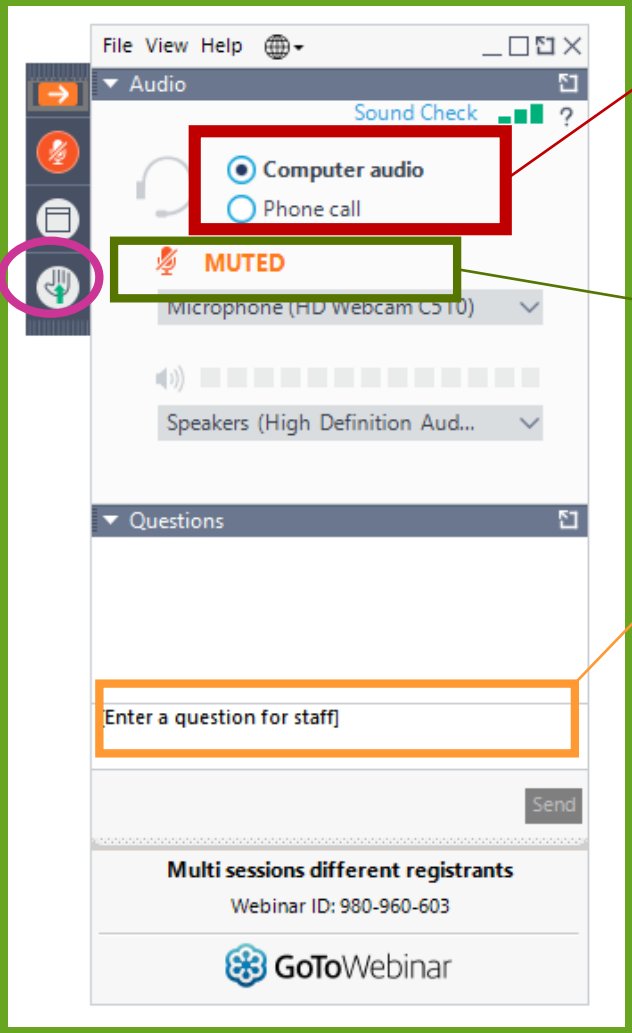
USING GOTOWEBINAR



Two Options for Audio:

1. Use your **computer's** speakers
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All participants are **muted** by default.

Questions: Use the "send question" option in the chat panel to ask questions throughout the presentation.

Ask for help! Use the questions box to let us know if you have technical difficulties. You can also **raise your hand** for help.

UST INSPECTOR TRAINING WEBINAR SERIES:

NLPA/KWA STANDARD 823 – PREVENTATIVE MAINTENANCE, REPAIR AND IN-SITU CONSTRUCTION OF PETROLEUM SUMPS

12/14/2020

NEIWPCC

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- Webinar Series
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UST INSPECTOR TRAINING WEBINAR SERIES:

NLPA/KWA STANDARD 823 – PREVENTATIVE MAINTENANCE, REPAIR AND IN-SITU CONSTRUCTION OF PETROLEUM SUMPS

12/14/2020

Today's Speakers

Russ Brauksieck, Senior Analyst | *U.S. EPA*

Tony Rieck, President and CEO | *T.R. Consulting, Inc.*

Ed Kubinsky, Director of Regulatory Affairs, Training and Certification | *Crompco, LLC*

Containment Sump Repair

Russ Brauksieck
EPA Office of Underground Storage Tanks

Containment Sump Testing

This webinar is building on the April 30, 2020 webinar:

Spill Bucket/Containment Sump Testing and Repair Webinar

Webinar is available at:

https://neiwpcc.org/our-programs/underground-storage-tanks/ust-training-resources-inspection-leak-prevention/webinar-archive-inspector-training/

Containment Sump Testing and Repair

The main goals of the last webinar was to provide information on:

- When containment sumps had to be tested
- Who could perform the sump tests
- How the sumps could be tested
- UL testing for compatibility
- An overview of standard being drafted on the repair of containment sumps

Containment Sump Repair

The main goals of today's webinar is to provide information on:

- The requirements for
  - containment sumps and
  - repairs of those sumps

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- The requirements for
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- The new NLPA/KWA Standard 823 that identifies what sumps can be repaired and the allowable repair methods

Containment Sump Repair

The main goals of today's webinar is to provide information on:

- The requirements for
  - containment sumps and
  - repairs of those sumps
- The new NLPA/KWA Standard 823 that identifies what sumps can be repaired and the allowable repair methods
- Case studies on the repair of sumps

What are the requirements for containment sumps according to Part 280?

Owners and operators are required to have containment sumps when:

- new dispensers are installed (under dispenser containment required)
- interstitial monitoring of piping is being used for release detection

What are the requirements for containment sumps according to Part 280?

Owners and operators with containment sumps are required to:

- Test sumps when used for interstitial monitoring of piping (see previous webinars for more information)

What are the requirements for containment sumps according to Part 280?

Owners and operators with containment sumps are required to:

- Test sumps when used for interstitial monitoring of piping (see previous webinars for more information)
- Conduct annual walkthrough inspections of every operational containment sump.
  - UDCs that do not allow for visual inspection must be electronically monitored for leaks

What are the requirements for containment sumps according to Part 280?

Owners and operators with containment sumps are required to:

- Test sumps when used for interstitial monitoring of piping (see previous webinars for more information)
- Conduct annual walkthrough inspections of every operational containment sump.
  - UDCs that do not allow for visual inspection must be electronically monitored for leaks

Containment sumps must be repaired when the sump fails a test or an inspection indicates a problem.

Repair of Containment Sumps

40 CFR 280.33 requires that repairs to UST systems must:

- prevent releases due to structural failure or corrosion
- be properly conducted in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory
- be compatible with substance stored (records required if storing more than E10 or B20).

Repair of Containment Sumps

40 CFR 280.33(d) requires that repairs to containment sumps used for interstitial monitoring of piping must have the secondary containment (sump) tested for tightness within 30 days following the date of completion of the repair according to:

- the manufacturer's instructions,
- a code of practice developed by a nationally recognized association or independent testing laboratory, or
- according to requirements established by the implementing agency

Technical Compendium

Information on EPA recognition of this standard is available under *Repairs to UST Systems* in the Technical Compendium at:

https://www.epa.gov/ust/underground-storage-tank-ust-technical-compendium-about-2015-ust-regulation#repairs

