical line leak detectors and is only present on some types of line leak detectors. Further, all functional elements will be tested as part of the simulated leak test conducted at 3 gallons per hour at 10 pounds per square inch line pressure or

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equivalent for all line leak detectors. Therefore, in the final UST regulation EPA is removing the leak sensing O-ring from the components to be tested.

A commenter asked EPA to require automatic line leak detectors be tested to 3 gallons per hour at 10 pounds per square inch line pressure within one hour. The 2011 proposed UST regulation in § 280.40(a)(3)(iii) stated: “Line leak detector: Test operation to meet criteria in § 280.44(a) by simulating a leak...”. The performance criteria in § 280.44(a) is 3 gallons per hour at 10 pounds per square inch line pressure within one hour. The final UST regulation continues to reference the performance criteria as proposed.

One commenter noted his experience with testing which verified electrical circuitry, but during operation the connected device still did not function to its intended precision. This commenter recommended EPA change the term test to functionality test. EPA thinks this change is unnecessary. The operation and maintenance requirements for release detection feature minimum performance criteria for testing. Each method that may be used to meet the requirement (manufacturer’s instructions, a code of practice, or requirements developed by the implementing agency) must, at a minimum, cover each listed component and the stated performance criteria.

Another commenter stated that EPA should allow self-testing. EPA interprets this term to mean allowing self-diagnostic equipment. EPA disagrees with this commenter. EPA is concerned that the above circumstance with self-diagnostic equipment might verify electrical circuitry, but not actually test equipment functionality. At a minimum, each component tested must meet the performance criteria. The final UST regulation does not allow self-testing.

EPA received these comments with specific changes to the regulatory language.

- Add recordkeeping requirement to § 280.40(a)(2) and (3) for clarity
- Rewrite § 280.44 to prevent misinterpretation that all three requirements must be met
- Add language to § 280.40(a)(3) to prohibit manufacturers from excluding ELLDs from the annual test – no self-diagnostic test is acceptable
- Make an editorial correction to remove the term and in § 280.40(a)(3)

EPA thinks it is unnecessary to make changes to the recordkeeping requirement. The recordkeeping requirement for subpart D is presented in § 280.45 and EPA thinks this section clearly identifies § 280.40(a)(2) and (3). EPA also thinks the release detection requirements for pressurized piping in § 280.44 should not be changed. They are part of the requirements for petroleum UST systems stated in § 280.41(b), which provides options UST system owners and operators can use to meet release detection for piping referenced in § 280.44. To clarify that EPA’s requirement for simulated testing of line leak detectors applies to electronic and mechanical line leak detectors, EPA is changing § 280.40(a)(3)(iii) to include the term automatic. This will make the requirement consistent with how EPA has historically referenced both electronic and mechanical devices that are described by the term automatic line leak detectors in § 280.44(a). Section 280.40(a)(3)(iii) applies the same to electronic and mechanical based line leak detectors. EPA is making the editorial correction to § 280.40(a)(3). This section reads: “...and, at a minimum as applicable to the facility...”.

A commenter requested EPA require that the simulated leak test for line leak detectors be performed at the dispenser furthest from tank. EPA obtained information from several third-party service providers who routinely perform automatic line leak detector testing. In general, testing is performed at the furthest point from the tank, but not always. EPA thinks that adding this level of specificity in the final UST regulation as to where the test needs to be conducted is unnecessary and could be counterproductive. This

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detail should be provided, as needed, in the options owners and operators may use (manufacturer's instructions, code of practice, or requirements by implementing agency) to meet the operation and maintenance requirements.

One commenter stated that the operation and maintenance requirements should not be finalized without a code of practice available. EPA agrees with the commenter. EPA indicated in the 2011 proposed UST regulation that we would review a code of practice, which was under development at that time. EPA reviewed and is including in the final UST regulation Petroleum Equipment Institute's final *Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities* (RP1200).

A commenter voiced concern about manufacturers writing instructions to possibly circumvent requirements and that manufacturers should have the right to accept or reject any code developed by an independent agency. The 2011 proposed UST regulation included performance criteria for each required component. These performance criteria remain in the final UST regulation. This should make it difficult to circumvent intended testing. Similar to other areas in the final UST regulation, EPA allows a code of practice developed by a nationally recognized association or independent testing laboratory to meet operation and maintenance requirements. These organizations solicit and involve participation of regulators and industry in a consensus manner to develop and periodically revise codes of practice. EPA encourages interested parties to participate in the standards development and revision processes.

Several commenters requested EPA make various changes to testing frequency; phase-in period; and other time frames indicated in the 2011 proposed regulation. With regard to extending the implementation date, several commenters suggested extending the period from one year to three years, beyond one year for an unspecified time, and for two years noting manufacturers of numerous legacy equipment are unavailable and additional time will allow for developing codes of practice and regulatory agencies to establish requirements. EPA considered these comments along with our goal to align all dates of compliance, which will foster easier and more convenient compliance. EPA agrees with commenters and in the final UST regulation is extending to three years the implementation date for the operation and maintenance requirements for release detection equipment.

Several commenters also suggested changing the testing frequency of the operation and maintenance requirement. Suggested changes were:

- Phase in testing over three years based on installation date of equipment
- Require testing three to five years after equipment installation, with commenter noting newly installed equipment works at optimal levels
- Extend testing frequency of mechanical components to every three years

Commenters also suggested that only the most recent year's testing record should be maintained, with the commenter noting that this period is the only relevant one. EPA's final UST regulation retains the annual testing frequency and three-year recordkeeping requirement, as presented in the 2011 proposed UST regulation. EPA thinks it is crucial that the testing frequency be straightforward and performed with enough regularity as practical to ensure equipment remains working properly. EPA also thinks a history of these records corresponding to the three year inspection period that most UST implementing agencies have adopted to meet the requirements of the Energy Policy Act of 2005 is necessary to ensure regularity is achieved.

Finally, EPA received comments concerning implementation of the operation and maintenance requirements for release detection equipment and general implementation of UST regulatory requirements. One commenter believed that checks by third-party service providers are more effective

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when compared to long checklists that can be easily falsified. Another commenter expressed concern that the manner in which UST implementing agencies administer and enforce current requirements needs to be scrutinized. EPA will develop guidance to assist UST implementing agencies and UST system owners and operators to successfully meet the operation and maintenance requirements for release detection and other UST requirements in the final UST regulation.

Proposal To Remove The Deferral And Require Release Detection For UST Systems Storing Fuel Solely For Use By Emergency Power Generators

Summary

- More than 30 commenters provided input on EPA's proposal to add release detection requirements to UST systems storing fuel solely for use by emergency power generators (also referred to as emergency generator tanks or EGTs) -- 10 supported it; 3 opposed it
- EGT universe: Several commenters agreed with EPA's estimate that the EGT universe is at least 3 percent; most reported their individual state's EGT populations were over 3 percent
- Number of EGTs with release detection installed: Most commenters stated release detection is installed on over 50 percent of the EGTs in their individual states, but did not provide a national estimate
- UST facilities with 10 or more EGTs installed at the site: Commenters were unaware or could not verify; one commenter thought his state had one military facility or hospital with 10 or more EGTs
- Technical concerns: Some commenters expressed concern about possible challenges with performing release detection on these systems

Support

- Ten commenters supported the proposal; individual commenters stated:
 - UST implementing agencies strongly supported removing the deferral for release detection
 - The cost of compliance for industry is minimal since most systems already have release detection
 - Eliminating the deferral was long overdue

Commenters: [0246, 0302, 0308, 0313, 0335, 0338, 0343, 0372, 0412, 0413]

Oppose

- Three commenters opposed release detection requirements for EGTs, specifically:
 - Minimal releases from EGTs to soil are found at tank closure
 - Requirements for retail USTs should not apply because EGTs are smaller and present a lower risk of environmental harm; why is addressing potential impacts from heating oil tank releases not a priority
 - Release detection requirements should only apply if environmental benefits justify and outweigh the cost of compliance; EPA should not regulate until it is shown that deferred tanks and devices have not been well managed and have resulted in a significant history of releases

Commenters: [0311, 0339, 0422]

EGT Universe

EPA asked whether our estimate of 3 percent for UST systems storing fuel solely for use by EGTs is accurate. Two commenters stated EPA's estimate is accurate, and two commenters provided counts greater than 3 percent for individual states. Additionally, two commenters provided EGT counts less than 3 percent. One commenter stated his UST implementing agency does not track data on EGTs.

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Commenters: [0222, 0238, 0243, 0311, 0313, 0341]

Number Of EGTs With Release Detection Installed

EPA asked whether our estimate of 30 percent release detection on UST systems storing fuel solely for use by energy power generators is accurate. Most commenters provided comments on individual UST implementing agencies' requirements:

- Release detection is required and all EGTs have release detection, such as automatic tank gauging or daily inventory
- Cannot verify older systems, but release detection was required since 2009
- 50 to 60 percent have release detection
- Release detection was required since 1986
- 30 percent may be an overestimate, but in one state, EGTs with pressurized lines must have release detection

Commenters: [0222, 0237, 0238, 0243, 0311, 0313, 0328, 0399]

UST Facilities With 10 Or More EGTs Installed At The Site

EPA asked commenters how many UST facilities have 10 or more EGTs on site and who owns the facilities. One commenter cited one military facility, which will require upgrades to meet the release detection requirement. Most commenters were not aware of these facilities. Two commenters stated they were unable to verify the number of these facilities. One commenter was not aware of any facilities in his UST implementing agency's jurisdiction, but knew of banking data centers elsewhere with four or more EGTs on site. One commenter stated facilities with 10 EGTs use aboveground storage tanks for emergency fuel supply. One commenter was aware of a university and three military installations, which might have more than 10 EGTs. Other commenters thought hospitals and utility companies would have 10 or more EGTs.

Commenters: [0222, 0238, 0243, 0311, 0313, 0421]

Technical Concerns

EPA asked for input on technical concerns we should address in requiring release detection for EGTs. Six commenters believed there either were no issues or stated they were not aware of any. One commenter stated his UST implementing agency does not allow annual tightness testing and owners and operators rely on automatic tank gauging or interstitial monitoring as release detection methods.

Commenters also suggested:

- Continuous looped piping systems cannot be properly isolated or have a sufficient quiet period to perform a precision test when using automatic tank gauging
- EGTs with copper piping pose issues due to system configurations
- EPA should not allow statistical inventory reconciliation for release detection
- Most EGTs are single walled and are limited to automatic tank gauging as the form of release detection
- EGTs with day tanks and aboveground piping may need anti-siphon valves
- EPA should require installation of electronic line leak detectors with positive system shutdown to avoid undetected leaks in pressurized piping connected to a day tank
- EPA should clarify that automatic line leak detectors can only go in alarm mode and not restrict

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product flow during emergencies or crises

Commenters: [0222, 0237, 0238, 0243, 0265, 0311, 0313, 0316, 0348, 0399]

Other Comments

EPA received these additional comments:

- Extend the implementation date
 - Should be three years to align with spill and overfill testing
 - Should be five years
- Require consistent phase-in
- Support for requiring release detection on EGTs and for flexibility granted to UST implementing agencies for implementation; suggest greater flexibility for implementation in jurisdictions that have slightly different regulatory approaches or deadlines
- Do not require notification, it is unnecessary
- EPA should address the mission critical nature of these systems and define what is mission critical
- Apply operator training and operation and maintenance to reduce risk of microbial contamination
- Additional regulation is a burden on owners and operators
- EPA has not made the case that regulations are necessary to prevent future releases
- EPA is not under statutory authority to address deferrals

Commenters: [0243, 0246, 0262, 0301, 0302, 0311, 0313, 0335, 0338, 0350, 0368, 0380, 0385, 0394, 0396, 0402, 0421, 0422]

EPA Response

Based on comments, EPA is eliminating the deferral for release detection for UST systems storing fuel solely for use by emergency power generators. EPA disagrees with commenters who said releases from these tanks result in only minimal environmental damages. EPA also disagrees with the commenter who stated requirements should differ because these systems are smaller than retail USTs. EPA reiterates that releases from UST systems pose an unacceptable threat to the environment. Release detection enables UST system owners and operators to address environmental impacts early and avoid potentially catastrophic contamination. Storage capacities for EGTs now range from 250 gallons to over 20,000 gallons and are configured much the same as conventional retail UST systems. Some of these systems are safe suction systems, which do not require release detection. In response to the commenter who asked why EPA has not addressed the universe of heating oil tanks, EPA responds that Subtitle I of the Solid Waste Disposal Act does not give us the authority to regulate heating oil tanks.

EPA obtained data through the comment process for the:

- EGT universe
- Number of EGTs with release detection installed
- UST facilities with 10 or more EGTs installed at the site

Based on responses on individual state EGT populations, EPA confirms the estimate that EGTs comprise at least 3 percent of the tank universe in the United States.

Most commenters provided input on individual UST implementing agencies' requirements in response to

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whether EPA's estimate that 30 percent of EGTs have release detection is accurate. One commenter believed the estimate could be overstated. EPA reasserts its estimate that at least 30 percent of EGTs already have release detection.

Most commenters were unaware of specific facilities that have 10 or more EGT systems at a site, but a few commenters suggested utility companies, military installations, and hospitals might have 10 or more. One commenter stated owners and operators use aboveground storage tanks at facilities with 10 or more EGTs. Due to lack of information, EPA will not make any special considerations for facilities that may have 10 or more EGTs installed at a site.

Several commenters raised concerns that release detection methods may not properly operate on some EGTs and suggested changes to the release detection requirement. Commenters reported these issues:

- Looped piping systems, which is piping configured to run continuously with integrated supply line and return line -- one commenter said this cannot be properly isolated or have a sufficient quiet period to perform a precision test when using automatic tank gauging
- EGTs with copper piping -- one commenter said this poses issues with meeting the release detection requirement due to system configurations
- Most EGTs are single walled and limited to automatic tank gauging as the form of release detection
- EGTs with day tanks and aboveground piping may need anti-siphon valves

One commenter suggested EPA limit the type of release detection, such as statistical inventory reconciliation (SIR), owners and operator may use on EGTs. Another commenter suggested EPA require owners and operators install electronic line leak detectors, which have a positive system shutdown of any product flow in the event of a leak. Two other commenters recommended EPA clarify that automatic line leak detectors can go to alarm mode only and not shut down or restrict product flow when a leak is suspected in EGTs used during a crisis.

EPA does not have an estimate of the number of EGTs with looped or copper piping or are single walled rather than double walled. EPA agrees that not all release detection methods may be suitable for all UST systems. EPA discussed the applicability of SIR on EGTs with several SIR vendors and received conflicting responses. The challenge is to establish a product use rate based on the run time of the system during operation. Although this is highly suspect, EPA does not have enough information at this time to determine whether SIR or other methods that rely on metered data are acceptable for use on EGTs. Owners and operators must carefully consider whether these methods meet the release detection requirement for their UST systems. To meet the release detection requirement, some systems may require reconfiguration and addition of components such as anti-siphon valves to separate sections of the system. Other systems have safe suction piping, in which case release detection is not required. However, release detection technologies have advanced since EPA issued the 1988 UST regulations and there are various options available to meet this requirement. EPA disagrees with commenters about requiring owners and operators to install automatic line leak detectors, which only shut off at the submersible pump, or allowing only certain release detection methods for these systems. In the final UST regulation, EPA is allowing owners and operators flexibility to choose the most appropriate release detection methods, including automatic line leak detectors that trigger an alarm only and not necessarily shut down the pump, for their systems. The alarm must be transmitted to a monitoring center where someone on site can hear or see the alarm and respond to a suspected or confirmed release.

Several commenters raised concerns that owners and operators would not have proper time for assessing, budgeting, and installing release detection in order to meet the one year proposed implementation date.

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Commenters also suggested EPA establish a single implementation date, which is consistent with effective dates for release detection on other previously deferred tanks. EPA agrees that extending the time frame will allow owners and operators sufficient time for planning and installing necessary equipment to meet the release detection requirement; but we disagree with commenters who suggested a five to ten year implementation date. EPA also agrees that establishing a single effective date, which is consistent with other effective dates for the release detection requirement, decreases the tracking burden on implementing agencies as well as owners and operators. EPA acknowledges this is a new requirement for owners and operators, as well as some implementing agencies. Based on support for increasing the final implementation date for release detection from one year and EPA's goal of aligning regulatory implementation dates to foster better compliance, EPA is requiring EGT owners and operators comply with subpart D three years after the final date of the UST regulation.

One commenter recommended EPA allow flexibility for implementation based on UST implementing agencies' regulations because approaches or deadlines may differ. EPA allows flexibility to UST implementing agencies in 40 CFR part 281, which permits potentially wide variation in how owners and operators meet requirements. To a lesser degree, EPA is allowing UST implementing agencies flexibility for meeting the EGT release detection requirement.

Two commenters stated that the one-time notification recommended in the 2011 proposed UST regulation is unnecessary because the 1988 UST regulation excluded EGTs from only the release detection requirement. In 1986, owners and operators were supposed to notify implementing agencies of their existence. EPA agrees with commenters and is not including this requirement in the final UST regulation. It is unnecessary for owners and operators to provide a one-time notification to implementing agencies.

One commenter suggested EPA should address the mission critical nature of EGTs and define the term mission critical. While EPA acknowledges the need for an EGT during an emergency, we think it is unnecessary to define mission critical or make exceptions for the release detection requirement for EGTs. The concern is owners and operators do not shut down their systems in the event of suspected releases. EPA thinks owners and operators can meet the release detection requirement without automatically shutting down the system.

One commenter suggested owners and operators of aboveground and underground EGT systems should perform operator training and operation and maintenance practices to reduce risks of microbial contamination. EPA is requiring operator training and operation and maintenance for underground EGT systems, but not aboveground systems. EPA encourages UST system owners and operators to follow best management practices and address microbial issues appropriately.

Regarding comments about additional regulation burdening owners and operators, EPA is aware that not all EGTs are equipped with release detection. Some owners and operators who do not meet this requirement will need to install release detection. However, EPA is allowing a variety of options to meet the release detection requirement. One commenter said EPA did not make the case that regulations are necessary to prevent future releases. Another commenter stated there is no statutory mandate for EPA to address EGTs. EPA disagrees with the commenter about EPA not making the case that regulations are necessary to prevent future releases. In addition to the justifications EPA provided in the 2011 proposed UST regulation on the requirement for release detection equipment testing, justifications for other regulatory requirements support the regulation. Since EPA promulgated the 1988 UST regulation, we intended to address deferred systems, which were merely deferred and not fully excluded. Release detection technologies have improved since the 1988 UST regulation and many methods are applicable to EGTs. In addition, current sizes of these systems are larger than what EPA stated in the preamble of the 1988 UST regulation and used to guide us in deferring EGTs then. EGTs are configured much the same

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as retail UST systems. Some UST implementing agencies currently regulate EGTs and have done so for years.

Proposal To Remove The Deferral For Airport Hydrant Fuel Distribution Systems

Summary

- More than 25 commenters provided input on EPA's proposal to remove the deferral for airport hydrant fuel distribution systems (also referred to as airport hydrant systems or AHSs) -- eight supported it; six opposed it

Support

Eight commenters supported removing the deferral, specifically:

- One commenter supported the proposal and indicated EPA did adequate research for release detection
- One commenter stated that releases from underground storage tanks (USTs) do not defer certain owners and operators, nor should the UST regulation
- Two commenters indicated EPA should reconsider regulating airport hydrant systems if additional funding is not granted to implementing agencies for program implementation
- One commenter supported the proposal, but wanted clarification of supplemental material describing examples of an AHS so stakeholders know the regulated components

Commenters: [0302, 0307, 0313, 0343, 0368, 0369, 0399, 0422]

Oppose

Six commenters opposed removing the deferral for AHSs, specifically:

- Three commenters supported a separate rulemaking that includes evaluation and assessment of AHSs and determination if the UST program should regulate them
- One commenter suggested a phased in regulatory approach that addresses the uniqueness of AHSs
- One commenter suggested that EPA obtain actual data from AHS owners and operators to confirm that the regulatory requirements can be met without causing damage to AHS system components
- A few commenters believed AHSs are already highly regulated

Commenters: [0300, 0338, 0358, 0391, 0408, 0417, 0427]

Release Detection Options And Time Frames

EPA asked whether the proposed release detection options and time frames for compliance are appropriate and sufficient. Five commenters believed the release detection options and time frames are appropriate. In addition, one commenter added that EPA should promulgate additional regulations as soon as possible. Another commenter added that AHSs are already regulated in some states, and if there is an environmental concern, AHSs should follow the same release detection requirements.

Commenters: [0237, 0238, 0313, 396, 399]

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One commenter stated the proposed release detection options and time frames are not appropriate and added that commercial airports evaluated and installed release detection on hydrant systems where feasible and when it was reasonable. The commenter also added:

- The options are not easily adaptable to existing systems
- Systems will likely require extensive retrofitting at some large airports and may not be achievable in the proposed time frame
- EPA should consider requiring only newly installed, modified, or replaced systems meet the new requirements

Commenter: [0408]

Appropriate Performance Requirements For Line Leak Detectors On Bulk Piping

EPA asked if the performance requirement of 3 gallons per hour at 10 pounds per square inch line pressure within one hour or equivalent proposed for line leak detectors for bulk piping is appropriate.

One commenter supported the use of a line leak detector, if it is used in conjunction with interstitial monitoring. One commenter stated the performance requirement is appropriate for future AHSs, and existing systems should be required to follow the requirements as proposed. Two commenters stated the proposed performance requirement was appropriate and added:

- EPA should explain the intent of the question
- AHSs are prone to leakage, so how much fuel will be lost before a leak is found
- EPA should encourage immediate compliance with these requirements because an undetected hydrant fuel leak could be very significant

Commenters: [0237, 0313, 0394, 0399]

One commenter thought the performance requirement is not appropriate. The commenter added that the tolerance for leak rates are dependent on fuel volume in each segment tested, and each facility must be evaluated individually based on segment volumes and available technology. The commenter also believed that the requirement may not be appropriate for Chicago O'Hare International Airport, John F. Kennedy International Airport, and possibly other airports and would require substantial construction and pipe retrofits to achieve compliance.

Commenters: [0408]

Specific Requirements For Non-pressurized Piping Tightness Testing Methods

EPA asked whether we should consider including specific requirements for non-pressurized piping tightness testing methods, such as chemical marker methods, and what those requirements should be.

Three commenters suggested that chemical marker methods should be used. One commenter added that chemical marker methods should be considered valid for release detection on a monthly or annual basis. One commenter added these methods would detect smaller leaks than the other methods currently proposed. One commenter provided the following suggested language regarding chemical marker testing: "to be performed every three years due to stringency (i.e., 0.1 gallons per hour (gph) at detection and false alarm probabilities of 95/5) of requirement." The commenter also added:

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- Even though the cost is high, chemical marker testing has been used for the last 20 years and the Department of Defense and commercial airports frequently use it
- The method will create more market competition and reward owners for choosing more sensitive methods by requiring them to test less frequently
- Several companies listed by the National Work Group on Leak Detection Evaluations (NWGLDE) are capable of testing and locating leaks below 0.1 gph

One commenter stated that AHSs at commercial airports do not contain non-pressurized piping. However, chemical marker methods may be appropriate although the availability of the method depends on a number of factors, for example, compatibility of the tracer with jet fuel and local geology and testing requirements must account for the design and construction uniqueness as well as operational issues. The commenter stated there is only one chemical marker that has been deemed acceptable for AHSs.

Commenters: [0313, 0369, 0399, 0408]

Other Release Detection Options

EPA asked if commenters should consider other release detection options for AHSs. One commenter did not know of any. One commenter suggested using secondary containment with interstitial monitoring where feasible. Another commenter stated that pressure and temperature compensation has been effective on some commercial aviation hydrant systems, although they may not satisfy the sensitivities, leak rates, and false alarm probabilities. In addition, chemical tracer tests may be feasible at some airports.

Commenters: [0313, 0399, 0408]

Testing Systems At Operating Pressure

In order to address potential concerns associated with over pressurizing piping systems, EPA proposed testing at the system's operating pressure instead of above it. EPA asked if testing AHSs at operating pressure is sufficient and asked respondents to provide specific details.

Four commenters believed testing at operating pressure is sufficient. One commenter stated that AHSs are pressure-based systems configured with control valves and surge suppression; AHSs must operate at a wide range of flow rates under relatively consistent pressures of less than 20 pounds per square inch (psi) differential. The commenter stated that over pressurizing can damage components, for example, hydrant valves, flow control valves, and surge suppressors and requiring testing above the operating pressure is inappropriate. One commenter stated that it is appropriate to test AHSs at operating pressure since these pressures are typically greater than normal operating pressure. One commenter stated that operating pressures can fluctuate and suggested using those methods and testing protocols approved by NWGLDE. One commenter stated AHSs typically operate at high pressures and testing at 150 percent of normal operating pressure may not be possible. The commenter also suggested EPA establish a minimum test pressure associated with the gallon per hour being tested or the system be tested at an equivalent leak rate at a lower pressure.

Commenters: [0313, 0394, 0399, 0408]

Definition Of An Airport Hydrant System

EPA asked if the definition of airport hydrant system in the 2011 proposed UST regulation is clear and appropriate. Three commenters thought the definition was appropriate and provided no additional

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comment. However, most commenters did not think the definition is clear or appropriate and suggested EPA provide further clarification. Suggestions included:

- Clarify and address corrosion protection to properly apply standards
- Modify the definition to include all aboveground tanks (receiver and intermediary) that supply fuel to the underground hydrant piping
- Define bulk, bulk underground storage tank, bulk line, and bulk piping
- Clarify that aboveground tanks are part of the total system that meets the definition of underground and define terms within the definition
- Clarify what the regulated components of the system are and the function of the hydrant, including:
 - intermediary piping is not part of the hydrant and should not be included
 - whether piping entering intermediary tanks count as part of the 10 percent calculation
 - define all intermediary tanks as underground
 - include all underground portions because the proposed language, that is, all underground piping entering and leaving the intermediary tanks and the intermediary tanks, is confusing and redundant
- Clarify if the 10 percent calculation is based on the total volume of both aboveground storage tanks (ASTs), not just the feeder tank
- Exclude AHS that contain ASTs because these systems would not present the same issues as systems with USTs
- The definition causes more confusion on what is regulated and the number of airports affected
- The definition did not account for how AHSs actually function and commercial AHSs are best seen as a separate and unique category of fuel storage and delivery, rather than simply as a subset of traditional USTs
- Clarify whether the UST program regulates hydrant systems that have no associated ASTs; the commenter questioned whether the definition should exclude AST based systems
- EPA did not allow stakeholders time to provide input on the definition prior to issuing the 2011 proposed UST regulation

Commenters: [0219, 0224, 0238, 0307, 0313, 0341, 0396, 0399, 0408, 0421]

Releases From AHSs

EPA asked if anyone is aware of releases from AHSs and what were the sources, causes, and impacts to the environment from those releases. One commenter was not aware of any releases. One commenter was aware of releases, but did not have specifics because the 1988 UST regulation does not require owners and operators to report releases from these systems. Two commenters provided anecdotal information about releases, for example, connections, equipment failure, piping corrosion, and overfills. One commenter was aware of ongoing remediation since the 1990s from a release at a Department of Defense (DoD) facility. One commenter was aware of ongoing remediation from two AHS releases of thousands of gallons, but did not know the causes. One commenter stated that releases at commercial airports are handled on a case by case basis and are appropriately addressed by the airport.

Commenters: [0237, 0238, 0265, 0313, 0396, 399, 0408]

Revising The Date In § 280.73 For Previously Deferred UST Systems

EPA asked if we should consider revising the date of December 22, 1988 in § 280.73 for previously deferred UST systems and, if so, what is the number of AHSs that have closed since that date. Two

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commenters stated that the date should not be revised because the number of closed systems is unknown, and the current language gives states discretion. One of the commenters added that even though the threat may be lower since large facilities are sited in remote locations and hydrant systems at smaller airports may be closer to sensitive receptors, EPA should not revise the date. The commenter believed there was a higher potential of leaks because release detection was not required.

Two commenters stated that the date should be revised. One of the commenters added:

- It would be inappropriate and problematic to apply the final UST regulation retroactively to previously closed AHSs because:
 - significant manpower and costs could be required to locate all previously abandoned tanks, as well as identify previous owners and operators to properly apportion responsibility for site assessment and closure activities
 - the lack of documentation would also make it difficult for implementing agencies to determine if a tank had been properly closed
 - 40 CFR § 280.73 was designed to “[reduce] the unnecessary burden upon owners and operators...”
 - agencies may not promulgate retroactive regulations unless expressly authorized by Congress and commenter does not believe such authorization is present
- EPA should clarify the requirements for previously deferred UST systems that were installed after December 22, 1988 but before the effective date of the revised regulation

Commenter: [0238, 0313, 0399, 0408]

Other Comments

EPA received these other comments pertaining to the proposed AHS requirements in the 2011 proposed UST regulation. We grouped these comments below by topic area.

Release Detection

- Large AHSs are allowed high leak rates
- The table associated with bulk line tightness testing should indicate minimum instead of maximum
- Develop a specific feasible alternative to the three identified release detection options; the commenter thought EPA's proposal acknowledges difficulties associated with applying release detection requirements to hydrant piping but EPA did not address them
- The release detection alternatives will impose substantial and unjustified costs
 - EPA needs to complete a more detailed evaluation and analysis to ensure that the release detection provisions are flexible enough to provide workable solutions at all of the covered commercial airports and strike an appropriate balance between protectiveness and economic costs
 - EPA failed to properly identify the commercial airports covered by its proposal and develop a proposal that adequately addresses significant capital upgrades and retrofits for commercial airports and also renders the compliance alternatives infeasible

A commenter also provided the following summary of EPA's proposed release detection options and what he believes is the feasibility of performing them at commercial airports.

Semiannual Or Annual Bulk Line Tightness Testing

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- Most practical but may not be feasible because:
 - a number of the affected commercial airports will need complete system replacement or substantial retrofitting at costs higher than EPA indicated
 - release detection systems necessary to meet requirements are highly sophisticated and will require an entirely new operations layer to implement
- Will be disruptive to airport operations and require more system down time than is possible at an operating commercial airport because:
 - as EPA recognized, removing AHSs from service for extended periods will greatly impede their purpose
 - the out-of-service periods necessary to comply even with the somewhat less stringent standards would pose unacceptable adverse impacts to airport operations with related economic consequences
 - John F. Kennedy International Airport, if covered, would require six to eight months of continuous testing per year, as well as back-up trucks and other contingencies to prevent service disruptions

Continuous Interstitial Monitoring

- Not feasible because most hydrant piping is not double walled or secondarily contained
- Replacing piping with double walled piping and associated interstitial monitoring systems would require extensive retrofitting
- Can be difficult to line up the two walls to get an effective seal

Automatic Line Leak Detection

- Not feasible for the extended length of piping associated with AHSs
- Suited for smaller systems, such as those associated with more traditional USTs
- Not designed to capture leaks at the volumes and flow rates that are several orders of magnitude greater than typical UST systems; automatic line leak detectors cannot be scaled to adapt to these systems

Other Methods

- Chemical tracers or static pressure tests may be acceptable and could conceivably work, although these methods may be problematic because:
 - using a chemical tracer method can be problematic at a facility where the piping is located below the water table
 - would also require installing probes every 20 feet, which could be very burdensome, if not impossible, particularly on a tarmac or runway
- It is not apparent whether the implementing agency will allow other methods since a theoretical leak rate is only provided
- Proposal does not identify a sufficiently specific proposed standard to permit meaningful comments or address compliance issues and what additional conditions the implementing agency might impose on any such approval
- Stated that courts have recognized, the Agency must establish an identifiable and sufficiently specific standard in the regulations – it may not promulgate a regulation that “provides no guidance at all (and hence does not truly establish the requirement by regulation).” Cement Kiln Recycling Coalition v. EPA, 493 F.3d 207, 221 (D.C. Cir 2007); Ethyl Corp v. EPA, 306 F.3d 1144, 1148-1150 (D.C. Cir 2002). A regulation must also not leave a regulated entity “without

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guidance as to what he must prove, and how" or create a "standard [that] is so vague that it invites arbitrary and unequal application." South Terminal Corp. v. EPA, 504 F.2d 646, 670 (1st Cir. 1974). As currently drafted, this option (d) does not appear to provide sufficient guidance under either Cement Kiln or South Terminal Corp.

- The proposal to eliminate soil vapor and groundwater monitoring may be problematic for large USTs (greater than 30,000), which are currently operating at least three commercial airports that may be affected by the final UST regulation.

Commenters: [0316, 0336, 0391, 0408]

Technical And Operational Challenges

One commenter suggested that the statement made by EPA: "technology is now available to monitor and detect releases at alternative leak rates and frequencies" should be acknowledged in the final UST regulation about all tanks. If an approved method can detect a leak at a smaller leak rate than what is required, then it should be declared a reportable leak and require further investigation or repairs. Another commenter suggested EPA write specific regulations for AHSs, since they are unique systems. Two commenters stated there are unique operational challenges including these systems are typically owned by an airport authority and are generally leased to and operated by a fuel system operator under contract with the airport authority or a consortium group of airlines. This relationship makes compliance with certain other traditional UST requirements, such as financial assurance and operator training, significantly more complex. These commenters further indicated that, unlike military facilities, regulatory approvals and other requirements associated with any construction project at a commercial airport are significantly more complicated and require approval from and consultation with a number of federal, state, and local authorities. In addition, these commenters believed that impacts from disruptions are far less at military airfields since operations can be shifted to other facilities and the government owns and operates both the aircraft and the airport. Finally, federal owners and operators are exempt from the financial assurance requirements.