Q&A

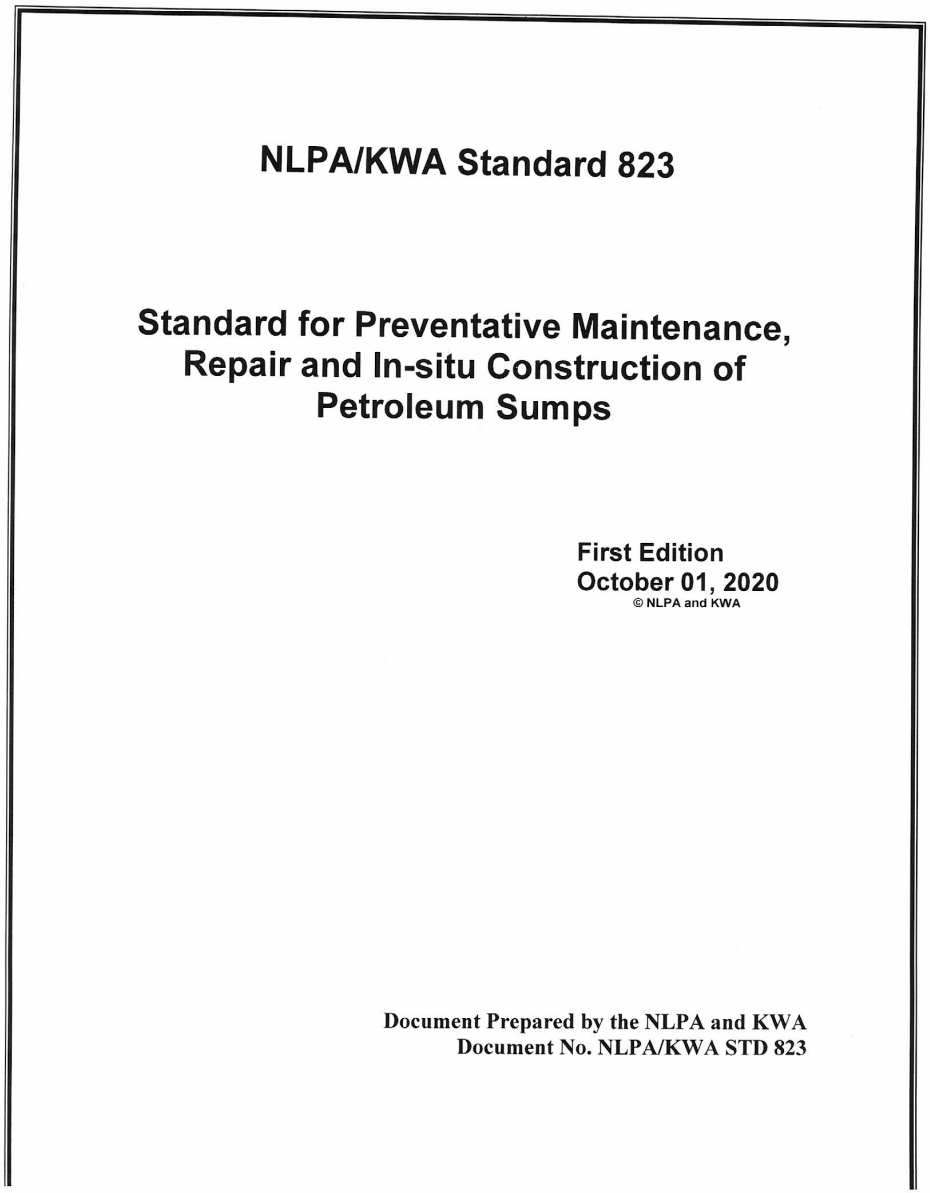
Please address all questions to a specific speaker

NLPA/KWA Standard 823
The NLPA Standard Process and Standard 823 Content

PRESENTED BY Tony Rieck – T.R. Consulting
NLPA/KWA Standard 823 Committee Chairperson

NLPA published its first standard, NLPA 631, as a draft in 1986. In 1991, NLPA began the American National Standards Institute (ANSI) process of approval of Chapters A and B of that standard. As a part of that process, NLPA adopted standard development procedures necessary to garner ANSI approval. That is the process to which NLPA/KWA Standard 823 was subject. It required:

- A balanced committee representing different interest groups
- A commentary period to address concerns of those not participating on the committee, and
- An appeals process



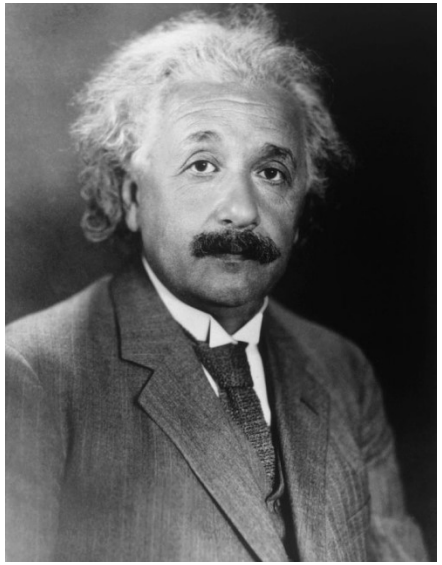
NLPA/KWA Standard 823

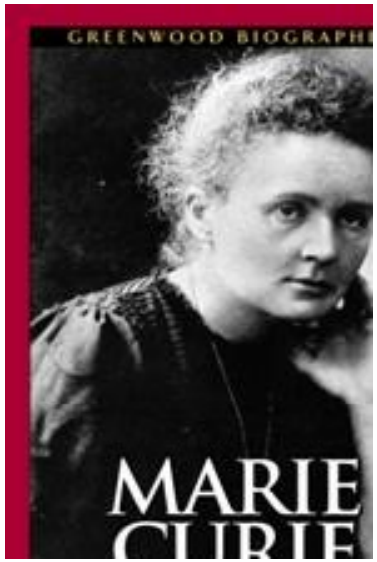
Standard for Preventative Maintenance, Repair and In-situ Construction of Petroleum Sumps

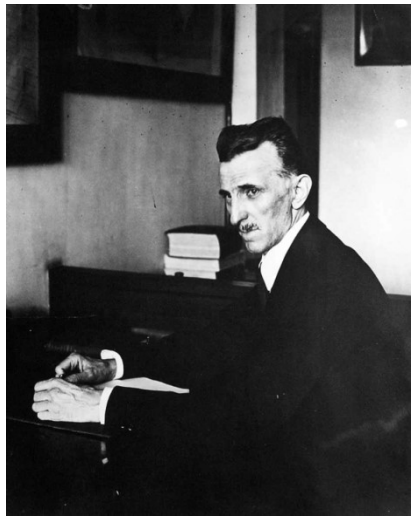
First Edition
October 01, 2020

Document Prepared by the NLPA and KWA
Document No. NLPA/KWA STD 823

Gathering a Panel of Experts







Different Backgrounds/Different Views

- Manufacturers know about their products what the capabilities are and how they are supposed to be used.
- Contractors know the reality of the installation process and what happens in the field
- Owners know what they need
- Regulators know what rules require and what can be enforced

Balance

Experts from each of these groups are selected and asked to participate.

Balance is achieved when approximately equal numbers from each group are represented so that no one group can control the vote on an issue.

The NLPA/KWA Standard 823 committee was balanced

- 4 manufacturers
- 3 contractors
- 3 tank owners
- 3 regulators

(and me – but I only voted in the event of a tie)

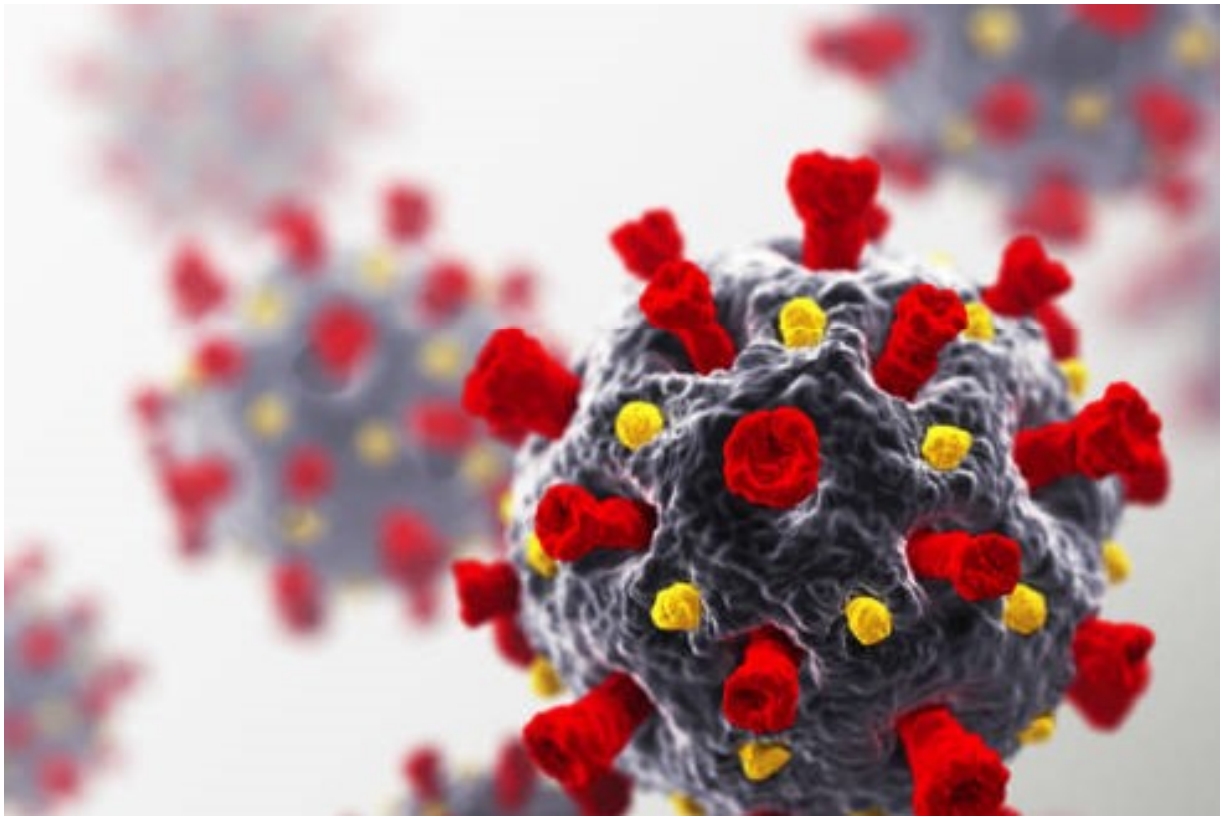
Participation

In order to have a good standard that is representative of the needs of large, diverse groups, it is necessary to have input from persons who are not included in the group. Their thoughts and needs are no less important than those directly represented on the committee and, sometimes they see something that the committee needs to consider.

NLPA/KWA standards have a 60 day public commentary period following the committee's development of a final draft.

This time, there were not a lot of comments – good job committee!

COVID 19 Presented Challenges



Everything Changed

Challenges Affecting the Committee

- Not all areas of the country are the same. In order to address these differences our committee had to have experience from many places. Our members came from all over the country.
- Social distancing and travel restrictions.
- The need to meet with limited ability to do so.

Changes to Business Models

from hand shakes to meetings

Travel Restrictions

Some companies instituted travel bans. Even if you were allowed to travel, there weren't a lot of options

Not a lot of people flying, risks of mandatory quarantines, lack of food options while traveling, severely limited flight options meant that …….

Meetings Had to Change

Not All Changes Were Compliant with the NLPA Standard Development Protocol

The NLPA Standard Development Procedure requires a minimum of two meetings.

The first is an organizational meeting of the committee.

The second is a ratification meeting to consider comments and formally approve the standard

Additional Meetings Have Value Too

More gets done during in-person meetings. That is a fact. There were so many programs (apps) that were put on the market to try to fill the void. It seems like everyone had their favorite. Seeing people on a screen gave people a little more than a standard conference call. People worked from home or wherever they could. Barking dogs and crying children became a necessary distraction while working at home while schools were closed.

But, the committee worked through these additional hurdles

Thank You!

Industry Subcommittee Participants

Joey Arn, Micah Nelson, Paul Reber, Scott Sharp

Testing Subcommittee Participants

Ed Kubinsky, Jr., Paul Reber, John Sieger, Sheetz Russ Brauksieck,

Full Committee Members

Joey Arn, Petroleum Containment, Inc.
Brian Daliege, Tanknology, Inc.
Ed Kubinsky, Jr., Crompco, LLC
Micah Nelson, S. Bravo Systems
Alfred Reid, Broward Env & Consumer Prot Div
John Sieger, Sheetz Environmental Services
Jeremy Templin, The Kroger Company
Tony Rieck, T.R. Consulting, Inc. – Committee Chairperson
Russ Brauksieck, US EPA
Bill Hickman, CO Div. of Oil & Public Safety
Oleta Martin, 7-Eleven, Inc.
Paul Reber, Icon Containment Solutions
Scott Sharp, Armor Shield of America
Jimmy Spiros, Neumayer Equipment Co.

A standard is like a road map. It helps everyone get where they want and need to be. The Table of Contents provides a map of the standard.

NLPA/KWA Standard 823 Table of Contents

NLPA/KWA Standard 823 Table of Contents (cont'd)

Introduction

The four methodologies addressed in the standard

- (1) Sump structural damage repair with applicable structural adhesive bonders or patches.
- (2) Repair or replacement of sump entry and test fittings.
- (3) Field constructing a retrofit single wall or double wall sump without removal of the existing sump.
- (4) Repair or replacement of sump lid assemblies to address surface water intrusion.

Scope

Intent –

Repairs to sumps may be performed in conjunction with or independently from replacement or repair of sump fittings, and either with or without an accompanying water-tight lid assembly.

Sump penetration fittings may be installed or replaced independently from or in conjunction with other procedures contained in this standard

A water tight lid assembly may be installed or repaired to an intact non-leaking sump, a sump which has been repaired, or to eliminate or prevent water intrusion into a sump.

An in-situ manufactured sump may be of either single wall or double wall construction and may be installed either with or without an accompanying water-tight lid assembly.

Strength and Flexibility

The NLPA/KWA Standard 823 is written using generally enforceable language except where flexibility is required.

Terms used to aid enforcement include will, must and shall.

While it is the intent of the standard to be referenced as a whole, it is realized that specific applicability is necessary. The scope clarifies the flexibility of any adoption in section 1.4.2.