Commenters: [0391, 0397, 0408, 0413, 0422]

Specific Clarification Requested

- It is unnecessary to include deferral language for ASTs; EPA should edit the proposed definition to clarify that aboveground tanks are part of an overall system that meets the definition of underground storage tank and modify the deferral
- Clarify what is considered the hydrant
 - the AHS scenarios are helpful, but add unnecessary complexity to the issue
 - the revised February 2012 schematic was contradictory to the schematic in the 2011 proposed UST regulation and EPA realized the discrepancy during a meeting between the commenter and EPA²
 - provide clarification for scenario
- Provide sample calculations to further illustrate and clarify the tank and piping volumes associated with EPA's supplemental guidance on AHS scenarios
- Modify the definition of new tank system to recognize previously deferred systems, specifically:
 - currently, a deferred tank system installed after 1988 still must meet the new tank system standards

² January 28, 2012 meeting with representatives from Airlines for America (A4A)

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- delete definition since the term is only used twice in the regulation; adjust language to clarify the intent
- Provide additional guidance related to corrosion protection in order for proper application of National Association of Corrosion Engineers International standards

Commenters: [0224, 0238, 0313, 0343, 0397, 0399, 0408, 0421, 0422]

Cost And Benefits Of Regulating

- Costs to regulate are far outweighed by the environmental benefits as accurately articulated in EPA's projections
- Military operations are funded under the federal budget and do not require demand driven commercial viability required in the private sector
 - Labor costs tend to be lower at government facilities
- Pursuant to Executive Order 13563, EPA must "tailor" its regulations to account for "the costs of cumulative regulations." Executive Order 13563 means that all federal agencies must take "active steps" to "harmonize and streamline multiples rules" and that the goal of this effort should be to "simplify requirements on the public and provide sectors" and "ensure against unjustified, redundant, or excessive requirements" in order to minimize regulatory costs and burdens. In this regard, the EPA Administrator identifies several steps for agencies to consider, including, among others:
 - careful consideration, in the analysis of costs and benefits, of the relationship between new regulations and regulations that are already in effect;
 - identification of opportunities to integrate and simplify the requirements of new and existing rules, so as to eliminate inconsistency and redundancy
- EPA estimated the costs associated with the release detection testing are approximately \$96,000 annually; the commenter said EPA:
 - significantly underestimated the cost associated with testing commercial systems, which commenter said actually range up to \$2 million annually at the most significant airports
 - assumed there will be no costs or impacts from system downtime during testing
 - although difficult to quantify, there will be a significant cost, for example, entire hydrant system could be inoperable, standby mobile aircraft refuelers would be required to supply fuel to aircraft during this downtime and increase the time required to service aircraft because of the lower fuel flow rates and fuel capacities of mobile refuelers
 - also an increased safety risk with using mobile refuelers due to their greater potential for being involved in an incident or accident when moving through a busy airport
- No evidence in the Administrative Record indicating EPA considered the implications or its costs to the economy, traveling public, and affected airports
- Disagreed with EPA's assumption of minimal impact in states that already regulate AHSs because:
 - the Administrative Record does not provide any indication that EPA performed an actual analysis and review of state requirements relative to affected airports to determine whether the 2011 proposed UST regulation is more stringent than requirements in place in those states; for example, it is not clear whether Wisconsin would impose such stringent release detection requirements at General Mitchell Field
 - most of the covered airports are located in states that do not currently regulate them as USTs
- The Regulatory Impact Assessment (RIA) did not account for costs to state funds; corrective action costs would likely be substantial and represent a substantial new cost to state funds; also

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lack of data or evidence indicating rule change is necessary or would generate environmental benefits

Commenters: [0302, 0338, 0408]

Impact On Implementing Agencies

- One commenter indicated there are no AHSs in his particular state
- One commenter stated these systems are already regulated and removing the deferral will not impact agency
- Suggestion to allow implementing agencies the option to regulate or not
- Stated changes will have to be made to state UST rules; suggested EPA consider using language in state UST regulations that do not defer AHSs or allow automatic line leak detectors for pressurized lines
- Anticipated impact: identify deferral and require release detection; inspection time to review records of testing; 30 facilities x 2 hours each = 60 hours annually (includes administrative)
- Said requirements will create an extreme financial burden on implementing agencies

Commenters: [0222, 0243, 0313, 0343, 0360, 0422]

Implementation Time Frame

- EPA should carefully reconsider the proposed schedules for the following reasons:
 - many entities establish multi-year budget plans, often which include planning the following year's budget in the current year; so allowing a phase-in schedule that is several years out would greatly assist the regulated community in their budget planning processes and more efficiently meeting the compliance requirements
 - allow a minimum of a five to ten year time period for upgrading existing UST systems that will no longer be deferred and longer time periods to initiate additional testing requirements
- Three-year implementation is impracticable and difficult to meet; it imposes a cost burden

Commenters: [0348, 0402, 0421, 0422]

Other Regulatory Requirements (Dual Regulation Or Controls In Place)

- Requested allowance to continue regulating AHSs under aboveground storage tank regulations
- Believed EPA failed to assess the degree to which existing regulations, for example, Spill Prevention, Control, and Countermeasure (SPCC) regulation, safety regime administered by the Federal Aviation Administration (FAA) and environmental provisions, Federal Response Plan requirements, and others, address these systems and failed to quantify environmental impacts of regulation under the UST program.
- Stated EPA concluded that the SPCC effectively addressed aboveground tanks associated with AHSs, but is uncertain if EPA evaluated whether the SPCC was sufficient to address the underground components
 - SPCC regulation at 40 CFR § 112.8(c) and (d) contains requirements for both aboveground and underground piping, including integrity testing
 - when promulgating the SPCC regulation, EPA presumably undertook a fairly detailed analysis of how to regulate these systems in a manner that was sufficiently protective of the environment

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- EPA has not explained why it no longer views these existing requirements as acceptable
- This commenter also said:
 - a reasoned proposal must be flexible enough to account for such issues and avoid duplicative or conflicting requirements
 - EPA is duplicating operator training and inspection requirements that these facilities already perform under other requirements
 - the proposal should be related to the fuel management programs Airlines for America (A4A) has in place through its fuel quality specification, Air Transport Association (ATA) Specification 103, and the accompanying *Airport Fuel Facility Operations and Maintenance Guidance Manual*, which provide guidance for safely storing and distributing jet fuel at airports
- Airports have been concerned about fuel leakage and leak detection for many years and preventing leaks is a major concern in the industry
- Airports have also instituted strong compliance programs through lease agreements to prevent fuel spills and leaks
- The industry association, A4A, developed strong fuel management programs, such as ATA Specification 103

Commenters: [0300, 0408, 0412, 0417]

Other Benefits To Consider

- Apply operator training and operation and maintenance to reduce risk of microbial contamination
- Any effort to regulate these systems must take into consideration the potential impacts of losing other benefits, including:
 - AHSs provide a more efficient means of fueling aircraft and can significantly reduce the emissions inventory and carbon footprint associated with airport fueling operations
 - by reducing the number of gas and diesel vehicles used to deliver fuel to the aircraft, fugitive emissions associated with fueling, and aircraft engine idling and emissions associated with delays in the landing and takeoff cycle due to less efficient fueling operations
- The commercial aviation industry worked with American Petroleum Institute (API) to develop a comparison of AHS leak detection technologies
- EPA and the airline industry should work together on a more tailored and appropriate approach that would result in having no basis to believe that a continued deferral will result in environmental harm or threat of harm

Commenter: [0335, 0408]

Notification And Certification To Implementing Agencies

- Questioned what owners would certify since notification was not required at time of installation; records and installation standards probably do not exist
- Suggested that § 280.34 (a)(1) - Reporting and Recordkeeping needs to be clarified to say that the requirement to certify the installation of new UST systems does not apply to previously deferred systems; as currently written, a previously deferred tank system installed after 1988 would be required to have this certification of installation even though it was subject to this requirement at the time of installation
- Requested modification of § 280.22 - Notification requirements to clarify that new UST systems do not include previously deferred USTs

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- Recommended that owners and operators provide notification to implementing agencies be required 180 days
- Recommended that owners and operators provide notification to implementing agencies within one year

Commenters: [0238, 0301, 0313, 0399, 0402]

Feasibility Of Regulation

- Questioned why EPA is moving to regulate AHSs and wanted to know if any exist in Indian country
- EPA must show cause and make the case that these systems are leaking in order for them to be regulated; one commenter stated that EPA must comply with the goal of Executive Order 13563, which discusses avoiding unnecessary regulations and solving documented problems in a cost-effective and least burdensome manner
- Believed even if AHSs can meet release detection requirements, implementing agency may not be able to equally enforce release reporting, investigation, and confirmation requirements because of disruptions of having to shut down facility to investigate a leak at commercial airport; AHSs have controls in place to prevent and detect releases
- Proposal is problematic to commercial airports in the following respects:
 - The 1988 preamble recognized the UST regulations were not feasible for AHSs and EPA recognized that in the 2011 proposed UST regulation because
 - “[t]he large diameters and varying pipe lengths in AHSs introduce variables that prohibit accurate monitoring at leak rates within a reasonable time frame...”;
 - “to produce accurate test results, underground hydrant system piping needs to be isolated in appropriately sized segments;”
 - “[p]roduct temperature fluctuations present challenges for release detection testing of AHS piping.”
 - EPA has taken the position that technological advances have made it possible to overcome these issues and that the scheme set forth in the 2011 proposed UST regulation achieves this; however, that is not the case at all affected airports
- EPA should work with industry to develop workable and specific standards; the 2011 proposed UST regulation is not viable and must be withdrawn
- The 2011 proposed UST regulation fails to deliver an appropriate approach for AHSs at commercial airports, relies on an oversimplified analysis and incomplete approach, and is based on the inaccurate assumptions that:
 - almost all commercial airports would be unaffected by its requirements
 - the proposal relies on analysis of military airports (which differ from commercial airports because they are much larger and more complex with different fueling requirements) and fails to recognize regulatory impact on significant commercial airports
 - EPA did not perform any sort of survey or comprehensive investigation addressing which commercial airports would be impacted
 - EPA’s contractor identified Class B airports as those most likely to have AHSs and EPA concluded that only two from that list would be potentially affected
 - no evidence in the record indicating that EPA conducted any comprehensive survey or employed an analytical methodology based on a thorough review of capacity and configuration information for U.S. commercial airports to confirm what it culled from the contractor’s work
 - financial and operational impacts would be limited and inconsequential

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- There is nothing in the record that would have put the regulated community on notice regarding which two airports EPA believed might be covered
 - the 2011 proposed UST regulation fails to meet notice and comment requirements under federal law, but the flaws in the rulemaking process, record, and resulting proposal place the rulemaking in direct conflict with the President's regulatory reform program as set forth in Executive Order 13563, *Improving Regulation and Regulatory Review*; see 76 Fed. Reg. 3821 (January 18, 2011) (EO 13563); therefore, EPA should withdraw the 2011 proposed UST regulation
 - the record casts doubt on whether any commercial airports might be impacted by the proposal by concluding that “[n]early all AHSs [affected by the proposed rule] are owned by the federal government”
 - stakeholders were provided limited insight at a meeting at which EPA stated that the two airports that might be covered were Lambert-St. Louis International Airport and Denver International Airport
 - aviation stakeholders were led to believe they are not affected by the 2011 proposed UST regulation and, as a result, have been deprived of notice and dissuaded from taking the opportunity to participate in the development of the 2011 proposed UST regulation or the comment process
- Additional investigation of the unique circumstances at covered commercial airports is necessary
 - obtaining full and detailed information about each of these systems has proved difficult and would have been best approached as a shared effort by both EPA and the regulated community
 - focused on the key areas of the proposal that were expected to impose the most significant costs and burdens on each airport
 - further efforts to regulate should be informed by a more robust Agency review of hydrant design and operation at specific airports and a rigorous analysis of the feasibility of such regulation at each unique system
 - ready to work with EPA to further assess the situation and develop a reasonable regulation applicable to commercial AHSs to the extent warranted
 - stated that such a review and potential rulemaking should be based on information and data that is specific to the facilities that will actually be covered by the proposal
- EPA looked at regulatory solutions that are not appropriate to the issues posed by commercial airports; in light of these flaws, EPA's 2011 proposed UST regulation with respect to airport hydrant fueling systems cannot go forward

Commenters: [0300, 0301, 0302, 0307, 0339, 0358, 0391, 0408, 0417, 0422, 0427]

EPA Response

In the preamble to the 1988 UST regulation, EPA discussed the large volumes of product throughput, large capacities, and long lengths of piping for AHSs. EPA deferred AHSs in the 1988 UST regulation because at that time, we thought release detection and prevention technologies were not feasible for these systems. However, it has always been EPA's intent to regulate these systems. EPA maintains that releases from any UST system, including AHSs, pose an unacceptable degree of threat to the environment.

Release Detection Options And Time Frames

In the 2011 proposed UST regulation, EPA discussed four alternatives for underground piping associated with AHSs in order to allow flexibility to meet the release detection requirement. EPA sought comments on whether the release detection options and time frames for compliance were appropriate and sufficient.

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Several commenters said the release detection options were insufficient and requested that EPA provide options that offered owners and operators more choices. During the public comment period for the 2011 proposed UST regulation, Airlines for America provided a list of nine commercial airports that could be affected by the final UST regulation and the feasibility of applying the release detection methods discussed in the 2011 proposed UST regulation to these airports.

After publishing the 2011 proposed UST regulation, EPA met with industry stakeholders, including personnel from DoD, to gather more information on airport hydrant system design and operation.^{3,4} EPA also met with release detection vendors to determine whether commercial airports and DoD facilities could achieve release detection compliance within the specified time frames.^{5,6,7} Additionally, EPA met with personnel from eight of the nine airports that A4A named (including the Airport Authorities, Environmental Management Offices and Fueling Operators) to determine site-specific information, such as the configuration of their AHSs and the type and frequency of release detection performed on their AHSs.⁸ Because of those meetings, EPA found that many DoD facilities and most of the commercial airport hydrant systems have release prevention and detection equipment currently installed on them, and personnel are already performing various fuel management methods, which monitor and track fuel inventories, and can be modified to meet the final UST regulation. In addition, owners and operators already implement release detection according to specified technical requirements in states where AHSs are not deferred.

Appropriate Performance Criteria For Line Leak Detectors On Bulk Piping

EPA asked whether the performance criteria of 3 gallons per hour at 10 psi line pressure within one hour or equivalent were appropriate for bulk hydrant system piping.⁹ EPA anticipated receiving information on the appropriate leak rate for automatic line leak detectors (ALLD) on this piping. EPA did not receive any indication that current performance standards of ALLDs could be modified for these systems. EPA disagrees with the commenter who suggested requiring interstitial monitoring in addition to the automatic line leak detection requirement. Although some portions of existing systems may be able to use this option, EPA agrees it is not feasible to use an ALLD on these systems. EPA is aware that not all AHSs have secondary containment on every portion of the system and ALLD cannot adapt to the operating pressures of these systems. EPA proposed interstitial monitoring as a release detection option that AHS owners and operators could choose when appropriate and AHSs that are secondarily contained would have this option. The final UST regulation, however, does not require secondary containment for piping associated with AHSs and, therefore, it is not feasible to require interstitial monitoring for these systems in the final UST regulation. For more information see the section on Secondary Containment.

Another commenter requested EPA clarify the intent of the question. Because AHS piping segments contain large amounts of regulated substances, EPA wanted to know if it was feasible to require automatic line leak detectors for hydrant system piping to detect a leak at 3 gallons per hour at 10 pounds per square inch line pressure within one hour or equivalent. This standard has been required for

³ January 26, 2012 and March 29, 2012 meetings with A4A

⁴ February 28, 2013 and March 18, 2013 meetings with DoD's Defense Logistics Agency Energy

⁵ June 20, 2012 and May 19, 2013 meeting with Hansa Consult of North America, LLC

⁶ June 20, 2012 meeting with VISTA Precision Solutions

⁷ August 15, 2012 meeting with Ken Wilcox and Associates

⁸ *Discussions With Commercial Airports That May Be Affected By The Final UST Regulation* dated February 6, 2013. Note that EPA did not meet with personnel from Indianapolis International Airport however, A4A and vendors stated that the airport hydrant system is equipped with the necessary equipment to meet requirements in the final UST regulation

⁹ Note that EPA used the term bulk in the 2011 proposed UST regulation. However, EPA did not use that term in the final UST regulation.

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pressurized piping at conventional UST systems since the 1988 UST regulation. EPA anticipated receiving information on whether a different leak rate was more appropriate or other modifications to the standard would be beneficial to allow automatic line leak detectors be used categorically for all AHS piping.

One commenter asked about the amount of fuel that could be lost before finding a leak, since AHSs are prone to leaks. These systems may leak just as conventional UST systems; however, the amount of fuel released during a leak is unknown, but expected to be much greater due to the capacity of AHSs. Regulating these systems will help ensure owners and operators detect releases before a significant amount of regulated product reaches the environment. A commenter stated that owners and operators should immediately comply with this requirement because an undetected leak from a hydrant line could be very significant. EPA agrees that these systems handle large volumes of regulated substance on a daily basis and have the potential to contaminate large areas in a short period of time. However, EPA is not requiring ALLDs to be installed on AHS piping in the final UST regulation.

EPA agrees with the commenter who stated leak rates are dependent on the fuel volume of each hydrant piping segment tested when pressure-based testing methods are used and individual segments will have to be evaluated to determine what would be needed to meet the requirements in the final UST regulation. EPA's final UST regulation, however, allows other release detection options besides pressure-based methods. Some of these other methods are not dependent on volume in order to determine leak rate. The commenter also stated that substantial retrofits would be required to meet the requirements at Chicago O'Hare International Airport and John F. Kennedy International Airport, and possibly other airports. However, EPA through our analysis and in depth discussions with those airports, concludes that the airport hydrant system at John F. Kennedy International Airport, as currently configured, may not meet the definition of an UST in the final UST regulation; this means the requirements would not apply. In addition, if planned capital upgrades are completed on Chicago O'Hare International Airport's airport hydrant system, which A4A mentioned may not meet the definition of an UST, it would not be subject to today's final UST regulation. If configurations for either of these airport hydrant systems change in the future, the owner and operator must re-evaluate the system to determine if it meets the definition of UST in today's final UST regulation. However, it is still the responsibility of owners or operators to determine whether their airport hydrant systems meet the definition of an UST and must comply with today's final UST regulation.

Specific Requirements For Non-Pressurized Piping Tightness Testing Methods

EPA asked if we should consider including specific requirements for non-pressurized piping tightness testing methods and asked for suggested appropriate non-pressure based release detection methods that may be used for AHSs. Commenters thought EPA should include chemical marker methods because these methods would detect smaller leaks than the other release detection methods EPA listed in the 2011 proposed UST regulation. One commenter suggested allowing chemical marker testing at a frequency of every three years because of the method's capabilities to detect very small leaks. The commenter suggested EPA use the performance standard for testing using chemical markers as 0.1 gph at probabilities of detection and false alarm (P_d/P_{fa}) of 95 percent and 5 percent, respectively. EPA agrees with commenters and the final UST regulation includes chemical marker testing as a specifically allowed option. EPA agrees that these methods are capable of detecting very small leaks. Several release detection methods listed by NGWLDE are capable of detecting leaks as small as 0.005 gph. EPA chose the method frequency of at least once every two years with a performance standard of 0.1 gph and P_d/P_{fa} of 95/5. This selection of method frequency and performance criteria provides AHS system owners and operators with a longer term release detection option that balances testing frequency and costs with environmental protection. EPA agrees with the commenter that chemical marker testing has been used by

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DoD and commercial airports. DoD and several commercial airport personnel indicated that these methods have been used.

One commenter stated there is only one chemical marker deemed acceptable for hydrant systems. EPA did not perform an exhaustive analysis, but following the public comment period, we spoke with a third-party service provider who performs chemical marker testing at airports. The provider uses eight compounds in various types of fuels used in aircraft. Depending on the fuel, there are fewer compounds to use to perform testing. This provider also indicated that the American Society for Testing and Materials, International's approval process for new compounds can be lengthy and costly. The provider added that there was not adequate market interest for approval of additional compounds. EPA thinks that market demands will determine whether new compounds are submitted for approval.

Other Release Detection Options

EPA asked commenters whether we should consider other release detection options for AHSs. One commenter suggested EPA require interstitial monitoring with use of an automatic line leak detector, as discussed above. Commenters also suggested EPA allow these release detection methods: secondary containment with interstitial monitoring, where feasible; pressure and temperature compensation; and chemical marker methods.

EPA gathered additional information to refine the specific release detection options in the final UST regulation. Throughout the regulatory process, we obtained information through a variety of meetings with DoD, A4A, commercial airports, and release detection vendors. EPA researched suggested release detection options and standard practices provided by DoD and contacted specific commercial airports that could be potentially regulated under 40 CFR part 280. EPA found that both DoD and commercial airport facilities perform a type of inventory management and hydrostatic tests of the piping system to detect pressure changes in the system. EPA determined that although the 1988 UST regulation did not require airport hydrant system owners and operators perform these tests, both DoD facilities and commercial airports have been performing various fuel management methods to monitor and track fuel inventories.

Release Detection In The Final Regulation

Based on the comments and additional information EPA obtained on commercial and DoD airport operations, the final UST regulation modifies these release detection options in the 2011 proposed UST regulation: pressure-based testing methods; use of continuous interstitial monitoring; automatic line leak detector combined with interstitial monitoring performed at least every three months; and other methods approved by the implementing agency and demonstrated by owners and operators to be as effective as other proposed methods. The final UST regulation retains the option for owners and operators to choose pressure-based testing methods performed in accordance with performance criteria dependent on volume contained by the line segment tested. These criteria are unchanged from the 2011 proposed UST regulation.

EPA is not including the options of using continuous interstitial monitoring and the combination of automatic line leak detectors with interstitial monitoring. Although some portions of existing systems may be able to use these options, EPA agrees with commenters that these options currently are not viable for the majority of AHSs. Most AHSs lack secondary containment and automatic line leak detectors are not adaptable to the operating pressures of these systems. Despite not listing these methods in the final UST regulation, EPA still recognizes them as workable solutions in limited capacity. Where applicable, owners and operators and implementing agencies are encouraged to use these methods and recognize their use under the other methods option.

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EPA is also retaining the option for owners and operators to demonstrate to the implementing agency a release detection method as effective as those stated in the final UST regulation. The implementing agency must approve any option not specifically included in the final UST regulation.

EPA is adding three additional options to the final UST regulation. AHS owners and operators may use active vapor monitoring methods that use chemical markers or tracers in accordance with § 280.43(e) to detect a release of at least 0.1 gph with probabilities of detection and false alarm of 95 percent and 5 percent, respectively. Owners and operators choosing this option must conduct this test at least once every two years.

Owners and operators may also use a combination method incorporating use of a pressure-based line tightness test at least once every two years, in accordance with the final UST regulation in § 280.252(d)(2) and either: conduct inventory control to detect a release of at least 0.5 percent of flow-through at least every 30 days or perform passive vapor monitoring or groundwater monitoring every 30 days in accordance with § 280.43(e) or (f), respectively. Owners and operators may conduct inventory control in accordance with Department of Defense Directive 4140.25, ATA's Airport Fuel Facility Operations and Maintenance Guidance Manual, or equivalent procedures.

In order to provide greater flexibility for AHSs to meet the release detection requirements, the final UST regulation modifies the release detection options in the 2011 proposed UST regulation and incorporates some of the methods currently used at DoD facilities and commercial airports. EPA allows UST system owners and operators to use existing release detection options provided in the 1988 UST regulation and establishes alternative methods of release detection located at § 280.252(d)(2). The final UST regulation also allows methods approved by the implementing agency, as long as those methods are as effective as release detection methods specified in the final UST regulation. The additional release detection options include: vapor monitoring for a chemical marker at least every two years; and the combination of inventory control performed at least every 30 days with either line tightness testing at least every two years, or vapor monitoring or groundwater monitoring for the stored regulated substance at least every 30 days. Adding these options improve the flexibility of the release detection requirement. By providing performance criteria associated with other types of release detection methods in addition to pressure-based line tightness testing, owners and operators have more concrete examples of demonstrating equivalency of release detection methods for approval by the implementing agency.

Groundwater And Vapor Monitoring

In the 2011 proposed UST regulation, EPA intended to phase out groundwater and vapor monitoring as release detection methods. However, the final UST regulation retains these methods with modifications for conventional UST systems. Owners and operators of AHSs may either perform active monitoring for chemical markers or tracers or perform passive monitoring for stored product in the tank system. Active vapor monitoring methods are characterized by testing or monitoring of chemical markers or tracer compound placed in the tank system, in accordance with § 280.43(e), to detect a release of at least 0.1 gallon per hour (gph) with probabilities of detection and false alarm of 0.95 and 0.05, respectively. Owners and operators choosing this option must conduct this test at least once every two years. Owners and operators may use this method as a stand-alone method of release detection.

Owners and operators may also combine passive vapor or groundwater monitoring with inventory control, described above, that can detect a release of at least 0.5 percent of flow through at least every 30 days according to § 280.43(e) or (f), respectively. EPA thinks these options are reasonable and will quickly detect releases when they occur.

Testing Systems At Operating Pressure

EPA asked if testing AHS systems at operating pressure was sufficient and asked commenters to provide specific details. The 1988 UST regulation requires owners and operators test conventional systems at 1.5 times the operating pressure. AHSs operate under pressure and fluctuating line pressure during a release detection test can mask an existing release or falsely indicate one occurred. To detect leaks effectively from the pressurized piping systems, industry practice involves performing pressure based testing at levels above standard operating pressure. EPA is aware that these systems are highly pressurized and agrees with the commenter who stated testing at above operating pressure might be infeasible. Therefore, EPA's final UST regulation maintains the performance standard proposed in the 2011 proposed UST regulation and requires owners and operators test these systems at least at operating pressure to eliminate the potential of damaging valves and other system components.

These large piping systems operate at pressures higher than conventional USTs. EPA agrees with the commenter who stated testing at 1.5 times the operating pressure may not be practical or safe for AHSs. These systems are composed of many different components that could be damaged if the piping was over pressurized. EPA is allowing these systems to be tested above operating pressure but is not providing a specific pressure rate. Professional line testers can determine the appropriate testing pressure for these systems, as long as the pressure is at least the operating pressure of the system.

One commenter suggested EPA establish a range of test pressures based on the gallons tested per hour. The commenter added that hydrants that cannot be tested at the required minimum pressure be tested at an equivalent leak rate at a lower pressure. EPA agrees with commenters who said hydrant piping sizes and segment volumes vary. EPA also agrees with the commenter who stated that individual piping segments will have to be evaluated to determine what would be needed to meet the requirements in the final UST regulation. The final UST regulation allows methods listed by NWGLDE and provides flexibility to owners and operators by providing maximum leak detection rate per test section volume associated with pressure-based testing [see table located at § 280.252 (2) (a)].

Definition Of An Airport Hydrant System

EPA asked commenters whether the definition of an AHS in the 2011 proposed UST regulation was clear and appropriate. Five commenters agreed the definition was appropriate; however, four commenters suggested EPA clarify how connected aboveground storage tanks and other system components are regulated. Several commenters did not agree with the definition and suggested EPA clarify the function of aboveground and underground system components. One commenter suggested EPA clarify and address corrosion protection to properly apply standards. EPA will incorporate applicable NACE International standards, where appropriate. EPA disagrees with the commenter who stated EPA did not allow stakeholders time to provide input on the scope or definition prior to issuing the 2011 proposed UST regulation. EPA disagrees with the commenter who stated there was not ample time to offer insight into the scope of the 2011 proposed UST regulation. On several occasions prior to developing the 2011 proposed UST regulation, EPA reached out to stakeholders to gain more information on the AHS universe and their operation, design, and construction. EPA acknowledges this is a new requirement for some implementing agencies and owners and operators of these systems, and we will clarify which systems and components are regulated under the final UST regulation. Removing the deferral may increase the tank universe and affect available resources of some implementing agencies. However, EPA provided ample time for implementing agencies to determine the AHS universe, adjust resources, and meet applicable requirements through the implementation time period. To decrease the tracking burden on implementing agencies and owners and operators, EPA is also establishing a single effective date, which is consistent with other effective dates for the release detection requirement.

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The Resource Conservation and Recovery Act (RCRA) defines an UST as any one or a combination of underground storage tanks (including connected underground piping) used to contain an accumulation of regulated substances, and the total volume of the tanks and the underground piping is 10 percent or more beneath the surface of the ground. In order for an AHS to be regulated by the UST regulation, it must first meet the definition of an UST. The 1988 UST regulation did not provide a definition for AHS. In the 2011 proposed UST regulation, EPA proposed a definition of an AHS that included only the immediate piping and intermediary tank directly feeding the hydrant piping. EPA based the definition on an AHS that receives fuel at a single delivery point and is designed with all components operating in tandem.

EPA disagrees with the commenter who suggested the final UST regulation exclude hydrant systems that contain aboveground storage tanks because these systems would not present the same issues as systems with underground storage tanks. AHSs with aboveground tanks pose the same threats to human health and the environment as AHSs with underground storage tanks. EPA agrees with the commenters who suggested the total volume of all aboveground storage tanks that function as part of the hydrant system be included in the 10 percent calculation to determine whether an AHS meets the definition of an UST. As a result, the volume calculation includes all aboveground storage tanks, underground storage tanks, and underground piping that are components of the hydrant system. EPA will provide more clarification on volume calculations through stakeholder outreach and guidance documents.

EPA disagrees with the commenter who stated that intermediary piping is not part of the airport hydrant system. If the intermediary piping is a connected component that stores fuel or delivers fuel to aircraft, it is part of the hydrant system. EPA also disagrees with the commenter who suggested EPA consider all intermediary tanks as underground. Intermediary tanks can be both aboveground and underground. However, aboveground storage tanks and connected piping that have more than 10 percent total volume stored underground are considered UST systems for the purposes of this regulation. Several commenters asked EPA to define the terms bulk, bulk underground storage tank, and bulk line and piping. In the 2011 proposed UST regulation, EPA used the term bulk to describe USTs and piping greater than 50,000 gallons. EPA has determined that all tank systems meeting the definition of an UST are in the same category. The final UST regulation does not use the term bulk and, therefore, those definitions are not required.

Since the 2011 proposed UST regulation, EPA gathered additional information on hydrant system design and function. Commenters stated the AHS definition provided in the 2011 proposed UST regulation and subsequent schematics needed clarification of the components regulated by the final UST regulation. EPA provided the revised schematic, which contained more defined hydrant system scenarios, to further clarify the regulated hydrant system. However, commenters were still confused about which specific components of an AHS would be regulated.

One commenter stated that the revised schematics did not provide the correct interpretation of various groupings of aboveground storage tanks and their functionality as part of an operating hydrant system. For example, multiple aboveground storage tanks grouped or interconnected can function as a single unit that fuels a hydrant system. EPA agrees that it would not be feasible to separate these aboveground storage tanks to define an AHS. EPA concluded from conversations with stakeholders that an AHS may consist of interconnected aboveground and underground storage tanks and piping that function as integral and interchangeable components of the fueling system. EPA also found that other tanks not directly connected to the underground hydrant piping also could feed the hydrant system. For further clarification, EPA will provide updated schematics to stakeholders through guidance documents..

Today's final definition alleviates stakeholder uncertainty on which components of an airport hydrant system must meet the final UST regulation by including all integral components that form an airport

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hydrant system and deliver fuel to the aircraft. In addition, EPA is aware there may be instances where an airport hydrant system might include permanently installed dispensing equipment at the end of the hydrant piping instead of a fill stand. However, since these systems still operate under high pressure and contain large diameter piping, we consider them to be airport hydrant systems.

The final UST regulation modifies the 2011 proposed UST regulation by providing the following definition for an AHS: an UST system which fuels aircraft and operates under high pressure with large diameter piping that typically terminates into one or more hydrants (or fill stands). The airport hydrant system begins where fuel enters one or more tanks from an external source, such as a pipeline, barge, rail car, or other motor fuel carrier.

EPA agrees with commenters who stated that commercial AHSs are unique fuel storage and delivery systems and are not a subset of conventional UST systems. Even though it is appropriate to regulate AHSs that meet the definition of an UST, these unique systems are designed and operated differently than conventional UST systems. The final UST regulation reflects that uniqueness by modifying the 2011 proposed UST regulation and creating the new subpart K, which contains specific requirements for AHSs and UST systems with field-constructed tanks. EPA also believes that creating this new subpart will decrease implementing agency and owner and operator confusion on the requirements for these systems.

Releases From Airport Hydrant Systems

EPA asked if anyone was aware of releases from AHSs and the sources, causes, and impacts to the environment. Several commenters indicated they knew of anecdotal information about releases from these systems and provided possible sources for releases, such as connections, elbow, valves, and piping corrosion, but did not provide specific or supporting information. One commenter added that releases have occurred from these systems, but owners and operators were not required to report them to implementing agencies. One commenter stated there is on-going remediation from an AHS release that occurred in the 1990s at a DoD facility. Another commenter indicated that releases of thousands of gallons of product have occurred from two hydrant systems and remediation is ongoing, but the causes of those releases are not fully known. One commenter stated that releases at commercial airports are handled on a case-by-case basis.

The 1988 UST regulation deferred owners and operators from reporting releases from these systems. In the 2011 proposed UST regulation, EPA provided details on several releases that previously occurred at airport hydrant systems. Since that time, EPA identified additional information on releases from both DoD and commercial airport hydrant systems. For example, as of 2014 at Hartsfield Jackson International Airport in Georgia, active remediation and free product recovery is ongoing due to a 1988 release of an estimated 14,000 gallons of jet fuel.¹⁰ In 2003, an estimated 100,000 gallons of jet fuel leaked from the valves and flanges of an airport hydrant system at Minneapolis-St. Paul International Airport in Minnesota. Some of the jet fuel was released into the sanitary sewer and nearby waterway. During the investigation of the jet fuel release, personnel discovered a second jet fuel leak at a different concourse; this leak impacted the stormwater system and produced oily sheens in the Minnesota River. Responsible parties agreed to pay civil penalties and complete environmental projects, including continued site remediation and fuel recovery.¹¹ In 1983 at Camp Lejeune, North Carolina, investigators discovered multiple feet of free product while using a hand-auger to investigate the cause of a fuel inventory discrepancy.¹² In addition, from the 1960s to the 1980s, thousands of gallons of jet fuel leaked

¹⁰ Corrective Action Plan – Part B: Hartsfield-Jackson International Airport, Concourse Pit. Number 19 Fuel Spill

¹¹ [http://www.pca.state.mn.us/index.php/about-mpca/mpca-news/current-news-releases/news-release-archive-2005/airport-agrees-to-pay-\\$540000-for-environmental-violations.html?nav=0](http://www.pca.state.mn.us/index.php/about-mpca/mpca-news/current-news-releases/news-release-archive-2005/airport-agrees-to-pay-$540000-for-environmental-violations.html?nav=0)

¹² http://www.tftptf.com/New_ATSDR3/RR_DRAFT_RAO.pdf

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from a former airport hydrant system at Pope Air Force Base, North Carolina. At one time, it was noted that as much as 75,000 gallons of free product was floating on top of the groundwater because of these releases. As of 2014, the site is undergoing remediation.¹³ In addition, at Marine Corps Air Station Cherry Point, North Carolina there have been multiple releases from the airport hydrant system underground piping. The station was cited twice in the 1990s for contaminating soil and groundwater under this fuel facility due to leaking tanks or fuel spills. An extensive environmental remediation effort is underway in 2014 to clean this site. Contamination from many of the releases combined and migrated to form a single plume.

From the information gathered, EPA determined it is necessary that owners and operators of these systems ensure release prevention and detection methods are installed on them. This will alleviate or lessen the risk of leaks from these systems into the environment.

Revising The Date In § 280.73 For Previously Deferred UST Systems

In § 280.73 of the 1988 UST regulation, owners and operators of AHSs permanently closed before December 22, 1988 were required to perform site assessments and close their systems if directed by implementing agencies. In the 2011 proposed UST regulation, EPA asked if we should revise the date in § 280.73 and how many of these UST systems have closed since December 22, 1988. One commenter requested EPA clarify requirements for previously deferred tank systems installed after December 22, 1988 but before the effective date of the final UST regulation. Another commenter stated the date should not be revised because AHSs at smaller airports may be closer to sensitive receptors; release detection was not required in the 1988 UST regulation and there is a higher potential that these systems have leaked; and § 280.73 provides discretion for implementing agencies to require closure of these systems.

AHSs of all sizes may be sited near various types of sensitive receptors. Additionally, the 1988 UST regulation did not require release detection, release reporting, or closure for these systems. EPA agrees with commenters who stated the date should be changed in order to avoid any unintended gaps for AHS systems closed between 1988 and the final UST regulation. Because the 1988 regulation deferred these tanks from the requirements of § 280.73, EPA will not require owners and operators perform site assessments and closure on AHSs installed after December 22, 1988 but before the effective date of the final UST regulation, unless directed to do so by implementing agencies.

Other Comments

Release Detection

Several commenters voiced concerns about other AHS requirements in the 2011 proposed UST regulation. One commenter asked whether the table in § 280.47 of the 2011 proposed UST regulation should indicate minimum instead of maximum leak rates. The rates provided in the table at § 280.252(d) (2) are the maximum values that the test cannot exceed. If the rates were indicated as minimum values, an owner or operator could exceed these values and meet regulatory requirements. EPA agrees that the language used in the table is confusing. The final UST regulation clarifies language in the header to read: Maximum Leak Detection Rate Per Test Section Volume. In addition, the two columns to the right of the table pertaining to the semiannual test and annual test, respectively, have been changed in the final UST regulation to read: Leak Detection Rate Not To Exceed (Gallons Per Hour).

¹³Federal Remediation Technologies Roundtable Abstracts of Remediation Case Studies, Volume 3
<http://epa.gov/tio/download/fitr/abstractsvol3.pdf>

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One commenter asked why high leak rates are allowed on large hydrant systems. EPA recognizes that these systems are different from conventional UST systems. However, EPA believes the leak rates specific for AHSs balance environmental protection with concerns of extended downtimes for release detection testing. Commenters also raised concerns that requiring release detection on these systems would be burdensome; impose substantial costs on owners and operators higher than EPA estimated; and be problematic to implement. EPA acknowledges there will be costs associated with owners and operators providing release detection for these systems. EPA refined its cost estimates associated with regulating AHSs in the final Regulatory Impact Analysis (RIA). In particular, EPA gathered information to estimate costs specific to each commercial airport potentially affected by the final UST regulation. The final RIA is available in the docket.

EPA also acknowledges there could be challenges in implementing requirements for these systems. The final UST regulation reflects modifications based on various comments EPA received on the 2011 proposed UST regulation and subsequent information we gathered about these systems. This includes the addition of more workable release detection options for owners and operators that will allow more convenient implementation of the final UST regulation.

One commenter stated only one of the four release detection options (the semiannual or annual bulk line tightness testing) in the 2011 proposed UST regulation is a potentially feasible approach for most of the affected existing commercial AHSs, and even then, only with significant costs and disruption of operations. The commenter also stated that § 280.47 (d) (Other Methods) could be a viable option for systems that could not comply with § 280.47 (a) through (c); however, the proposal did not explain how owners and operators or implementing agencies would determine if a comparable alternative method is acceptable. The commenter provided a summary of the proposed release detection options and what he believed to be the feasibility of performing them according to the proposed requirements. The commenter also provided estimated costs he believed owners and operators would incur in order to meet the release detection requirements.

EPA disagrees that the release detection requirements of § 280.47(d) are vague and do not provide implementing agencies and owner and operators with adequate information to determine whether an alternative method is appropriate to achieve compliance. EPA developed this provision as an alternative to the other specific methods in § 280.27(a) through (c) in order to allow greater flexibility for owners and operators to comply with the final UST regulation. EPA provided very specific guidance in § 280.47 (a) through (c) that informs owners and operators who choose to use those particular methods what they must do to meet the release detection performance standards for AHSs. In addition, EPA added § 280.47 (d), which allows owners and operators to use other comparable methods to comply and allows state implementation agencies the flexibility to approve those methods as long as they meet the performance standards in the final UST requirements. EPA could have limited owners and operators by requiring them to comply with only the specific methods in § 280.47(a) through (c). However, EPA recognized the possibility that other methods, not set forth in § 280.47(a) through (c) could be acceptable, as long as they meet the performance standards and are approved by state implementing agencies. Owners and operators who have concerns that § 280.47(d) is too vague can opt to follow the specific methods described in § 280.47(a) through (c).

EPA acknowledges the commenter who suggested any approved method that can detect leaks smaller than 0.05 gph should be acknowledged as reportable and require further investigation. EPA provided a minimum detectable leak rate based on industry standards. EPA is aware there is equipment capable of achieving standards that are more stringent. EPA's release detection performance standards are applicable to typical equipment and do not provide unacceptable leak rates for AHS systems. UST system owners and operators are responsible for remediating environmental contamination from any UST system release, regardless of the release rate. Although not required by the final UST regulation, UST

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system owners and operators are encouraged to use the most stringent and effective method or combination of methods of release detection to avoid contamination of the environment.

One commenter stated that requirements such as operator training and financial assurance may be difficult to meet because of the different entities involved in commercial airports and AHS operations. EPA is aware there may be different entities involved in commercial airports and AHS operations. EPA understands that often the overall owner of a commercial airport is the airport authority or municipality and a fuels services operator normally manages AHS operations. The UST regulation defines the owner and operator of an UST system. Portions of the UST regulation impose requirements on owners exclusively and some requirements apply to both owners and operators. With respect to the UST regulation that applies to owners and operators, either the owner or the operator needs to meet the requirements, but both may be liable in the event of noncompliance. A careful reading of the UST regulation is necessary to determine whether only one or both parties may be liable in the event of noncompliance. The final UST regulation addresses that operator training and financial assurance apply to both owners and operators. Owners and operators at commercial airports and AHS operators can coordinate and assign responsibilities so that, collectively, they meet all applicable requirements for both owners and operators, including requirements for operator training and financial assurance.

Specific Clarification Requested

EPA disagrees with the commenters who thought it unnecessary to address deferred aboveground storage tanks in the final UST regulation. Some hydrant systems contain aboveground storage tanks and aboveground components. The final UST regulation partially excludes all aboveground storage tanks associated with AHSs from technical requirements because the Spill Pollution Control and Countermeasure program is designed to best regulate aboveground components. To prevent dual regulation of those components under 40 CFR 280 and 40 CFR 112, the final UST regulation partially excludes aboveground portions of the system. However, the volume contained in the aboveground tanks will be used in the volume calculation to determine whether the entire AHS meets the definition of an UST system. After the effective date of the final UST regulation, EPA will provide outreach and guidance documents to stakeholders and give states and the regulated community further clarity on regulated AHSs and their components.

EPA disagrees with the commenter who suggested EPA modify the definition of a new tank system or delete the phrase as it relates to previously deferred tanks. This modification is unnecessary because previously deferred tanks are not considered new tanks and new AHS installations must meet new tank standards.

Costs And Benefits Of Regulating

One commenter stated that EPA's projection of environmental benefits outweighs the costs of compliance for AHSs. EPA estimated the costs of compliance for AHSs in the RIA; but we did not estimate the benefits because we did not have reliable history about the number and size of releases from these systems. AHSs handle large volumes of regulated substances on a daily basis; in some cases, AHS piping stores millions of gallons of fuel. Leaks from underground piping and other appurtenances can contaminate subsurface soil beneath the airport apron and runways, groundwater, and nearby surface water. For example, in 2003, an estimated 100,000 gallons of jet fuel leaked from the valves and flanges of an airport hydrant system at Minneapolis-St. Paul International Airport in Minnesota. Some of the jet fuel was released into the sanitary sewer and nearby waterway. During the investigation of the jet fuel release, personnel discovered a second jet fuel leak at a different concourse; this leak impacted the stormwater system and produced oily sheens in the Minnesota River. Responsible parties agreed to pay

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civil penalties and complete environmental projects, including continued site remediation and fuel recovery.

EPA disagrees with the commenter who stated that when EPA wrote the 2011 proposed UST regulation we did not consider the economic burden to owners and operators and the effect removing the deferral would have on both DoD and commercial airport operations. Prior to the proposal, EPA met with industry service providers and airport personnel to determine the practicality and feasibility of the UST requirements on these systems and possible effects performing these requirements could have on airport operations. After the public comment period ended for the 2011 proposed UST regulation, EPA gathered additional information from DoD and from eight of the nine commercial airports that A4A indicated would potentially be affected by the UST regulation. Among other information, these organizations provided input on release detection and prevention methods they currently use as well as retrofits needed to meet the release detection requirements. EPA found that costs to perform operation and maintenance on AHSs are normally included as part of normal labor costs for commercial airports. EPA also received written follow-up material from the commercial airports. Based on those conversations with airports, EPA developed a summary of estimated costs in the RIA, which is in the docket.

Prior to the 2011 proposal to the UST regulation, 17 state UST programs that regulate airport hydrant systems were identified. EPA gathered additional information from seven of nine select state UST programs to identify the extent of the state's release detection requirements and compare those requirements to the release detection requirements in EPA's proposed 2011 UST regulation.

Additionally, after conversations with industry and affected airports, EPA found that many AHSs currently have adequate release detection and will need minimal retrofitting to meet the release detection requirements in the final UST regulation. Even though owners and operators may not currently perform release detection at the leak rates or frequencies required by the final UST regulation, the necessary equipment has been installed on many of these systems and minimal additional equipment is needed to test hydrant piping according to the requirements in subpart K of the final UST regulation. The final UST regulation also grants state implementing agencies the flexibility to allow release detection methods that are comparable to the requirements in subpart K.

A few commenters stated that in order to regulate these tanks, EPA must: justify that AHSs are leaking, comply with Executive Order 13563, avoid unnecessary regulations, and solve documented problems in a cost-effective and least burdensome manner. Although there was anecdotal information on releases from AHSs, the 1988 UST regulation deferred AHSs from the release reporting requirements of § 280.50.

EPA gathered some release and damage case information through research and conversations with implementing agencies. Commercial and DoD facilities have implemented fuel management control programs to ensure optimal fuel quality and decrease chances of product loss; however, AHSs and components, such as valves, gaskets, joints, and flanges do leak. High-pressure AHSs contain large volumes of regulated product. EPA thinks that the final UST regulation does not impose redundant requirements. Moreover, EPA thinks we developed a regulation that is cost-effective and not burdensome, yet still protects human health and the environment.

Impact On Implementing Agencies

One commenter suggested that EPA did not take into account additional costs state trust funds may incur to remediate AHS releases. Although AHS owners could use state trust funds as their financial responsibility mechanisms, state funds have the flexibility to choose the type of facility they allow as eligible for their state trust funds. If state funds choose to cover AHSs, then owners and operators of those systems would be required to pay into the fund at a cost established by the fund.

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Some commenters stated that removing the deferral would have no impact on their respective state programs because either there are no AHSs in their states or their states already regulate AHSs. However, EPA disagrees with the commenter who suggested EPA give implementing agencies the option to regulate AHSs. A state must meet certain requirements in order to receive state program approval (for example, have performance criteria that are no less stringent than federal standards and contain provisions for adequate enforcement). Since the final UST regulation will regulate AHSs, state UST programs acting as implementing agencies will need to also regulate AHSs in order to receive state program approval. The final UST regulation, however, grants implementing agencies flexibility to approve comparable alternatives to the UST requirements and negotiate compliance timelines for release remediation.

One commenter suggested EPA incorporate his state implementing agency language, which does not defer AHSs. EPA reviewed that language but thinks that the final UST regulation adequately regulates AHSs. One commenter provided an estimate of additional man-hours needed to accomplish inspecting previously deferred UST systems; however, EPA believes this estimate may encompass more than AHSs. One commenter stated that removing the deferral adds USTs to the universe and creates a financial burden on implementing agencies. EPA acknowledges this is a new requirement for some implementing agencies and may require additional resources. However, EPA aligned compliance dates and extended time frames to provide implementing agencies time to assess needs and plan for implementing the final UST regulation. This will help those states with newly regulated AHSs. Nonetheless, given the potential impact these systems could have on the environment, it is important to appropriately regulate these tank systems. The final UST regulation also grants implementing agencies time to resubmit state program approval applications that incorporate new requirements.

Implementation Time Frame

EPA agrees that extending the time frame will allow owners and operators sufficient time for planning and installing equipment to meet requirements in the final UST regulation; but we disagree with the commenter who suggested five and ten year implementation dates. Even though some AHS owners and operators may need time to implement the UST requirements, EPA found that some states currently regulate AHSs and many are already meeting portions of the final UST requirements. EPA agrees that aligning regulatory implementation dates fosters better compliance; it establishes a single effective date and decreases the tracking burden for owners and operators. The final UST regulation grants owners and operators the flexibility of a phased alternative approach to comply with portions of the release detection requirements.

Other Regulations That Affect Airport Hydrant Systems

One commenter requested EPA allow implementing agencies to continue regulating AHSs under aboveground storage tank regulations, if applicable. EPA is unable to incorporate language that defers to state aboveground storage tank regulations because of the difficulties associated with incorporation by reference. In addition, if an aboveground storage tank and connected components meet the statutory definition of an UST, it is regulated under the UST regulation and owners and operators must comply with applicable requirements.

Commenters stated EPA should evaluate other requirements owners and operators of AHSs must comply with to ensure there is no dual regulation of these systems. Commenters added that these facilities currently perform many functions, such as quality control monitoring, leak checks, repairs, and remediation required by the UST regulation as part of their fuel management programs. One commenter also added airport facilities have stringent fuel quality checks and more security, financial, and safety provisions than a typical UST system. EPA gathered information on other requirements, such as release

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prevention, repairs, operation and maintenance, inspections, and operator training, that owners and operators at these facilities must perform in order to meet other federal, state, and industry regulations.¹⁴ For example, EPA found that requirements such as Federal Aviation Authority (FAA) 14 CFR part 139 (*Certification of Airports*), ATA 103, and directives, such as United Facilities Criteria (UFC) 3-460-03, require owners and operators inspect airport hydrant systems and connected components. However, the SPCC requires inspection of only the aboveground portions. EPA also found that requirements administered by 14 CFR part 139 focus primarily on overall airport safety. Additionally, documents such as A4A 123, ATA 103, and ATA operation and maintenance guidance provide many recommended practices that owners and operators of AHSs may follow for their fuel management programs. However, owners and operators are not required to follow them because they are not codified regulatory requirements. Perhaps most important is that these documents are specific to fuel quality management, but do not address all aspects of the UST requirements. For these reasons, EPA thinks the final UST regulation is not redundant and is necessary to protect human health and the environment. In addition, as discussed in our responses above, EPA developed a final UST regulation that imposes minimum burdens and costs on UST owners and operators, yet still adequately protects human health and the environment.

One commenter agreed with EPA that the SPCC requirements are the most effective regulation for aboveground components of AHSs, but the commenter questioned whether EPA fully evaluated the SPCC requirements for regulation of the underground piping associated with an AHS.¹⁵ The commenter added that the SPCC regulation includes integrity testing requirements for underground piping. One commenter asked whether EPA evaluated the SPCC requirements for regulating the underground portions of airport hydrant systems. EPA further investigated how SPCC requirements compare with UST requirements.

One commenter asked whether EPA evaluated the SPCC requirements for regulating underground portions of airport hydrant systems. EPA is aware that commercial airports and DoD facilities comply with SPCC requirements for their AHSs. However, UST and SPCC regulations complement each other. The SPCC regulation focuses on oil discharges that could impact navigable waters, while the UST regulation focuses mainly on day-to-day maintenance and operation to prevent releases to soil and groundwater. For example, the SPCC regulation requires a tank inspection, such as an American Petroleum Institute (API) Standard 653 inspection, which ensures aboveground storage tanks and piping are structurally sound. In addition, regulatory overlap is mitigated by the SPCC regulation, which allows UST release detection as a method to meet its tank inspection requirement. The SPCC regulation requires owners and operators conduct integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement, but does not specify a method, frequency, or leak rate. The UST regulation is more specific and requires periodic release detection testing of underground piping.

As a result, EPA determined that although owners and operators might perform similar requirements (for example, performing inventory control to ensure jet fuel is not releasing into the environment or training personnel on release response) under the SPCC regulation, those requirements may not be fully comparable to the final UST regulation standards. Therefore, the final UST regulation requires owners and operators meet release prevention and release detection requirements, some of which owners and operators may already perform.

¹⁴ EPA assessed these additional requirements that owners and operators follow: 40 CFR 112 (SPCC); 14 CFR 139 (FAA); A4A 123; ATA 103; ATA O&M Guidance; UFC 3-460-1Comparison of requirements

¹⁵ The SPCC regulation provides requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The regulation requires specific facilities to prepare, amend, and implement SPCC plans.

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Other Benefits To Consider

One commenter suggested owners and operators of AHSs perform operator training and operation and maintenance practices to reduce risks of microbial contamination. EPA is requiring operator training and operation and maintenance for AHSs, excluding aboveground storage tank systems. EPA is not addressing microbial contamination because it is beyond the scope of the UST regulation.

EPA agrees with the commenter who suggested EPA ensure that other benefits, such as efficiency, safety, and minimizing emissions, are not lost because of regulating these systems. After meeting with commercial airport personnel, EPA determined that regulating AHSs will not cause any losses in benefits by using these systems. Given the current availability of technologies and that commercial facilities are currently performing some type of method to detect and prevent releases, EPA concluded it is appropriate to regulate AHSs that meet the definition of an UST.

Notification And Certification To Implementing Agencies

The 2011 proposed UST regulation discussed that owners and operators of existing AHSs would notify implementing agencies one time within 30 days of the date of the final UST regulation. Commenters requested EPA clarify the certification requirements for previously deferred USTs in § 280.20(e). The 1988 UST regulation did not require owners of AHSs to comply with subpart B, which included certifying proper installation of AHSs. One commenter asked what owners would certify, since the 1988 UST regulation did not require owners of AHSs notify implementing agencies about installation. The commenter also wanted to know how owners could certify installation since installation records and standards for these tanks are probably non-existent. Commenters also recommended that EPA require owners and operators notify implementing agencies within 180 days to one year of the effective date of the final UST regulation. EPA believes that, because this is a new requirement, owner and operators of AHSs will need more than 30 days to notify their respective implementing agencies. The final UST regulation modifies the 2011 proposed UST regulation and requires owners and operators of existing AHSs notify of existence to implementing agencies within one year of the effective date. This change allows owners and operators, as well as implementing agencies, time to identify AHSs covered by the final UST regulation and gives implementing agencies time to include these systems in their inventories. Owners and operators will have to certify proper installation only for newly installed AHSs according to § 280.22.

Feasibility Of Regulation

A few commenters said removing the deferral from AHSs would negatively impact airports because service disruptions due to installing and performing release prevention and detection would cause massive service delays and affect military missions. One commenter stated that removing the deferral would impact missions and threaten national security and the National Airspace System (NAS). The commenter also added:

- commercial airports are significant contributors to the national economy; disruptions can significantly impact operations and have cascading adverse effects causing disruptions resulting in cancellations and delays, significantly impacting not only that airport, but rippling through the NAS
- the 2011 proposed UST regulation requires significant system retrofits or operational changes at several key airport hubs in some of the most delay-plagued air traffic corridors that comprise the NAS

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After conversations with personnel from the commercial airports identified by A4A and DoD representatives, EPA found that release detection is normally performed during service downtimes and when aircraft operations are minimal. For example, at Kansas City International Airport, hydrant lines are tested for four hours at night for both systems; at Southwest Florida International Airport, piping leak detection is performed quarterly during service downtime. DoD personnel stated that leak testing is performed according to prescribed requirements in Florida and California and at least biennially in other states. Where feasible, piping is normally tested in segments and sections to meet testing leak rates and can be isolated to find leaks more efficiently. EPA found that some hydrant systems allow continued airport operation because they bypass areas where hydrant piping is tested and avoid total system shutdown. EPA did not address standby mobile refueling tasks because we view this as an extra precaution and not necessary to achieve compliance.

One commenter asked why the AHS deferral should be removed. The commenter also asked if any of these systems existed in Indian country. EPA always intended to fully regulate AHSs under UST requirements. Additionally, EPA gathered information that shows these systems can release massive amounts of fuel that damage the environment. Although EPA is not aware of any AHS systems in Indian country, a federal regulation is needed to provide consistent, minimum requirements throughout the United States.

EPA disagrees with the commenter who stated implementing agencies may not be able to equally enforce the release response requirements. It is the responsibility of owners and operators to report a spill to the implementing agency in accordance with the requirements of § 280.50. The final UST regulation grants implementing agencies flexibility and discretion in requiring release investigation and confirmation activities based on agreed upon timelines.

Two commenters stated implementation of requirements for AHSs was problematic. They referred to the rationale in the preamble to the 1988 final UST regulation that led to the deferral of AHSs and other challenges in the 2011 proposed UST regulation that justified EPA's position to allow alternative methods of release detection. EPA discussed AHSs in the 1988 UST regulation preamble and described them as very large, containing great volumes of fuel with capacities of millions of gallons, and consisting of miles of piping, which is typically eight to 24 inches in diameter. At the time, EPA determined release detection was not feasible for AHSs. To allow more time to gather information, EPA in the 1988 UST regulation deferred AHSs from release detection requirements in subpart D as well as subparts B, C, E, G, and H requirements. Since then, the petroleum services industry developed release detection monitoring technologies for AHSs. NWGLDE's list in *Large Diameter Line Leak Detection Methods (6 Inches Diameter Or Above)*¹⁶ identifies methods capable of detecting releases from AHSs. Furthermore, some states, such as California, do not defer AHSs from release detection. Some commercial airports and DoD facilities also monitor their AHSs. Therefore, EPA disagrees with the two commenters and thinks that release detection is now feasible for these systems.

EPA is aware that standard release detection systems successfully test and detect releases on USTs and pressurized piping at retail service stations, but may not be able to achieve the same accuracy within a reasonable period on underground piping in AHSs. As a result, the final UST regulation allows several options for owners and operators to meet the release detection requirement. These options provide flexibility for a wide variety of AHSs. In those instances where AHSs can meet the release detection methods in §§ 280.43 and 280.44, owners and operators may use those methods. Owners and operators may also use the alternative release detection requirements in § 280.252(d)(2).

¹⁶ National Work Group On Leak Detection Evaluation's (NWGLDE) List Of Leak Detection Evaluations For Storage Tank Systems: <http://www.nwglde.org/>.

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EPA disagrees with the commenter who stated EPA deprived commercial AHS owners and operators from participating in developing and commenting on the 2011 proposed UST regulation. The commenter said EPA based the 2011 proposed UST regulation on an inaccurate assumption that the majority of affected AHSs are owned by DoD and only two commercial airports are affected. EPA performed extensive stakeholder outreach both prior to developing the 2011 proposed UST regulation and during the public comment period. Based on information received from DoD and commercial airport representatives, EPA thought that the universe of AHSs was mainly owned by DoD and only included two commercial airports with airport hydrant systems.¹⁷

While EPA agrees that we did not notify owners and operators of the two commercial airports affected by the 2011 proposed UST regulation, the definition of UST has been in effect since the 1988 UST regulation; it has always been the responsibility of owners and operators to determine whether their AHSs met that definition. During a meeting with A4A, EPA identified the two airports and also learned of other airports possibly affected by the 2011 proposed UST regulation.

EPA appreciates the commenter who offered assistance to help us gather additional information and develop a regulation specific to commercial AHSs. EPA disagrees with the commenter who stated that the 2011 proposed UST regulation did not meet the federal public notice and comment requirements. EPA followed procedures required by the Administrative Procedures Act and other requirements for providing public notice through the *Federal Register*. In order to allow additional time for airport authorities to perform a preliminary assessment and respond to the 2011 proposed UST regulation, EPA extended the public comment period by two months as requested by commenters.¹⁸ The commenter also suggested EPA assess commercial airports to determine the feasibility of regulating them and develop a regulation with supporting evidence that allows for meaningful public comment. Since issuing the 2011 proposed UST regulation, EPA learned there are at least eight commercial airports that will be affected by the final UST regulation. EPA contacted those airport personnel to determine the practicality and feasibility of the final UST regulation.

EPA concluded that many of the airports are performing the requirements and only minor modifications may be needed at a few of them so they meet the final UST regulation. The information EPA gathered since the 2011 proposed UST regulation supports regulating these systems in accordance with the requirements of subpart K.

¹⁷ When issuing the 2011 proposed UST regulation, EPA thought Lambert-St. Louis International Airport and Denver International Airport were the only airports that would be affected by the final UST regulation.

¹⁸ January 5, 2012 request from A4A for a 60-day extension for more time to review and query its membership and potentially affected airports for a more complete understanding of the 2011 proposed UST regulation and potential costs.

Proposal To Remove The Deferral For UST Systems With Field-Constructed Tanks

Summary

- More than 20 commenters provided input on EPA's proposal to remove the deferral for UST systems with field-constructed tanks (also referred to as field-constructed tanks or FCTs)

Support

- One commenter added that the costs to comply are outweighed by the environmental benefits accurately articulated in the Regulatory Impact Analysis; one commenter thought EPA adequately researched release detection; one commenter added that FCTs should be regulated the same as conventional USTs

Commenters: [0302, 0313, 0343, 0399]

Support With Condition

- Two commenters asked EPA to reconsider regulating FTCs unless implementing agencies receive additional funding
- One commenter supported the proposal if EPA clearly defines FCTs, which would help implementing agencies determine the universe; the commenter also suggested EPA allow implementing agencies the option of regulating FCTs

Commenters: [0313, 0368, 0422]

Oppose

Four commenters opposed removing the deferral for FCTs and added:

- A definition of FCT is needed for implementing agencies to determine applicable tanks or facilities and whether additional resources are needed to meet the Energy Policy Act
- The proposal was unclear and infeasible; information from Craney Island, which is one location, is insufficient to remove the deferral; EPA should continue the deferral in states that already regulate mounded FCTs
- EPA should gather additional data on the number of systems impacted and whether it is feasible to retrofit them or if they will need to be replaced, and then perform a realistic cost impact analysis
- EPA should continue the deferral or address issues specific to regulated heating oil tanks

Commenters: [0212, 0341, 0384, 0380]

Implementation Time Frame Of Requirements

EPA asked whether the proposed release detection options and their time frames for compliance were appropriate and sufficient. Five commenters believed the release detection options and their time frames were appropriate and sufficient. Three commenters thought they were not and added:

- EPA should provide a definition for field-constructed tank
- EPA should extend the release detection compliance date for piping to five years

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- EPA should extend the release detection compliance date for piping to ten years, since these systems may require significant upgrades to their design to accommodate release detection requirements

Commenters: [0237, 0238, 0313, 0339, 0380, 0388, 0396, 0399]

EPA asked whether the time frame for implementing technical requirements other than release detection for FCTs was reasonable. Five commenters supported the proposal and one commenter said the time frame should be the same as airport hydrant systems. Two commenters did not support the proposal and said the implementation should be five years; another commenter stated the implementation time frame should be ten years.

Commenters: [0237, 0238, 0313, 0339, 0380, 0396, 0399]

Other Release Detection Options

EPA asked if we should consider other release detection options for FCTs. Two commenters agreed and added:

- EPA should consider requiring periodic chemical marker tests to detect smaller leaks
- EPA should expand the types of release detection methods specified in the final UST regulation, including use of sensors, probes, monthly visual inspections, or other methods approved by the implementing agency

Two commenters disagreed but provided no additional information. One commenter was not aware of any other methods.

Commenters: [0237, 0313, 0339, 0388, 0399]

Releases From Field-Constructed Tanks

EPA asked if commenters were aware of any releases from FCTs and the sources, causes, and impacts to the environment from those releases. One commenter responded yes and stated there were releases from cracks in cement field-constructed tanks. The commenter also said that the tank size and configuration did not accommodate leak detection. Two commenters were not aware of any releases from FCTs, and one commenter was unsure.

Commenters: [0237, 0313, 0388, 0396, 0399]

Alternative Options For Closing Very Large UST Systems

EPA asked if we should consider alternative options for closing very large UST systems in place, such as allowing closure in place without filling the UST. Two commenters thought that closing very large UST systems in place should not be allowed without first filling the UST. One commenter added that allowing closure in place without filling the UST should be no less protective than requiring removal of the FCT or filling it with inert material. One commenter stated there were no alternatives and that owners and operators should follow standard practices for removal or closure in place. Two commenters stated that FCTs should be removed for proper closure and one of the commenters added that alternative closure methods should be approved on a case-by-case basis by the implementing agency. One commenter stated there were alternative options, but a certain amount of flexibility must be given to the implementing

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agency to allow closure. One commenter stated that options should be considered, but did not provide any additional information.

Commenter: [0222, 0237, 0238, 0313, 0388, 0396, 0399]

Revising The Date In § 280.73 For Previously Deferred UST Systems

EPA asked if we should consider revising the date of December 22, 1988 in § 280.73 for previously deferred UST systems and, if so, how many FCTs have been closed since that date. One commenter stated EPA should revise the date and added:

- The requirement should apply to any permanently closed FCT system
- At least six FCTs were closed since December 22, 1988, but provided no additional information

Two commenters stated EPA should not revise the date and added:

- The unknown FCTs closed prior to the effective date of the final UST regulation would not have to meet subpart G, unless they are potential threats or owners are directed to close them by the implementing agency
- The threat may be lower due to remoteness, but can potentially be higher for leaks due to no requirements for release detection; impact can be significantly greater with larger volumes

Commenter: [0237, 0238, 0313, 0399]

Other Comments

The following are comments EPA received on various areas of the proposed requirements for FCTs. We grouped these comments below by topic area.

Feasibility Of Regulation

One commenter stated that FCTs are not deferred in his state and regulating them would not impact state regulations. One commenter questioned why FCTs are being regulated and if any existed in Indian country. Another commenter asked whether EPA should categorically exclude these tanks.

Commenters: [0243, 0399, 0422]

Construction And Installation Standards

One commenter recommended EPA reference military construction standards associated with FCT design and construction in the preamble and final UST regulation. The commenter suggested specific language.

Commenters: [0421]

Release Detection Concerns

One commenter questioned why large FCT systems are allowed high leak rates. Two commenters stated that applying leak detection for FCTs and bulk piping is technically challenging and impracticable. One commenter thought EPA's proposed table for pressure-based line tightness test methods should state minimum detectable instead of maximum in both the text and table.

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Commenters: [0300, 0316, 0336, 0384]

FCT Universe

One commenter suggested that in an appendix to the final UST regulation, EPA list the Department of Defense (DoD) FCTs mentioned in the preamble to the 2011 proposed UST regulation so that implementing agencies will not have to make those determinations. One commenter believed EPA underestimated the number of smaller field-constructed USTs and noted that his particular UST implementing agency does not manage FCTs.

Commenters: [0300, 0422]

Other Regulatory Requirements (Dual Regulation)

One commenter who operates a 230,000 gallon heating oil FCT stated spill and overfill requirements are being met by Spill Prevention, Control, and Countermeasure (SPCC) regulation in 40 CFR part 112. Another commenter stated EPA did not take into consideration existing state testing methodologies. The commenter suggested that EPA should first evaluate the effectiveness of state requirements and determine adequacy of those regulations, for example, New York accepts periodic (10-year) modified API-653 inspections, combined with monitoring well release detection. The commenter believed that monitoring and internal inspections should be allowed in lieu of the proposed release detection options.

Commenters: [0212, 0384]

Clarifying Terms And Requirements

One commenter suggested EPA define bulk or eliminate the use of the term if a bulk underground storage tank is no different from an underground storage tank or if a bulk line is no different from a line piping. Several commenters requested EPA provide a definition for a field-constructed tank. One commenter stated the deferral for aboveground components was confusing since the regulations apply to USTs. Another commenter stated that it was unclear whether the deferral for aboveground components was for FCTs or certain aboveground storage tanks (ASTs). One commenter requested EPA add specific language to define field-constructed fiberglass reinforced tanks that also includes closure requirements and site assessment of the existing tank. The commenter added that the technology would be prohibited under the final UST regulation unless specific language is used.

Commenters: [0224, 0238, 0273, 0313, 0341, 0384, 0388, 0402, 0422]

Technical And Operational Challenges

One commenter believed FCTs are different from typical USTs and it may be difficult regulating them. However, the commenter supports requirements for FCTs greater than 50,000 gallons and recommended similar requirements for smaller tanks. Another commenter thought that EPA's proposed release detection requirements were not practicable for very large USTs and piping. The commenter believed they should be modified to provide alternative leak detection standards that are practicable for large FCTs. One commenter believed retrofitting existing systems may not be easily accomplished and EPA has not adequately accounted for the time and cost needed to retrofit these existing systems. One commenter stated release detection might be problematic for a FCT whose product liquid state varies based on the distance between the oil and steam pipes. The commenter added that the only time the heating oil is at a liquid state or at a uniform temperature is when it is heated.

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One commenter questioned why new or replaced piping associated with FCTs is not required to be secondarily contained, since an existing or new FCT is the same as a shop-fabricated tank. The commenter also stated that there were no known industry codes for field fabrication of secondarily contained tanks. The commenter also added:

- The requirement for a secondarily contained field-constructed tank without a construction standard is meaningless
- EPA should not allow installation of new FCTs after the effective date
- It is more practical to install an aboveground storage tank for sizes greater than conventional tanks
- All FCTs installed after the effective date must be secondarily contained including wastewater treatment tanks regardless of size, because there is no definition for field-constructed tank

Commenter: [0238, 0212, 0348, 0380, 0384]

Notification

One commenter wanted to know what owners would certify since notification was not required at the time of installation and records and installation standards probably do not exist.

Commenter: [0238]

EPA Response

In the preamble to the 1988 UST regulation, EPA discussed that design and construction methods for FCTs were different from factory-built tanks. EPA thought that release detection and prevention technologies were not readily available for these unique tank systems. EPA deferred FCTs in the 1988 UST regulation because, at that time, we did not have sufficient time to develop appropriate regulations for them. However, it has always been EPA's intent to regulate FCTs. We maintain that releases from any UST system, including FCTs, pose an unacceptable degree of threat to the environment.

Release Detection Options And Time Frames

In the 2011 proposed UST regulation, EPA proposed that FCTs less than 50,000 gallons meet at least one of the release detection options in § 280.41. EPA also proposed three alternative options for FCTs greater than 50,000 gallons. EPA requested comment on whether the release detection options and time frames were appropriate and sufficient for FCTs. Most commenters agreed with the options presented in the 2011 proposed UST regulation. However, three commenters disagreed and stated that the release detection options were insufficient and the implementation time frames should be extended.

Release detection used for conventional USTs may not be practicable for FCTs greater than 50,000 gallons, but release detection methods designed for FCTs are now available. The National Work Group on Leak Detection Evaluations (NWGLDE) lists *Large Diameter Line Leak Detection Methods (6 Inches Diameter Or Above)*¹⁹ and *Bulk Underground Storage Tank Leak Detection Methods (50,000 Gallons Or Greater)*²⁰, which identify methods capable of detecting releases from field-constructed tanks. Prior to

¹⁹ National Work Group On Leak Detection Evaluation's (NWGLDE) List Of Leak Detection Evaluations For Storage Tank Systems: <http://www.nwglde.org/>.

²⁰ National Work Group On Leak Detection Evaluation's List Of Leak Detection Evaluations For Storage Tank Systems: <http://www.nwglde.org/>.

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publishing the 2011 proposed UST regulation, EPA contacted several vendors to determine strengths and limitations of release detection methods for FCTs. EPA also met with personnel from DoD to discuss their challenges in addressing release detection requirements in states, such as California, which do not defer FCTs from release detection requirements. Additionally, after publishing the 2011 proposed UST regulation, EPA met with personnel from DoD to gather more information on FCT design and operation.²¹ Because of those meetings, EPA determined that, although not being performed as requirements specified in the 1988 UST regulation, DoD facilities were performing various fuel management methods on many of their FCTs to monitor and track fuel inventories.

EPA believes three years gives owners and operators sufficient time for planning and installing necessary equipment to meet the release detection requirements in the final UST regulation. The final UST regulation also allows owners and operators who use periodic tests for certain piping to phase in release detection requirements up to seven years.

Other Release Detection Options

EPA asked commenters whether we should consider other release detection options for FCTs and piping. One commenter suggested EPA consider requiring periodic chemical marker tests to detect smaller leaks. One commenter stated EPA should expand the types of release detection methods specified in the final UST regulation, including use of sensors, probes, monthly visual inspections, or other methods approved by the implementing agency. Following the public comment period for the 2011 proposed UST regulation, EPA researched suggested release detection options and standard practices conducted by DoD.

EPA gathered additional information to refine the specific release detection options in the final UST regulation. The information was obtained through meetings with DoD and release detection vendors throughout the regulatory process. EPA determined that although the 1988 UST regulation did not require FCT owners and operators perform the tests, DoD facilities have already been performing various fuel management methods to monitor and track fuel inventories.

Release Detection In The Final UST Regulation

Based on comments received and additional information EPA obtained, the final UST regulation incorporates the release detection options provided in the 2011 proposed UST regulation. Current release detection methods in subpart D of the 1988 UST regulation are appropriate for FCTs less than 50,000 gallons; for those tanks, EPA is not establishing release detection requirements beyond those listed for conventional UST systems. EPA is also retaining the option for owners and operators to demonstrate to implementing agencies release detection methods as effective as those stated in the final UST regulation. Implementing agencies must approve options not specifically included in the final UST regulation.

After evaluating current methods, EPA realized the existing release detection options for tanks in subpart D are generally not applicable to UST systems greater than 50,000 gallons, because most methods are limited by tank capacity. Based on discussions with DoD and release detection vendors, EPA learned that many larger tanks require multiple inactive days to yield an accurate result. DoD owns most of these systems and taking them out of service for multiple days to meet the release detection requirement in the 1988 UST regulation would, in some cases, impede DoD's mission, be impractical to sustain, and result in significant costs.

As a result, EPA is providing three additional options in the final UST regulation that provide flexibility for owners and operators of FCTs greater than 50,000 gallons to meet the release detection requirement.

²¹February 28, 2013 and March 18, 2013 meetings with DoD's Defense Logistics Agency (DLA) Energy.

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These tanks must either be monitored using release detection methods specified in subpart D, except tanks using groundwater and vapor monitoring must combine that method with inventory control as described, or use one of these options:

Owners and operators may conduct an annual tank tightness test that can detect a 0.5 gallon per hour (gph) leak rate. Owners and operators may also use an automatic tank gauging system at least once every 30 days, which can detect a leak rate of 1 gallon per hour or less combined with performing a tank tightness test at least once every three years that can detect a 0.2 gallon per hour leak rate; or use an automatic tank gauging system at least once every 30 days, which can detect a leak rate of 2 gallons per hour or less combined with a tank tightness test that can detect a 0.2 gallon per hour leak rate.

Owners and operators may also perform active vapor monitoring at least every two years, conducted according to § 280.43(e) for a tracer compound placed in the tank system, and detect a 0.1 gallon per hour leak rate; or perform inventory control at least every 30 days, conducted according to Department of Defense (DoD) Directive 4140.25; Air Transport Association (ATA) Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures that can detect a leak equal to or less than 0.5 percent of flow through. With this option, owners and operators must either perform a tank tightness test that can detect a 0.5 gallon per hour leak rate at least every two years, or perform vapor monitoring or groundwater monitoring, conducted according to § 280.43(e) or (f), respectively, for the stored regulated substance, at least every 30 days.

Owners and operators of underground piping associated with FCTs less than or equal to 50,000 gallons must meet the release detection requirements in subpart D, except § 280.43(e) and (f) must be combined with inventory control.

The final UST regulation modifies the following release detection options for FCT piping greater than 50,000 gallons. EPA discussed these options in the 2011 proposed UST regulation: pressure-based testing methods; use of continuous interstitial monitoring; automatic line leak detector combined with interstitial monitoring performed at least every three months; and other methods approved by the implementing agency and demonstrated by owners and operators to be as effective as the other proposed methods.

The final UST regulation retains the option for owners and operators to choose pressure-based testing methods performed in accordance with performance criteria dependent upon volume contained by the line segment tested. These criteria are the same as those discussed in the 2011 proposed UST regulation.

EPA is not including the options of using continuous interstitial monitoring and the combination of automatic line leak detectors with interstitial monitoring. Although some portions of existing piping may be able to use these options, EPA thinks these options currently are not viable for the majority of piping associated with FCTs. Despite not listing these methods in the final UST regulation, EPA still recognizes them as workable solutions in limited capacity. Where applicable, owners and operators and implementing agencies are encouraged to use these methods and recognize their use under the other methods option.

EPA is adding three additional options to the final UST regulation. FCT owners and operators may use active vapor monitoring methods that use chemical markers or tracers in accordance with § 280.43(e) to detect a release of at least 0.1 gph with probabilities of detection and false alarm of 95 percent and 5 percent, respectively. Owners and operators choosing this option must conduct this test at least once every two years.

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Owners and operators may also use a combination method incorporating a pressure-based line tightness test at least once every two years, in accordance with the requirements in the final UST regulation in § 280.252(d)(2) and either: conduct inventory control to detect a release of at least 0.5 percent of flow-through at least every 30 days or perform passive vapor monitoring or groundwater monitoring every 30 days, in accordance with § 280.43(e) or (f), respectively. Owners and operators may conduct inventory control in accordance with Department of Defense Directive 4140.25; ATA's Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures.

To provide greater flexibility for FCTs to meet the release detection requirements, the final UST regulation modifies the release detection options in the 2011 proposed UST regulation and incorporates some of the methods that are currently used at DoD facilities. EPA allows UST system owners and operators to use existing release detection options provided in the 1988 UST regulation and establishes alternative methods of release detection at § 280.252(d)(2). The final UST regulation also allows methods approved by the implementing agency as long as that method is as effective as release detection methods specified in the final UST regulation. The additional release detection options include: vapor monitoring for a chemical marker at least every two years; and the combination of inventory control performed at least every 30 days with either line tightness testing at least every two years, or vapor monitoring or groundwater monitoring for the stored regulated substance at least every 30 days. Adding these options improve the flexibility of the release detection requirement. By providing performance criteria associated with other types of release detection methods in addition to pressure-based line tightness testing, owners and operators have more concrete examples of demonstrating equivalency of release detection methods for approval by the implementing agency.

Groundwater and Vapor Monitoring

In the 2011 proposed UST regulation, EPA proposed phasing out groundwater and vapor monitoring as release detection methods. The final UST regulation retains these methods with modifications for conventional UST systems. Owners and operators of FCTs may either perform active monitoring for chemical markers or tracers, or passive monitoring for stored product in the tank system. Active vapor monitoring methods are characterized by testing or monitoring of chemical markers or tracer compound placed in the tank system, in accordance with § 280.43(e), to detect a release of at least 0.1 gallon per hour with probabilities of detection and false alarm of 0.95 and 0.05, respectively. Owners and operators choosing this option must conduct this test at least once every two years. This method may be used as a stand-alone method of release detection.

Owners and operators may also combine passive vapor or groundwater monitoring with inventory control, described above, that can detect a release of at least 0.5 percent of flow through at least every 30 days according to § 280.43(e) or (f), respectively. EPA believes these options are reasonable and will quickly detect releases when they occur.

Implementation Time Frame Of Other Requirements

In the 2011 proposed UST regulation, EPA proposed that FCTs installed on or before the effective date of the final UST regulation meet the requirements of subparts B, except § 280.22, and C within three years of the effective date of the final UST regulation, as well as § 280.22 of subpart B along with subparts E, G, and H on the effective date of the final UST regulation. FCTs installed after the effective date of the final UST regulation would have to meet these requirements at the time of installation. EPA requested comment on whether the time frame for implementing technical requirements other than release detection for FCTs was reasonable. Several commenters stated the implementation time frames were reasonable. However, a few commenters voiced concerns that the proposed implementation time frames were

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inappropriate and would not allow sufficient time to meet the UST requirements. EPA disagrees with the commenters and is keeping the time frames discussed in the 2011 proposed UST regulation.

EPA acknowledges this is a new requirement for some implementing agencies and owners and operators of these systems. Removing the deferral may increase the tank universe and affect available resources of some implementing agencies. However, EPA provided ample time to allow implementing agencies and owners and operators of these systems to sufficiently plan and install the necessary equipment to meet the technical requirements. EPA is also establishing a single effective date that is consistent with other effective dates for regulatory compliance. This will decrease the tracking burden on implementing agencies and owners and operators.

Releases From Field-Constructed Tanks

EPA asked if anyone was aware of releases from FCTs and the sources, causes, and impacts to the environment from those releases. Most commenters were unsure or unaware of releases from FCTs. However, one commenter provided anecdotal information that releases have occurred from cracks in cement field-constructed tanks. In the 2011 proposed UST regulation, EPA provided details about several previous releases that occurred from FCTs. In 2014, a leak of approximately 20,000 gallons of jet fuel from a field-constructed tank located at Red Hill Underground Storage Tank Facility in Hawaii was discovered; a discrepancy in the tank's fuel levels helped detect the leak. Records show that field-constructed tanks at the facility have been leaking for numerous years and groundwater contamination is now migrating to nearby drinking water sources.²² At Adak Island, Alaska's Tank Farm A, records show fuel was released at various times from 21,000 to 420,000 gallon field-constructed tanks and piping. As of 2014, all tanks have been removed, but the former fuel farm is still undergoing remediation through long term monitoring and monitored natural attenuation.²³ Also at Adak Island, an overfill during a fuel transfer caused 142,800 gallons of diesel fuel to leak from a 4.8 million gallon underground field-constructed tank into the immediate and surrounding environment, causing harm to native wildlife.²⁴

Releases can have a major impact on human health and the environment. Release prevention equipment, regular release detection tests, operator training, periodic walkthrough inspections, and proper operation and maintenance are keys to preventing and quickly identifying releases before they contaminate the surrounding environment. The final UST regulation adds these requirements for field-constructed tanks in order to help prevent and quickly detect leaks from these systems into the environment.

Alternative Options For Closing Very Large UST Systems

In the 2011 proposed UST regulation, EPA asked if we should consider alternative options for closing very large UST systems in place, such as allowing closure in place without filling the UST. EPA agrees with commenters that implementing agencies may need to have more flexibility in addressing these systems at closure. In the final UST regulation, EPA modified the closure requirement in § 280.71 to allow permanent closure by a method approved by the implementing agency.

Revising The Date In § 280.73 For Previously Deferred UST Systems

In § 280.73 of the 1988 UST regulation, owners and operators of FCTs permanently closed before December 22, 1988 were required to perform site assessments and close the systems if directed by the

²² <http://www.civilbeat.com/articles/2014/02/14/21045-red-hill-epa-may-force-new-fuel-leak-detection-system-for-toxic-spills/>

²³Tank Farm A http://dec.alaska.gov/Applications/SPAR/CCReports/Site_Report.aspx?Hazard_ID=686

²⁴ http://www.darrp.noaa.gov/northwest/adak/pdf/ADAK_DARPEA_FINAL_Draft%20PDF.pdf

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implementing agency. EPA asked if we should revise the date in § 280.73 and how many FCT systems have been closed since December 22, 1988. EPA agrees with the commenter who said this requirement should apply to any permanently closed FCT system. EPA disagrees with the commenter who stated the date should not be revised because there is a lower threat to the environment due to FCTs being sited in remote locations. However, because FCTs were not required to have release detection installed on them, EPA agrees that the impact of a release is higher because these systems contain large amounts of regulated product. Another commenter thought the date should not be revised because the universe of FCTs is unknown. Even though the 1988 UST regulation did not require FCT system owners and operators to provide notification to the implementing agency, FCTs contain large volumes of product and releases from them could greatly impact human health and the environment.