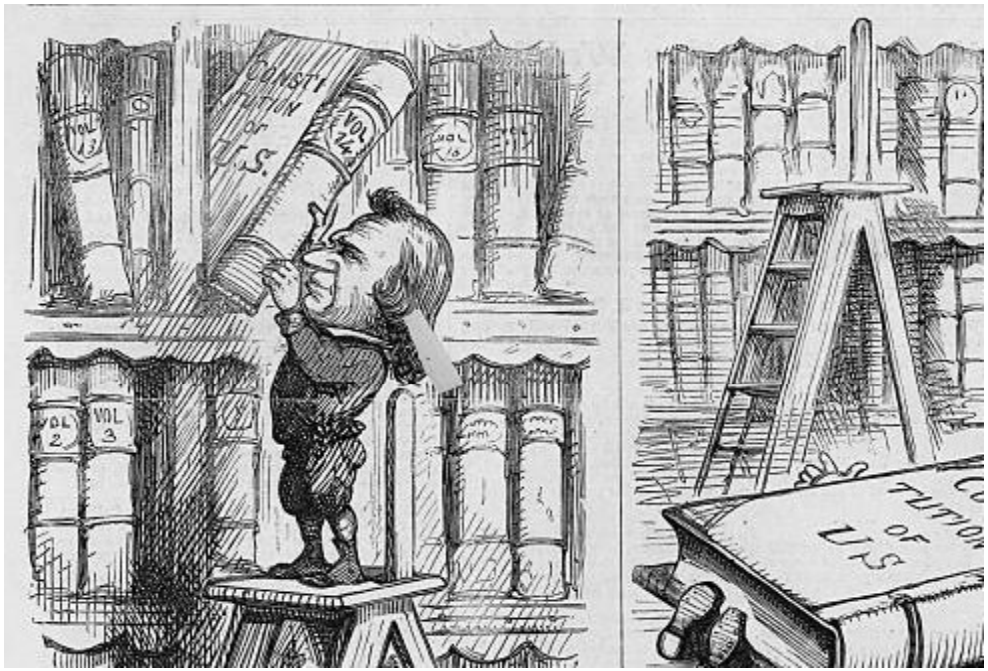
1.4.2 AHJs may limit the options available under this standard. The user of this standard is responsible for compliance with all regulations and requirements.

Referenced Documents

There are libraries of documents used in the petroleum storage industry and, every few years, existing documents are updated to reflect current trends and technology.

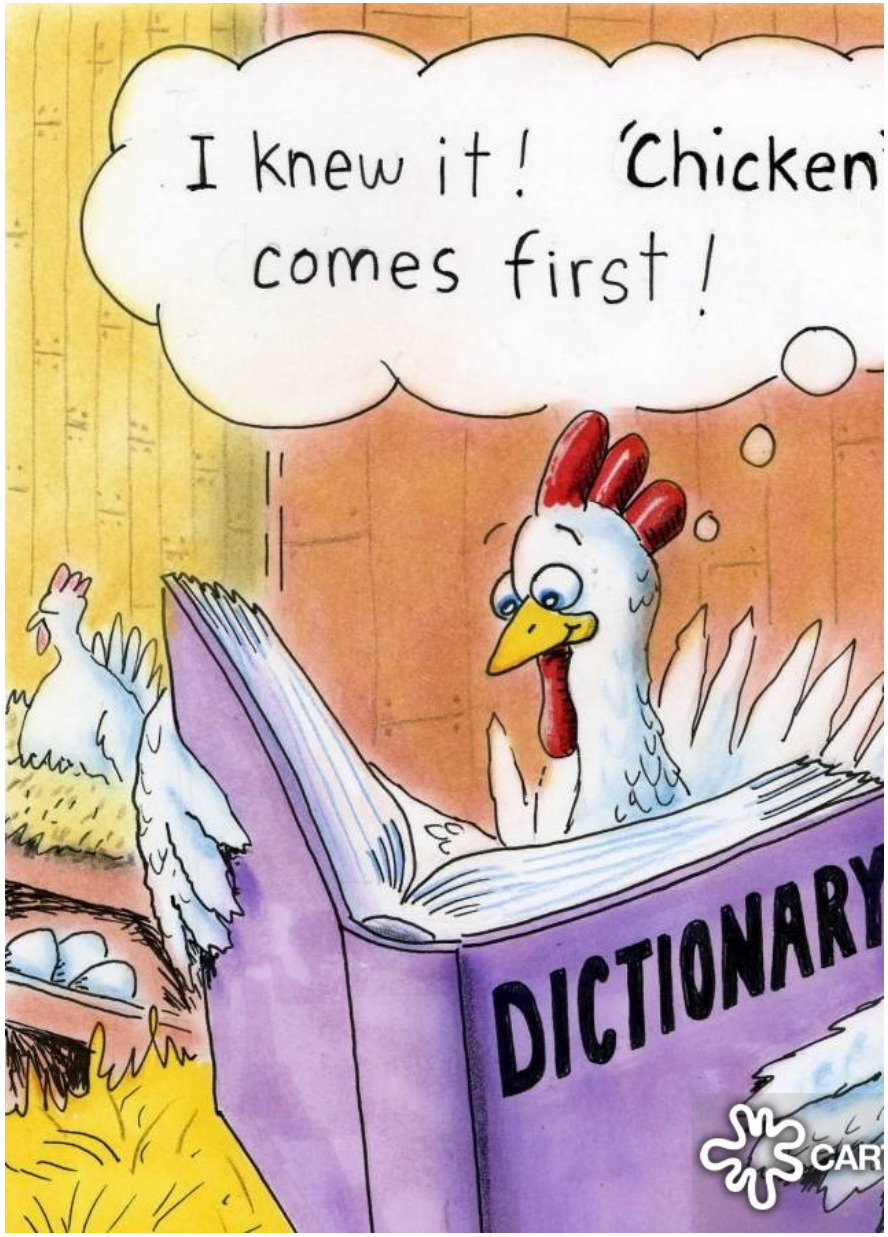
NLPA/KWA Standard 823 references other documents which can be used to gain insight into the contents of the standard or which can be used in a complimentary manner.

Only the most recent version of any listed document should be used, though as some state references lag the development of new versions, the reference can be applied to the current State adopted or referenced version.



Terms and Definitions

Every effort was made to ensure that terms and definitions used in the standard were consistent with the terms and definitions used by other standard writing organizations such as the Petroleum Equipment Institute (PEI), the American Petroleum Institute (API) and the National Fire Protection Association (NFPA) so that terms cannot be misinterpreted.



Significance and Use

This standard provides testing and performance requirements for materials used to perform sealing of containment sumps as a preventative maintenance measure.

This standard provides testing and performance requirements for materials used to perform sealing of containment sumps as a repair measure.

This standard provides minimum criteria for qualifying a containment sump for repair.

This standard provides testing and performance requirements for materials used to perform the installation or replacement of a sump entry fitting.

This standard provides testing and performance requirements for materials used to perform the fabrication of a new single wall or double wall sump using the existing sump as a fabrication mold.