FCTs of all sizes may be sited in various types of locations. Additionally, the 1988 UST regulation did not require release detection, release reporting, or closure for these systems. Because the 1988 regulation deferred these tanks from the requirements of § 280.73, EPA will not require owners and operators to perform site assessments and closure on FCTs installed after December 22, 1988 but before the effective date of the final UST regulation, unless directed to do so by the implementing agency.

Other Comments

Feasibility of Regulation

One commenter asked why EPA is regulating FCTs and if any exist in Indian country. EPA always intended to fully regulate FCTs. Additionally, EPA gathered damage information that shows these systems can release massive amounts of fuel that can harm the environment. Although EPA is not aware of any FCTs in Indian country, a federal regulation is needed to provide consistent, minimum requirements wherever FCTs exist in the United States. Another commenter asked whether EPA should categorically exclude these tanks. Since the 1988 regulation, technology has advanced and is now available to address these systems. Also, although somewhat limited, technical standards for design and installation are available for these systems. In addition, release detection methods are currently available. Because of these factors, EPA determined we will include these tanks.

Construction And Installation Standards

EPA agrees with the commenter who stated EPA should reference the military construction standard in the final UST regulation. The UST regulation provides a reference to United Facilities Criteria (UFC) 3-460-01 – *Petroleum Fuel Facilities* as a construction and design standard for FCTs.²⁵ Although design standards are now available for aboveground field-constructed tanks, EPA is not aware of standards written according to a national code of practice developed by a nationally recognized or independent testing laboratory. If a commercial standard is not developed to address the need, non-military applications may use UFC 3-460-01, were applicable.

EPA agrees it is impracticable to provide a requirement without a construction standard. The final UST regulation references the only known construction and design standard available for FCTs. EPA disagrees with the commenter who suggested EPA in the final UST regulation not allow owners and

²⁵ UFC 3-460-01: United Facilities Criteria (UFC): Petroleum Fuel Facilities (01 Nov 2013) contains general criteria and standard procedures for the design and construction of military land-based facilities which receive, store, distribute, or dispense liquid fuels. It is also applicable to the handling of liquefied petroleum gases (LPG) and compressed natural gas (CNG). It provides guidance on the rehabilitation, deactivation, or closure of fueling facilities. Support facilities are also included. http://www.wbdg.orgccb/DOD/UFC/ufc_3_460_01.pdf

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operators to install FCTs. It is not EPA's decision to determine the feasibility or practicality of installing these systems. Large FCTs are used in different applications and owners and operators are responsible for ensuring that all applicable requirements are met.

Other Release Detection Concerns

EPA recognizes that these systems are different from conventional UST systems, but disagrees with the commenters who stated that applying leak detection for FCTs and bulk piping is technically challenging and impracticable. The release detection requirements in the final UST regulation balance environmental protection with concerns of massive system disruption. Stakeholders stated that conventional leak rates and frequencies can be applied to field-constructed tanks less than 50,000 gallons. EPA agrees with the commenter who said the wording in the table pertaining to pressure-based testing may be confusing to the reader. EPA clarified language in the final UST regulation table, including changing "maximum leak rate" to "leak rate not to exceed."

FCT Universe

Although one commenter suggested EPA provide a list of DoD owned FCTs, it is not feasible for us to do that because naming FCT system locations is sensitive information and could impair national security. EPA agrees there are smaller FCTs in the universe that may have been unaccounted for because the 1988 UST regulation did not require owners and operators of these tanks to notify. However, the final UST regulation requires owners and operators notify one time of FTC's existence so implementing agencies have an accurate inventory of these systems.

Other Regulations That Affect Field-Constructed Tanks

One commenter stated spill and overfill requirements for a 230,000 gallon heating oil FCT are being met by Spill Prevention, Control, and Countermeasure (SPCC) regulations in 40 CFR part 112. Another commenter stated that EPA did not take into consideration existing state testing methodologies, using American Petroleum Institute (API) Standard 653 inspection combined with monitoring well release detection testing, and suggested that EPA should first evaluate the effectiveness of state requirements and determine adequacy of those regulations. The federal UST regulation is applicable to petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute). Another commenter suggested that EPA evaluate the effectiveness of existing state requirements for FCTs.²⁶

EPA is aware that owners and operators comply with SPCC requirements for their FCTs. However, UST and SPCC regulations complement each other. The SPCC regulation focuses on oil discharges that could impact navigable waters, while the UST regulation focuses mainly on day-to-day maintenance and operation to prevent releases to soil and groundwater. For example, the SPCC regulation requires a tank inspection, such as a modified API Standard 653 inspection, which ensures aboveground storage tanks and piping are structurally sound.²⁷ API 653 requires an interior and exterior inspection of the tank to assess structural integrity. This standard relies on a mean-time to corrosion failure and condition of the tank in order to project potential failure. Several elements of the standard call for information from inspections or procedures associated with activities conducted on the external surface of the tank.

²⁶ New York allows owners and operators to perform a modified American Petroleum Institute (API) Standard 653 inspection combined with monitoring well release detection for large field-constructed tanks.

²⁷ EPA reviewed API 653 – Tank Inspection, Repair, Alteration, and Reconstruction. This standard applies to tanks built to API Standard 650, which covers aboveground welded tanks storing oil. The standard indicates it may apply to any steel tank constructed in accordance with a tank specification.

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Although EPA believes this standard could be suitable for application to underground tanks on a case-by-case basis, it lacks necessary specificity for EPA to establish set performance criteria comparable to those provided in the final UST regulation and applicable to all regulated FCTs. For instance, intervals of inspections, according to the standard, are determined by factors that include: product stored, visual checks (the standard calls for external checks not to exceed monthly for tanks), corrosion allowance and corrosion rates, taking ultrasonic thickness measurements (external), conditions found during previous inspections, and jurisdictional regulations. However, owners and operators have the option to demonstrate to the implementing agency a tailored application of API 653 based on the specifics of their FCT.

EPA is aware that some states have existing requirements for FCTs. In the final UST regulation, EPA is providing several specific release detection options, which owners and operators may already be meeting because of state requirements. The final UST regulation also maintains the option for owners and operators to use another comparable method approved by the implementing agency.

As a result, EPA determined that although owners and operators may currently perform similar requirements, for example, performing inventory control to ensure regulated product is not releasing into the environment or training personnel on release response under the SPCC, these requirements may not be fully comparable to the requirements of the final UST regulation. Therefore, the final UST regulation requires owners and operators meet release prevention and release detection requirements, some of which owners and operators may already be performing.

Clarifying Terms And Requirements

One commenter suggested EPA define bulk or eliminate use of the term if a bulk underground storage tank is no different from an underground storage tank or if a bulk line is no different from a line piping. One commenter stated the deferral for aboveground components was confusing since the regulations apply to USTs. Another commenter stated that it was unclear whether the deferral for aboveground component was for FCTs or certain aboveground storage tanks. One commenter requested EPA add specific language to define field-constructed fiberglass reinforced tanks that also includes closure requirements and site assessment of the existing tank. The commenter added that the technology would be prohibited under the final UST regulation unless specific language is used.

EPA agrees with the commenter who suggested that EPA delete the term bulk and we are removing the term from the final UST regulation. In the 2011 proposed UST regulation, EPA used the term bulk to describe USTs and piping greater than 50,000 gallons. EPA determined that all tank systems that meet the definition of UST are in the same category.

Several commenters requested EPA provide a definition for FCT. The 1988 UST regulation did not provide a definition for FCT; however, the preamble described a FCT as a tank usually constructed of steel or concrete and shaped like a flat vertical cylinder, with a capacity of greater than 50,000 gallons. As an example, tanks that are principally factory built but assembled in the field are considered factory built tanks. For example, welding two halves of a factory constructed tank together in the field does not qualify the tank as a field-constructed tank.

The final UST regulation defines FCT as a tank constructed in the field. For example, a tank constructed of concrete that is poured in the field, or a steel or fiberglass tank primarily fabricated in the field is considered field-constructed. Please note this definition excludes those tanks with components primarily manufactured in a factory with minimal assembly in the field. EPA considers those tanks are factory built tanks. Field-constructed tanks vary from small to very large in capacity, but may exceed size or shape limitations that prohibit transportation of the tank in whole to the UST site. These storage containers

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present an engineering or design concern that cannot be addressed by fabrication in a factory or are more ideally addressed through in-field construction. This definition includes mounded tank and partially buried tank, defined in 40 CFR part 112 or other such storage container only if 10 percent or more of the volume is beneath the ground surface or otherwise covered with earthen material. This definition does not include a surface impoundment, such as natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials) that is not an injection well, pit, pond, or lagoon. A field-constructed tank that is part of a wastewater treatment system is partially excluded from the UST regulation in accordance with § 280.10(c).

Even though it is appropriate to regulate FCTs that meet the definition of an UST, these unique systems are designed differently than conventional UST systems. The final UST regulation reflects that uniqueness by modifying the 2011 proposed UST regulation to create the new subpart K, which contains specific requirements for airport hydrant systems and field-constructed tanks. EPA also thinks that creating this new subpart will decrease implementing agency and owner and operator confusion on the requirements for these systems.

EPA disagrees with commenters who stated that the final UST regulation should not provide a deferral for aboveground storage tanks. Some FCTs contain aboveground storage tanks and aboveground components. The final UST regulation defers all aboveground storage components from technical requirements because the SPCC program best regulates aboveground components. To prevent dual regulation of those components under 40 CFR part 280 and 40 CFR part 112, the final UST regulation maintains the deferral on aboveground portions of the system. However, the volume contained in the aboveground components is used to calculate the total volume and determine whether the entire FCT meets the definition of an UST system. After the effective date of the final UST regulation, EPA will provide guidance to stakeholders and provide states and the regulated community with further clarity on regulated FCTs and their components.

Technical And Operational Challenges

One commenter was unclear as to why new or replaced piping associated with FCTs are not required to be secondarily contained, since an existing or new FCT is not different from a shop-fabricated tank. The final UST regulation does not regulate secondarily contained piping associated with FCTs equal to or greater than 50,000 gallons. This piping is typically larger diameter and runs for long distances; it is difficult to: slope the piping back to an interstitial monitoring area; keep water out of the interstitial area of these long piping runs, which increases the chance of corrosion; and add corrosion protection inside the interstitial area of the piping. All of these issues could potentially lead to reduced environmental protection, if EPA required this piping to meet the secondary containment requirement.

Notification

The 2011 proposed UST regulation discussed that owners and operators of existing FCTs would notify implementing agencies one time within 30 days of the date of the final UST regulation. One commenter asked what owners would certify, since the 1988 UST regulation did not require owners of FCTs notify implementing agencies about installation. The commenter also wanted to know how owners could certify installation since installation records and standards for these tanks are probably non-existent. EPA thinks that, because this is a new requirement, owners and operators of FCTs will need more than 30 days to notify their respective implementing agencies. The final UST regulation modifies the 2011 proposed UST regulation and requires owners and operators of existing FCTs notify of existence to implementing agencies within one year of the effective date. This change allows owners and operators, as well as implementing agencies, time to identify FCTs covered by the final UST regulation and gives

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implementing agencies time to include these systems in their inventories. Owners and operators will have to certify proper installation only for newly installed FCTs according to § 280.22.

Proposal To Regulate Wastewater Treatment Tank Systems That Are Not Part Of A Wastewater Treatment Facility Regulated Under Sections 402 Or 307(b) Of The Clean Water Act

Summary

- More than 20 commenters provided input on EPA's proposal to regulate wastewater treatment tank systems that are not part of a wastewater treatment facility regulated under §§ 402 or 307(b) of the Clean Water Act – 2 supported it; 22 opposed it

Support

Two commenters supported removing the deferral.

Commenters: [0237, 0313]

Oppose

Most commenters opposed removing the deferral of these tanks. Commenters provided various comments discussed below.

Commenters: [0343, 0339, 0246, 0311, 0313, 0326, 0352, 0421, 0341, 0386, 0417, 0408, 0402, 0346, 0345, 0344, 0398, 0345, 0352, 0422, 0384, 0364]

Information On Wastewater Treatment Systems Subject To The Proposed Change, Including Number And Location Of Systems

EPA asked commenters if they were aware of wastewater treatment systems affected by the proposed change. EPA also asked commenters to provide information about the number and location of wastewater treatment tank systems that would be regulated. To provide clarity, EPA identified an example of where these systems may be located: wastewater treatment tank systems associated with natural gas drilling (underground injection control wells)²⁸ not regulated by §§ 402 or 307(b).

Ten commenters were either unaware of the existence of wastewater treatment tanks systems or believed none existed, but did not provide additional information. One commenter asked why EPA proposed regulating these tank systems if we thought there were none. One commenter requested EPA provide a definition for wastewater treatment tank. Several commenters were aware of these tank systems and provided the following details. One commenter stated that the UST program is not the implementing agency for tank systems associated with oil or gas drilling. One commenter noted that as part of an aquifer protection program, the implementing agency performs a biennial inspection of wastewater treatment tank systems that collect fuel releases and contaminated storm water runoff at fueling sites. In that state, owners and operators are required to remove measurable amounts of petroleum product in the separators. One commenter knew of three facilities in Wyoming and several facilities in Florida that inject treated effluent into groundwater under an underground injection control (UIC) permit. Several commenters stated wastewater treatment tank systems are located at facilities such as airports, utility companies, repair shops, manufacturing facilities, car washes, parking lots, etc., and empty into oil water

²⁸ Underground injection control (UIC) wells - A bored, drilled, or driven shaft, or a dug hole that is deeper than it is wide; an improved sinkhole; or a subsurface fluid distribution system. Underground injection places wastewater deep underground into porous rock formations.

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separators, holding tanks, or the environment. Several commenters added that owners and operators use these tanks as a form of secondary containment to comply with the Spill Prevention, Control, and Countermeasure (SPCC) regulation.²⁹

Commenters: [0222, 0237, 0311, 0328, 0313, 0396, 0399, 0388, 0238, 0373, 0345, 0243, 0246, 0349, 0368, 0339, 0364, 0417, 0380, 0344, 0408, 0398]

Should EPA Regulate, Exempt, Or Continue To Defer These Systems And Why

EPA asked commenters if and why wastewater treatment tank systems not regulated by §§ 402 or 307(b) should be regulated, exempted, or whether the deferral in the 1988 UST regulation should remain. EPA also asked commenters to provide a reason for their recommendations. Two commenters suggested EPA regulate these systems. One commenter said EPA should regulate these tanks according to the definition of an UST. An implementing agency suggested that if EPA does not provide additional money to address the burden of implementing this change, then we should reconsider it.

Two commenters suggested EPA exempt or exclude wastewater treatment tank systems. Two implementing agencies did not consider that wastewater treatment tank systems are regulated under the 1988 UST regulation, and said the final UST regulation should exempt or exclude all oil water separators. Several commenters suggested other requirements might cover these systems (for example, SPCC, stormwater permit, Safe Drinking Water Act (SDWA),³⁰ other state permits). Additionally, commenters suggested EPA exempt wastewater treatment tank systems permitted under another regulatory or state program. Eleven commenters suggested EPA retain the deferral, which is in the 1988 UST regulation. In addition, one commenter added that these tank systems are not designed to contain petroleum and mostly contain water. One commenter stated EPA should continue to defer wastewater treatment tank systems or exempt from the final UST regulation those tanks covered under SDWA. One commenter suggested EPA defer these systems until we gather information about the tank universe and how these tanks operate. One implementing agency suggested EPA partially exclude wastewater treatment tank systems from technical standards, financial responsibility, and certification requirements because language in the 1988 UST regulation is too restrictive. Another commenter said EPA should continue the deferral or add the term underground to precede wastewater treatment tank systems at § 280.10(a)(1).

Four commenters requested clarification that de minimis, emergency, and capacity exclusions defined in the 1988 UST regulation would still apply. Two commenters suggested EPA expand the exclusion to cover all wastewater treatment tanks systems; this would alleviate owner and operator confusion about the wastewater treatment tank systems regulated in the 1988 UST regulation. One commenter suggested EPA grandfather existing wastewater treatment tank systems, which would mean that the final UST regulation applies to tanks installed after the effective date. One commenter stated regulating wastewater treatment tank systems would create an unnecessary and confusing overreach with no additional health or environmental benefits.

Several commenters requested EPA clarify our intent for regulating wastewater treatment tank systems, as it relates to oil water separators (OWSs). Commenters stated:

²⁹ The purpose of the Spill Prevention, Control, and Countermeasure (SPCC) regulation is to help facilities prevent a discharge of oil into navigable waters or adjoining shorelines. This regulation was published under the authority of Section 311(j)(1)(C) of the Clean Water Act and is available at 40 CFR part 112. A facility is covered by the SPCC rule if it has an aggregate aboveground oil storage capacity greater than 1,320 U.S. gallons or a completely buried storage capacity greater than 42,000 U.S. gallons and there is a reasonable expectation of an oil discharge into or upon navigable waters of the U.S. or adjoining shorelines.

³⁰ The Safe Drinking Water Act (SDWA) protects public health by regulating the nation's public drinking water supply and sets standards to ensure drinking water quality. The UIC program is included in SDWA regulations.

- Keep the deferral or provide a separate exemption for OWSs
- Remove the deferral and exempt OWSs
- Clarify the exclusion for OWSs that discharge to a National Pollutant Discharge Elimination System (NPDES) permitted system, regardless of the distance to outfall
- Address how the 1988 UST regulation applies to OWSs that also function to meet SPCC requirements and
- These tanks have not caused problems that would be resolved by changing the final UST regulation

A few commenters stated EPA has not specified applicable standards, and the existing standards are inappropriate. Five commenters stated it might be technically infeasible to install release prevention and detection equipment, because these are concrete tanks with open tops. One commenter added that groundwater monitoring is the only feasible means of release detection for these tank systems. One commenter suggested finalizing the notification requirement and maintaining the deferral in the 1988 UST regulation for other requirements until EPA defines the applicable universe. In addition, the commenter offered assistance with determining appropriate protections for wastewater treatment tank systems.

Commenters: [0237, 0313, 0345, 0326, 0339, 0380, 0311, 0313, 0402, 0346, 0422, 0344, 0398, 0238, 0300, 0396, 0349, 0352, 0368, 0421, 0339, 0386, 0364, 0238, 0313, 0417, 0408, 0373, 0301, 0344, 0328, 0399, 0343, 0246, 0341, 0386, 0348]

Other Comments

Several commenters stated EPA did not provide support in the administrative record to remove the deferral. One commenter said EPA did not provide statistics on environmental risks and did not make the case that regulating these tanks will prevent future releases. In addition, commenters stated wastewater treatment tank systems are unique, smaller, contain small concentrations of petroleum, and pose a low risk of harm to the environment. Commenters also said EPA did not define or clarify the regulated universe of tanks. A few commenters stated it was impossible for EPA to justify the costs and benefits of regulating an unknown universe and that regulation costs are underestimated. Several commenters stated regulating an unknown universe would add unknown increased burden and confusion for owners and operators, as well as implementing agencies.

Many commenters questioned the feasibility of meeting the 2011 proposed UST regulation technical requirements and performance standards for wastewater treatment tank systems. Two commenters suggested owners would need to extensively modify their tanks and convert them in order to meet UST, rather than SPCC, requirements; however, those commenters did not provide additional information. One commenter stated heating oil tanks are more of a risk because they contain a higher concentration of petroleum.

A few commenters added EPA should have determined the universe before proposing to regulate wastewater treatment tank systems. One commenter stated removing the deferral may not be warranted and EPA should consider the burden imposed on implementing agencies. A few commenters added EPA does not have authority to regulate wastewater treatment tank systems and should make risk based case-by-case decisions for regulating them. One commenter stated removing the deferral might extend regulatory authority to an area where most UST inspectors have little knowledge, and this could lead to unintended consequences.

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Many commenters suggested EPA provide a definition for wastewater treatment tank and provide clarification of the type of tanks (for example, oil water separators, zero discharge tanks, holding tanks) subject to the final UST regulation. EPA received a few comments asking for clarification on how an oil water separator is included in the definition of a regulated tank and not considered a collection system or flow-through process tank. Three commenters suggested EPA expand the wastewater treatment tank system exclusion at § 280.10 (b)(2) to include petroleum and hazardous substance tanks. One commenter added the 1988 UST regulation applies to many systems associated with various sources and these tanks discharge to the environment. In addition, one commenter stated the 2011 proposed UST regulation would exclude all oil water separators from the final UST regulation, but provided no additional information on why this was the case.

One commenter suggested EPA define or delete the term new tank system because as currently worded, wastewater treatment tank systems installed after 1988 still must meet new tank system standards. Two commenters suggested EPA clarify how owners and operators would certify wastewater treatment tank system installation when the 1988 UST regulation deferred these tanks from notification requirements in § 280.22 and reporting requirements in § 280.34. In addition, commenters asked how stakeholders would certify installation of existing systems, since there are no standards to certify installation.

Several commenters stated the performance standards for secondary containment and leak detection in § 280.20 are infeasible for these systems. In addition, a few commenters suggested EPA clarify which portion of the wastewater treatment tank system would need secondary containment. Two commenters believed the performance standards in § 280.20 would apply for wastewater treatment tank systems, since some are field constructed. One commenter asked EPA clarify the intent to reference and apply National Association of Corrosion Engineers (NACE) standards.

Commenters: [0397, 0326, 0313, 0421, 0401, 0422, 0339, 0384, 0246, 0349, 0352, 0368, 0421, 0427, 0396, 0238, 0341, 0388, 0386, 0364, 0417, 0268, 0408, 0300, 0308, 0346, 0399, 0238]

EPA received these comments on phase in time frames:

- Phase in should be the same for all previously deferred USTs, unless there is a grandfather clause for existing wastewater treatment tank systems
- Allow a minimum five to ten year phase in
- Subparts B, E, G, and H should be effective one year after the effective date of the final UST regulation and
- EPA should grandfather existing deferred tanks and apply regulations to tank systems installed after the effective date of the final UST regulation; this would alleviate previously deferred tanks becoming non-compliant because there were no standards at the time of installation

Commenters: [0402, 0238, 0313, 0246, 0313, 0384, 0422, 0399, 0238, 0401, 0380]

EPA Response

The 2011 proposed UST regulation recommended removing the deferral from wastewater treatment tank systems and requiring them to meet all requirements of 40 CFR part 280. This meant owners and operators of the following wastewater treatment tank systems would have been required to comply with the final UST regulation:

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- Regulated under the Underground Injection Control (UIC) program, which is authorized by the Safe Drinking Water Act³¹
- Do not discharge wastewater or³²
- Discharge wastewater, but are not regulated by either the Clean Water Act or Safe Drinking Water Act³³

EPA defines wastewater treatment tank as stated in the 1988 UST regulation.³⁴ The 1988 UST regulation deferred wastewater treatment tank systems because EPA was uncertain of the number that existed and the appropriateness of some of the release detection technologies for these systems. At the time of the 2011 proposed UST regulation, EPA was still uncertain of the number of wastewater treatment tank systems that existed. Since issuing the 1988 UST regulation, release detection technologies have advanced. However, EPA believed that removing the deferral would allow us to determine how many systems would be affected by the final UST regulation. Although the 2011 proposed UST regulation raised stakeholder awareness of these tanks, there still is uncertainty about the total universe.

EPA received two comments suggesting we remove the existing deferral for wastewater treatment tank systems; however, most other commenters opposed removing the deferral. Many commenters expressed general uncertainty about the type of wastewater treatment tank systems affected by the 2011 proposed UST regulation and requested EPA provide a definition and clarity about these systems. In 2012, EPA published a document,³⁵ which provides more information about the universe of affected USTs and alleviates confusion about systems regulated by the final UST regulation.

Move From Deferred To Excluded

In the 2011 proposed UST regulation, EPA recommended removing the 1988 deferral for wastewater treatment tank systems. The 1988 UST regulation used the term deferred for wastewater treatment tank systems. This indicated that although these tanks were subject to some parts of the UST regulation, EPA intended to continue evaluating the applicability of fully regulating them in the future. EPA reconsidered these tanks and is making a final determination. EPA is excluding these tanks from certain parts of the final UST regulation, however the regulatory requirement remains the same. EPA believes this level of regulation is appropriate for these tanks.

Today's final UST regulation excludes wastewater treatment tank systems from subparts B (*UST Systems: Design, Construction, Installation and Notification*); C (*General Operating Requirements*); D (*Release Detection*); E (*Release Reporting, Investigation, and Confirmation*); G (*Out-of-Service UST Systems and Closure*); H (*Financial Responsibility*); J (*Operator Training*); and K (*UST Systems with Field-*

³¹ For example, wastewater treatment tanks that discharge to one of the classes of underground injection wells identified by the UIC program would be regulated by the 2011 proposed UST regulation. For detailed information on underground injection wells see: <http://water.epa.gov/type/groundwater/uic/index.cfm>.

³² These tanks receive, treat, and store wastewater until it is pumped out and hauled off-site.

³³ For example, wastewater treatment tanks that discharge to the environment, but not to waters of the United States or to a UIC well would be regulated by the proposed regulation.

³⁴ Wastewater treatment tank means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods. <http://www.epa.gov/oust/fedlaws/pre2804a.htm>

This means if wastewater flows through a system and is treated in some way, then that system is considered a wastewater treatment tank system. For example, oil water separators treat wastewater by separating the oil from the water and therefore are wastewater treatment tank systems. A wastewater treatment tank is not subject to regulation if it: contains a de minimis concentration of regulated substance; is less than 110 gallons; or is an emergency spill or overflow containment UST system that is expeditiously emptied after use. Wastewater treatment tanks not subject to the Clean Water Act are subject to UST regulation. If the wastewater treatment tank is part of a NPDES permitted system, it is excluded. In addition, zero-discharge tanks are excluded because wastewater municipalities permit them under the Clean Water Act. However, a separate holding tank containing more than a de minimis concentration of petroleum substance is subject to the final UST regulation.

³⁵ http://www.epa.gov/oust/fedlaws/wwtts_2-29-12_final.pdf

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Constructed Tanks and Airport Hydrant Fuel Distribution Systems). EPA thinks owners and operators of these systems need to continue meeting the scope and installation requirements in § 280.10 of subpart A and the release response and corrective action requirements of subpart F, because it is still appropriate to install corrosion protected tanks and maintain the authority to require cleanup of releases, if they occur.

One commenter suggested requiring owners and operators only meet the notification requirement. This will no longer apply because the final UST regulation excludes owners and operators from the notification requirements. One commenter suggested that all wastewater treatment tank systems are small and contain a small concentration of petroleum. EPA found that wastewater treatment tanks vary in size and the amount of petroleum they contain. Some commenters indicated that these systems are covered by other federal regulations and other permitting requirements, and removing the deferral may cause these tanks to meet performance standards for both the final UST regulation and other regulations. Since issuing the 2011 proposed UST regulation, EPA learned of different types of wastewater treatment tank systems that are not excluded under § 280.10(b) and otherwise regulated in the final UST regulation. Also, EPA verified from stakeholders that other regulations and state permitting programs may regulate these systems.^{36,37,38,39,40,41,42,43,44}

Some commenters stated EPA did not adequately address the benefits of regulating wastewater treatment tank systems. EPA used the 2011 proposed UST regulation to identify the wastewater treatment tank universe. Initially, EPA assumed few, if any, of these tanks existed and all other systems were regulated under §§ 402 or 307(b) of the Clean Water Act. Therefore, EPA did not address costs or benefits of regulating these systems. EPA understands that implementing new requirements may result in increased burden on stakeholders and implementing agencies. However, EPA believed the impact would be negligible based on a small universe of wastewater treatment tank systems.

EPA acknowledges the commenter who suggested the term underground be added preceding the phrase wastewater treatment tank systems in § 280.10(a) (1). However, 40 CFR part 280 pertains to USTs and EPA believes it is unnecessary to add the term underground to help describe these tank systems. Several commenters asked EPA clarify that the exclusions in § 280.10 still apply. The final UST regulation does not apply to wastewater treatment tank systems meeting the requirements in § 280.10 (b).⁴⁵ EPA disagrees with the commenter who suggested adding Resource Conservation Recovery Act Subtitle C to the exclusion in § 280.10(b)(2). The exclusion in § 280.10(b)(1) includes USTs that contain hazardous waste.

EPA acknowledges the commenter who suggested regulating wastewater treatment tank systems according to the risk of harming the environment. However, it may be difficult for implementing agencies to determine which of these systems have the most potential for release. EPA disagrees with the commenters who stated we should exclude all wastewater treatment tank systems from the final UST regulation. EPA also disagrees with the commenter who suggested EPA grandfather existing wastewater treatment tank systems from the final UST regulation. EPA is excluding all wastewater treatment tank

³⁸ September 2007 telephone conversation with Lamar Bradley, Tennessee Department of Environment and Conservation.

³⁹ April 2012 telephone conversation with Ming Pan of the Massachusetts Department of Environmental Protection.

⁴⁰ September 2012 telephone conversation with personnel from the Panhandle District , Idaho.

⁴¹ April 2012 telephone conversation with Chris Wiesberg of the Missouri Department of Natural Resources .

⁴² April 2012 telephone conversation with Tom Groves of the New England Interstate Water Pollution Control Commission .

⁴³ March 2012 telephone conversation with Kevin Brackney of the Nez Perce Tribe.

⁴⁴ April 2012 telephone conversation with Mary Hansen of the Washington State Department of Ecology .

⁴⁵ An UST system (including applicable wastewater treatment tanks) is not subject to regulation if it: contains a de minimis concentration of regulated substance; is less than 10 gallons; or is an emergency spill or overflow containment UST system that is expeditiously emptied after use.

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systems from most parts of the final UST regulation, but believes requirements in Subparts A and F will ensure tanks are installed with corrosion protection and releases, if they occur, are cleaned up.

Commenters requested EPA provide clarification on applicability of oil water separators in the final UST regulation. Oil water separators are one type of wastewater treatment tank. However, since EPA is excluding these systems from much of the final UST regulation, we believe additional clarification is unnecessary.

Commenters also requested EPA clarify how oil water separators are not part of a flow-through process or wastewater collection system. EPA considers collection and treatment as separate and distinct function. Treatment does not occur during the collection process. A collection system includes all appurtenances that extend to and from designated areas where treatment occurs (effluent flows to the oil water separator for some type of treatment to occur). Flow-through process tanks are part of a production process and there is a flow of materials during the process. Similar to the 1988 UST regulation, the final UST regulation exempts both collection systems and flow-through process tanks.

Several commenters questioned whether there are appropriate technical standards for wastewater treatment tank systems. The American Petroleum Institute, Underwriters Laboratories, manufacturer installation, and United States Army have standards for oil water separators. Some oil water separators are double walled and include release detection. However, EPA is providing an exclusion from Subpart B of the final UST regulation, so it is unnecessary to address technical standards for these systems.

Several commenters voiced these concerns about the feasibility of installing release prevention and detection equipment:

- Difficulty operating automatic tank gauging
- Infeasibility of third party certified release detection for existing single walled tanks that have unmetered or unmeasured input and output
- Difficulty monitoring compartmentalized systems
- Infeasibility of monitoring open top tanks and
- Uncertainties in achieving desired release detection results on certain wastewater treatment tank systems

EPA is aware of potential challenges with implementing release detection and prevention requirements for these systems. Thus, the final UST regulation does not require owners and operators to comply with release prevention or detection requirements.

The 2011 proposed UST regulation recommended all existing wastewater treatment tank systems begin meeting requirements three years from the date of the final UST regulation, with newly installed systems meeting the requirements on the date of installation. EPA acknowledges the commenter who suggested we either provide a definition or delete the phrase new tank system in order to address existing tank system requirements. EPA also acknowledges comments requesting that we clarify installation certification of existing systems. However, since the final UST regulation excludes these systems from Subpart B , these issues no longer apply.

Several commenters stated EPA should provide a case history of releases for these tanks or show cause for removing the deferral from wastewater treatment tank systems. The 1988 UST regulation did not require owners and operators of these tank systems to comply with the notification requirements for suspected releases. As a result, there are no documented releases from them. However, these concerns are now irrelevant because owners and operators of these tank systems are excluded from many of the

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requirements in the final UST regulation. The final UST regulation requires owners and operators to comply with the same requirements as the 1988 UST regulation. One commenter suggested EPA consider regulating heating oil tanks, which the 2011 proposed UST regulation did not discuss. Heating oil tanks used to store heating oil for consumptive use on the premises where stored are statutorily excluded from the federal UST regulation.

Several commenters expressed concern about notification, phase in, and implementation time frames in the 2011 proposed UST regulation. When EPA developed the proposal, we determined those time frames would allow owners and operators ample opportunities to comply with the final UST regulation. EPA agrees implementation time frames should allow opportunity for determining the applicable universe and preparing to comply with the final UST regulation. However, today's final UST regulation excludes wastewater treatment tank systems from those requirements and, subsequently, those concerns related to time frame are irrelevant.

Proposal To Maintain The Deferral For USTs Containing Radioactive Materials Regulated Under The Atomic Energy Act Of 1954 And USTs That Are Part Of An Emergency Generator System At A Nuclear Power Generation Facility Regulated By The Nuclear Regulatory Commission

Summary

- 17 commenters provided input on EPA's proposal to maintain the deferral for USTs containing radioactive materials and for emergency generator USTs at facilities regulated by the Nuclear Regulatory Commission (NRC) – 8 supported it; 2 opposed it

Support

Eight commenters supported maintaining the deferral with no additional comments. One commenter added EPA should maintain the deferral in order to avoid dual regulation with other federal agencies.

Commenters: [0222, 0243, 0265, 0301, 0328, 0313, 0388, 0399]

Oppose

One commenter suggested that USTs containing radioactive material regulated under the Atomic Energy Act (AEA) of 1954 be exempt from 40 CFR part 280. The commenter stated the Nuclear Regulatory Commission may grant limited authority by agreement, but the Atomic Energy Act grants NRC exclusive authority over radioactive materials, as well as construction and operation of nuclear power facilities. The commenter cited the decision of the Supreme Court of the United States that allows AEA to preempt laws that seek to regulate the operation of nuclear facilities and management of radiological materials (however, NRC may cede some limited authority by agreement while retaining jurisdiction over nuclear facilities and materials).⁴⁶ In addition, the commenter stated NRC facilities may respond as required and authorized by NRC's operating license, but could not immediately respond to petroleum releases or perform corrective action. However, owners or operators perform site assessments prior to subsurface drilling or excavation to avoid compromising plant safety and operations.

One commenter suggested that, to avoid dual regulation, EPA not regulate an UST system that is a part of an emergency generator system at a nuclear power generation facility regulated by NRC. The commenter also suggested EPA follow the Spill Prevention Control and Countermeasures (SPCC) regulation in 40 CFR part 112⁴⁷ and exempt these tanks from the final UST regulation. The commenter stated NRC's regulatory oversight includes 24 hour a day on-site inspectors and these tanks are subject to the highest level of quality control and management under NRC's rules; from 1997 to 2007, one 50-gallon spill occurred. The commenter also stated there is no indication in the 2011 proposed UST regulation that NRC and the Department of Energy (DOE) disavowed having release response authority.

Commenters: [0339, 0346]

EPA Response

In the 2011 proposed UST regulation, EPA recommended maintaining the 1988 deferral for these tanks. The 1988 UST regulation used the term deferred for USTs containing radioactive materials and for

⁴⁶ Section 274c (42 U.S.C. 2021(c))

⁴⁷ www.epa.gov/fedrgstr/EPA-WASTE/2008/December/Day-05/f28159.htm

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emergency generator USTs at facilities regulated by the Nuclear Regulatory Commission. This indicated that although these tanks were subject to some parts of the UST regulation, EPA intended to continue evaluating the applicability of fully regulating them at a future date. EPA has now reconsidered these tanks and is making a final determination. Today's final UST regulation excludes these tanks from certain parts of the final UST regulation; however, the regulatory requirements for these systems remain the same.

Today's final UST regulation excludes USTs containing radioactive materials and for emergency generator USTs at facilities regulated by the NRC from subparts B (*UST Systems: Design, Construction, Installation and Notification*); C (*General Operating Requirements*); D (*Release Detection*); E (*Release Reporting, Investigation, and Confirmation*); G (*Out-of-Service UST Systems and Closure*); H (*Financial Responsibility*); J (*Operator Training*); and K (*UST Systems with Field-Constructed Tanks and Airport Hydrant Fuel Distribution Systems*).

EPA concluded DOE orders and NRC regulations adequately cover release prevention and release detection for these tanks. However, EPA believes owners and operators of these systems need to continue meeting the scope and installation requirements in § 280.10 (subpart A), and the release response and corrective action requirements (subpart F) because it is still appropriate to install corrosion protected tanks and maintain the authority to require cleanup of releases from these tanks, if the need arises.

One commenter indicated the Atomic Energy Act retains authority and jurisdiction to preempt other regulatory authorities. EPA thinks it is in the best interest of all to ensure that both USTs containing radioactive materials and emergency generator tanks at nuclear power facilities are protected from corrosion in order to prevent leaks and safeguard human health and the environment. In addition, EPA believes in the event of a tank system leak, both DOE and NRC will work in partnership with the implementing agency to remediate any resulting contamination.

One commenter stated that the 2011 proposed UST regulation does not indicate if NRC and DOE disavowed having release response authority. EPA gathered data prior to the 2011 proposed UST regulation, but did not include the citations in the proposal. However, after issuing the 2011 proposed UST regulation, EPA analyzed requirements for release response and corrective action at facilities regulated by NRC and DOE as they pertain to USTs storing radioactive material and emergency generator USTs containing petroleum products. DOE established orders that provide policies, requirements, responsibilities, and procedures for its contractors. DOE's orders require its contractors to comply with 40 CFR part 280.^{48,49} Although NRC regulations require characterization of a release and calculations to

⁴⁸ February 24, 2013 telephone conversation with Jerry DiCierbo, Environmental Protection Specialist, Office of Environmental Guidance, DOE. There are approximately 70 emergency generators that may be used for petroleum storage and are subject to the same release reporting and response requirements as other parts of the facilities.

⁴⁹ [DOE Order 458.1](#) - Instead of listing individual requirements for remediation, this order defers to EPA regulations.

[DOE Order 231.1B](#) - Requires immediate notification of the implementing agency in the event of a release (the same action required in § 280.61).

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determine the amount of exposure,⁵⁰ there are currently no NRC regulations that require remediation of a release at an active facility.^{51,52,53,54}

One commenter opposed including emergency generator tanks at nuclear power facilities in the final UST regulation. In addition, the commenter referenced the 2008 SPCC exemption as a reason to exempt these tanks from the final UST regulation. The commenter also stated that NRC requirements adequately protect groundwater and the environment. Specifically, the commenter suggested that 10 CFR part 50 Appendix A requires immediate response to conditions that cause tanks to operate improperly or leak, and require corrective action to prevent recurrence of the condition. EPA's assessment is that corrective action in Appendix A refers to repairing the tank and not remediating any type of contamination. EPA agrees with the commenter and believes NRC regulations adequately address releases to navigable waters and shorelines and therefore meet SPCC requirements. However, EPA disagrees that NRC regulations equally address cleanup of releases from regulated USTs to groundwater. Therefore, EPA will retain its authority to require NRC and DOE to respond to releases.

EPA agrees with the commenter who suggested the final UST regulation should be consistent with the SPCC regulation. EPA confirmed that although the NRC issue facility licenses under 10 CFR part 52, there are no facilities licensed under that authority.⁵⁵ EPA is revising the regulatory citation referenced in § 280.10 so it is consistent with the SPCC regulation. Specifically, the regulatory citation referenced in § 280.10 states, *Any UST system that is part of an emergency generator system at nuclear power generation facilities licensed by the Nuclear Regulatory Commission and subject to Nuclear Regulatory Commission requirements regarding design and quality criteria, including but not limited to 10 CFR part 50.*

⁵⁰ NRC 10 CFR 20.1302: Compliance with dose limits for individual members of the public. In addition to characterizing a release, NRC regulation NRC 10 CFR 20.1302 requires that calculations ensure that the “annual average concentrations of radioactive material released in gaseous and liquid effluents do not exceed regulatory limits.” <http://www.nrc.gov/reading-rm/doc-collections/cfr/part020/part020-1302.html>

⁵¹ March 4, 2013 telephone conversation with Steven Garry, Health Physicist, Health Physics and Human Performance Branch, NRC

⁵² February 21, 2013 telephone conversation with Undine Shoop, Chief, Health Physics and Human Performance Branch, NRC. Most facilities choose to remediate an active release, as much as is feasible on their own, though it is not required through the NRC. In these cases, it has been determined to be in the best interest of the facility to remediate.

⁵³ NRC 10 CFR 50.82: Termination of licensee. <http://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-0082.html> 10 CFR part 50.82 requires facility operators include site characterizations in their licensee termination plan at decommissioning facilities.,

⁵⁴ NRC 10 CFR 51.53: Post-construction environmental reports. <http://www.nrc.gov/reading-rm/doc-collections/cfr/part051/part051-0053.html> 10 CFR part 51.53 requires that decommissioning facilities create plans for investigation of soil and groundwater cleanup.

⁵⁵ November 22, 2013 telephone conversation with James Roewer, Utility Solid Waste Activities Group (USWAG).

Proposal To Eliminate Flow Restrictors In Vent Lines As A Method Of Overfill Protection For New UST System Installations And When Overfill Prevention Equipment Is Replaced

Summary

- About 40 commenters provided input on EPA's proposal to eliminate flow restrictors in vent lines (commonly called ball float valves) as a method of overfill protection for new UST systems or when overfill protection equipment is replaced – 29 supported it; 10 opposed it

Support

Most commenters were generally supportive of the proposal. Twenty-nine commenters either supported the proposal or believed industry would not oppose the change. Several commenters suggested a more restrictive approach of requiring retrofits of flow restrictors with a different overfill protection device.

Commenters: [0222, 0238, 0243, 0246, 0289, 0298, 0308, 0311, 0312, 0313, 0316, 0323, 0326, 0342, 0343, 0344, 0348, 0371, 0380, 0396, 0399, 0401, 0407, 0409, 0413, 0422]

Oppose

One commenter opposed eliminating flow restrictors in vent lines as a method of overfill protection for new UST system installations and when overfill protection equipment is replaced. Five commenters suggested allowing continued use of flow restrictors in vent lines as long as they do not meet the restrictions listed in Petroleum Equipment Institute's recommended practice RP100, *Recommended Practices for Installation of Underground Liquid Storage Systems*. Four commenters suggested allowing their continued use as long as the flow restrictor is shown to operate effectively.

Commenters: [0209, 0264, 0327, 0339, 0346, 0352, 0363, 0387, 0388, 0412]

EPA Response

Based on the comments received, EPA is eliminating use of flow restrictors in vent lines as an overfill protection option for new UST system installations and when overfill equipment is replaced. Petroleum Equipment Institute's (PEI) recommended practice RP100 both establishes limits for their use and advises against using flow restrictors in all circumstances because proper installation and use creates a pressurized condition in the tank and releases flammable vapors at grade. Based on the advisory contained in PEI RP100, EPA will no longer allow use of flow restrictors for new UST system installations and when overfill prevention equipment is replaced. Another reason for eliminating their use is the difficulty in determining if flow restrictors in vent lines will effectively restrict flow when the tank is almost full (for example, is the top of the tank tight, or is the tank being filled using a remote fill location). Finally, because EPA is concerned with imposing additional costs on owners and operators of existing UST systems, the final UST regulation does not require retrofits of existing flow restriction devices in vent lines as long as the devices operate properly.

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Proposal To Require Closure Of Internally Lined Tanks If The Lining Fails Inspection And Cannot Be Repaired According To A Code Of Practice

Summary

- About 20 commenters provided input on EPA's proposal to require the closure of internally lined tanks used to meet the corrosion protection upgrade requirement if the lining fails the periodic inspection and cannot be repaired according to a code of practice developed by a nationally recognized association or independent testing laboratory – 11 supported it; 7 supported more restrictive requirements; 1 opposed it

Support

Most commenters generally supported the proposal. Eleven commenters supported the proposal as written and seven commenters supported more restrictive requirements. The more restrictive comments advocate either a phase out of all internally lined tanks used to meet the corrosion protection requirement or permanent closure of the tank if the lining failed the periodic inspection.

Commenters: [0238, 0243, 0265, 0311, 0312, 0313, 0316, 0326, 0334, 0343, 0348, 0363, 0371, 0383, 0393, 0396, 0399, 0422]

Oppose

One commenter, while supportive of the overall goals of the 2011 proposed UST regulation, did not support the specific requirement to require closure of internally lined tanks used to meet the corrosion protection requirement if the lining could in any way be repaired (whether or not the repair would meet a code of practice).

Commenters: [0233]

Other Comments

Two commenters offered these unique alternatives to requiring closure:

- Allow the UST to remain in use if it passes an integrity assessment that determines the tank is structurally sound and free of corrosion holes and require that cathodic protection be added to the tank and
- Do not allow lining repairs unless the entire lining is replaced as part of the repair (this allows inspectors to see perforations through the steel tank that the lining may cover).

One commenter indicated the proposal did not say whether an owner and operator can remove an existing lining and install a new lining if it fails. Another indicated EPA needs to clarify what it means for a lining to fail.

Commenters: [0237, 0311, 0399, 0413]

EPA Response

Based on the comments received, the final UST regulation requires the closure of internally lined tanks

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(where the lining is used to meet corrosion protection requirements) if the lining fails the periodic inspection and cannot be repaired according to a code of practice developed by a nationally recognized association or independent testing laboratory. EPA is not implementing the more restrictive approaches suggested by commenters because internal lining repairs are adequate when conducted according to a code of practice developed by a nationally recognized association or independent testing laboratory. In addition, the more restrictive approaches suggested would place additional, unnecessary financial burdens on UST owners and operators. EPA did not include either of the unique alternatives in the final UST regulation because internally lined tanks that fail the lining inspection and cannot be repaired according to a code of practice are generally older and nearing or past the end of their useful lives.

In the preamble to the final UST regulation, EPA clarifies this requirement only applies to tanks internally lined to meet the corrosion protection requirement at § 280.21 and does not apply to tanks lined for other reasons, such as compatibility or secondary containment. In addition, the preamble to the 1988 UST regulation indicates internal linings that fail, and cannot be repaired according to a code of practice, must be permanently closed and cannot be fixed by replacing the failed lining with another lining. Finally, EPA explains in the preamble to the final UST regulation that pass or fail criteria for internal linings are part of the codes of practice.

Proposal For Changes To Notification Requirements

Summary

- 27 commenters provided input on EPA's proposal to change the notification requirements at § 280.22, revise the notification form in Appendix I, and issue a new notification of ownership change form in Appendix II
- 5 commenters generally supported EPA's proposal to change the notification requirements at §280.22 and 3 commenters opposed requiring one-time notification of existence for emergency generator tanks
- Other comments addressed:
 - The time frame required for submitting notification
 - The person required to submit the notification
 - Revisions to the notification forms and regulatory language
 - Additional requirements for notification
 - One-time notification for all UST owners in jurisdictions where implementing agencies do not currently require ownership change notification

Notification Requirement Changes In § 280.22

Five commenters provided general support for the proposed changes to notification requirements.

Commenters: [0326, 0338, 0343, 0344, 0348]

Oppose

Three commenters opposed requiring one-time notification of existence for emergency generator tanks. The commenters noted that while emergency generator tanks were deferred from leak detection since 1988, they were not deferred from notification or other requirements in the 1988 UST regulation. Therefore, this notification is unnecessary.

Commenters: [0235, 0368, 0380]

Time Frame Required For Submitting Notification

Three commenters requested EPA lengthen the notification of ownership change requirement from 30 days to 60 days. Four commenters requested EPA lengthen the one-time notification of existence requirement for previously deferred UST systems from 30 days to 180 days. One commenter requested EPA lengthen the one-time notification of existence requirement for previously deferred UST systems from 30 days to one year. Lastly, one commenter proposed EPA require notification 30 days before a tank or piping is installed.

Commenters: [0301, 0313, 0339, 0352, 0363, 0368, 0402, 0422, 0427]

Person Required To Submit Notification

Two commenters suggested EPA allow either the old or new owner to submit the notification of ownership change form. One commenter recommended EPA require both the buyer and seller to complete the notification of ownership change form.

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Commenters: [0352, 0363, 0427]

Revisions To Notification Forms And Regulatory Language

Two commenters requested EPA add transaction date to the notification of ownership change form. One commenter believed EPA deleted tester information from the Certification Of Installation section in the *Notification For Underground Storage Tanks* form and wanted EPA to restore it. One commenter suggested EPA use only one form to cover new notification and ownership changes. Two commenters noted that owners of previously deferred UST systems would be unable to complete the Certification Of Installation section of the *Notification For Underground Storage Tanks* form because they were not subject to this requirement at the time of installation. In addition, records of installation for these previously deferred UST systems are likely to be nonexistent given the passage of time since installation. Two commenters indicated it was unclear who the implementing agency is and whether owners and operators need to notify both the state and EPA. Lastly, one commenter noted EPA should add regulatory language to several sections to reference the fact that state forms can be used.

Commenters: [0238, 0264, 0265, 0284, 0352, 0363, 0368, 0399]

Additional Requirements For Notification

One commenter requested EPA add a notification requirement for when a tank goes into temporarily out of service status. Another commenter requested EPA add a notification requirement for change of address or contact information. Finally, one commenter asked EPA require notification prior to conducting any of the required periodic testing.

Commenters: [0242, 0316, 0368]

One-Time Notification For All UST Owners

EPA solicited comments on whether EPA should require one-time notification for all UST owners in jurisdictions where implementing agencies do not currently require ownership change notification. Eight commenters supported this idea. One commenter stated that tanks should not be in operation if the tank owner is unknown.

Commenters: [0233, 0238, 0243, 0265, 0313, 0388, 0396, 0399]

EPA Response

Based on comments received, EPA is incorporating minor modifications to the proposed notification changes in the 2011 proposed UST regulation. EPA agrees with commenters who opposed requiring one-time notification of existence for emergency power generator UST systems. Since these systems are currently only deferred from Subpart D, owners should have notified the appropriate implementing agency when the initial notification requirement became effective in 1986. Therefore, in the final UST regulation, the requirement for previously deferred UST systems to submit a one-time notification of existence applies only to owners of previously deferred UST systems with field-constructed tanks and previously deferred airport hydrant fuel distribution systems. This one-time notification of existence does not apply to previously deferred wastewater treatment tank systems, previously deferred UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954, and previously deferred UST systems that are part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR part 50.

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Furthermore, EPA agrees with commenters' requests to extend the time frame for submitting their one-time notification of existence of previously deferred UST systems with field-constructed tanks and airport hydrant fuel distribution systems. In order to provide more time for owners to identify and gather information about these previously deferred systems, EPA is allowing owners of existing previously deferred UST systems with field-constructed tanks and airport hydrant fuel distribution systems to submit a one-time notification of existence within one-three years of the effective date of the final UST regulation. Owners of UST systems with field-constructed tanks and airport hydrant fuel distribution systems installed after the effective date of the final UST regulation will be required to submit notification forms as new facilities; this notification requirement has been in effect for all UST owners since 1986.

Three commenters requested EPA allow 60 days, instead of 30 days, to submit a notification of ownership change, noting that the 30-day requirement is too stringent. One commenter stated that the time frame should be relaxed to account for large organizations where paperwork could involve a significant amount of time to process. Another stated that 30 days would be too short and unduly burdensome on small businesses. EPA considered these arguments, but is moving forward to require owners to submit notification of ownership change within 30 days of assuming ownership of regulated UST systems; this will ensure consistency with the current requirement that owners submit notification within 30 days of bringing USTs into use.

Two commenters suggested EPA allow either the old or new owner to submit the notification of ownership change form. One commenter recommended EPA require both the buyer and seller to complete the ownership change form. For implementation reasons, it is more appropriate for EPA to associate ownership change with the new owner since the new owner (i.e., buyer) becomes responsible for ongoing operation and maintenance of the UST system. It is more useful for EPA to have the current owner's information and signature on file for compliance and recordkeeping purposes. Requiring both the buyer and seller to complete an ownership change form is duplicative and potentially confusing for the implementing agency. As a result, EPA is only requiring the current owner to submit a notification form when assuming ownership of regulated USTs.

EPA received several suggestions regarding specific items on the revised notification and new notification of ownership change forms. EPA disagrees with two commenters who requested EPA add transaction date to the notification of ownership change form. EPA will be requiring a date of ownership change, which is the same as the transaction date. EPA disagrees with the commenter who believed EPA deleted tester information from the Certification Of Installation section in the *Notification For Underground Storage Tanks* form and wanted EPA to restore it. This information was not required in the original form or the current notification form.

EPA disagrees with the commenter who suggested EPA use only one form to cover new notification and ownership changes. The purposes of the two forms are different enough to warrant separate forms. The ownership change notification form ensures the implementing agency knows who the current owner is; the *Notification For Underground Storage Tanks* form primarily provides the implementing agency with information about new installation of and changes to UST systems. The latter form requires knowledge of detailed information regarding the tank and piping attributes of each UST system at the location. The event that triggers the notification requirement for each form does not necessarily have to occur at the same time (i.e., assuming ownership of a gas station does not necessarily mean the owner will install a new UST). As such, having one form cover both purposes may be confusing to the owner. Thus, EPA is providing a separate one-page notification of ownership change form, which makes it easier for owners who have just assumed ownership of an UST system to notify the appropriate implementing agency.

Two commenters noted that owners of previously deferred UST systems would be unable to complete the Certification Of Installation section of the *Notification For Underground Storage Tanks* form because

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they were not subject to this requirement at the time of installation. In addition, records of installation for these previously deferred UST systems are likely to be nonexistent given the passage of time since installation. EPA agrees with these commenters and is revising the notification form to indicate that only owners of UST systems with field-constructed tanks and airport hydrant distribution systems installed after the effective date of the rule need to complete this section.

Two commenters indicated it was unclear who the implementing agency is and whether owners and operators need to notify both the state and EPA. In the final UST regulation, EPA is clarifying that notification forms should be submitted to the appropriate implementing agency. The term implementing agency is defined in the 1988 UST regulation; owners should be aware of which regulations apply to them. In practice, EPA expects that most owners will submit their notification forms only to their state, except in instances where the implementing agency is EPA. For example, EPA is the implementing agency for USTs located in Indian country; thus, owners with USTs in Indian country would submit their notification forms to EPA. Owners should also be aware that individual states may have state versions of these forms which owners should use instead when submitting to state implementing agencies.

EPA agrees with the commenter who suggested EPA should add regulatory language to several portions of § 280.22 and indicate owners can use state forms.

EPA considered additional requirements for notification in these circumstances requested by three commenters: a tank goes into temporarily out of service status and there is a change of address or contact information. Because of the potential additional burden on owners and since they were not considered in the 2011 proposed UST regulation, EPA is not including these additions.

Lastly, EPA solicited comments on whether a one-time notification for all UST owners was necessary to effectively administer the UST program in jurisdictions (eight states and territories and Indian country) where implementing agencies do not currently require ownership change notification. While eight commenters supported this idea, EPA is not requiring this one-time notification due to the burden it would impose on owners in these jurisdictions.

Proposal To Revise The Compatibility Requirements And Definitions Of Motor Fuel And Regulated Substance

Summary

- More than 50 commenters provided input on EPA's proposal to revise the compatibility requirements and the definitions of motor fuel and regulated substances – 12 supported it; 12 opposed it
- Commenters expressed concern about:
 - the effort and cost of determining compatibility for existing systems
 - not specifically allowing professional engineers to determine compatibility
 - new unknown fuels of the future
 - determining concentrations of ethanol and biodiesel in biofuels
- Some commenters thought EPA should tier the options for determining compatibility, making some options preferable over others

Support

Eight commenters supported the proposal. One commenter supported the compatibility proposal for ethanol blends containing greater than 10 percent ethanol. One commenter supported the manufacturer's self-certification option. One commenter encouraged EPA to promulgate strict compatibility requirements for gasoline containing greater than 10 percent ethanol and diesel containing greater than 20 percent biodiesel. One commenter expressed support, but was concerned about the ability to enforce the requirement if gasoline containing 10 percent ethanol is replaced with gasoline containing 15 percent ethanol.

Commenters: [0239, 0289, 0295, 0313, 0326, 0337, 0342, 0343, 0344, 0348, 0367, 0370]

Oppose

Five commenters opposed the proposal. One commenter suggested the compatibility language should be stronger, require a tiered approach, and allow use of professional engineers. Eight commenters said the regulation is impractical, cumbersome, or a large burden on regulated owners and operators because of variations in UST system configurations, ages of UST system equipment, and lack of knowledge of what is installed at the UST facility. One commenter supported realistic and cost effective alternatives for demonstrating compatibility, but also voiced doubts that equipment manufacturers would agree to approve legacy equipment. The same commenter also indicated that leaving compatibility standards to state regulators is not realistic or cost effective.

Commenters: [0238, 0264, 0298, 0312, 0317, 0349, 0352, 0363, 0383, 0402, 0416, 0418]

Definition Of Motor Fuel

One commenter supported the motor fuel definition changes. One commenter suggested changing the definition of motor fuel to recognize the modified definition of regulated substance because the current wording limits the definition to petroleum or petroleum based substances; the definition should say complex blends of hydrocarbons so it includes green gasoline. One commenter suggested EPA add biofuels to the definition of motor fuel.

Commenters: [0313, 0399, 0412]

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Definition Of Regulated Substance

One commenter suggested the definition of regulated substance is appropriate without the proposed change because a change would require states to modify their definitions. One commenter asked whether the definition of regulated substance now includes renewable fuels.

Commenters: [0326, 0343]

Additional Methods For Effectively Demonstrating Compatibility

EPA asked commenters whether there are additional methods to effectively demonstrate compatibility and whether EPA should consider allowing professional engineers to make compatibility determinations. Six commenters indicated there are no additional methods for demonstrating compatibility. One commenter suggested requiring third party verification, particularly for higher ethanol blends, in lieu of accepting manufacturer's statements. One commenter suggested using past performance of materials. One commenter asked EPA to develop a risk-based assessment, which could be based on criteria such as equipment age, type of equipment, inspection history, repair history, etc., for legacy equipment. One commenter indicated more testing is needed to determine compatibility and that EPA should conduct comprehensive testing of all classes of USTs to determine compatibility. Four commenters wanted EPA to allow registered professional engineers to make compatibility determinations. One commenter believed testing was the best method for determining compatibility. One commenter indicated literature might be able to help determine compatibility. One commenter did not know of any additional methods for demonstrating compatibility.

Commenters: [0222, 0233, 0237, 0238, 0243, 0311, 0312, 0313, 0316, 0338, 0352, 0363, 0388, 0399, 0421, 0427]

Alternatives To Demonstrating Compatibility

EPA asked commenters whether there are other alternatives to demonstrating compatibility (such as using secondarily contained USTs) that are no less protective of human health and the environment. Three commenters suggested using secondary containment in lieu of making a compatibility determination. One commenter indicated there may be alternatives and EPA should allow flexibility. Thirteen commenters indicated EPA should not allow secondary containment in lieu of demonstrating compatibility, because secondary containment can be less protective and it is different from compatibility. One commenter indicated EPA should require in-tank release detection, rather than groundwater or vapor monitoring, for tanks that cannot provide compatibility documentation. One commenter did not know of any alternatives to demonstrating compatibility.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0311, 0313, 0316, 0337, 0352, 0388, 0394, 0396, 0399]

Proposed Criteria For Manufacturer's Approval

EPA asked commenters whether the criteria we proposed for meeting manufacturer's approval are reasonable. Eleven commenters indicated the criteria are reasonable. One commenter indicated the final UST regulation should require manufacturers to specify testing they must conduct to demonstrate compatibility of their equipment or components. Six commenters indicated the final UST regulation should require manufacturers provide testing data used to make the compatibility determination; some commenters indicated the data should be empirical data, similar to that provided by a nationally

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recognized testing laboratory. One commenter indicated EPA should add a list of components, which require compatibility approval. One commenter indicated EPA should require owners and operators have financial responsibility if they use the manufacturer's approval option. One commenter indicated manufacturer's approval does not work if the manufacturer is no longer in business.

Commenters: [0222, 0233, 0237, 0238, 0243, 0301, 0311, 0313, 0316, 0337, 0352, 0363, 0394, 0395, 0396, 0399, 0401, 0405, 0409, 0412, 0413, 0422]

Tiering The Methods For Determining Compatibility

EPA asked commenters whether we should tier the different options used to determine compatibility; for example, owners may not use manufacturer's approval if a nationally recognized association has determined whether a component is compatible. Eight commenters opposed EPA tiering compatibility; most wanted to maintain flexibility for owners and operators and one thought the manufacturer might lose liability if a nationally recognized testing laboratory approved a component and the manufacturer was not allowed to approve the component. Seven commenters supported tiering. Of these, two suggested manufacturer certification is preferable over nationally recognized testing laboratory certification; three suggested a nationally recognized testing laboratory or third party certification be preferred over manufacturer's certification; and one suggested that new equipment needs to be listed by a nationally recognized testing laboratory. Two commenters were unsure about whether tiering methods should be included in the final UST regulation.

Commenters: [0222, 0237, 0238, 0243, 0311, 0313, 0316, 0337, 0334, 0352, 0372, 0394, 0396, 0399, 0401, 0405, 0409, 0423]

Records Transfer

The 2011 proposed UST regulation suggested owners and operators maintain records to demonstrate compatibility, but it did not include transferring records when ownership of the facility changed. EPA asked commenters whether the final UST regulation should require that records transfer with ownership changes. Thirteen commenters indicated EPA should require that records transfer with ownership changes. Of the commenters supporting a records transfer requirement: one indicated this requirement would be difficult to enforce; another indicated EPA should clearly indicate which records would transfer; and another wanted to place the burden on the previous owner. One commenter did not believe records should transfer with ownership changes because it would be impossible to enforce. One commenter suggested the only way records can be maintained is for owners and operators to submit records to implementing agencies.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0311, 0313, 0316, 0337, 0352, 0396, 0397, 0399, 0422]

Other Comments

EPA received these other comments about compatibility:

- Take into account other new fuels that may be marketed in the future
- Decide on the type of alternative fuels before considering how to dispense the fuel
- Take into account known issues for some components affected by lower percentages of ethanol and biodiesel blends
- Phase in the requirements, since it will be difficult to determine compatibility for some UST

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system components; two and three years were given as options

- Add a pre-notification requirement so implementing agencies have an opportunity to confirm compatibility
- Only require recordkeeping where there is a reportable release attributed to compatibility, or explore the idea of a sealable or lockable book attached to all UST systems
- Require owners to maintain records of compatibility, including equipment modifications after installation
- Add dispenser filters, hoses, and couplings to the list of compatible items
- Add the list of compatible components to the final UST regulation
- Limit implementing agencies' flexibility in determining compatibility
- Need liability protection for owners and operators storing alternative fuels
- Clearly require the entire UST system, including exterior, to be compatible
- Consider ensuring tank linings are designed and constructed with materials or coatings resistant to attack by microbial corrosion; early stage treatment of biofuels is key
- Conduct an economic analysis about how the regulated community will ultimately be impacted
- Continue to reference American Petroleum Institute (API) Recommended Practice 1626
- Develop guidance for alternative compatibility testing, a standard form or procedure for determining compatibility, and about demonstrating compatibility
- Provide more justification about why 10 percent for ethanol and 20 percent for biodiesel was chosen
- Provide some flexibility regarding concentration since ethanol and biodiesel blends can vary somewhat in concentration
- Add language to address discrepancies between published and actual concentrations of alternative fuels
- Clarify that the requirement is applicable to any other regulated substance of concern and not all regulated substances in the opening sentence
- Add to the explanation of under-dispenser containment that under-dispenser containment must be compatible with the substance in the piping
- Seek statutory changes that will ensure UST compatibility does not pose a barrier to renewable fuels standards implementation

Commenters: [0298, 0301, 0312, 0316, 0335, 0337, 0339, 0342, 0343, 0352, 0363, 0364, 0371, 0399, 0402, 0418, 0421, 0424, 0427]

EPA Response

EPA thinks that compatibility of UST systems with the regulated substance stored in the system is important in preventing releases to the environment. EPA is continuing to require that UST systems be made of or lined with materials compatible with the substance stored. In addition, the final UST regulation requires owners and operators demonstrate compatibility or use another option determined by implementing agencies to be no less protective than the compatibility demonstration options for UST systems storing regulated substances containing greater than 10 percent ethanol, 20 percent biodiesel, and other regulated substances identified by implementing agencies. The 2011 proposed UST regulation included a list of components in the preamble but not the regulation. EPA is making the list more general and including it in the final UST regulation.

The final UST regulation includes certification or listing by a nationally recognized independent testing laboratory and manufacturer's approval as methods owners and operators may use to demonstrate compatibility. In the absence of and as an alternative to demonstrating compatibility, implementing

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agencies may choose to accept other options for allowing the continued use of UST systems storing regulated substances containing greater than 10 percent ethanol or 20 percent biodiesel. For example, in lieu of an affirmative compatibility determination, implementing agencies may allow secondarily contained UST systems using interstitial monitoring to store regulated substances containing greater than 10 percent ethanol or 20 percent biodiesel, because a release from the primary containment will be contained by the secondary and detected by the interstitial monitoring before a release reaches the environment.

The 2011 proposed UST regulation recommended maintaining records for both demonstrating compatibility when storing regulated substances containing greater than 10 percent ethanol, 20 percent biodiesel, and other regulated substances identified by an implementing agency as well as all new and replaced UST system equipment and components. Based on comments, EPA determined the proposed recordkeeping requirement for all new and replaced UST system equipment and components is too onerous for owners and operators. Instead, EPA is only requiring notification 30 days before storing regulated substances containing greater than 10 percent ethanol, 20 percent biodiesel, and other regulated substances identified by implementing agencies. This will allow implementing agencies the opportunity to ensure UST systems are compatible with new regulated substances before they are stored in UST systems. The final UST regulation requires owners and operators document compliance with either the compatibility demonstration or other options acceptable by implementing agencies by maintaining records for UST systems storing regulated substances containing greater than 10 percent ethanol, 20 percent biodiesel, and other regulated substances identified by implementing agencies. EPA concurs with the comment that owners maintain records of compatibility, including those associated with modifications to an UST system after installation. However, EPA thinks requiring this for regulated substances that have been used for many years is a potentially unworkable requirement for owners and operators. So, while EPA supports and encourages recordkeeping for all regulated substances, we will only require recordkeeping as specified above.

Some commenters suggested adding other options owners and operators could use for determining compatibility. One option was certification by a professional engineer (P.E.), who would perform an on-site UST system analysis to determine compatibility. For this to work, a P.E. would need to know the manufacturer and model of all UST system equipment or components. Because this information cannot be entirely obtained through visual observation, a P.E. would need to obtain records of the equipment to make an assessment and then search for relevant equipment listings or manufacturer certifications. This means a P.E. certification option is the same as the options in today's final UST regulation. EPA does not object to a P.E. performing a records review; however, we think it is impractical for a P.E. to perform a visual assessment of an UST system and make a compatibility determination in the absence of equipment records and certifications. Therefore, EPA is not explicitly allowing professional engineers to make compatibility determinations in the absence of UST system information and compatibility certifications. Commenters suggested several other methods for determining compatibility, including past performance of the equipment or component, a risk-based approach, and using existing literature. EPA concluded these alternatives are either impractical or ineffective for ensuring compatibility when compared to those in the final UST regulation. Past performance of the equipment or component may not represent use with newer alternative fuels, no one presented a reasonable risk-based approach, and information in the literature to date is sparse.

Some commenters suggested EPA use a tiered approach for compatibility and choose one method of determining compatibility over others. Several commenters preferred certification or listing by a nationally recognized independent testing laboratory over manufacturer approval; others preferred manufacturer's approval over the independent testing laboratory. One commenter suggested eliminating the manufacturer's approval option. Most commenters, however, did not think EPA needed to tier the options for demonstrating compatibility. EPA agrees with commenters who did not want to tier options.

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EPA interprets tiering to mean requiring the more stringent option, which is listing by a nationally recognized independent testing laboratory, first. If the more stringent option is unavailable, the second tier would allow manufacturer's approval. EPA thinks tiering the options makes the UST regulation unnecessarily complicated for implementing agencies as well as owners and operators. Even if equipment or components have a listing from a nationally recognized independent testing laboratory, we do not always know whether compatibility testing was part of the listing. EPA thinks manufacturers will only issue written claims of compatibility if they have sufficient information to support such claims.

EPA asked commenters whether the criteria manufacturers must follow are reasonable. Many commenters indicated the criteria are reasonable. Some commenters wanted EPA to require manufacturers to support their compatibility approvals with testing data. We acknowledge that the element of testing may make commenters more comfortable with allowing manufacturer's self-certification. However, absent nationally recognized compatibility test protocols for each piece of equipment or component and general agreement on what constitutes acceptable test results, implementing agencies are not in a position to assess the sufficiency of the tests. EPA concluded that manufacturers are uniquely suited to attest to the compatibility of their products and have an incentive to make truthful claims regarding use of their equipment or components with biofuel blends. Therefore, in the final UST regulation, EPA is not requiring manufacturers to support their compatibility approvals with testing data. One commenter suggested EPA require owners and operators have financial responsibility if using the manufacturer option for determining compatibility. The 1988 UST regulation requires owners and operators have financial responsibility and that requirement remains unchanged. EPA agrees with the commenter who indicated the manufacturer's approval option is not viable if the manufacturer no longer exists and the manufacturer never issued a written affirmative statement of compatibility. If the manufacturer no longer exists and an approval does not exist, owners and operators cannot use that option.

One commenter suggested adding dispenser components to the list of components that must be compatible. EPA cannot require these components be compatible because our authority for release prevention does not cover aboveground components.

Commenters provided input about the difficulty of determining compatibility of some UST system equipment or components already installed in the ground and how compatibility determinations will be difficult, cumbersome, costly, and impractical. In addition, one commenter suggested manufacturers either may not exist anymore or be unwilling to provide a compatibility determination for legacy equipment. EPA understands it may sometimes be difficult or impossible to determine compatibility. EPA understands that, in many cases, some equipment or components of UST systems in the ground today are not compatible with newer fuels. Unless owners and operators specifically asked for a complete UST system compatible with higher ethanol or biodiesel blends, installers probably used a lower cost option for certain UST system equipment, such as the submersible turbine pump assembly, which is incompatible with some newer fuels. Those parts of the UST system will need to be upgraded or replaced before storing higher blends of ethanol or biodiesel. The incompatible equipment or components are usually easier to upgrade or replace because they are typically located in areas not requiring excavation, such as containment sums. To protect the environment from releases of regulated substances, owners and operators must do one of the following:

- Demonstrate the UST system is compatible with ethanol blends greater than 10 percent and biodiesel blends greater than 20 percent through certification or listing by a nationally recognized independent testing laboratory or manufacturer approval
- Replace the equipment or components not compatible or for which compatibility cannot be determined
- Use another option determined by an implementing agency to be no less protective of human

health and the environment

- Not store these regulated substances in their UST systems

EPA asked whether there are additional methods for effectively demonstrating compatibility. One commenter suggested using in-tank release detection instead of a compatibility determination. EPA disagrees with this because release detection has been required since 1993 and in-tank release detection for a single walled tank may not prevent a release to the environment if it fails due to incompatibility. Several commenters suggested using secondary containment and interstitial monitoring. However, most commenters did not want to replace compatibility with secondary containment and interstitial monitoring. EPA believes that, when used properly, secondary containment with interstitial monitoring will detect a release from the tank or piping before regulated substances reach the environment. However, because of comments we received, EPA is not specifically including this option in the final UST regulation. We are, however, allowing implementing agencies to make a determination that a method is no less protective than those already listed in the final UST regulation. This means implementing agencies may determine that secondary containment with interstitial monitoring is adequate in cases where compatibility cannot be determined.

Several commenters indicated EPA should not allow implementing agencies flexibility to determine other options. EPA understands it is difficult for owners and operators to keep up with UST requirements in 56 states and territories. However, states and territories are the primary implementers of the UST program and as of 2014, EPA approved 38 state UST programs, the District of Columbia, and Puerto Rico to operate in lieu of the federal UST program. These 38 states, the District of Columbia, and Puerto Rico rely on their requirements rather than the federal UST requirements and may have different options for determining compatibility. EPA will continue to allow other options, as long as those options sufficiently protect human health and the environment.

One commenter expressed concern that new fuels may enter the market in the future. EPA understands this concern and is including other regulated substances identified by an implementing agency. This means states and EPA have flexibility in identifying new fuels that may enter the market after the final UST regulation is promulgated.

EPA asked commenters to provide input on whether the final UST regulation should require owners to transfer records to the new owner when a regulated UST facility is sold. Although most commenters supported a records transfer requirement, EPA decided not to include it in the final UST regulation because we had concerns about the effective implementation of such a requirement, especially because it involves current and past owners and records that may be incomplete or no longer exist.

One commenter suggested EPA continue referencing API Recommended Practice 1626 in the compatibility section of the final UST regulation. API updated this code of practice in 2010. The updated code includes requirements for showing compatibility of UST system equipment or components. EPA agrees with the commenter and is including this code of practice in the final UST regulation.

One commenter suggested EPA require the entire UST system including exterior be compatible. Another suggested EPA require tank linings be designed and constructed with materials or coatings resistant to attack by microbial corrosion. Although EPA thinks it is prudent to ensure the entire UST system is compatible, the final UST regulation requires that UST systems be made of or lined with materials compatible with the substance stored in the UST system; these are the areas that routinely come into contact with the regulated substance.

Several commenters requested guidance and checklists for compatibility determinations. EPA agrees and, after the final UST regulation is published in the *Federal Register*, will develop resources to help owners

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and operators understand and implement the compatibility requirements.

To ensure compatibility is not a barrier to implementation of the renewable fuels standard, some commenters requested liability protection and other changes to the 2011 proposed UST regulation. Another commenter suggested EPA should decide on the type of new future fuels before considering how to dispense them. These comments are beyond the scope of the final UST regulation and require legislative action.

One commenter indicated EPA should conduct an economic analysis to determine how the final UST regulation will affect the regulated community. As with all regulations, EPA conducted an economic analysis and it is part of the docket associated with this regulation.

One commenter indicated that in the 2011 proposed UST regulation, EPA did not take into account known issues for some equipment or components affected by the lower percentages of ethanol and biodiesel blends. Another commenter indicated EPA should provide more justification about why we chose 10 percent for ethanol and 20 percent for biodiesel. As EPA noted in the preamble to the 2011 proposed UST regulation, we understand that the chemical and physical properties of ethanol and biodiesel can be more degrading to certain UST system materials than petroleum alone. Use of ethanol- and biodiesel-blended fuels is increasing, and EPA is concerned that not all UST system equipment or components are compatible with these fuel blends. Gasoline containing 10 percent or less ethanol (E10) has been used in parts of the United States for many years, and manufacturers accommodated the E10 market by producing compatible equipment and components. According to the Renewable Fuels Association, ethanol is blended into over 90 percent of all gasoline sold in the country,⁵⁶ predominantly as E10. EPA understands the properties of very low blends of biodiesel, such as B5 or less, are so similar to those of petroleum diesel that ASTM International (ASTM) considers conventional diesel containing up to 5 percent biodiesel to meet its *Standard Specification for Diesel Fuel Oils*.⁵⁷ For biodiesel blends between 5 and 100 percent, there is very little compatibility information. However, the U.S. Department of Energy's National Renewal Energy Laboratory published a handling and use guide, which concludes that biodiesel blends of B20 or less have less of an effect on materials and very low blends of biodiesel (for example, B5 and B2) "...have no noticeable effect on materials compatibility."⁵⁸ In addition, fleet service sites have stored B20 in USTs for years, and EPA is not aware of compatibility-related releases associated with those UST systems. Based on this information, EPA is more concerned with UST systems storing greater than 10 percent ethanol blended gasoline and greater than 20 percent biodiesel blended with diesel.

Several commenters suggested EPA phase in the requirements, since it will be difficult to determine compatibility for some UST system equipment or components. EPA understands why commenters want to phase in the compatibility requirements for petroleum blended with greater than 10 percent ethanol and greater than 20 percent biodiesel. However, the compatibility requirements have been in the UST regulation since 1988 and owners and operators have been required to ensure compatibility since then. EPA is only adding options for determining compatibility of certain regulated substances to the existing compatibility requirement. Owners and operators have been required to use compatible equipment or components. Therefore, EPA will implement the options for determining compatibility on the effective date of the final UST regulation.

⁵⁶ Renewable Fuels Association, "Building Bridges to a More Sustainable Future: 2011 Ethanol Industry Outlook." <http://www.ethanolrfa.org/page/-/2011%20RFA%20Ethanol%20Industry%20Outlook.pdf?nocdn=1>.

⁵⁷ ASTM Standard D975, 2010c "Standard Specification for Diesel Fuel Oils," ASTM International, West Conshohocken, PA, 2010, DOI: 10.1520/D0975-10C, www.astm.org.

⁵⁸ National Renewable Energy Laboratory, "Biodiesel Handling and Use Guide, Fourth Edition." (2009). Available in the UST Docket under Docket ID No. EPA-HQ-UST-2010-0651.

One commenter suggested EPA should provide some flexibility regarding ethanol and biodiesel concentration in fuel since ethanol and biodiesel blend concentrations can vary. Another commenter indicated the 2011 proposed UST regulation did not address discrepancies between published and actual concentrations of alternative fuels. As described in the preamble to the 2011 proposed UST regulation, EPA chose greater than 10 percent ethanol and greater than 20 percent biodiesel based on existing literature about the compatibility of these fuel blends. In developing the 2011 proposed UST regulation, EPA had to set values for the blends and we are including them in the final UST regulation. EPA has no control over variation in concentrations of fuels, but we understand that fuels meeting the American Society for Testing and Materials (ASTM) specifications are reasonably within concentration tolerances. EPA believes most fuel is within the ASTM specification.

EPA disagrees with one commenter who suggested requiring recordkeeping only where there is a reportable release attributed to compatibility. Requiring recordkeeping only after a release has occurred is a reactive approach. EPA is taking a proactive approach by requiring records be maintained demonstrating compatibility before a regulated substance is stored, thereby preventing releases to the environment.