This standard provides minimum requirements for installer certification and training by the equipment or material manufacturer.

Permits, Plans, Testing for Tightness and Final Report

Prior to engaging in any activities relating to the preventative maintenance, alteration, repair, or upgrade of any tank system, consult all necessary authorities to obtain any required permits.

The final report should include:

* Copies of any required permits,

* The results of the pre-repair sump evaluation and the reason for the repair,

* A listing of repair materials utilized,

* The results of the post-repair testing report,

* Photographic documentation of the need for repair and the completed repair, and

* Copies of all applicable manufacturer, state and local certifications.

Material Approvals

The standard requires all materials to be approved both for compatibility and suitability.

Compatibility assurance is based upon laboratory testing AND attestation by the manufacturer. Both are required.

A material approved for one brand of polyethylene (HDPE) sump application shall be deemed appropriate for the same application for all brands of polyethylene sumps.

A material approved for one brand of fiberglass (FRP) sump application shall be deemed appropriate for the same application for all brands of fiberglass sumps.

COMMITTEE INSIGHT

The Committee needed to ensure that the standard reflected the compatibility requirements of the Federal Rule – 40 CFR 280.32.

§ 280.32 Compatibility.(a) Owners and operators must use an UST system made of or lined with materials that are compatible with the substance stored in the UST system.

(b) Owners and operators must notify the implementing agency at least 30 days prior to switching to a regulated substance containing greater than 10 percent ethanol, greater than 20 percent biodiesel, or any other regulated substance identified by the implementing agency. In addition, owners and operators with UST systems storing these regulated substances must meet one of the following:

COMMITTEE INSIGHT

(1) Demonstrate compatibility of the UST system (including the tank, piping, containment sumps, pumping equipment, release detection equipment, spill equipment, and overfill equipment). Owners and operators may demonstrate compatibility of the UST system by using one of the following options:

(i) Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored; or

(ii) Equipment or component manufacturer approval. The manufacturer's approval must be in writing, indicate an affirmative statement of compatibility, specify the range of biofuel blends the equipment or component is compatible with, and be from the equipment or component manufacturer;

COMMITTEE INSIGHT

The committee wanted the manufacturer's statement of compatibility to be based upon the results of 3rd party laboratory testing without requiring a "nationally recognized" laboratory. This opens the door to the use of local or regional qualified laboratories performing material tests in accordance with recognized standards and is stronger than merely allowing a manufacturer to attest to compatibility of a material or device.

COMMITTEE INSIGHT

Agreed upon language:

6.2.1.1 The manufacturer shall attest in writing to the compatibility of the equipment, component or material including a specific and stated range of biofuel blends based upon the results of testing performed by the qualified independent testing laboratory.

Additionally, the committee agreed that compatibility assurance alone was insufficient, The testing had to determine that the material or device is suitable for the intended purpose by, for example, testing adhesion characteristics.

Sump Evaluation

Is it broken beyond repair?

Fiberglass is an easily repaired material and no limits are placed on the repair of fiberglass sumps.

Polyethylene sump repairs are limited under the standard. The repair materials used for polyethylene sumps are fusion bonded materials. This means that the repair material chemically heats the existing sump wall to allow the repair material (sealant or patch) to meld with the existing polyethylene surface so as to form both a chemical and a mechanical bond. However, the extent of viable repairs to polyethylene sumps is more limited.

COMMITTEE INSIGHT

The extent of allowable repair under the standard was a major topic of discussion during the initial committee meeting and one public comment was received on this topic, resulting in renewed discussion at the ratification meeting.

The committee in both cases unanimously agreed that the limits expressed in the standard were reflective of the repair capabilities of the available repair options.

Training and Certification of Installers

The standard requires that all persons who perform preventative maintenance, repair or in-situ sump fabrication are properly trained in the application of the materials and the installation of the equipment.

The manufacturer of the materials, device or system is required to provide a written certification of training.

General Safety Requirements

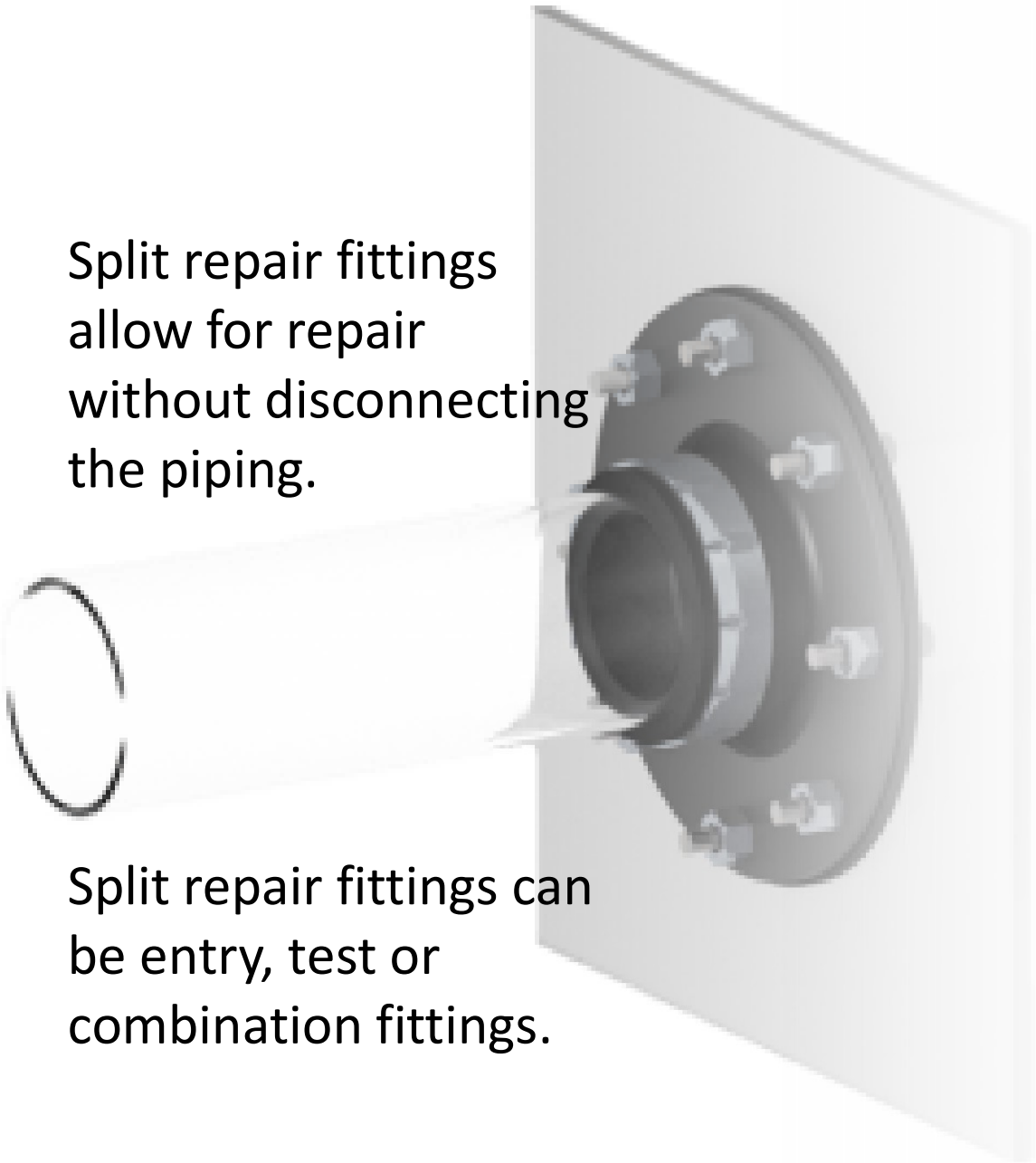
While it is impossible to anticipate every safety need in complex and varied workplaces, the standard provides basic safety guidance for workers on petroleum sites with secondary containment sumps. Working within the sumps often entails entry into a confined space. Lock out and tag out, traffic control and personal protective equipment considerations are also touched upon.