One commenter suggested EPA clarify that the compatibility requirement is applicable to any other regulated substance of concern and not all regulated substances in the opening sentence of the compatibility requirement. EPA agrees with this commenter and is using the term other in the final UST regulation, rather than the term all.

One commenter indicated EPA should add to the final UST regulation that under-dispenser containment must be compatible with the substance in the piping. The final UST regulation requires that the UST system be made of or lined with materials compatible with the substance stored in the UST system. Under-dispenser containment is part of the UST system and must be made of or lined with materials compatible with the substance stored in the UST system.

Commenters did not oppose the change in definition of motor fuel. Therefore, EPA is including that change, with one modification, in the final UST regulation. One commenter suggested changing the definition of motor fuel to recognize the modified definition of regulated substance. The commenter indicated the current wording limits the definition to petroleum or petroleum based substances. Rather, it should say complex blends of hydrocarbons so it includes green gasoline, a type of motor fuel derived from plants. EPA agrees that using terms inconsistent with those in the definition of motor fuel creates a problem in the final UST regulation; we are revising the definition of motor fuel to be consistent with the definition of regulated substance. One commenter suggested adding biofuels to the definition. However, biofuels are already included in the definition where EPA describes blends, which includes fuels containing petroleum and ethanol or other substances.

Since no commenters opposed changes to the definition of regulated substance, EPA is including that change in the final UST regulation.

Proposal To Improve Repairs

Summary

- 35 commenters provided input on EPA's proposal to revise the definition of repair and make changes to the repairs section of 40 CFR part 280 – commenters generally supported the proposal and suggested changes to both the repair definition and repairs section of the proposal

Support

Four commenters generally supported the proposal.

Commenters: [0343, 0344, 0388, 0413]

Oppose

No commenters opposed the proposal.

Changes To Repair Definition

One commenter generally supported EPA's changes to the repair definition. Four commenters indicated the term restore in the definition was undefined and recommended EPA further define that term. One commenter suggested adding "equipment showing an eminent threat of potential failure" to the definition. One commenter suggested deleting "or a suspected release" and "or has failed to function properly" from the definition due to reporting and regulatory burdens.

Commenters: [0308, 0316, 0342, 0348, 0404, 0407]

Changes To The Repair Section (§ 280.33)

Seven commenters recommended EPA be clear that the components to be tested are only those being repaired. Two commenters suggested that replacing components not trigger the repair testing requirements. EPA also received the following comments:

- Recommending that it is not essential to subject secondarily contained UST systems to secondary containment testing if the primary tank is tightness tested and the secondary containment is effectively monitored to detect and contain a release;
- Suggesting EPA strengthen the requirements for repairs to fiberglass tanks to include a certification of repair indicating the tank will not fail due to structural failure for some period of time;
- Asking for clarification on a repair versus a replacement and testing requirements for both repair and replace;
- Requesting guidance about what is an acceptable repair;
- Discussing an apparent conflict between 280.33(d)(2) and (d)(3) – one section says facilities do not need to do a tightness test if doing monthly monitoring while the other says facilities do;
- Requiring third party tightness testing following a repair instead of allowing the monthly leak detection option;
- Suggesting that EPA allow owners and operators of secondarily contained UST systems that fail a secondary containment test to be downgraded to a single walled system as long as the primary containment tests tight; and

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- Suggesting EPA require inspection rather than testing of overfill devices after any repairs.

Commenters: [0239, 0242, 0267, 0313, 0316, 0332, 0336, 0339, 0346, 0349, 0368, 0399, 0416, 0422, 0427]

30 Day Time Frame For Conducting Secondary Containment, Spill, And Overfill Testing Following A Repair

EPA asked whether the time frame for conducting secondary containment, spill, and overfill testing should change from within 30 days following a repair to before returning the UST system to service. Thirteen commenters supported changing the time frame to before returning the UST system to service while five commenters supported some time frame after returning the UST system to service. Two commenters suggested one year and one commenter suggested 60 days following the repair. One commenter suggest allowing tests to be conducted immediately after the repair was made because it makes environmental sense and wouldn't require that the contractor return to the facility a month later.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0302, 0308, 0311, 0313, 0316, 0339, 0342, 0346, 0349, 0350, 0396, 0399, 0404]

EPA Response

Based on the comments received, EPA is adding language which clarifies the definition of repair so the term restore, as it relates to UST system components, will mean restore to proper operating condition. In addition, EPA agrees with suggestions to remove suspected releases from the repair definition so only UST system components that caused a release of product from the UST system or failed to function properly meet the definition of repair. EPA disagrees that the language about UST system components failing to function properly needs to be removed from the definition. Repairs (and associated testing) need to occur both when a release occurs and when UST system equipment is not functioning properly.

EPA agrees with commenters concerned about unnecessary testing of UST system equipment not repaired or affected by the repair. EPA is clarifying the repairs section so follow up testing applies only to the UST system component repaired. In addition, EPA is making clear that secondary containment testing following a repair only applies if the secondary containment area is repaired. Repairs to the primary containment areas of tanks and piping may be tested using the other options listed in the repairs section. EPA is also clarifying that overfill equipment is inspected, rather than tested, following a repair. EPA disagrees with the comment that fiberglass tank repair requirements need to be strengthened. Fiberglass tank repair requirements are consistent with repair requirements for other types of tank construction.

Even though most commenters supported revising the time frame for testing or inspecting following a repair to be before the UST system is brought back into service, EPA is aware of circumstances where immediate testing or inspecting may be impossible (for example weather conditions, remote locations, or scheduling the test). That means requiring immediate testing or inspecting would result in the UST system remaining out of operation until the test or inspection is completed. Thirty days allows some flexibility for completing tests or inspections, yet allows the UST system to return to operation. EPA thinks it is too long to allow 60 days or one year for tests or inspections following a repair. EPA expects owners and operators test or inspect as soon as possible after completing a repair. Therefore, EPA is keeping the 30 day time frame for owners and operators to test or inspect following a repair.

One commenter suggested EPA require testing following replacement in the repairs section and two commenters did not want the repair requirements to apply to UST components that are replaced. EPA considers replacement the same as installing a new UST system component. Any replaced components

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will need to meet the installation requirements for new UST systems in § 280.20(d).

UST systems installed or replaced after the final UST regulation becomes effective and hazardous substance UST systems must be secondarily contained and use interstitial monitoring. Downgrading an UST system to single walled as one commenter suggested is less protective of the environment than secondarily contained UST systems; interstitial monitoring cannot be used if the UST system is downgraded to a single walled UST system under these conditions.

EPA disagrees with the commenter wanting to require third party tightness testing following a repair instead of allowing the monthly release detection option. The 1988 UST regulation allowed multiple options for testing following a repair, including tightness testing, internal inspection, and monthly monitoring. The updated UST regulation will continue to allow owners and operators flexibility for testing following a repair.

EPA agrees with the comment about a conflict between testing requirements following a repair and is revising the language in the final UST regulation to remove the conflict.

Proposal To Eliminate Vapor Monitoring And Groundwater Monitoring As Release Detection Methods

Summary

- 35 commenters provided input on EPA's proposal to phase out vapor monitoring and groundwater monitoring as release detection methods – 18 supported it; 13 opposed it
- Time frame of five years to phase out methods: 5 supported it; 11 thought it too long; 1 indicated a five year phase out was sufficient only if the tank system needed to be upgraded
- Circumstances for continued use: 13 commenters suggested EPA continue to allow use of the methods under certain circumstances, which covered four areas:
 - 2 commenters suggested allowing methods until systems are upgraded
 - 5 commenters suggested allowing if the implementing agency already has or will establish additional criteria for use
 - 6 commenters suggested allowing for specific UST systems
 - 5 commenters suggested a preference for keeping one method over the other
- EPA's estimate of systems using these methods: 2 supported the 5 percent estimated national use of both methods; 6 said the estimate was too low; 10 indicated the estimate was too high; 7 commenters provided percentage of use estimates
- Other comments: 14 commenters provided numerous comments, which covered two areas:
 - 8 commenters voiced concern about the economic burden of eliminating the methods
 - 7 commenters described beneficial aspects of these methods as compared to other release detection methods

Support

Eighteen commenters supported the proposal.

Commenters: [0222, 0233, 0238, 0243, 0283, 0308, 0311, 0316, 0324, 0326, 0342, 0343, 0344, 0348, 0360, 0396, 0413, 0422]

Oppose

Thirteen commenters opposed the proposal.

Commenters: [0209, 0265, 0286, 0296, 0313, 0339, 0341, 0350, 0359, 0388, 0389, 0398, 0408]

Time Frame To Phase Out Methods

EPA asked commenters if five years was too short, too long, or an appropriate length of time for owners and operators using vapor monitoring and groundwater monitoring to switch to another method. Eleven commenters provided input. Five supported EPA's proposed time frame of five years to phase out the methods. Eleven commenters indicated the proposed time frame was too long; five of those suggested allowing three years to comply and three suggested a one year time frame was adequate. One commenter thought the five year phase out was sufficient only if the UST system needed to be upgraded.

Commenters: [0222, 0233, 0311, 0313, 0324, 0341, 0348, 0369, 0396, 0399, 0422]

Circumstances For Continued Use

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EPA asked if there were circumstances at existing facilities that would warrant a subset of UST systems using vapor monitoring or groundwater monitoring beyond the proposed phase out period of five years. Numerous commenters suggested circumstances for continued use of both methods. The circumstances encompass four major areas: until system upgrade; if the implementing agency already has or will establish additional criteria for use; only for a specific type system; and preference for one method over the other.

Two commenters suggested continuing to allow the use of both methods until the facility is upgraded, tanks are replaced, or major repairs are performed.

Some commenters suggested allowing continued use of vapor monitoring and groundwater monitoring if the implementing agency has previously developed criteria or will develop additional criteria for use. Suggestions included keeping the methods when the implementing agency inspects and verifies wells are properly constructed and when certification or recertification of groundwater monitoring wells is done to ensure proper installation, slotting, appropriate depth, surface sealing, etc.

Five commenters suggested these categories of UST systems should be allowed to continue using vapor monitoring and groundwater monitoring:

- Emergency generator USTs;
- UST systems at high-throughput facilities that exceed the limitations of continuous statistical leak detection methods; and
- UST systems at airports where vapor monitoring and groundwater monitoring are the only viable leak detection options.

Two commenters also suggested keeping these methods for use at low (5,000 gallons per one commenter) monthly throughput systems if wells are located in close proximity. Another commenter suggested using the methods as a backup in cases where an automatic tank gauge (ATG) cannot be properly used because fuel levels in the tank are too low.

Some commenters stated a preference for or specifically discussed one method over the other. One commenter supported phase out of vapor monitoring because groundwater monitoring can indicate leaks that methods such as ATG and statistical inventory reconciliation (SIR) cannot. Two commenters wanted EPA to continue allowing use of vapor monitoring with chemical markers because this method is more accurate than traditional methods. EPA assumes the commenters' reference to traditional methods means passive monitoring of petroleum hydrocarbons. One commenter stated that the array of wells used at sites can detect releases less than 0.1 gallon per hour. One commenter stated EPA should at least allow owners and operators to petition implementing agencies to use vapor monitoring, since some implementing agencies have approved his company's systems. Another commenter suggested vapor monitoring should only be allowed for mounded tanks greater than 50,000 gallons that are installed above the groundwater, on top of an impermeable material, and where no leaks have been detected.

Commenters: [0209, 0265, 0296, 0313, 0339, 0341, 0350, 0359, 0369, 0388, 0398, 0399, 0408, 0413]

EPA's Estimate Of UST Systems Using These Methods

EPA asked whether our estimate of 5 percent of active UST systems in the United States use vapor monitoring or groundwater monitoring to comply with release detection requirements was accurate. Two commenters supported the 5 percent estimated use of both methods, while four commenters stated it was low and five indicated it was too high. Seven commenters provided estimates of use of the methods in their states, ranging from 0.06 percent to 65 percent.

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Commenters: [0222, 0238, 0243, 0265, 0311, 0313, 0324, 0341, 0389, 0396, 0399]

Other Comments

EPA received a variety of other comments, some of which covered two areas: concern over economic burden by no longer allowing these methods and beneficial aspects of these methods compared to other release detection methods. In addition, there were a few singular comments that were beyond the specific feedback EPA solicited.

Eight commenters voiced concern about the economic burden of discontinuing use of vapor monitoring and groundwater monitoring. One commenter stated these methods are economical at older, small, family run facilities and forcing these owners to spend money by changing release detection methods does not make sense. Another commenter indicated there would be a large financial burden to his company to retrofit tanks without access points for tank gauges. Three commenters expressed concern associated with using internal methods. One of these commenters stated that without vapor monitoring or groundwater monitoring, there are only two remaining options: ATG and SIR, where use of ATG is not economically feasible for mid to small facilities. Another commenter indicated installing internal level measurement equipment is cost prohibitive. A third commenter stated that upgrading from vapor to an internal method could exceed \$10,000. Another commenter estimated that about 65 percent of facilities in his state use these methods. He indicated it is inherently unfair for EPA to change its mind now and rule these methods are no longer acceptable.

The other area of comments focused on beneficial aspects of vapor monitoring or groundwater monitoring as compared to other release detection methods. One commenter presented no objection to phasing out the methods, but indicated they are effective when properly installed and used. Another commenter acknowledged problems with the methods when not constructed properly, but mentioned his implementing agency uses proper construction requirements that, if followed, yield effective release detection. One commenter indicated these methods offer immediate detection; there is no waiting three to four weeks, and both will detect leaks below established thresholds and in areas not covered by other release detection methods. This commenter also stated that switching methods does not make sense, especially when allowing SIR, which is not as sensitive and does not cover unaddressed areas of the UST system. Another commenter stated ATGs are not foolproof and involve human interaction, similar to other methods. Another commenter indicated that, in his state, the methods detect spills and overfills due to proximity of wells to tanks and releases are largely confined to porous tank backfill due to typical tank installation in clay soil. This commenter also said the methods are easy to understand and do not have electronic, operational, or maintenance issues, and wells allow self checks of contamination. Two commenters mentioned reviews of the methods or documentation indicating the methods are better than other methods. One commenter stated that extensive review indicates methods are more reliable than SIR. The other commenter mentioned EPA's draft document, *Evaluation Of Releases From New And Upgraded USTs*, found the methods have the highest rates of success of all methods. Another commenter said SIR should not be a stand-alone method and that vapor monitoring and groundwater monitoring could be used in conjunction with SIR.

Another commenter suggested EPA make it clear that implementing agencies can require these methods for reasons other than release detection, such as to establish a baseline prior to installation and evaluate depth, quality, and direction of groundwater flow. The methods are good alternatives and can help avoid expensive remedial efforts involving groundwater impacts.

EPA also received these comments:

- These methods are needed because they are the only alternatives allowed by federal UST

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- regulation for assessing prior to tank closure and determining if a leak occurred;
- Releases should be contained with the nationwide shift to secondary containment;
- The phase out is not mentioned in § 280.43 or other parts of the 2011 proposed UST regulation, EPA should reference back to § 280.41 in § 280.43.

Commenters: [0209, 0265, 0283, 0286, 0296, 0313, 0316, 0341, 0343, 0359, 0389, 0398, 0408, 0421]

EPA Response

Based on the comments received, EPA is continuing to allow vapor monitoring and groundwater monitoring for release detection of existing UST systems, if owners and operators demonstrate proper installation and performance through site assessments. In addition, EPA is revising the recordkeeping requirement in § 280.45, which means owners and operators must maintain site assessments according to § 280.43(e)(6) and (f)(7) for as long as these methods are used for release detection. EPA thinks requiring owners and operators to maintain site assessments will ensure installation and performance of these methods can be sufficiently confirmed.

EPA acknowledges comments received regarding the proposed time frame of five years to phase out the methods. However, those comments are no longer relevant since EPA decided to continue allowing these methods of release detection.

EPA considered numerous suggestions, which would allow for continued use of vapor monitoring and groundwater monitoring. Commenters suggested waiting until the tank or UST system is upgraded without requiring a site assessment; however, this would not address concerns identified in the 2011 proposed UST regulation.

EPA also considered allowing additional criteria already established or that can be established by implementing agencies, such as initial certification and periodic recertification inspections to confirm proper installation of wells.

After reviewing public comments, EPA gathered additional information and determined a number of implementing agencies specify beneficial criteria beyond or more specific to the site assessment than required by the 1988 UST regulation. These criteria include placing wells at least 50 feet apart and maintaining installation and site assessment documentation for as long as the methods are used. These criteria are specified through either regulatory requirements or supplemental information recognized by implementing agencies. Some implementing agencies perform pre-construction inspections or periodically verify construction features of monitoring wells for these methods beyond their routine compliance inspections. EPA is unaware of implementing agencies that require periodic recertification of monitoring wells used for release detection purposes. The 1988 UST regulation adequately defined criteria for using vapor monitoring and groundwater monitoring, given the variation of conditions at UST sites across the country. EPA thinks that maintaining the site assessment for as long as the methods are used would adequately address technical issues in the 2011 proposed UST regulation. EPA supports implementing agencies' efforts to better define the criteria specific to their jurisdictions. Implementing agencies will continue to review and accept site assessments according to their program policies.

Commenters also suggested emergency generator USTs, certain high-throughput UST systems, and specific low volume systems be allowed to continue using vapor monitoring and groundwater monitoring. EPA agrees that owners and operators of these UST systems could benefit from continued use of these methods until owners and operators upgrade or replace their UST systems to meet the secondary containment requirement. EPA also received comments in favor of expanding the proposed release detection options owners and operators could use to meet the release detection requirement at airport

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hydrant fuel distribution systems and field-constructed USTs. Tailoring requirements to allow owners and operators to use vapor monitoring and groundwater monitoring at these previously deferred systems and requiring a site assessment for as long as the methods are used provides marked environmental protection beyond the 1988 UST regulations. EPA's final UST regulation is allowing owners and operators this additional flexibility.

Some commenters stated a preference for or specifically discussed one method over the other. Two commenters wanted to keep groundwater monitoring, specifically the subcategory that uses chemical markers instead of relying on interception of released petroleum hydrocarbons into the environment. One commenter pointed out that the method uses an array of wells, which are capable of detecting releases less than 0.1 gallons per hour. EPA acknowledges the increased benefit afforded by the greater sensitivity in sampling for a specific chemical versus petroleum hydrocarbons. Commenters also asked that EPA allow facilities to petition UST implementing agencies to use this method where they had previously approved it. This is unnecessary under the final UST regulation. As long as facilities have appropriate site assessments, owners and operators may continue to use these methods. In the event a new site assessment is required, at a minimum, a professional engineer or professional geologist, or equivalent licensed professional with experience in environmental engineering, hydrogeology, or other relevant technical discipline acceptable to the UST implementing agency must sign the new site assessment.

Another commenter suggested vapor monitoring should be allowed for mounded tanks greater than 50,000 gallons that are installed above the groundwater table, on top of an impermeable material, and where no leaks have been detected. EPA is allowing, with similar conditions, use of both vapor monitoring and groundwater monitoring for airport hydrant systems and field-constructed USTs – two previously deferred systems. EPA is addressing release detection requirements for these UST systems in a separate section of the final UST regulation. Mounded tanks are discussed in the sections covering field-constructed tanks and airport hydrant systems.

Finally, one commenter preferred phasing out only vapor monitoring because groundwater monitoring can indicate leaks from spills that ATG and SIR cannot. EPA acknowledges there are many additional benefits external methods can provide in determining releases from areas of the UST system that other release detection methods do not cover. Yet EPA remains concerned with using these methods as primary methods of release detection, since they require sampling in the environment.

Based on comments and subsequent discussions with implementing agencies, EPA confirmed the use of vapor monitoring and groundwater monitoring is 5 percent. EPA confirmed that although the methods are used infrequently in the majority of jurisdictions, some states often use them. A significant number of owners and operators in Arkansas, Louisiana, and Mississippi use vapor monitoring, groundwater monitoring, or a combination. Estimated use of both methods in these states is 29 percent, 12 percent, and 65 percent, respectively. Confirmation of significant use in one particular geographic area of the country influenced EPA's decision to continue allowing use of these methods.

Commenters voiced concern over the economic burden owners and operators would face if prohibited from using vapor monitoring and groundwater monitoring. EPA addressed this concern in the regulatory impact analysis. EPA included costs for switching to SIR, an interior release detection method, as a relatively low-cost alternative for meeting the release detection requirement. From an environmental protection perspective, EPA continues to view exterior release detection methods as least preferred for primary release detection. Adding the record keeping requirement to maintain the site assessment for as long as the methods are used should sufficiently address many of EPA's technical concerns with vapor monitoring and groundwater monitoring as primary release detection methods.

EPA agrees with the comment that vapor monitoring and groundwater monitoring are effective methods

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of release detection if they are properly installed and used. Determining proper installation and use is essential to EPA's decision to continue allowing these methods. Maintaining a site assessment will greatly assist in determining whether these methods are properly installed and used.

Each category of release detection method has advantages and disadvantages. EPA agrees with commenters that, when operating properly, vapor monitoring and groundwater monitoring offer a number of appreciable advantages. Both methods are easy to understand and users can interpret results on site. Both methods show an immediate indication of a release at very low contamination levels. These methods can detect releases from spills and overfills from areas of the UST system that other release detection methods are not designed to pick up.

Commenters mentioned an undisclosed internal review of SIR and an EPA draft document, *Evaluation Of Releases From New And Upgraded USTs*, which indicated vapor monitoring and groundwater monitoring are better than other release detection methods. Regarding EPA's draft report, we agree results showed vapor monitoring and groundwater monitoring detected a higher percentage of releases than other methods.

EPA agrees with comments about major benefits for UST system owners and operators to use backup release detection. However, EPA does not require owners and operators to use a secondary monthly monitoring method for release detection when using another form of release detection, such as SIR. EPA encourages implementing agencies to also consider the merits of promoting use of groundwater and vapor monitoring for reasons other than release detection. EPA agrees that, prior to installing an UST system, groundwater monitoring is beneficial in establishing a baseline to determine groundwater depth, quality, and direction of flow, despite which release detection method is used. EPA also agrees with the commenter who said vapor monitoring as a secondary method of release detection is beneficial. The method monitors the vadose zone and can help avoid expensive remedial efforts involving groundwater impacts.

EPA disagrees that phasing out the methods as primary methods of release detection would have a negative effect on the use of vapor monitoring and groundwater monitoring to assess sites at closure. According to § 280.72, owners and operators may use these methods to meet site assessment at closure and change-in service requirements.

EPA agrees with the comment that switching to secondary containment for new and replaced systems should contain all releases. In the future, relying on intercepting contamination in the environment will no longer occur because all UST systems will eventually move to secondary containment with interstitial monitoring. Most implementing agencies already have secondary containment requirements in place. Interstitial monitoring is the required method of release detection for new and replaced UST systems.

Proposal To Clarify Subpart E For Interstitial Monitoring Results, Including Interstitial Alarms

Summary

- More than 36 commenters provided input on EPA's proposal to clarify owner and operator responsibilities regarding interstitial monitoring results, including interstitial alarms, under subpart E -- 15 supported it; 16 opposed it
- Several commenters misunderstood EPA's intent regarding reporting alarms; EPA intended that owners and operators need to investigate all alarms, but only report confirmed releases and suspected releases, which are not ruled out by an investigation

Support

Fifteen commenters supported the proposal.

- Several commenters stated that EPA's proposal is beneficial to ensure owners and operators are properly following up and determining whether a release has occurred
- One commenter believed EPA's clarification is needed for a clear understanding of what is required if an alarm occurs and to provide better tools for enforcement when owners and operators do not respond to those alarms

Commenters: [0237, 0238, 0243, 0313, 0316, 0326, 0340, 0342, 0343, 0368, 0396, 0399, 0400, 0413, 0422]

Oppose

Sixteen commenters opposed including interstitial monitoring results, including interstitial alarms, under subpart E. Comments fit into these groups:

- Nine commenters indicated that alarms do not necessarily indicate a release to the environment and must first be investigated; clarify that only failed tests require reporting
- Two commenters thought current language in § 280.52 already requires investigation; proposal does not add net benefit, it is too limited and adds needless complexity
- Four commenters stated that all alarms are already followed by an investigation to determine if there was a spill; all alarms are taken seriously due to liability concerns
- Ten commenters stated that if UST system owners and operators were required to report every alarm it would overload the system and provide false spill statistics; it is too burdensome for everyone

Commenters: [0259, 0264, 0298, 0305, 0312, 0327, 0339, 0346, 0349, 0371, 0380, 0402, 0415, 0416, 0418, 0427]

Suggested Changes To Regulatory Language

Several commenters suggested changes to EPA's proposed regulatory language at § 280.50(b) and § 280.50(c), specifically:

- Deleting that alarms associated with water or product in interstices are reportable or clarifying the requirement

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- Clarifying that the unexplained presence of water or product is an unusual operating condition
- Deleting language pertaining to alarms
- Changing language regarding the time allowed to repair, recalibrate, or replace defective system equipment
- Including an exception for reporting alarms that have been confirmed to be false alarms

Commenters: [0224, 0264, 0326, 0339, 0340, 0380, 0415, 0422]

Suggested Non Reportable Alarm Conditions

Commenters suggested several alarm conditions they believed EPA should make non reportable to UST implementing agencies. These include:

- Power surge that causes alarm
- Condensation due to temperature differences between delivered product and product already in the tank
- Product pumped or a delivery received during testing, which is assumed to be done by an automatic tank gauging system
- After heavy rains
- Bad sensor or wiring, sensor knocked over, accumulation of moisture, surface water intrusion
- Low fuel alarm, water accumulation not caused by a leak, and sump alarm from surface water intrusion

Commenters: [0259, 0313, 0339, 0346, 0349, 0350, 0380, 0418, 0422]

Other Comments

Commenters also provided these changes or additional information:

- Redefining release to eliminate clause about discharge to the environment
- Clarifying to whom interstitial alarms must be reported
- Secondarily contained systems should be allowed to perform tank or line tightness testing on primary walls instead of only interstitial integrity testing by pressure, vacuum, or liquid-filled testing, unless there is environmental evidence contamination was not contained in the interstice
- Requiring all incidents be reported then investigated by pressure, vacuum, or liquid-filled testing will be a tough regulatory bar to meet
- EPA's proposal will require significant educational outreach to owners and operators
- Changes to release reporting eliminates certain owner determinations as to whether a release occurred, placing an additional burden on UST implementing agencies
- Clarifying whether the following scenarios have to be reported:
 - An interstitial space that has a sensor which detects a leak, but the leak is contained
 - Water in a tank sump is a suspected release and reportable or not
 - Which type alarms are reportable
- Consider not allowing a second month of inconclusive results before reporting a suspected release for inventory control
- Consider requiring owners and operators report a suspected release when two consecutive months of inconclusive results are received from statistical inventory reconciliation
- Leaks into the interstice should be reported regardless of whether a release has occurred

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- Requiring owners and operators maintain records of all investigations for three years and records would be available to UST implementing agencies for review
- One UST implementing agency requires records of all investigations that support a suspected release has occurred and how owners and operators have addressed them
- Recounting of an incident where an alternate release detection method was used to confirm a release, but when the tank was eventually removed no release was found; owners and operators could avoid nuisance alarms by using discriminating sensors

Commenters: [0246, 0305, 0313, 0316, 0336, 0339, 0348, 0368, 0380, 0385, 0399, 0402, 0416, 0422]

EPA Response

Based on comments, EPA acknowledges the proposed language for subpart E - Release Reporting, Investigation, and Confirmation did not convey EPA's intention. Many commenters misunderstood EPA's clarification. EPA was not proposing that owners and operators automatically report all alarms to the UST implementing agency. In the final UST regulation, EPA is modifying language and clarifying UST system owner and operator responsibilities regarding interstitial monitoring results, including alarms, under subpart E. Owners and operators must investigate all potential indications of a suspected release. Those investigations that confirm a release occurred or cannot rule out a suspected release occurred must be reported to the UST implementing agency according to subpart E.

EPA agrees with commenters that clarifying responsibilities is beneficial and will help ensure owners and operators are properly following up and determining whether a release has occurred. EPA agrees that an alarm does not necessarily mean there has been a release to the environment and an alarm must be investigated before being reported. Only inconclusive investigations that cannot rule out releases, failed tank or line tightness tests, failed secondary containment tests, or confirmed releases have to be reported to UST implementing agencies as required by subpart E.

EPA agrees that § 280.52 currently requires investigation, but disagrees with commenters who contended all alarms are already followed by an investigation to determine if there was a spill, and all alarms are taken seriously due to liability concerns. This does not happen in all instances. EPA heard many anecdotal incidents of UST compliance inspectors arriving at various UST sites and discovering equipment was in alarm mode for an undeterminable period. Clarification of owner and operator responsibility regarding interstitial monitoring results, including system alarms, is needed more now than in the past because EPA is requiring secondary containment with interstitial monitoring for new and replaced systems.

EPA agrees that if UST system owners and operators were required to report every alarm, it would overload the system, provide false spill statistics, and be too burdensome for everyone. With regard to alarms, EPA is requiring owners and operators investigate the cause of an alarm to determine whether there has been a release to the environment. UST system owners and operators must follow requirements in subpart E. Owners and operators must report to UST implementing agencies the event of a confirmed release or if a suspected release cannot be ruled out. If owners and operators determine a release to the environment has not occurred, then reporting is not required.

Suggested Changes To The Regulatory Language

Commenters suggested changes to language EPA proposed in the 2011 proposed UST regulation. We discuss the suggestions below.

Commenters asked EPA to change language in § 280.50(b) and either delete alarms associated with water

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or product in the interstice as reportable or have owners and operators only report after investigation indicates a release to the environment occurred. Commenters also asked EPA to add the term “an unexplained presence of” before “water or product” in the fourth unusual operating condition example. Alarms are addressed in § 280.50(c), not § 280.50(b), which addresses unusual operating conditions. EPA is keeping the proposed language about water or product in the interstice as potentially reportable to UST implementing agencies, but is restructuring § 280.50(b) to provide separate examples of unusual operating conditions, including addressing any liquid such as water or product in interstitial spaces not associated with the interstitial monitoring method. The final UST regulation will add these subsections to § 280.50(b):

- § 280.50(b)(1) regarding system components - “is found not to be releasing regulated substances to the environment”
- § 280.50(b)(2) addressing defective components - “any defective system component is immediately repaired or replaced”
- § 280.50(b)(3) regarding secondarily contained systems - “For secondarily contained systems, except as provided in § 280.43(g)(2)(iv), any liquid in the interstitial space not associated with the interstitial monitoring method (for example, liquid filled) is removed”

Commenters asked EPA to change language in § 280.50(c) and delete the proposed addition of “and alarms.” EPA disagrees with commenters about deleting “and alarms.” EPA thinks this is an important point to make regarding owner and operator responsibility for investigating UST system alarms that may indicate a release has occurred. In order to clarify this requirement, EPA is changing the term to “including investigation of an alarm.” This better conveys that it is not the alarm itself that is reportable, but whether a suspected or confirmed release exists. If the alarm is investigated and there has not been a release to the environment, the final UST regulation is not requiring owners and operators report the incident.

EPA was asked to replace the word “immediately” with “promptly” or change “immediate repair...” to “expeditious repair...” in § 280.50(c)(1). Commenters stated that not all alarms can be immediately repaired, recalibrated, or replaced as required. EPA disagrees with commenters about changing language in the final UST regulation regarding how soon defective equipment needs to be repaired or replaced. Language pertaining to immediate response has been a part of the reporting of suspected release requirement since the 1988 UST regulation. Any change to this established time frame could undermine the urgency owners and operators need to exercise in order to avoid potential releases.

Commenters also asked EPA to include additional exceptions to § 280.50(c). Commenters said EPA should exclude owners and operators from having to report alarms that are confirmed as false alarms (i.e., those alarms not resulting in releases to the environment). Also, if an alarm condition was caused by water intrusion and the water intrusion indicates a secondary containment failure, it must be repaired according to § 280.33. EPA is modifying the regulatory language to expand and more clearly describe exceptions to reporting monitoring results, including investigation of an alarm from a release detection method that indicates a release may have occurred. The final UST regulation will add the following language to § 280.50(c):

- § 280.50(c)(2) - “The leak is contained in the secondary containment or water is in the secondary containment, any liquids are removed, and any defective equipment is immediately repaired or replaced”
- § 280.50(c)(3) include to the end of sentence - “or the investigation determines no release has occurred”
- § 280.50(c)(4) - “the alarm was investigated and determined to be a non-release event such as a

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power surge”

Commenters provided a variety of non-reportable alarm conditions they thought were not typically reportable events. These included:

- Power surge that causes alarm
- Condensation due to temperature differences between delivered product and product already in the tank
- Product pumped or a delivery received during a test
- After heavy rains
- Bad sensor or wiring, sensor knocked over, accumulation of moisture, and surface water intrusion
- Low fuel alarm, non-leak water accumulation, and sump alarm from surface water intrusion

Although EPA agrees with commenters that most of the suggested conditions are typically not reportable events, EPA cannot categorically exclude these events as never needing to be reported to UST implementing agencies. EPA is adding to the final UST regulation at § 280.50(c)(4) this language: “The alarm was investigated and determined to be a non-release event such as a power surge.” This will provide an additional example of a representative type of alarm that is typically not reportable. However, the intent of the final regulatory requirement remains the same. UST system owners and operators must investigate the cause of alarms and other potential indications of a release to the environment. Unless the investigation supports that a release to the environment has not occurred, UST system owners and operators are responsible for reporting suspected releases to UST implementing agencies.

With regard to redefining release to eliminate the clause about discharge to the environment, EPA does not have authority to redefine the term. Congress defined release in the Solid Waste Disposal Act.

EPA disagrees with the comment that further clarification is required about to whom interstitial alarms must be reported. In § 280.50 Reporting of suspected releases, we indicate: “Owners and operators of UST systems must report to the implementing agency within 24 hours, or another reasonable time period specified by the implementing agency...”.

EPA agrees we need to change the requirement in the 2011 proposed UST regulation regarding owners and operators of secondarily contained systems testing these systems using only pressure, vacuum, or liquid-filled testing methods. Requiring all incidents to be tested by pressure, vacuum, or liquid-filled testing could be difficult to achieve. In the final UST regulation, EPA is providing owners and operators with flexibility to perform either tank or line tightness testing on primary walls or, as appropriate, secondary containment testing. EPA acknowledges there may be circumstances where one method of testing is necessary over another. EPA is including in the final UST regulation that, as appropriate, secondary containment testing described in § 280.33(d) is to be used.

EPA understands the comment that the proposal to clarify owner and operator responsibilities under subpart E will require significant educational outreach. However, additional language in the 2011 proposed UST regulation makes these responsibilities clear. In the final UST regulation, EPA is addressing the two most misunderstood or controversial areas of the 2011 proposed UST regulation. The final UST regulation clarifies that owners and operators will not be required to automatically report alarms to UST implementing agencies. Only after investigation will owners and operators have to report a confirmed release, if found, or a suspected release the investigation could not rule out. Owners and operators will only have to perform secondary containment testing as appropriate, not in every instance involving secondary containment areas.

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One commenter believed that language in the 2011 proposed UST regulation regarding release reporting eliminated certain owner determinations as to whether a release occurred, placing an additional burden on UST implementing agencies. EPA disagrees with the commenter. EPA is clarifying in the final UST regulation that owners and operators are responsible for determining whether a release has occurred prior to reporting to UST implementing agencies. For example, owners and operators are not required to automatically report every alarm to UST implementing agencies, only those alarms that have been investigated and a release has been confirmed or a suspected release still cannot be ruled out. EPA sees no negative impact to UST implementing agencies with clarification to the release reporting requirements.

Commenters asked EPA to clarify a few scenarios and identify whether owners and operators would be required to report them to UST implementing agencies. One commenter asked whether owners and operators would have to report a leak into an interstitial space with a sensor that detects leaks, even if the leak is contained. Owners and operators are responsible for investigating alarms from leaks into interstitial spaces. Unless a release reaches the environment, owners and operators are not required by the final UST regulation to report the incident. However, any liquids have to be removed from the interstitial space. The final UST regulation will clarify this in § 280.50(c)(2). Another commenter asked whether water in a tank sump is a suspected release and reportable or not. EPA considers water in the tank sump to be an unusual operating condition. Owners and operators need to investigate the cause of water in the sump to determine a release has not occurred. If a release occurred, owners and operators are required to report the release to the UST implementing agency. Owners and operators would have to remove the water regardless of whether a release occurred. Another commenter asked which types of alarms are reportable. The 1988 UST regulation does not require owners and operators automatically report alarms to UST implementing agencies. Owners and operators need to investigate the cause of all alarms from an applicable release detection method; confirmed releases or suspected releases, which are not ruled out by investigation, need to be reported to UST implementing agencies.

Commenters suggested EPA not allow a second month of inconclusive results for interstitial monitoring and allow a second month of inconclusive results for statistical inventory reconciliation (SIR). EPA is not changing release reporting requirements for these release detection methods. Inventory control is combined with periodic tank tightness testing and, when used, provides an additional level of environmental protection. The secondary containment requirement in the final UST regulation requires all new and replaced UST systems use interstitial monitoring to meet the release detection requirement. Inventory control combined with tank tightness testing will no longer be allowed as a primary means of release detection. SIR has historically been allowed under EPA's other methods of release detection in section § 280.43. The final UST regulation includes SIR by name with further clarification of its performance requirements. SIR is a more accurate means than inventory control of analyzing inventory data to determine a release. Allowing any method, including SIR, two consecutive months of inconclusive results is not protective of the environment.

Several commenters suggested additional requirements. These included reporting leaks into the interstice regardless of whether a release occurred, as well as requiring owners and operators maintain records of all investigations for three years and make them available to UST implementing agencies. Another commenter indicated his UST implementing agency requires owners and operators keep records of investigations about suspected releases, as well as how owners and operators addressed them. EPA is not requiring these additional suggestions in the final UST regulation. These suggestions could add a considerable burden on owners and operators and EPA did not evaluate costs or environmental benefits for these suggestions. EPA is aware that UST implementing agencies may have requirements in addition to EPA's requirements. Owners and operators need to review the regulatory requirements for the jurisdiction in which their UST systems are located in order to comply with all applicable requirements.

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One commenter noted an incident where an alternate release detection method confirmed a release, but when the tank was removed, no release was found. EPA is not familiar with all of the circumstances surrounding this incident. Nonetheless, EPA is providing flexibility in the final UST regulation for owners and operators to test UST systems in the most appropriate manner and verify whether a release occurred. EPA intends for owners and operators to use confirmatory testing to ensure UST systems, which have not released product, remain intact.

Finally, one commenter suggested owners and operators could reduce nuisance alarms by using discriminating sensors. EPA agrees that in certain circumstances discriminating sensors might be ideal. However, EPA is not requiring discriminating sensors. Owners and operators should determine what works best for their UST systems. EPA reminds owners and operators of the requirements in subpart E pertaining to water, product, and other liquids. In general, if there are unusual operating conditions that cause liquids to be in areas of the UST system, owners and operators need to address those unusual operating conditions according to subpart E.

Proposal To Incorporate Newer Technologies

Summary

EPA received input from more than 25 commenters on our proposal to add newer technologies to the final underground storage tank (UST) regulation. Most commenters provided input on statistical inventory reconciliation (SIR). A few commenters suggested EPA allow tank within a tank constructions be considered as new tank installations in the final UST regulation. Below are details about the comments.

Support

Five commenters voiced general support for adding newer technologies. One commenter specifically supported adding jacketed tanks to new tank technologies. Four commenters supported adding continuous in tank leak detection (CITLD) as an option for release detection. Six commenters supported adding SIR as an option for release detection. Several commenters supported adding SIR, but with specific requirements that include reporting inconclusive results.

Commenters: [0238, 0239, 0246, 0265, 0266, 0300, 0301, 0313, 0316, 0343, 0344, 0348, 0388, 0413, 0414, 0422]

Oppose

No commenters specifically opposed adding newer technologies to the final UST regulation. One commenter suggested that including SIR as an option for release detection would not enhance the final UST regulation. However, EPA should include specific requirements if SIR is added as an option.

Commenters: [0246]

Specific Performance Standards For Vacuum, Pressure, And Liquid-Filled Interstitial Monitoring

EPA asked commenters to provide specific performance standards for vacuum, pressure, and liquid-filled interstitial monitoring. Two commenters supported EPA's proposal. Two commenters indicated EPA should not include performance standards. Three commenters indicated EPA should provide specific performance standards, but did not indicate what the standards are. Several commenters indicated that recommendations of the manufacturer or third party certification were reasonable. One commenter suggested that approved tests by the National Work Group on Leak Detection Evaluations would be adequate.

Commenters: [0237, 0238, 0243, 0313, 0316, 0396, 0399]

Performance Standards For Release Detection That Should Be Added Or Removed

EPA asked commenters whether there are performance standards for release detection methods we should add to or remove from the final UST regulation. Four commenters indicated there was nothing to add or remove. One commenter indicated we should add detailed specifications and performance standards for both CITLD and SIR. One commenter indicated SIR should comply with the 30-day pass or fail results requirement. One commenter suggested excluding types of interstitial monitoring that allow dispenser sumps to fill with product before it travels to the submersible turbine pump containment sump for detection.

Commenters: [0237, 0238, 0266, 0313, 0316, 0399]

Other Comments

EPA also received these comments:

- Add tank within a tank constructions to the final UST regulation and modify closure requirements to allow this technology to be installed in a permanently closed UST
- Establish maximum throughputs for facilities using SIR; one commenter recommended 500,000 per month
- Enhanced SIR works well with both safe and non-safe types of suction piping systems
- Concern about use of SIR – it would be helpful if EPA holds vendors accountable and requires use of automatic tank gauges for measurements
- CITLD can perform release detection on the piping, too; make this clear in the final UST regulation
- Concern that SIR would not detect releases in satellite lines if the solenoid valve is positioned improperly
- Clarify what inconclusive results mean for SIR; is it a suspected release?
- Disagree that SIR methods must produce a result within 30 days
- Concern about the owner knowing in a timely manner whether an UST system is leaking because the monitoring result is not produced until well into the next month
- EPA praises SIR in one part of the preamble and makes it sound like the method is inadequate in another area
- Add inventory reconciliation at § 280.43(a) to SIR requirement
- New language for CITLD at § 280.43(d)(2) is unnecessary and confuses rather than clarifies
- Description of SIR adds to the confusion about the relationship between SIR, continuous statistical leak detection (CSLD), and CITLD; SIR section should reference only SIR
- Add 150 gallons per month, or some other maximum amount, standard back to SIR; otherwise inventory can be off and still generate a passing result

Commenters: [0236, 0246, 0266, 0273, 0278, 0300, 0313, 0341; 0368, 0372, 0400, 0414]

EPA Response

Based on comments, EPA is adding the newer technologies as presented in the 2011 proposed UST regulation. EPA is changing the final UST regulation as discussed below.

EPA asked whether we should provide specific performance standards for vacuum, pressure, and liquid-filled interstitial monitoring and, if so, what those performance standards should be. No commenters provided specific performance standards in terms of leak rates or other technical criteria. However, there is no longer a need for EPA to specifically name vacuum, pressure, and liquid-filled methods in the final UST regulation. The 2011 proposed UST regulation suggested adding these three methods of continuous interstitial monitoring in § 280.43 to support interstitial monitoring as part of the secondary containment requirement. Based on comments, EPA in the final UST regulation is not including language in the secondary containment requirement pertaining to continuous interstitial monitoring and testing. EPA is also removing the proposed incentive for UST system owners and operators to not periodically test continuous interstitial monitoring systems. EPA is not including in § 280.43(g) of the final UST regulation language pertaining to continuous vacuum, pressure, or liquid-filled methods of interstitial monitoring. This does not impact release detection methods used under § 280.43(g). UST system owners and operators must meet applicable requirements of this section.

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EPA also asked if there were performance standards for release detection methods we should add to or remove from the final UST regulation. Commenters indicated that: performance standards for CITLD and SIR should be added; SIR should comply with the 30-day monitoring requirements; and interstitial monitoring that allows dispenser sumps to fill with product that must travel to the submersible turbine pump sump for detection should be disallowed. We address the first two suggestions below. EPA recognizes issues may occur with interstitial methods that detect releases by relying on dispenser sumps filling and product traveling to the submersible sump. EPA is allowing these methods because they should be compliant, even though there might be concerns with the system meeting the 30-day monitoring requirement. EPA reminds UST system owners and operators that we are requiring interstitial monitoring of under dispenser containment areas for new and replaced UST systems that meet the secondary containment requirement. Monitoring must meet the 30-day release detection requirement.

EPA understands the closure portion of the 1988 UST regulation requires owners to fill their tanks with inert solid material as part of closing tanks in place. Because installing a new tank requires closing an existing tank, EPA thinks this language may prohibit technologies that construct a tank within a tank from being considered a new tank. EPA does not want to prohibit technologies that implementing agencies determine meet the new tank design and construction standards. Therefore, EPA is revising the closure requirements and giving implementing agencies flexibility to allow closure in place in manners other than filling tanks with solid inert material. However, EPA disagrees with commenters who suggested specifically listing tank within a tank technologies in the UST system design and construction standards at § 280.20. Field-constructed tank technologies are already covered in this section, depending on the material of construction. For example, many tank within a tank technologies are currently constructed from fiberglass and must meet the requirements for fiberglass tanks in § 280.20. All new tanks and piping must also meet the installation requirement in § 280.20(d).

One commenter suggested EPA establish maximum throughputs such as 500,000 gallons per month for facilities using SIR. EPA is aware there may be limits to current release detection methods. However, EPA is not restricting release detection choices in the final UST regulation. The final UST regulation allows UST system owners and operators to choose a method or combination of release detection methods that meet the needs of their UST systems. For example, one UST system may use a method or combination of methods of release detection that may not meet release detection requirements for another UST system. In the early 1990s, EPA established seven standardized test procedures for testing leak detection equipment. Among these was a procedure to test SIR methods. Equipment limitations are addressed in EPA's standard test procedures and provide means for equipment manufacturers to verify their equipment meets EPA's regulatory performance standards.

One commenter stated that enhanced SIR works well with both safe and non-safe types of suction piping systems. Although owners and operators of safe suction systems that meet criteria established in the 1988 UST regulation and retained in the final UST regulation are not required to conduct release detection, performing release detection could still be beneficial as an extra safeguard against an environmental release.

One commenter was concerned about the use of SIR and thought it would be helpful if EPA held vendors accountable and required the use of ATGs for measurements. SIR vendors and other third-party service providers are accountable for the services they provide to owners and operators. In the 2011 proposed UST regulation, EPA identified that UST system owners and operators with SIR primarily gathered inventory measurements using a manually operated tank measuring stick. In order to obtain the most accurate measurement data possible, owners and operators must adhere to data collection procedures specified by the method's vendor. EPA agrees with the commenter who stated that using an automatic tank gauge for inventory measurement could be helpful for owners and operators in gathering more precise inventory measurements. EPA, however, is not prescribing how owners and operators using this

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method of release detection must obtain necessary inventory measurements. EPA is continuing to allow owners and operators flexibility in obtaining inventory measurements.

One commenter asked EPA to clarify that CITLD can perform release detection on piping. Another commenter also raised the concern that SIR would not detect releases in satellite lines if the solenoid valve is positioned improperly. Not all implementing agencies allow CITLD or SIR for piping release detection. UST system owners and operators need to check with the UST implementing agencies where their UST systems are located to determine if these methods are allowed. In addition, for inventory based release detection methods such as SIR and CITLD, unmetered areas of UST systems are not covered. The 1988 UST regulation required UST system owners and operators use a method or combination of release detection methods that can detect a release from any portion of the tank and connected underground piping that routinely contains product. If SIR or CITLD is used for piping release detection, UST system owners and operators need to ensure release detection measures cover all applicable piping of the UST system, including unmetered satellite piping.

One commenter asked that EPA identify whether the term inconclusive for SIR results means a suspected release. A result of inconclusive does not provide a determination of whether the UST system is leaking, as indicated by fail, or is not leaking, as indicated by pass. EPA discussed the term inconclusive and our 1993 guidance regarding inconclusive SIR results in the preamble of the 2011 proposed UST regulation. EPA is reiterating that discussion in the preamble to the final UST regulation.

EPA disagrees with the commenter who thought SIR methods are not required to produce a result within 30 days. The commenter assumed that monitoring is separate from determining the leak status of a tank. The 1998 UST regulation did not establish a requirement for UST system owners and operators to merely observe the status of their UST system every 30 days. In the preamble to the 2011 proposed UST regulation, EPA discussed the requirement that tanks must be monitored at least every 30 days for releases, as well as the responsibility of owners and operators to determine whether there have been releases from their tanks within this period.

EPA received several comments regarding lack of timeliness associated with determining whether a leak exists when using SIR. In many instances, monitoring results are not produced until the next monitoring period or well beyond. These commenters also provided several suggestions for EPA to address the lag time between UST owners and operators collecting leak detection data and receiving late reporting on the leak status of their tanks. EPA reiterates the established regulatory requirement that tanks must be monitored at least every 30 days for releases. Owners and operators must determine whether there has been a release. To address concerns about receiving a SIR report late and delayed knowledge of a tank release, EPA provided an example in the 2011 proposed UST regulation of using a rolling collection of data to analyze the leak status of a tank. EPA stated, "data from the previous 30-day monitoring period may be added to measurements taken within the current 30-day monitoring period to determine whether or not the tank is leaking. However, the majority of data must come from the current 30-day period...". EPA agrees with commenters that after several monitoring periods, some UST system owners and operators could still encounter situations where sufficient current data would be unavailable to meet the monitoring time frame. Therefore, a leak could go undetermined well beyond the 30-day period in the rolling data collection example EPA provided.

Commenters provided other options for how owners and operators can meet the release detection requirement. One possible option is to run a SIR analysis every 15 days and the last 30 days of data. This option results in a more frequent analysis of the UST system's leak status. EPA agrees this option would allow owners and operators to meet the release detection requirement. Another option is to add a requirement that SIR results must be returned to the owner within seven days of the end of the data collection period; other commenters suggested various times. EPA disagrees with this option because it

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does not meet EPA's previously established release detection requirement. Providing additional time for one method to determine whether a leak has occurred would be unfair to UST system owners and operators using other release detection methods, and would result in decreased environmental protection. Release detection needs to occur as early as possible. EPA's minimum requirement for release detection is once every 30 days. There are SIR methods that meet the release detection requirement. To meet the release detection requirement, owners and operators of other SIR methods can take advantage of more frequent analysis, as one commenter suggested, or send data more expeditiously by electronic means. EPA is retaining the release detection requirement, which allows owners and operators to use whatever method they choose, as long as it meets performance standards. UST system owners and operators can discuss changes with their SIR vendors, in order to adjust their method and meet EPA's release detection requirement. EPA is not including the example of rolling collection of data in the preamble to the final UST regulation.

One commenter stated EPA praised SIR in one part of the preamble and made it sound like the method is inadequate in another area. EPA provided a balanced discussion about SIR in the 2011 proposed UST regulation. Similar to all release detection methods, SIR has benefits as well as potential limitations, which we discussed in the preamble to the 2011 proposed UST regulation.

EPA disagrees with the commenter who suggested we add the inventory reconciliation requirement in § 280.43(a) to the SIR method requirements. SIR is not the same as inventory control listed in § 280.43(a) of the 1988 UST regulation. If a SIR method meets one of the performance standards for internal leak detection methods such as inventory control or automatic tank gauging, it could qualify under those requirements. SIR methods must meet the leak rate requirement and probabilities of detection and false alarm performance standards, which are unchanged from the 2011 proposed UST regulation and included in the final UST regulation.

EPA disagrees with the commenter who indicated our language for CITLD at § 280.43(d)(2) is not necessary and confuses rather than clarifies. Instead of creating an entirely new section, EPA added the description and requirements for the CITLD method to the automatic tank gauge method. With a more sophisticated software upgrade, an automatic tank gauging system is enhanced to run a continuous analysis beyond how the system has historically been programmed to run a static test for a set period.

Another commenter thought EPA's description of SIR adds to the confusion about the relationship among SIR, CITLD, and continuous statistical leak detection (CSLD); the commenter stated the SIR section should reference only SIR. EPA agrees with the commenter that distinguishing these statistically based methods is beneficial. EPA describes SIR and CITLD to distinguish them from each other in the regulatory context. EPA is revising the description of SIR in the final UST regulation; it will not include those statistically based methods that operate on a continuous basis such as those described in CITLD. In the preamble to the final UST regulation, EPA is describing CITLD, CSLD (also referred to as continuous automatic tank gauging methods), and SIR; this will help differentiate among these statistically based, internal tank monitoring methods.

One commenter suggested that EPA add 150 gallons per month standard, or some other maximum amount inventory deviation, to SIR. EPA expanded the other methods requirements in the 1988 UST regulation as the foundation for the SIR method. EPA proposed omitting the 150 gallons within a month criteria, citing its primary application to external release detection methods. The commenter pointed out the importance of the 150 gallons criteria if SIR methods are used for monitoring piping for release detection. Without the standard, the method could not be used for piping release detection. Some UST implementing agencies allow UST system owners and operators to use SIR for piping release detection. EPA agrees with the commenter that this standard should be included. EPA is including the 150 gallon criteria in the final UST regulation.

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Proposal To Update Codes Of Practice Listed In The UST Regulation

Summary

- More than 20 commenters provided input on EPA's 2011 proposed UST regulation to update the codes of practice (also called standards or recommended practices) listed in the 1988 UST regulation – 17 supported it; no one opposed it
- Other comments
 - Several commenters provided information about additional codes that could be added to the final UST regulation
 - A few provided general comments and editorial corrections to titles and designations
- EPA asked a specific question about whether codes of practice should apply to the UST system or just tanks and piping in the installation requirements in § 280.20(d); most commenters agreed the codes of practice should apply to the UST system

Support

All commenters were generally supportive of updating the codes of practice listed in the 1988 UST regulation.

Commenters: [0222, 0238, 0243, 0289, 0301, 0313, 0316, 0332, 0343, 0344, 0348, 0372, 0390, 0397, 0400, 0401, 0409]

When asked about whether codes of practice should apply to the UST system or just tanks and piping in the installation requirements in § 280.20(d), most commenters supported using the term UST system.

Commenters: [0222, 0233, 0238, 0243, 0313, 0316, 0396, 0399]

Oppose

No commenters opposed updating the codes of practice. One commenter indicated that using codes of practice as a regulatory tool seemed to be inefficient because organizations need to stay in existence, titles need to remain the same, and the standard can be changed when the standard-making organization feels like changing it.

Commenters: [0325]

When asked about whether codes of practice should apply to the UST system or just tanks and piping in the installation requirements in § 280.20(d), one commenter had no strong opinion.

Commenters: [0313]

Other Comments

Several commenters offered corrections to titles or standard designations EPA included in the 2011 proposed UST regulation. In addition, several commenters offered names of different standards that should be added to or removed. Suggested additions included:

- PEI-RP1200, *Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities*;

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- ULC/ORD-C58.4-05, *Double Containment Fibre Reinforced Plastic Linings for Flammable and Combustible Liquid Storage Tanks*;
- PEI RP500, *Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment*;
- ASTM G158, *Standard Guide for Three Methods of Assessing Buried Steel Tanks*; and
- STI R-111, *Storage Tank Maintenance*

The one suggested deletion was API RP 1621, *Bulk Liquid Stock Control at Retail Outlets*. The commenter suggested this deletion because it is an older standard, not recently updated or reaffirmed. One commenter suggested not adding other testing standards for cathodic protection testing because adding additional codes of practice allows cathodic protection testers to shop around for the least stringent way of doing things. One commenter expressed concern about including PEI RP1200 in the final UST regulation for tank secondary containment testing because the standard contains significant differences in the testing of secondarily contained steel and fiberglass tanks when compared to testing standards developed by the steel and fiberglass tank associations.

Commenters: [0222, 0238, 0246, 0313, 0332, 0343, 0397, 0390, 0400, 0444]

EPA Response

In response to comments received, EPA is making corrections to titles and standards designations in the final UST regulation. Also, after reviewing the Petroleum Equipment Institute's recommended practice PEI RP1200 issued in 2012, EPA is adding it to the final UST regulation in areas where testing or inspecting of UST equipment is required. One commenter suggested not including the PEI RP1200 code of practice for secondary containment testing because of significant differences when compared to testing standards for secondarily contained steel and fiberglass tanks. However, a review of PEI RP1200 showed the standard as referencing both the steel and fiberglass tank codes of practice as alternatives to using the procedure described in PEI RP1200. EPA is also including the steel and fiberglass tank testing standards when secondary containment testing is required in the final UST regulation. In addition, to providing owners and operators with flexibility in meeting the final UST regulation, EPA continues to include the codes of practice we are aware of in the cathodic protection testing section. EPA is excluding ULC/ORD-C58.4-05 from the final UST regulation because EPA is no longer allowing owners and operators to install internal linings to meet the corrosion protection upgrade. Owners and operators can still use internal linings for other reasons such as compatibility or secondary containment, but EPA is not listing codes of practice in those areas. Likewise, EPA is excluding ASTM G158 because that code is for assessing steel tanks prior to upgrading with cathodic protection and owners and operators needed to meet the corrosion upgrade requirements by December 1998. EPA is making the upgrading requirements in § 280.21 historical because the deadline for meeting those requirements was 1998. EPA is also excluding PEI RP500 because it is a standard for inspecting motor fuel dispensing equipment and Subtitle I of the Solid Waste Disposal Act does not give EPA the authority to regulate aboveground components such as motor fuel dispensing equipment. In addition, after reviewing STI R-111, EPA is excluding that standard as part of walkthrough inspections because the content of the 2011 version of the standard focused on water and contaminants in the tank along with compatibility and, except for a monthly inspection checklist, did not describe how to conduct a periodic walkthrough inspection. Finally, EPA is continuing to include API RP 1621 in the final UST regulation. EPA confirmed with the American Petroleum Institute that this standard is current; it was reaffirmed in 2012.

Finally, based on positive comments, EPA is revising the term tanks and piping to UST system in § 280.20(d), which means the UST system must be installed according to a code of practice and according to manufacturer's instructions.

Proposal To Update The UST Regulation To Remove Old Upgrade And Implementation Deadlines

Summary

- More than fifteen commenters provided input on EPA's proposal to add newer technologies to the UST regulation. 4 supported it; 0 opposed it
- Potential unintended consequences: 4 commenters thought removing past upgrade and implementation deadlines might create potential enforcement issues

Support

Four commenters voiced their support for removing old upgrade and implementation deadlines.

Commenters: [0301, 0326, 0343, 0348]

Oppose

No commenters opposed removing old upgrade and implementation deadlines.

Potential Unintended Consequences

EPA asked commenters about whether there might be any unintended consequences of removing old upgrade and implementation deadlines from the 1988 UST regulation. Six commenters were not aware of any unintended consequences. Four commenters indicated that the changes might affect enforcement of an upgrade or implementation deadline.

Commenters: [0222, 0233, 0237, 0238, 0243, 0265, 0313, 0396, 0399]

Allowing Flexibility For Implementing Agencies

EPA asked commenters whether the regulation should continue to allow flexibility for implementing agencies to allow upgrades if they determine allowing the upgrade is appropriate. Nine commenters indicated yes, the flexibility should remain. One commenter indicated no, the flexibility should not remain. One commenter was unsure.

Commenters: [0222, 0233, 0235, 0237, 0238, 0243, 0313, 0316, 0396, 0399]

EPA Response

Based on the comments received, the final UST regulation removes old upgrade and implementation deadlines. EPA discussed whether removing old upgrade and implementation deadlines would adversely affect enforcement with its legal counsel, who indicated that removing the upgrade and implementation deadlines would not change the obligations in place at the time. In addition, EPA maintains flexibility for implementation agencies to allow owners and operators to upgrade UST systems when they determine the upgrade is appropriate.

Proposal To Make Editorial And Technical Corrections

Summary

- More than 15 commenters provided input on EPA's proposal to make editorial and technical corrections to the UST regulation

Support

Two commenters supported the editorial correction in § 280.31 changing *for as long as the UST system is used to store regulated substances to until the UST system is permanently closed or undergoes a change in service pursuant to § 280.71*. One commenter supported the editorial change in § 280.31 of steel to metal.

Commenters: [0235, 0300, 0316]

Financial Responsibility

EPA received these comments to the proposed editorial and technical corrections for financial responsibility:

- The technical correction to the definition of accidental release was unnecessary and created confusion
- EPA no longer needs to define the term petroleum marketing firms, since it is no longer used
- EPA made a technical correction from properly closed to permanently closed, but did not address what happens when an UST system undergoes a change in service
- EPA changed the list to include the local government options in § 280.94(a)(1), but those options are already covered in § 280.94(a)(2)
- § 280.97(b)(1) and (2) should include the local government options as part of the reference
- Include in 280.104(g) *and/or other local government guarantor after if a local government owner or operator*

Commenters: [0294, 0328, 0338]

Release Detection

EPA received these comments to the proposed editorial and technical corrections for release detection:

- The title of subpart D should be leak detection instead of release detection, since the subpart includes interstitial monitoring
- Appropriately identify leaks, which do not reach the environment, versus releases, which reach the environment, throughout subpart D
- § 280.41(b)(1)(ii)(e) contains a reference error
- EPA missed replacing *of at least 36 hours with the minimum duration of the test in the table below* in § 280.43(b)(1)
- EPA should retain paragraph in § 280.43(d)(2), which requires automatic tank gauging equipment to meet the requirements for inventory control
- The new table in § 280.43(b), which extends testing time frames and lowers weekly and monthly standards for manual tank gauging, will be overly burdensome for dealers to comply
- § 280.47(a) should use the term minimum instead of maximum

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Commenters: [0222, 0235, 0238, 0264, 0290, 0313, 0316, 0339, 0399]

Other

EPA also received these comments:

- Change non corrodible to nonmetallic in § 280.20 and § 280.33
- The meaning of recent compliance in § 280.34 is unclear
- Be consistent with the terms double walled and two walls – these terms are used throughout the document

Commenters: [0316, 0339, 0407, 0421]

EPA Response

For financial responsibility, EPA agrees with the commenter who suggested EPA delete the definition of petroleum marketing firm; we are removing the definition from the final UST regulation. In addition, to clarify that financial responsibility is not needed when a change in service occurs, EPA is adding change in service to § 280.113. EPA also agrees with the commenter who suggested the local government option is covered in section § 280.94(a)(2); we are removing it from § 280.94(a)(1). EPA agrees with the commenter who suggested § 280.97 was missing local governments options in the boilerplate language and we are adding those references to the final UST regulation. EPA disagrees with the suggestion to add language in § 280.104 because the local government guarantor is covered under § 280.106. Finally, EPA disagrees with the commenter that the technical correction to the definition of accidental release is unnecessary and created confusion. The language EPA is changing was in the preamble to the 1988 UST regulation, but it was inadvertently omitted from the 1988 UST regulation; it reflects what EPA intended for the definition of accidental release.

For release detection, EPA is making changes in the final UST regulation to ensure the terms release and leak are properly used. In addition, EPA agrees with commenters who identified reference and wording errors in the proposal and is correcting those errors. EPA also agrees with commenters who indicated EPA should not remove the language about automatic tank gauging equipment needing to meet the requirements for inventory control; we are including it in the final UST regulation. EPA disagrees with commenters who said the new table for manual tank gauging would be overly burdensome for owners and operators. EPA developed this table in 1990 and has allowed the alternatives through policy guidance for more than 20 years. The table provides additional flexibility for owners and operators choosing to use manual tank gauging for smaller UST systems. Finally, EPA is rewording language in § 280.47 by removing the term maximum detectable in the table heading to clarify these are the highest acceptable leak rates to meet the requirement.

For the other comments, EPA agrees with the commenter who suggested the meaning of recent compliance in § 280.34 is unclear; we are revising the language to be consistent with other recordkeeping language in that section. EPA is making double walled and two walls as they relate to secondarily contained tanks, piping, and containment sumps consistent to the extent possible. Finally, after reviewing the 1988 UST regulation, EPA is not changing the term non-corrodible to nonmetallic. The 1988 UST regulation uses the term non-corrodible several times in both the preamble and final 1988 UST regulation. EPA believes this term refers to materials that will not corrode without the addition of cathodic protection; we are maintaining the term used in the 1988 UST regulation. Finally, EPA is revising the term technical correction to be technical amendment to better reflect the changes in the final UST regulation.

Revise State Program Approval (SPA) Requirements To Be Consistent With Part 280 Revisions

Summary

- Twenty commenters provided input on EPA's proposal to revise state program approval requirements to be consistent with part 280 revisions.
 - Seven commenters wanted to ensure states only have to meet EPAct grant guidelines and do not have to change their regulations to mirror federal EPAct regulations in order to obtain SPA
 - Three commenters supported EPA's changes to the SPA requirements
 - One commenter supported EPA's approach to state program approval and encouraged EPA to maintain primacy in states
 - Several commenters had questions about the withdrawal process if a state does not re-apply for SPA
 - Four commenters supported the three years for states to come back in for SPA revision while 11 thought another frequency would be more appropriate
 - Four commenters supported including the procedures for determining compatibility in the SPA regulations while four commenters preferred EPA not address this in the final SPA regulation
 - Several commenters were concerned with how release detection requirements were expressed in part 281

Support

Three commenters voiced their support of the proposal. One commenter supported EPA's approach to state program approval and encouraged EPA to maintain primacy in states.

Commenters: [0348, 0343, 0339, 0301]

Oppose

No commenters opposed revising the SPA requirements to be consistent with part 280 revisions. Some commenters did have specific concerns about particular aspects of the revisions. Seven commenters wanted to ensure states only have to meet EPAct grant guidelines and do not have to change their regulations to mirror federal EPAct regulations in order to obtain SPA. One commenter was concerned with the cost to states of revising and reapplying for SPA.

Commenters: [0238, 0300, 0313, 0422, 0339, 0399, 0364]

Three Year Time Frame For SPA State To Submit Revised Application

EPA asked commenters to provide input about whether the proposed three years for requiring a SPA state to submit a revised application was an appropriate time frame. Four commenters felt three years was appropriate. One commenter suggested four years while 10 commenters requested five years for a state to submit its revised SPA application.

Commenters: [0237, 0265, 0243, 0300, 0238, 0308, 0311, 0313, 0412, 0372, 0341, 0396, 0399]

Addressing Proposed Procedures For Determining Compatibility

EPA asked commenters to provide input on whether EPA should address the proposed procedures for determining compatibility of § 280.32 into the SPA regulation. Four commenters supported including the procedures for determining compatibility in the SPA regulation. Four commenters preferred EPA not address this in the final SPA regulation.

Commenters [0237, 0238, 0313, 0265, 0399]

Energy Policy Act Requirements (EPAct) And Issue Of States Being No Less Stringent Than Federal Requirements

Seven commenters wanted to ensure states only have to meet EPAct grant guidelines and do not have to change their regulations to mirror federal EPAct regulations in order to obtain SPA. These commenters were concerned that EPA requirements for secondary containment and operator training could be considered more stringent than state requirements that met the grant guidelines. One commenter would like EPA to reference the EPAct grant guidelines in both parts 280 and 281. Commenters want to ensure states do not have to revise their EPAct requirements as long as they meet the grant guidelines.

Commenters: [0238, 0300, 0399, 0313, 0422, 0364, 0339]

Applying For SPA And Withdrawal Of SPA

One commenter commended EPA for encouraging states to reapply for SPA and maintain state primacy. This commenter wanted EPA to clarify when requirements will take place in SPA states and states that re-apply for SPA. Another commenter believed there is ambiguity concerning when requirements would be in place for previously deferred tanks for both states that apply for SPA and states that choose not to re-apply for SPA. One commenter is concerned about what will happen to a state's SPA if they do not re-apply within the required time frame.

Commenters: [0339, 0422]

Release Detection And SPA

Several commenters were concerned with how release detection requirements were expressed in part 281. One commenter was concerned that the wording of "monthly" in 281.33(c)(1) is considered not as stringent as the part 280 requirement of completing release detection every 30 days. This commenter wants the part 281 language amended to match the 30 day wording in part 280. One commenter is concerned with the release detection language in § 280.41(b)(2)(ii), which indicates that EPA intends to exempt from release detection requirements suction piping that meets the condition of (b)(1)(ii)(A) through (E). However § 281.33(d)(3) indicates that in order to be considered no less stringent, states must require new or replaced piping use interstitial monitoring with secondary containment. Section 281.33(d)(3) needs to be modified to incorporate the concepts of § 280.41 (b)(2)(ii). Another commenter supports the imposition of release detection requirements on USTs for emergency power generation and appreciates the flexibility granted to states in § 281.33 to specify how best to achieve that goal. One commenter believed that compliance with release detection requirements for emergency power generator USTs within one year may be very difficult to achieve. This commenter suggested that § 281 .33(b)(3) be reworded to read "For any UST system that stores fuel solely for the use of emergency power generators that was installed prior to the state's submission of its state program approval or revision application, within three years of the effective date of this section, as amended, or prior to the state's submission of its state program approval or revision application, whichever is later."

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Commenter: [0238, 0338, 0399, 0313, 0262]

Other Comments

EPA also received these comments:

- Concern that EPA chose secondary containment rather than financial responsibility for installers and manufacturers and that this may mean states using financial responsibility will have to change to secondary containment, especially if they do not have or do not maintain SPA
- One commenter would like delivery prohibition included in the 281 regulation
- One commenter believes their state regulations are adequate and additional federal regulations are unnecessary
- One commenter encouraged EPA to minimize the changes states will have to make to their regulations
- One commenter believed the cost burden on states to revise their regulations is higher than EPA estimated
- One commenter would like EPA to grant flexibility on implementation of new/revised federal regulations based on the existing state regulations where there is common purpose, but slightly different approaches or deadlines; alternatively, EPA should consider a reasonable and consistent implementation time frame for all requirements

Commenters: [0300, 0303, 0364, 0396]

EPA Response

Based on comments generally supporting EPA making certain changes to the 1988 SPA regulation to make it consistent with the revisions to the 1988 UST regulation, EPA is moving forward with the final SPA regulation. By doing so, EPA will require states to adopt UST regulation changes, in order to obtain or retain SPA. EPA is keeping the general format of the 1988 SPA regulation. We are not making the SPA regulation as explicit or prescriptive as the UST regulation. One commenter supported maintaining primacy in the states. EPA is keeping the ability for states to obtain SPA.

One commenter encouraged EPA to minimize the changes states will have to make to their regulations. EPA agrees with this comment and was conscious of minimizing any additional changes states would have to make to their regulations as a result of the final UST regulation. Several commenters had concerns about the EPAct provisions. Seven commenters wanted to ensure states only have to meet EPAct grant guidelines and do not have to change their regulations to mirror the part 280 final UST regulation in order to obtain SPA. These commenters were concerned that EPA requirements for secondary containment and operator training could be considered more stringent than state requirements that met the grant guidelines. EPA agrees that requiring states to alter newly implemented provisions could cause unnecessary work for states. Therefore, EPA is addressing in the final SPA regulation the secondary containment, manufacturer and installer financial responsibility and installer certification, delivery prohibition, and operator training requirements that appear in the Energy Policy Act. So, states already meeting these EPAct requirements need not change their programs to receive SPA. One commenter would like EPA to reference the EPAct grant guidelines in both parts 280 and 281. Commenters wanted to ensure states do not have to revise their EPAct requirements as long as they meet the grant guidelines. EPA agrees that states that meet the EPAct grant guidelines should not have to change their regulations and put this requirement in SPA. EPA was not able to incorporate a similar

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requirement in part 280, so states will need to obtain SPA if they want to ensure no difference between state and federal requirements with respect to EPAct requirements.

EPA is giving states three years to obtain SPA or redo their SPA application. Four commenters supported the three years for states to come back in for SPA revision while 11 thought another frequency would be more appropriate. EPA maintains that three years will be adequate for most states to re-apply for SPA. One commenter is concerned about what will happen to a state's SPA if they do not re-apply within the required time frame. While most states will be able to meet the three year deadline for program revision, EPA is aware that some states may need additional time. EPA will contact states that have not revised their program within three years. EPA will ask those states to demonstrate their level of effort, show progress to date, and provide dates when they will achieve major milestones for revising their programs and submitting a revised application. EPA will consider these factors before initiating program approval withdrawal. One commenter was concerned with the cost to states of revising and reapplying for SPA. EPA estimates the cost to states will be minimal to revise their SPA application and that it is important for states to come back in for SPA to ensure they made the appropriate changes to their program.

One commenter believes there is ambiguity concerning when requirements would be in place for previously deferred tanks for both states that apply for SPA and states that choose not to re-apply for SPA. EPA will provide clarification in the preamble on requirements for states that choose to revise their application for SPA and for those that choose not to apply or reapply for SPA. States will have three years after the effective date of the regulation to revise their SPA application to incorporate regulatory requirements for previously deferred USTs. Owners and operators in those states without SPA will need to meet both federal and state requirements as they always have. In states with SPA, owners and operators will continue to meet the state requirements until and unless EPA withdraws SPA approval.

Commenters disagreed about whether EPA should include the procedures for determining compatibility in the SPA regulation. Four commenters felt EPA should include this information in the SPA regulation, while four commenters preferred EPA not address this in the final SPA regulation. Based on comments received and several states having established verification procedures regarding compatibility, EPA is providing flexibility for states to address this requirement. EPA is adding a requirement to part 281 that states must include provisions for determining compatibility or include provisions for other options determined by the implementing agency to be no less protective of human health and the environment than their provisions for determining compatibility.

Several commenters were concerned with how release detection requirements were expressed in part 281. One commenter was concerned that the wording of "monthly" in § 281.33(c)(1) is considered not as stringent as the part 280 requirement of completing release detection every 30 days. This commenter wants the part 281 language amended to match the 30 day wording in part 280. EPA is maintaining use of the term monthly in part 281. EPA agrees there is variation between the 30 day time frame expressed in part 280 and monthly indicated in part 281. EPA thinks that the difference is minor and should result in a variation of only a few days and, therefore, not necessary to change. It is EPA's position that release detection monitoring should be conducted on a consistent and frequently occurring basis. EPA chose the 30 day period in part 280 to represent the average calendar month.

One commenter expressed concern with the release detection language in § 280.41(b)(2)(ii) which indicates that EPA intends to exempt from release detection requirements suction piping that meets the condition of (b)(1)(ii)(A)through (E). However § 281.33(d)(3) indicates that in order to be considered no less stringent states must require new or replaced piping use interstitial monitoring with secondary containment. Section 281.33(d)(3) needs to be modified to incorporate the concepts of § 280.41(b)(2)(ii). EPA agrees with the commenter and is modifying § 281.33(d)(3) to indicate that the requirement is applicable to all pressurized piping and safe suction piping that does not meet standards in §

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281.33(d)(2)(ii).

Another commenter supported the imposition of release detection requirements on USTs for emergency power generation and appreciates the flexibility granted to states in § 281.33 to specify how best to achieve that goal. One commenter believed that compliance with release detection requirements for emergency power generator USTs within one year may be very difficult to achieve. This commenter suggested that § 281.33(b)(3) be reworded to read "For any UST system that stores fuel solely for the use of emergency power generators that was installed prior to the state's submission of its state program approval or revision application, within three years of the effective date of this section, as amended, or prior to the state's submission of its state program approval or revision application, whichever is later." EPA agrees with the commenter and in line with EPA's goal of aligning dates of compliance in the final UST regulation, to the extent possible, is extending the date of compliance for this requirement to three years.

EPA received a number of additional comments on the part 281 regulation. One commenter was concerned that EPA chose secondary containment rather than financial responsibility for installers and manufacturers and that this may mean states using FR will have to change to secondary containment, especially if they do not have or do not maintain SPA. EPA believes secondary containment is more effective at preventing releases than FR and has chosen secondary containment for the federal requirement. Owners and operators in states meeting the EPAct requirements for FR will not have to implement secondary containment if that state has SPA. All states have chosen to implement secondary containment at this point.

One commenter would like delivery prohibition included in the part 281 regulation. EPA is including this requirement in the part 281 regulation. Because delivery prohibition is an enforcement tool, EPA is requiring states have authority to prohibit deliveries according to EPAct, rather than make this a no less stringent requirement. One commenter believed his state regulations are adequate and additional federal regulations are unnecessary. EPA disagrees. Even assuming that state's regulation is adequate, additional federal regulations would still be necessary to apply in Indian country. In addition, if this state obtains SPA (or is approved for any SPA revisions), the approved state regulations would become the federal requirements.

One commenter believes the cost burden on states to revise their regulations is higher than EPA estimates. EPA considered carefully the cost to states of the changes to their regulations and minimized these costs where possible. Another commenter would like EPA to grant flexibility on implementation of new or revised federal regulations based on the existing state regulations where there is common purpose, but slightly different approaches or deadlines. SPA is set up to allow states this flexibility.