SUMP FITTINGS

A variety of fittings are available to seal sump penetrations where piping or conduit enter or leave the sump, and to seal between primary and secondary piping or any other interstitial opening. As there are several different piping types and sump situations, different solutions have been developed.

Split Repair Fittings

Split repair fittings allow for repair without disconnecting the piping.



Split repair fittings can be entry, test or combination fittings.

Split Repair Fittings

Split repair fittings can be substitution or encapsulating fittings.

A substitution fitting is a fitting which takes the place of the old fitting. The pictures to the right show the old, damaged fitting which is removed or cut away sufficiently to install the replacement fitting. The sump surface is abraded prior to installing the new fitting.

Split Repair Fittings

Encapsulating fittings do not require the removal of the old fitting and are installed over the existing fitting.

Split Repair Fitting

Combination fittings incorporate test ports. Combination fittings can be substitution fittings or encapsulating fittings.

Split repair fittings with different designs for a wide variety of applications are a perfect example of the need to incorporate an allowance for future innovations into the standard.
Split repair fittings do not require piping or conduit to be disconnected.

next®
SERIES

This split repair fitting design starts with a center ring sized to the pipe or conduit. The outer ring is applied over the center ring and a band clamp is tightened around the assembly.

BRAVO
PROBLEM SOLVED

Split Repair Fitting

The fitting is installed without disturbing the piping. It can be sized to fit larger pipe, standard pipe and conduit.

Procedures

General procedures for the different kinds of work are provided as follows:

- Work practices applicable to all work
- Practices applicable to FRP sump repair
- Work Practices applicable to HDPE sump repair
- Work Practices applicable to in-situ sump construction
- Work practices applicable to fitting installation

Specialized bonding and filling materials

FRP Sump Repair

FRP sumps with cracks and other small areas of damage can be repaired using structural bonding materials. These structural bonding materials bridge small holes and cracks.

Larger repairs are performed using fiberglass cloth and resin applied to the FRP sump laminate.

In both cases, proper surface preparation is key to a successful repair.

HDPE Sump Repair

HDPE is considered non-cementable. That means that it cannot be glued. However, materials have been developed which chemically fuse to the HDPE rather than attach to the surface. These materials infuse themselves into the HDPE. These fusion repair materials can be structural bonders for cracks or seams, or patches used to cover holes. The standard limits the size of HDPE repair areas.

In-situ Sump Construction

In-situ sump construction uses the existing sump as a mold for the fabrication of a new sump.

In-situ sump construction does not rely upon the existing sump for structure.

Fiberglass cloth and resin are rolled onto the walls and floor of the sump to create a structural laminate in the same shape and place as the existing sump.

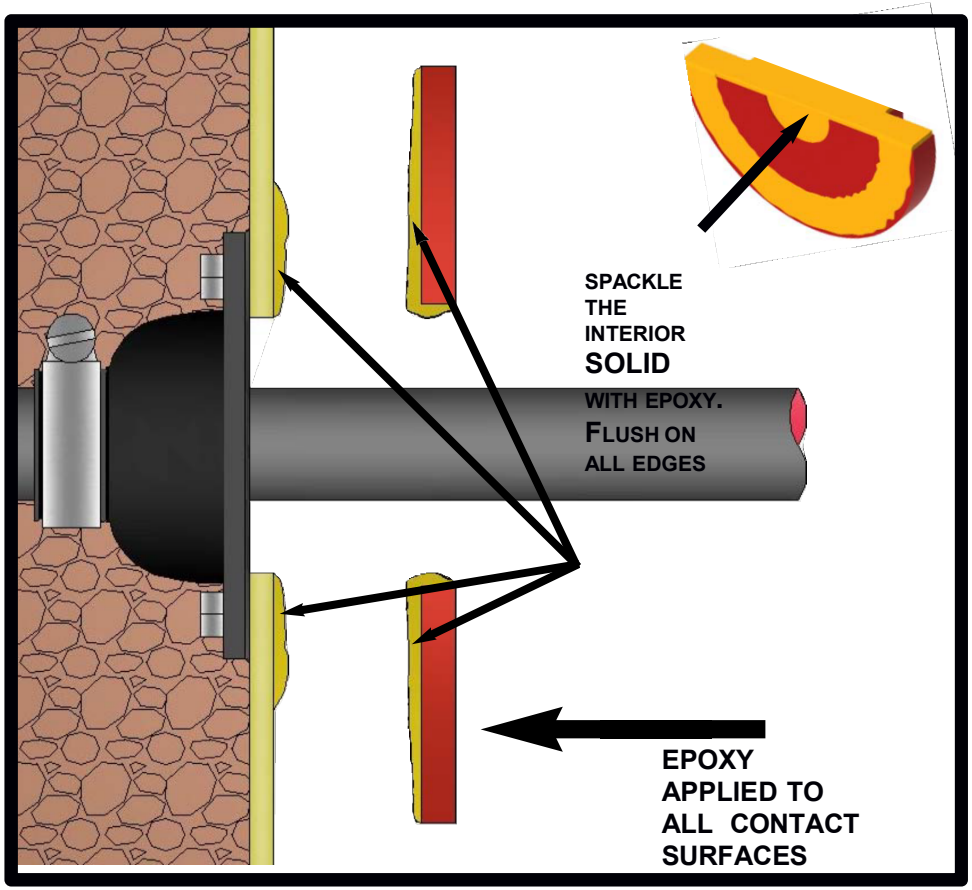
Sump Fitting Installation

All materials used to seal, bond and attach the sump fitting shall meet the requirements of section 6 of this standard.

Equipment and devices installed as a part of the repair shall be tested by a qualified independent testing laboratory and approved by the repair method manufacturer for their intended use.

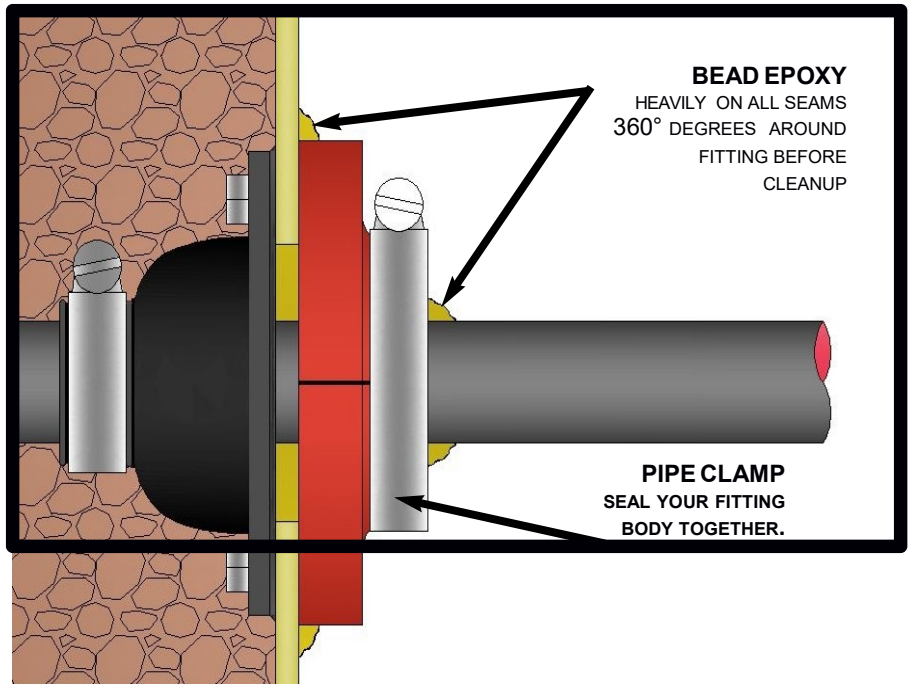
The installation work shall be conducted by a qualified contractor/installer properly trained in the installation procedure by the manufacturer of the sump fitting in accordance with the procedures set forth by the manufacturer.

RETROFIT S SERIES



BRAVO
PROBLEM SOLVED

RETROFIT S SERIES



BRAVO
PROBLEM SOLVED

Water Tight Lids

Where water can enter through a poorly fitted, broken, deteriorated or missing sump lid, installing a water tight lid can keep water out of the sump.

Most designs include a revamping of the sump top to create a good sealing surface.

Mechanical attachments compress the lid against the newly created sealing surface.

Water-Tight Sump Lids

Testing

Prior to being returned to service, the repaired or newly constructed sump needs to be tested.

The NLPA/KWA standard provides two options for the sump and a procedure for testing a water-tight lid.

Testing Option #1

A full hydrostatic test.

The committee agreed that only a hydrostatic test where the water level is no less than 4 inches above the highest sump penetration or side-assembly seam is appropriate for the testing of a repaired or in-situ constructed sump prior to being returned to or placed in service.

Testing Option #2

Testing of the sump can be accomplished using a method other than hydrostatic testing as long as this method is approved by the AHJ and is deemed by that AHJ to be no less protective of the environment in its ability to assess a repaired sump's ability to contain a leak of the substance it is designed to contain.

This option is provided to keep the door open to alternative testing techniques which offer an equivalent or more conclusive determination of the tightness of the sump.

NLPA/KWA Standard 823

Contained within the standard is a method for testing sump lids.

A large volume of water is applied to the sump lid area.

Where possible, the lid is completely submerged under the water.

Where it is not possible to raise the water level over the lid, water is applied constantly over the test period.

At the end of the test period and once the water has receded, the lid is dried and the sump is opened. A lack of water intrusion indicates a successful test,

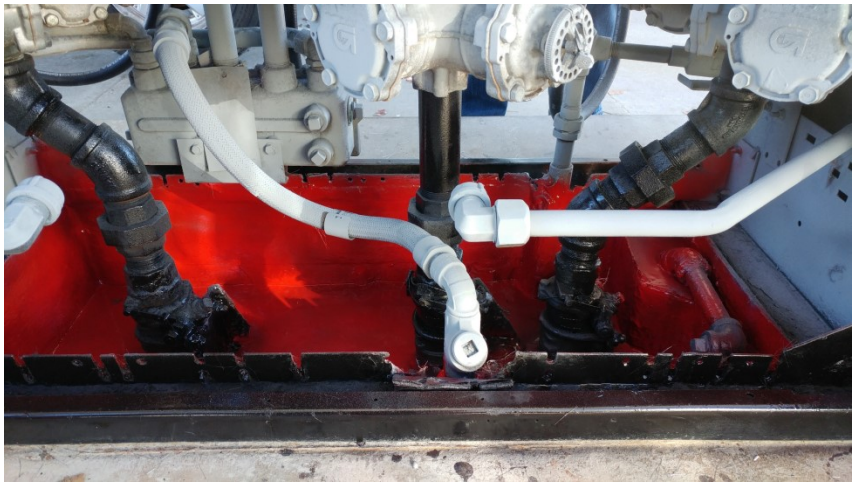
Other Materials of Construction

Concrete Sumps and Vaults

Require Periodic Maintenance

Metal UDC Sumps

Metal sumps are subject to corrosion.
Even a badly corroded sump can be used as a mold for a new containment sump construction



NLPA and KWA Contact Information

National Leak Prevention Assn

P.O. Box 575
Tilton, NH 03276
PH: 815.301.2785
https://nlpa-online.org

Ken Wilcox Associates, Inc.

1125 Valley Ridge Drive
Grain Valley, MO 64029
PH: 816.443.2494
http://www.kwaleak.com

Q&A

Please address all questions to a specific speaker

Containment Sump Repairs

Edward S. Kubinsky Jr.
Director of Regulatory Affairs, Training and Certification
CROMPCO, LLC
Office: (610) 276-5914
Cell: (610) 633-9732
ed.kubinsky@crompco.com

NEIWPCC Webinar 12/14/2020

Where are sump repairs most likely needed?

- Rare that structural repairs are needed to the sumps
- Over 95% of the time, the most common cause of sump test failures are failed penetration boots or piping interstitial boots. Often times, these can be visually identified without a test.