Regulatory Impact Assessment (RIA) Comments

Summary

- More than 65 commenters provided input on EPA's regulatory impact assessment (RIA) of the potential costs, benefits, and other impacts of the proposed revisions to the UST regulation

Walkthrough Inspections

EPA received the following RIA-related comments related to walkthrough inspections:

- Walkthrough inspection frequency was too burdensome or costly
- Walkthrough inspections were difficult or dangerous, and have the potential to damage lids and other equipment
- EPA's estimated costs are low because the walkthrough inspections will require third-party personnel due to the requirement to open sumps and dispensers; commenters also indicated that EPA did not consider the travel time and expenses to the site

Commenters: [208, 284, 300, 301, 333, 338, 339, 341, 343, 346, 348, 362, 363, 368, 371, 374, 380, 383, 384, 385, 388, 392, 393, 396, 411, 415, 421, 425, 427]

Groundwater And Vapor Monitoring

EPA received the following RIA-related comments related to groundwater and vapor monitoring:

- Vapor and groundwater monitoring are more cost effective than other methods.
- Phasing out of these two methods would cause undue hardship and impose large retrofit costs on existing systems

Commenters: [209, 296, 339, 359, 389]

Flow Restrictors In Vent Lines

EPA received the following RIA-related comments regarding the proposed elimination of flow restrictors in vent lines for all new tanks and when overfill devices are replaced:

- The alternative methods (automatic shut off valves) cost more than ball floats, and while ball floats may not be easy for a regulatory inspector to view, the alternative methods are historically subject to tampering
- EPA should reconsider and closely review the risk associated with ball floats and the costs and benefits of alternative equipment, which can be more expensive to install and operate
- Based on an informal survey of its members, a commenter indicated ball float valves are widely considered the most preferred and cost effective means of overfill prevention; EPA has not adequately demonstrated the dangers of ball float valves to justify eliminating them

Commenters: [209, 327, 339, 363]

Interstitial Integrity Testing

EPA received the following RIA-related comments regarding the proposed interstitial integrity testing

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requirement:

- Interstitial integrity testing would impose unjustified costs and penalize those who proactively upgraded their systems to double walled piping; this commenter noted that they spent at least \$100,000 per facility to install double walled piping systems at many of its location, but expects to spend an additional \$160,000 per site due to the anticipated inability to successfully pass the proposed interstitial integrity testing requirements without performing upgrades
- Those that voluntarily installed double walled tank and piping systems will face more expensive compliance requirements than those maintaining old, single walled systems
- Imposing interstitial integrity testing requirements creates a disincentive for tank owners and operators to upgrade to tank systems with secondary containment
- No code of practice or manufacturer requirement exists for UST equipment currently in use; therefore, EPA has no way of determining the regulatory costs that a non-existent standard would impose on small business marketers
- Integrity testing on secondary containment sumps creates additional costs associated with wastewater disposal
- Owners may have to break concrete or asphalt to access interstices in older systems, resulting in substantial extra costs
- Testing may damage equipment and pose a significant financial burden to UST owners and operators
- Not only is secondary containment testing difficult and costly to do, it presents significant costs to the tank owner to repair or replace if components do not pass the test

Commenters: [244, 298, 312, 332, 333, 348, 349, 352, 363, 364, 365, 371, 383, 384, 387, 422]

Spill Prevention Testing And Overfill Prevention Equipment Testing (Inspection)

EPA received the following RIA-related comments regarding the proposed spill bucket testing and overfill prevention equipment testing:

- No current testing procedure exists; therefore, EPA has no way of determining the regulatory costs that a non-existent standard would impose
- Compliance costs for periodic testing of spill and overfill prevention equipment are underestimated, and there is a potential for increased downtime to occur while testing is being done at the site; for example, the electrical work necessary to install overfill alarms (to replace ball floats) is more expensive than just the cost of the equipment
- EPA did not consider the costs of removal of drop tubes, which are not designed to be removed
- The Clean Air Act may require a permit from air pollution authorities before replacing or repairing certain equipment like spill buckets; EPA did not consider the cost of these permits
- The RIA does not include the cost of replacing tank system components that results from requiring testing
- Costs of disposing water from hydrostatic and sensor testing activities were not considered

Commenters: [298, 303, 312, 333, 338, 349, 364, 383, 416, 418, 424]

Field-Constructed Tanks

EPA received the following RIA-related comments regarding field-constructed tanks:

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- EPA has likely underestimated the number of smaller field-constructed tanks that could potentially fall under the new requirement; the commenter is unable to provide a number for these tanks as it does not currently track, regulate, or inspect them, but believes these smaller tanks are unlikely to meet release detection standards
- EPA drastically underestimated the costs of requiring release detection on field-constructed tanks; only looked at operation and maintenance costs rather than the capital changes that might be required for reconstructing some of the equipment and piping

Commenters: [300, 339]

Airport Hydrant Fuel Distribution Systems

EPA received the following RIA-related comments regarding airport hydrant fuel distribution systems:

- Eliminating deferral would be an extreme financial burden for the implementing agency; does not disagree with need to regulate systems, but concerned about requirement to do so absent additional federal funding to do so
- EPA needs to assess impact of removing deferral on commercial service airports; removing deferral is too burdensome

Commenters: [358, 368, 391, 408, 417]

Wastewater Treatment Tanks

EPA received the following RIA-related comments regarding wastewater treatment tanks:

- Need more data on number of wastewater tanks before calculating impact of removing deferral
- Estimated costs for wastewater tanks are too low

Commenters: [352, 362]

Operator Training

EPA received the following RIA-related comments regarding operator training:

- Requiring retraining is excessive and costly; one of these commenters noted that there is an added expense in hiring third-party vendors to develop and administer the evaluation component of the training program
- Prohibition of in-house training increases compliance costs
- Prohibition of in-house training would increase compliance costs for tribe; one of these commenters stated relying on independent contractors to provide training would result in lower quality training for tribes at a very high cost, bringing into question potential Unfunded Mandate concerns imposed on tribes

Commenters: [303, 306, 349, 356, 357, 378, 398, 415]

Compatibility

EPA received the following RIA-related comments regarding compatibility:

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- Old systems will have difficulty demonstrating compatibility
- Changes in ownership over course of an UST's useful life means owners and operators often do not know who manufactured their equipment and what ethanol blend levels the equipment is warranted to store
- Proposed compatibility rules are cumbersome and place too much burden and responsibility on regulated facility owner and operator
- Average cost to retrofit a retail gasoline station with E-15 compliant equipment is between \$375,000 and \$425,000 per site; replacement of piping alone would cost at a minimum \$150,000
- Documentation for compatibility for current systems is not available and unattainable; thus, proposed requirement may require removal of the entire UST system; demonstrating compliance could be difficult and costly

Commenters: [349, 363, 383, 395, 416]

State Program Approval And State Costs

EPA received the following RIA-related comments regarding state program approval and state costs:

- Proposed regulations would require every state to revise its UST program to obtain or maintain state program approval; EPA estimate of administrative burden is unrealistically low
- Additional reporting and record retention requirements will create additional administrative burden for already overtaxed workforce at a time when state can little afford additional workers
- Phase-in creates added tracking burden on state staff; new requirements should be set on set date

Commenters: [348, 364, 385, 387, 396, 402]

Other

EPA received the following other RIA-related comments:

- While the four experts used in the RIA are knowledgeable of UST equipment, the commenter is unaware that the four have data on the frequency and severity of releases from UST systems that are in compliance with current requirements, nor have any basis for estimating cleanup costs – both of which are vital to cost/benefit analysis
- There are not enough contractors to meet all the testing requirements in the first year that are required
- Increase in compliance costs will increase gas prices
- Do not bring in enough profit to pay the extra \$890 per year in new compliance costs
- Estimated annualized compliance costs for small business marketers are too low; believe there is likely significant impact on a substantial number of small entities
- Compliance costs are too low and significantly underestimated; economic impacts are underestimated
- Concern that estimated costs of certain areas of the proposal have no apparent environmental benefits
- EPA should look back at the UST operating costs prior to the Energy Policy Act of 2005 to truly calculate impact of proposed regulations
- Testing costs in Indian country will be very high if all tests are required to be performed by independent contractors because of travel time and mileage costs, not because of smaller universe
- Adding annual operation and maintenance tests on electronic and mechanical components of leak detection equipment would substantially increase cost; exact amount cannot be given until scope

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- of proposed regulation is determined
- Multiple commenters provided information specific to their industry or state regarding the percent using certain release detection methods, time spent to do a walkthrough, costs to replace piping runs, number of releases seen from dispenser or STP area and cracked spill buckets

Commenters: [222, 238, 243, 246, 260, 263, 265, 290, 301, 306, 311, 312, 315, 328, 334, 338, 341, 348, 349, 358, 363, 366, 371, 372, 376, 378, 382, 383, 384, 387, 388, 391, 392, 399, 401, 409, 416, 418, 427]

EPA Response

For the 2011 proposed UST regulation, EPA conducted a regulatory impact assessment to estimate costs using the best available data and EPA's best professional judgment in cases where data were not completely available and assumptions had to be made. EPA reviewed all the comments submitted during the public response period, and thanks commenters for providing additional cost information and data and for responding to specific questions EPA posed regarding specific tank system universes, number of releases from certain types of systems, percentage of systems using specific release detection methods, etc.

Where appropriate, EPA incorporated the information from commenters into the cost analysis for the final UST regulation. For example, while EPA originally assumed that water disposal was captured in the cost of a spill bucket or sump test, based on comments received, EPA further refined cost estimates for spill bucket testing and sump testing to assume a certain percentage of owners and operators will have to pay separately for the cost of water disposal. EPA also refined its universe of UST systems that use groundwater and vapor monitoring as release detection methods based on public comments submitted by several states.

In other instances, EPA disagrees with commenters regarding their review of EPA's cost assumptions and analysis. For example, for the proposed walkthrough inspection, EPA thought owners and operators would be able to conduct walkthrough inspections without hiring third-party contractors. While owners and operators can choose to hire a third-party contractor, the 2011 proposed UST regulation did not require owners and operators to do so. Based on conversations with equipment vendors, EPA also does not think that spill prevention testing and overfill prevention equipment inspections would cause excessive damage to equipment that commenters suggested are not designed to be removed (e.g., drop tubes). Lastly, contrary to some commenters' statements, EPA did, where appropriate, factor in costs associated with capital expenses associated with release detection and costs associated with replacing components earlier as a result of the proposed testing requirements.

Nevertheless, based on all public comments received, EPA is making several significant modifications to the 2011 proposed UST regulation. As a result of these modifications, many of the comments associated with the costs of the 2011 proposed UST regulation may no longer be relevant. For example, in the final UST regulation, EPA is reducing the components to be reviewed during the monthly walkthrough inspections, and as a result, continues to believe owners and operators will be able to conduct these inspections without having to hire a third-party contractor. EPA is also continuing to allow groundwater and vapor monitoring as release detection methods with certain restrictions. EPA is also no longer requiring periodic interstitial integrity testing for tanks and piping, no longer fully regulating wastewater treatment tanks, and no longer prohibiting in-house operator training. EPA is also no longer phasing in testing requirements. Commenters should look at the response to comments summaries specific to their topic areas of concern for additional information regarding changes between the 2011 proposed UST regulation and the final UST regulation.

To the best of our ability, EPA estimated benefits associated with the 2011 proposed UST regulation

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based on the methodology detailed in the RIA. EPA used available data regarding the frequency and severity of releases and the cost of cleaning up a release when applying experts' opinions to estimate total benefits. In cases where benefits could not be quantified, EPA qualitatively discussed the benefits of the proposed requirement; for example, EPA provided anecdotal examples of historical releases that might be prevented in the future as a result of the 2011 proposed UST regulation. While a couple of commenters criticized EPA's use of four experts to estimate the avoidance and reduction in the number of releases that would result from the 2011 proposed UST regulation, no one provided any suggestions on alternative ways for EPA to estimate benefits for each of the proposed requirements.

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General Comments

Summary

Twenty-seven commenters provided general input on EPA's 2011 proposed UST regulation.

- Fifteen commenters expressed support for the revisions to the UST regulations
- Five opposed the changes to the UST regulations due to concerns about potential costs on owners, especially small businesses
- Some commenters commented on the extensive stakeholder outreach EPA did in order to draft the 2011 proposed UST regulation

Support

Fifteen commenters expressed support for the 2011 proposed UST regulation. Many of these commenters had specific concerns on some issues, but generally supported updating the 1988 regulation. Many commenters supported updating the 1988 regulation because technology has changed a great deal since then. Six commenters appreciated the extensive stakeholder outreach done by EPA before drafting the proposal. One commenter supported EPA's change to the hazardous substance requirements. One commenter supported certain aspects of the proposal, but wanted to ensure EPA minimized impacts on small businesses.

Commenters: [0243, 0307, 0313, 0220, 0282, 0402, 0404, 0372, 0379, 0422, 0342, 0344, 0393, 0396, 0363, 0427, 0363]

Oppose

Six opposed the changes to the 1988 UST regulation due to concerns about potential costs on owners, especially small businesses. One commenter urged EPA to consider the impacts of the proposed changes on small businesses. One of these commenters wants to see EPA withdraw all of the 2011 proposed UST regulation, except the EPAct requirements of secondary containment and operator training. A few commenters requested EPA withdraw the entire proposal and conduct a Small Business Advocacy Review Panel under the Regulatory Flexibility Act.

Commenters: [0245, 0334, 0387, 0364, 0312, 0334, 0387]

Stakeholder Outreach Before Drafting Proposal

Six commenters appreciated the extensive stakeholder outreach done by EPA before drafting the proposal. One commenter was unconvinced EPA made the extensive effort to reach out to stakeholders that it claims to have done for the proposal. Another commenter believed there was limited stakeholder involvement before drafting the 2011 proposed UST regulation.

Commenters: [0390, 0393, 0313, 0334, 0387, 0427, 0396, 0363]

EPA Response

Based on comments EPA received during the five month public comment period, EPA is publishing a final UST regulation. EPA carefully considered the comments received and incorporated appropriate changes. EPA believes there is general support for updating the UST regulation. UST technology has

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changed a great deal since the 1980s and commenters supported updating the regulation accordingly.

Several commenters opposed the changes to the regulation due to concerns about potential costs on owners, especially small businesses. A few commenters requested EPA withdraw the entire 2011 proposed UST regulation and conduct a Small Business Advocacy Review Panel under the Regulatory Flexibility Act. EPA carefully considered the potential impacts of the 2011 proposed UST regulation on small businesses and determined that a small business panel was not required. EPA carefully considered all of the comments submitted during the public comment period, including those concerns regarding the potential costs on small businesses, and worked to minimize those costs by making certain changes to the final UST regulation. EPA did not change the final UST and SPA regulations when comments were beyond the scope of the regulations or beyond EPA's statutory authority.

Commenters disagreed on EPA's stakeholder outreach. Some commenters believed EPA's outreach was extensive, while others did not agree that EPA did adequate stakeholder outreach. EPA did extensive stakeholder outreach before publishing the 2011 proposed UST regulation. EPA continued to meet with all interested stakeholders during and after the five month public comment period. EPA appreciates all stakeholder comments and incorporated these comments into the final UST regulation.

Other Comments

Summary

- More than 40 commenters provided other comments about EPA's 2011 proposed UST regulation. These other comments did not fit into one of the grouped comment areas. Some comments are beyond the scope of the 2011 proposed UST regulation. Others are beyond the scope of EPA's regulatory authority. EPA also disagreed with making some of the changes commenters proposed.

Definitions

EPA received these other comments about definitions:

- Expand definition of ancillary equipment to include shear valves
- Revisit heating oil definition – number 2 diesel appears to be the same as number 2 fuel oil which causes confusion for emergency generator UST systems
- Define annual and semiannual
- Define de minimis
- Define tank tightness test, line tightness test, and other tank and piping integrity terms
- Define temporarily closed tank
- Specify NACE International's corrosion specialist and cathodic protection specialist certification categories in definition of corrosion expert
- Specify the minimum level of NACE International certification in definition of cathodic protection tester

Commenters: [0217, 0236, 0289, 0368, 0397, 0421]

Financial Responsibility

EPA received these other comments about the financial responsibility requirements:

- Do not require owners and operators maintain financial responsibility after permanent closure, during temporary closure once a site assessment was performed (and if needed, a claim submitted), or until corrective action is complete
- Address each financial responsibility mechanism individually when a release occurs, because each mechanism is different
- Require financial responsibility for hazardous substance USTs
- Clarify whether the number of tanks referenced in the 2011 proposed UST regulation is nationwide or per state
- Require a single beneficiary on letters of credit
- Consider the effect on state funds of bringing previously deferred UST systems into the financial responsibility regulation, especially for historical releases

Commenters: [0238, 0300, 0313, 0338, 0422]

Release Detection

EPA received these other comments about the release detection requirements:

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- Delete “that routinely contains product” in §§ 280.40(a)(1) and 280.43(g)(1)
- Do not allow continued use of manual tank gauging combined with tank tightness testing, since it is essentially the same as inventory control and tank tightness testing
- Remove the 130 gallon standard from inventory control because there appears to be no justification for this number
- Require electronic sensors in every containment sump, when they are used for interstitial monitoring
- Add the word “continuous” to the new interstitial monitoring options in § 280.43(g)(4)
- Consider lowering the catastrophic leak threshold for automatic line leak detectors (ALLDs)
- Require positive shut down if an ALLD detects a problem
- Allow sump sensors that shut off submersible turbine pumps to be used in lieu of ALLDs
- Specifically define and review requirements for high volume sites; ALLDS may not work at these sites due to high activity
- Address dry sumps with sensors in § 280.43(g) since it addresses vacuum, pressure, and liquid-filled interstitial monitoring options
- Require periodic tightness testing of tank bungs and fittings, seals on tank probes, and vent piping since these have been a significant source of vapor releases and water intrusion in tanks
- Require daily checks for catastrophic leaks through inventory measurement in § 280.41
- Add a paragraph that provides minimum criteria for continuous statistical inventory control to § 280.43

Commenters: [0238, 0242, 0246, 0313, 0336, 0368, 0377, 0394, 0399, 0407, 0422]

New UST System Standards

EPA received these other comments on meeting new UST system standards:

- Require in § 280.20 that professional engineers with education and experience in UST system design and installation design UST systems
- Include other components such as flex connectors, functional elements, etc., in § 280.20
- Delete references to steel tank standards in § 280.20(a)(2) and only keep Underwriters Laboratories standard 1746; the 2011 proposed UST regulation permits the application of an obsolete UST corrosion protection technology (sti-P3 tanks); these systems waste environmental resources by consuming valuable magnesium and zinc metal anodes
- Change “in contact with the ground” to “in contact with the electrolyte” in § 280.20(b) to protect piping submerged in water from corrosion
- Change “steel” to “metal” in § 280.20(b)(2) for consistency
- Eliminate the 25 gallon provision for spill containment
- Delete the alternatives for meeting overfill protection requirements in § 280.20(c)(ii)(C)
- Address recalled or manufacturer defective equipment in § 280.20 by requiring original performance standards be met for as long as the UST system stores regulated substances
- Require verification by visual inspection or replacement of all piping when steel piping has failed due to corrosion or when flexible plastic piping has failed due to permeation or degradation
- Clarify how the percent of ullage is calculated in § 280.20(c)

Commenters: [0218, 0220, 0246, 0289, 0313, 0368, 0399, 0409]

Upgrade Standards

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EPA received these other comments on meeting upgrade standards:

- Add criteria for when cathodic protection is not maintained for some period of time and when cathodic protection is added to an internally lined tank just prior to the ten year inspection date
- Require internal inspections of lined USTs with cathodic protection
- Require documentation of compliance with the upgrade requirements and any integrity assessment prior to upgrading
- Require an annual tightness test for tanks with impressed current systems; the test should evaluate the ullage space for holes

Commenters: [0313, 0316]

Cathodic Protection

EPA received these other comments on cathodic protection (CP):

- Change the cathodic protection testing requirements for double walled sti-P3 tanks to within six months of installation, then according to manufacturer's instructions, and following any activity that could affect the cathodic protection system
- Require annual testing of CP systems
- Require 30 day inspections of impressed current rectifiers
- Include a discussion that cathodic protection is not needed for steel tanks clad with a non-corrodible material

Commenters: [0239, 0242, 0246, 0332, 0421]

Closure

EPA received these other comments on closure:

- Require owners and operators test UST systems prior to moving from temporarily closed (TOS) to active use
- Eliminate TOS category and require owners and operators permanently close empty USTs within a reasonable period after they are taken out of service
- Add interstitial monitoring as an alternative to site assessment if the integrity of the secondary containment is tested
- Allow UST systems to be temporarily closed for three to five years, as long as appropriate actions are taken to temporarily close the UST system
- Remove the requirement to conduct a site assessment prior to temporary closure

Commenters: [0236, 0289, 0313, 0338, 0340]

Tribal Comments

EPA received these other comments from tribal entities:

- Implement regulations in a way that supports tribal sovereignty as well as the capacity and capability of tribal UST programs, and is consistent with trust responsibility of the United States' Government to tribes
- Train tribes to perform operation and maintenance checks

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Commenters: [0356, 0406]

Other Comments

EPA also received these other comments:

- Provide sample calculations to illustrate tank and piping volumes to determine whether systems are considered above ground storage tanks or underground storage tanks
- In § 280.33, strengthen fiberglass tank repairs by requiring the tank be structurally sound before the repair and the repair be certified by the manufacturer following the repair
- Require all records be kept for the life of the structure and passed along from one owner and operator to the next
- Use caution when classifying a facility as having safe suction because safe suction piping is difficult to determine; presume non-safe suction unless proven otherwise
- Revise corrective action requirements to improve free product removal by changing maximum extent practicable concept and allow owners and operators to take a risk-based approach
- Change 30 days to monthly where 30 days is used for a testing, monitoring, or inspection requirement
- Recognize and allow for the significant difference in risks to drinking water in different states
- Add a variance procedure by including a provision where implementing agencies can waive or modify a requirement where circumstances or conditions regarding the premises of an owner and operator render it impracticable to apply a section or provision of the final UST regulation and the requirements the owner and operator have in place are no less protective of the environment than those in the final UST regulation
- Develop guidance that helps owners and operators understand the new requirements
- How will EPA implement the proposal and how will it affect owners, significant operational compliance, and an implementing agency's ability to handle the increased workload
- To the extent possible, make terminology consistent among different EPA regulations for UST facilities
- Provide incentives for owners to retrofit aging equipment
- Take proactive steps to reduce installation related releases by requiring states to adopt minimum training and certification requirements for petroleum equipment installers
- Hold contractors at UST facilities accountable for not completing their work; when contractors complete installations, repairs, or upgrades, they should be responsible for filling out notification forms and be held responsible if the forms are incomplete
- Include above ground storage tanks in the regulations
- How safe are new spill proof gas cans
- Require annual inspections instead of three year inspections
- Consider adding operational requirements that apply to fuel deliverers

Commenters: [0243, 0266, 0278, 0299, 0306, 0307, 0312, 0331, 0338, 0351, 0352, 0353, 0355, 0364, 0371, 0386, 0397, 0398, 0399, 0415, 0421]

EPA Response

Definitions

Adding definitions for the terms annual, semiannual, de minimis, temporarily closed tank, tank tightness test, and line tightness test are beyond the scope of this regulatory action. Terms, such as annual and

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semiannual, are commonly used terms and have a fixed meaning. EPA will issue guidance if the need arises for further clarification of these terms. In addition, EPA already describes some of these terms in applicable sections of the final UST regulation. For example, annual and semiannual are described in the context of removing the deferrals for airport hydrant refueling systems and UST systems with field-constructed tanks. Finally, EPA is maintaining flexibility with the term de minimis by continuing to allow implementing agencies the ability to define it based on the regulated substance stored in the UST system.

EPA cannot change the definition of release to remove language about discharging to water or soils because release is defined in Subtitle I of the Solid Waste Disposal Act, the statute authorizing EPA to regulate UST systems.

Since valves are already included as part of the definition of ancillary equipment, EPA did not add shear valve to that definition.

Because EPA's statutory definition of UST excludes tanks used for storing heating oil for consumptive use on the premises where stored, EPA needed to define heating oil in the 1988 UST regulation. EPA understands there may be some confusion about the difference between number 2 heating oil and number 2 diesel and issued guidance to help determine whether or not an UST system meets the heating oil exclusion. If a fuel is specifically designated as heating oil and is consumed on the premises where stored, it meets the heating oil tank exclusion, regardless of its use. However, if an UST stores a substitute for heating oil, such as diesel, the UST must always be used for heating purposes on the premises where stored to meet the heating oil tank exclusion. While diesel fuel can be used as a substitute for heating oil, EPA did not add it to the definition of heating oil because it is also used as a motor fuel.

EPA disagrees with the commenter who wanted to add NACE International certification categories to the definitions of cathodic protection tester and corrosion expert in the final UST regulation. NACE International certification level names and categories have changed in the past and could change in the future. Therefore, EPA will continue to identify those categories through guidance.

Financial Responsibility

EPA disagrees with commenters who do not want to require that owners and operators maintain financial responsibility (FR) until cleanups are completed. The purpose of FR is to ensure there is adequate money available to complete cleanups. Owners and operators must maintain the FR mechanism throughout cleanups to ensure money is available to complete cleanups. Maintaining FR is especially important for some mechanisms such as surety bonds, letters of credit, and financial tests. For insurance and state funds, if the owner and operator opened a claim and is in the process of cleaning up the release, then EPA considers the opened claim as the trigger that secures money for the cleanup.

In addition, EPA believes it is unnecessary to address each mechanism individually for when a release occurs. In § 280.112, EPA addresses when and how the implementing agency should draw on money for guarantees, bonds, letters of credit, and standby trust funds. For insurance and state funds, the owner and operator must follow the terms and conditions of the insurance policy or state fund applicability requirements, and submit a claim when a release occurs. As explained above, EPA considers an opened claim as maintaining FR until the release is cleaned up.

Because EPA only proposed making editorial and technical corrections to the FR portion of the 1988 UST regulation, requiring FR for hazardous substance UST systems or a single beneficiary on letters of credit is beyond the scope of the 2011 proposed regulation. EPA may consider these comments in a future regulatory action.

One commenter suggested EPA clarify whether the number of tanks owned and operated is a national or per state number. The number of tanks EPA cites in the final UST regulation is a national number. However, EPA understands the number of tanks some states may reference in their regulations is a state number. Owners and operators need to determine whether their state's UST regulation references a state number or national number.

One commenter suggested EPA consider the effect on state funds of bringing previously deferred UST systems into the FR regulation, especially for historical releases. However, state funds are one of many options owners and operators have for meeting the FR requirement. State funds can choose whether to include previously deferred UST systems in their funds. If a state chooses not to allow them in its state fund, then owners and operators will need to demonstrate FR using another mechanism.

Release Detection

EPA disagrees with the comment to remove language from subpart D indicating release detection must be able to detect a release from the part of the UST system that routinely contains product. Deleting this language is inconsistent with long standing EPA policy addressing the areas of USTs that do not routinely contain product. In addition, EPA believes requiring release detection only in those parts of the UST system that routinely contain product is adequate to protect human health and the environment.

One commenter suggested deleting the combination of manual tank gauging and inventory control because it is essentially the same as inventory control and tank tightness testing. EPA is not removing either inventory control or manual tank gauging combined with inventory control from the final UST regulation. Owners and operators may use this option for up to ten years after installation for those tanks installed prior to the effective date of the final UST regulation. After the effective date of the final UST regulation, all tanks and piping installed or replaced must use interstitial monitoring for release detection. Ten years after the final UST regulation is effective, both inventory control and manual tank gauging combined with tank tightness testing will no longer be allowed as a release detection option. EPA is removing the combination of inventory control and annual tank testing; since December 2008, EPA has not allowed that method of release detection for tanks not upgraded with cathodic protection.

One commenter suggested EPA delete the 130 gallons allowance in the inventory control requirement because there is no basis for that number. According to studies conducted for the 1988 UST regulation, the 1 percent of flow-through plus 130 gallons resulted in a false alarm rate of about 5 percent. EPA believes that with the low false alarm rate, owners and operators would take inventory control more seriously as a short term release detection method.⁵⁹ EPA is keeping the 1 percent of flow-through plus 130 gallons criteria in the final UST regulation.

One commenter suggested requiring electronic sensors for interstitial monitoring in every containment sump. While prudent to quickly detect a leak from the primary piping wall when sensors are used for interstitial monitoring, EPA allows options other than sensors in containment sums for interstitial monitoring of piping. Because of these other interstitial monitoring options, the final UST regulation is not requiring sensors in every containment sump.

One commenter suggested adding the word continuous to the new interstitial monitoring language in § 280.43(g)(4). Another suggested adding sensors to the list of continuous monitoring methods. The 2011 proposed UST regulation listed continuous vacuum, pressure, or liquid filled as options for meeting the interstitial monitoring requirement. If used, these options eliminate the need for owners and operators to

⁵⁹ Preamble to 1988 regulation, pp. 37157-37158.

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test their secondary containment system periodically. Because we allow 30 day release detection monitoring, EPA is not including periodic secondary containment testing; it is unnecessary to use the term continuous monitoring or list different methods for continuous monitoring in the final UST regulation. In addition, EPA is removing the proposed language in § 280.43(g)(4) because the options do not adequately cover all methods of interstitial monitoring.

Several commenters suggested lowering the catastrophic leak threshold of three gallons per hour (gph) at 10 pounds per square inch (psi) for ALLDs. EPA did not address leak rates in the 2011 proposed UST regulation. The final UST regulation is not revising leak thresholds. In the final UST regulation, EPA also is not requiring positive submersible turbine pump (STP) shutdown in the event an ALLD triggers. EPA believes alarms, slow flow, and shutdown should all be options for ALLDs. One commenter suggested EPA allow sump sensors that shut off STPs as an ALLD. EPA allows sump sensors to be used for catastrophic release detection, if an owner and operator can demonstrate the sump sensor configuration meets the performance requirement of three gph at 10 psi within one hour.

EPA understands one commenter's concern about high volume sites. EPA agrees these sites should be addressed; however, EPA is not addressing them in the final UST regulation. Instead, EPA intends to develop guidance that will help UST implementing agencies, as well as owners and operators, understand and comply with the release detection requirement for high throughput UST systems.

One commenter asked EPA to address dry sums using sensors in the interstitial monitoring part of the release detection requirements, citing EPA's addition of vacuum, pressure, and liquid-filled interstitial monitoring options in the 2011 proposed UST regulation. EPA did not add these monitoring options to the final UST regulation. The final UST regulation encompasses all methods of interstitial monitoring without mentioning specific types.

One commenter suggested EPA require periodic tightness testing of tank tops, seals on tank probes, and vent piping since these are a significant source of vapor releases and water intrusion. EPA does not require testing of these areas; we only require testing of portions of the tank that routinely contain product in the liquid state. In addition, the Solid Waste Disposal Act limits the definition of petroleum to be liquid at standard temperature and pressure; it does not include petroleum in the vapor state.

One commenter suggested EPA require daily checks for catastrophic releases through inventory measurement. EPA agrees with the commenter who said it would be beneficial for owners and operators to perform another form of release detection, but we are not making an additional form of release detection a requirement in the final UST regulation. EPA encourages owners and operators to perform backup methods of release detection to prevent and quickly detect releases.

One commenter suggested EPA add a paragraph that provides minimum criteria for continuous statistical inventory control. EPA is adding continuous in tank leak detection to the final UST regulation under § 280.43(d), which provides performance standards for statistically based inventory analysis operating on a continual basis. Continuous statistical inventory control fits in this category.

New UST System Standards

EPA disagrees with the commenter who suggested professional engineers should design UST systems. EPA relied on codes of practice developed by nationally recognized associations or independent testing laboratories in the 1988 UST regulation for design criteria. We maintain that the codes of practice are still applicable and adequate for the design criteria for UST systems.

EPA understands some commenters want all components associated with the UST system included in the

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new tank standards part of the final UST regulation. However, due to the large number of components, capturing each component is difficult. Therefore, the new tank standards part of the final UST regulation focuses on tanks, piping, spill, overfill, and installation. To better capture all UST components for installation, EPA is revising the requirement to install according to a code of practice and manufacturer's instructions so it applies to the entire UST system, not just tanks and piping.

EPA disagrees with the commenter who suggested one steel tank technology was obsolete and wasted valuable resources by consuming magnesium and zinc metals. Owners and operator can still meet the federal UST requirements by installing new coated and cathodically protected steel tanks.

EPA cannot change “in contact with the ground” to “in contact with the electrolyte” under the requirements for new piping systems because EPA’s authorizing legislation only gives authority to regulate underground piping. For example, piping in contact with water, such as at a marina, is not subject to the UST regulation because it is not underground.

EPA disagrees with the commenter who suggested changing steel to metal in § 280.20(a)(2). In this paragraph of the new tanks section, EPA allows for coated and cathodically protected steel tanks. Other metals are covered in § 280.20(a)(4) and (5).

EPA determined these comments are outside the scope of the 2011 proposed UST regulation. We are not changing the final UST regulation in these areas:

- Removing the 25 gallon threshold for spill prevention equipment
- Deleting § 280.20(c)(ii)(C) as an option for meeting overfill prevention
- Requiring original performance standards are met for as long as the UST system stores regulated substances.

To address one commenter’s flexible plastic piping question, EPA considers any equipment not operating properly to be out of compliance with the UST regulation or is an unusual operating condition. To comply with the UST regulation, owners and operators must address both cases. The commenter also asked EPA to require verification by visual inspection or replacement of all piping when steel piping has failed due to corrosion. EPA’s repair requirements says steel piping that failed due to corrosion may not be repaired. Therefore, that steel piping must be replaced.

One commenter asked for clarification about how the percentage of ullage was calculated for overfill protection. EPA considers ullage calculation is based on volume. For example, a shutoff device must shut off flow of regulated substances to the UST at 95 percent of the tank volume or before the fittings located on the top of the tank are exposed to regulated substances.

Upgrade Standards

Because the 1998 deadline for upgrading UST systems passed many years ago, it is unnecessary to require documentation of compliance with integrity assessment or upgrade requirements at this point. This documentation would have been useful during the first inspection of an upgraded facility. However, since all regulated UST systems have been inspected at least twice since 2005, there are no upgrade concerns. In addition, EPA is removing the upgrading options from the final UST regulation. However, the final UST regulation continues to require testing of cathodic protection systems and inspections of internally lined tanks where owners and operators use the internal lining to meet the corrosion protection upgrade.

EPA disagrees with the commenters wanting to require inspections of internally lined tanks which also

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have cathodic protection added either before or when the internal lining is installed. In addition, EPA disagrees with commenters wanting to add criteria for when cathodic protection is not maintained for a period of time and when cathodic protection is added to an internally lined tank prior to the ten year inspection date. These comments are outside the scope of the 2011 proposed UST regulation. EPA will provide additional guidance regarding these topics as necessary.

Cathodic Protection

In response to the commenter suggesting a change to the testing frequency for double walled sti-P3 tanks, the final UST regulation provides flexibility by allowing other reasonable time frames established by implementing agencies. EPA believes it is prudent to periodically test all cathodic protection systems and ensure they are operating properly and providing corrosion protection to the steel tank. EPA understands that implementing agencies may consider different testing time frames for UST systems, which are more protective of the environment. EPA is maintaining the three year testing frequency and providing flexibility for implementing agencies to modify the frequency to another reasonable time frame.

EPA disagrees with commenters who suggested changing the three year cathodic protection testing frequency to annual and the impressed current rectifier inspections to 30 days. The requirement in the 1988 UST regulation for three year tests and 60 day inspections has been adequate to ensure cathodic protection is operating properly. EPA is keeping the current testing and inspection requirements in the final UST regulation.

Per one commenter's request, EPA reiterates that cathodic protection is not required for steel tanks clad with or jacketed with a non-corrodible material.

Closure

Because EPA only proposed editorial changes to the closure requirements, we are not making changes to the temporary closure requirements or site assessment requirements in the final UST regulation as commenters have suggested. Such changes would be beyond the scope of this rulemaking. EPA may consider these comments in future regulatory actions.

Tribal

EPA understands the concern of tribal entities as expressed in their comments and will continue working with tribal governments to ensure the final UST regulation is implemented in a way that supports: tribal sovereignty; capacity; and capability, and in a way that is consistent with EPA's trust responsibility in Indian country. In addition, the operator training section of the final UST regulation will help tribes understand how to check operation and maintenance.

Other

One commenter requested EPA provide sample calculations, which illustrate tank and piping volumes to determine whether tank and piping combinations are UST systems. EPA may provide additional guidance regarding calculations after the final UST regulation is published in the *Federal Register* and will work with owners and operators who request assistance in determining whether their tank systems meet the definition of UST system.

EPA disagrees with the commenter who suggested adding additional requirements for fiberglass tank repairs. The 1988 UST regulation requires repairs be conducted according to a code of practice or by the manufacturer's authorized representative. In addition, testing the tank must occur following the repair.

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These requirements are adequate to protect the environment and EPA is maintaining the language in the final UST regulation.

EPA is not requiring owners and operators maintain all records for the life of the tank or requiring records be passed from one owner to the next. The records maintenance time frames in the final UST regulation are adequate to protect human health and the environment. In addition, EPA considered requiring records transfer from one owner to the next. However, we concluded it would be difficult for new owners to obtain records from past owners. EPA did not want to create situations where it is impossible for owners and operators to comply with the final UST regulation.

EPA understands it may be difficult for owners and operators to determine if suction piping is considered safe suction and, therefore, we are not requiring owners and operators perform piping release detection requirements. EPA assumes all suction piping is non-safe suction, unless owners and operators demonstrate otherwise. Non-safe suction piping must meet release detection requirements in subpart D of the final UST regulation.

EPA did not propose any changes to the cleanup requirements, so we are not changing free product removal because it is beyond the scope of this rulemaking. EPA may consider these comments in a future regulatory action.

EPA received multiple comments suggesting EPA revise the 30 day frequency to monthly for those requirements needing action at a 30 day interval. After careful consideration, EPA decided to keep the 30 day requirement. Thirty days clearly conveys to owners and operators the time frame; it specifies the maximum number of days between activities. EPA is not changing this to monthly because of concerns that owners and operators could go sixty or more days without conducting an activity. For example, with the one month frequency an owner or operator could perform a release detection test on January 31 and then again on February 1, and then not have to perform the activity again until March 31. If an owner or operator continued this practice for one year, six activities would occur one day apart and six activities would occur about 60 days apart. EPA wants to ensure the activities occur consistently, which might not happen under the monthly option described above. Since 30 days is the average length of a month, EPA's intent with requiring 30 days is to ensure owners and operators conduct required activities on or about the same time each month.

EPA disagrees with the commenter who suggested the final UST regulation should recognize and allow for the significant difference in risks to drinking water in different states. All groundwater could be considered drinking water in the future and the final UST regulation equally addresses groundwater, whether or not it is currently used for drinking water.

One commenter suggested EPA add a provision for implementing agencies to waive or modify a requirement where circumstances or conditions regarding the premises of an owner and operator render it impracticable to apply a section or provision of the final UST regulation and the requirements the owner and operator have in place are no less protective of the environment than those in the final UST regulation. The final UST regulation already provides implementing agencies with significant flexibility in implementing the requirements. For example, owners and operators may use other new tank and piping technologies if the implementing agency determines the technology is no less protective of human health and the environment than those in the final UST regulation. Therefore, including variance procedures is unnecessary; implementing agencies already have additional flexibility.

One commenter thought EPA should provide incentives for owners to retrofit aging equipment. EPA considered incentives and asked commenters to provide input about incentives for better UST system equipment. However, EPA did not receive comments about viable incentives. EPA encourages owners

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and operators to install and upgrade their UST systems to prevent releases to the environment.

One commenter asked how the proposal will be implemented and how will it affect owners, significant operational compliance, and an implementing agency's ability to handle the increased workload. EPA will work closely with implementing agencies and owners and operators as they implement the final UST regulation. After EPA publishes the final UST regulation in the *Federal Register*, EPA plans to develop new and revise its existing guidance documents, as one commenter has suggested, which will help owners and operators understand the new requirements.

One commenter asked EPA to make the language consistent with other EPA regulations related to UST facilities. Where possible, EPA has done so.

Finally, some commenters suggested changes, including contractor certification, authority over contractors and fuel deliverers, aboveground storage tanks, portable spill proof gas cans, and requiring more frequent inspections that are beyond EPA's statutory authority. For example, EPA cannot regulate contractors because the law only gives EPA the authority to regulate owners and operators. Note that some implementing agencies have implemented requirements more stringent than the federal requirements and may have incorporated some of these ideas into their UST regulations.