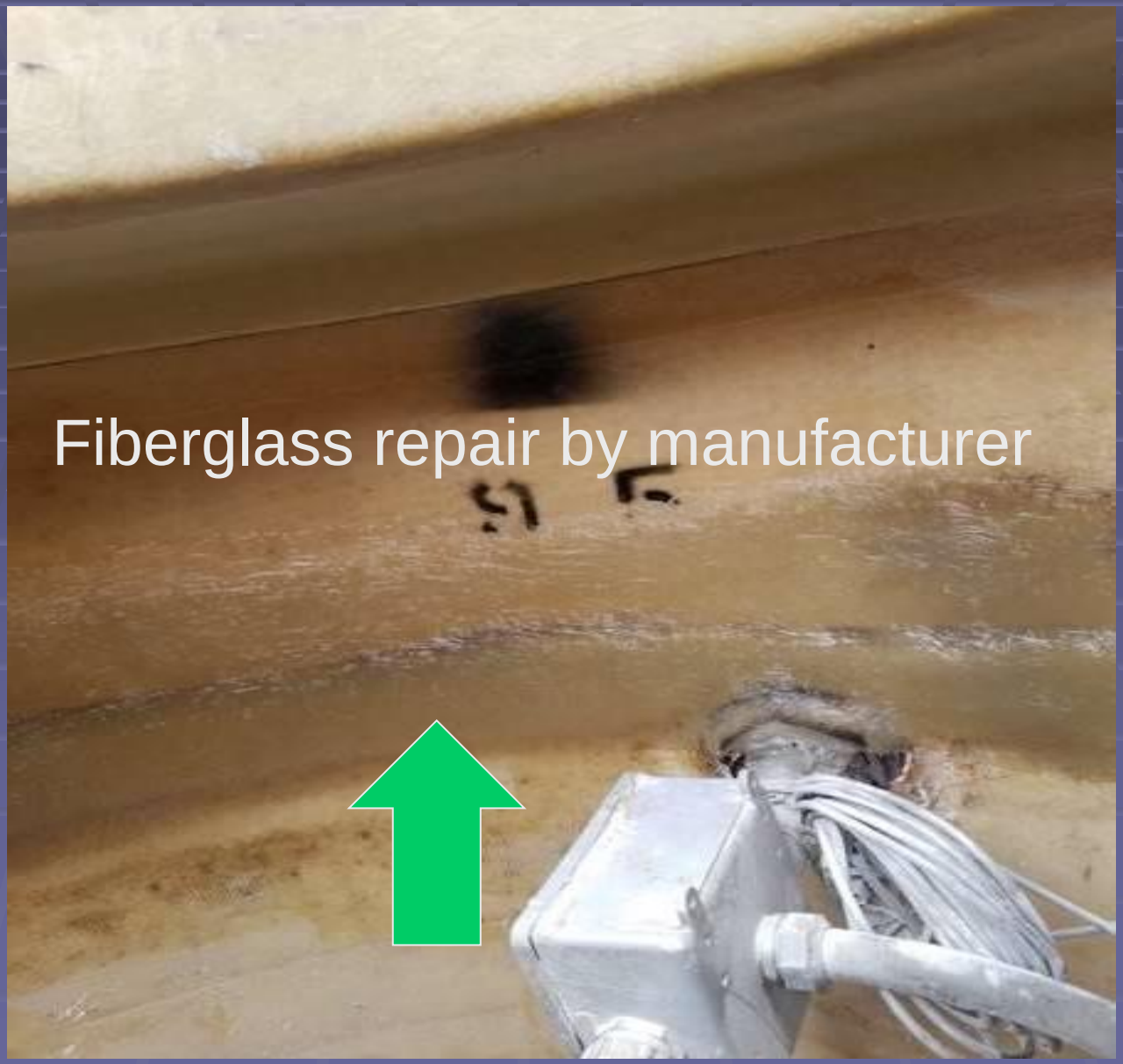
FRP Sump Repair

FRP Sump Repair

FRP Sump Repair

FRP Sump Repair

FRP Sump Repair



HDPE UDC Sump Repair

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FRP UDC Sump Repair

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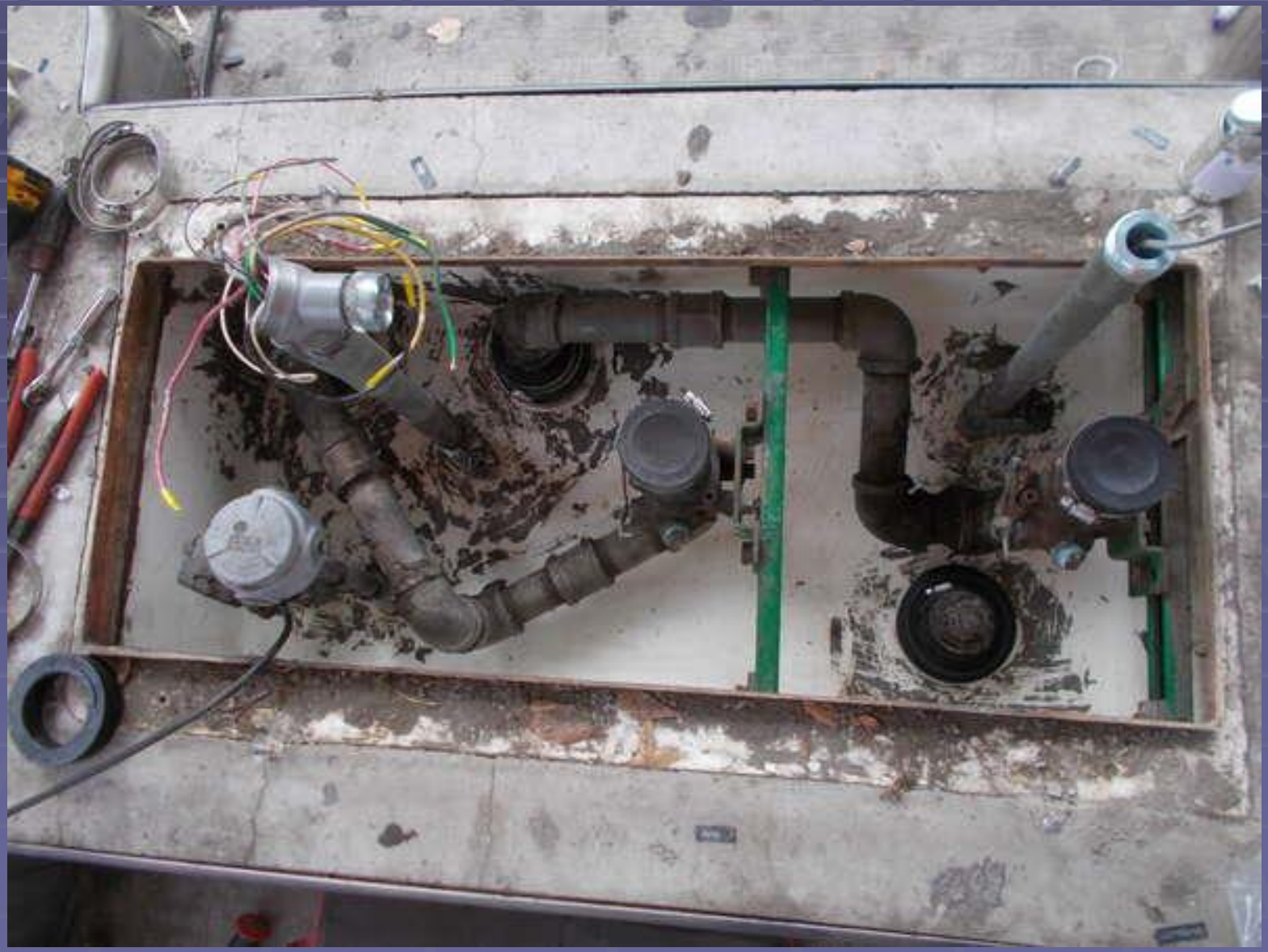
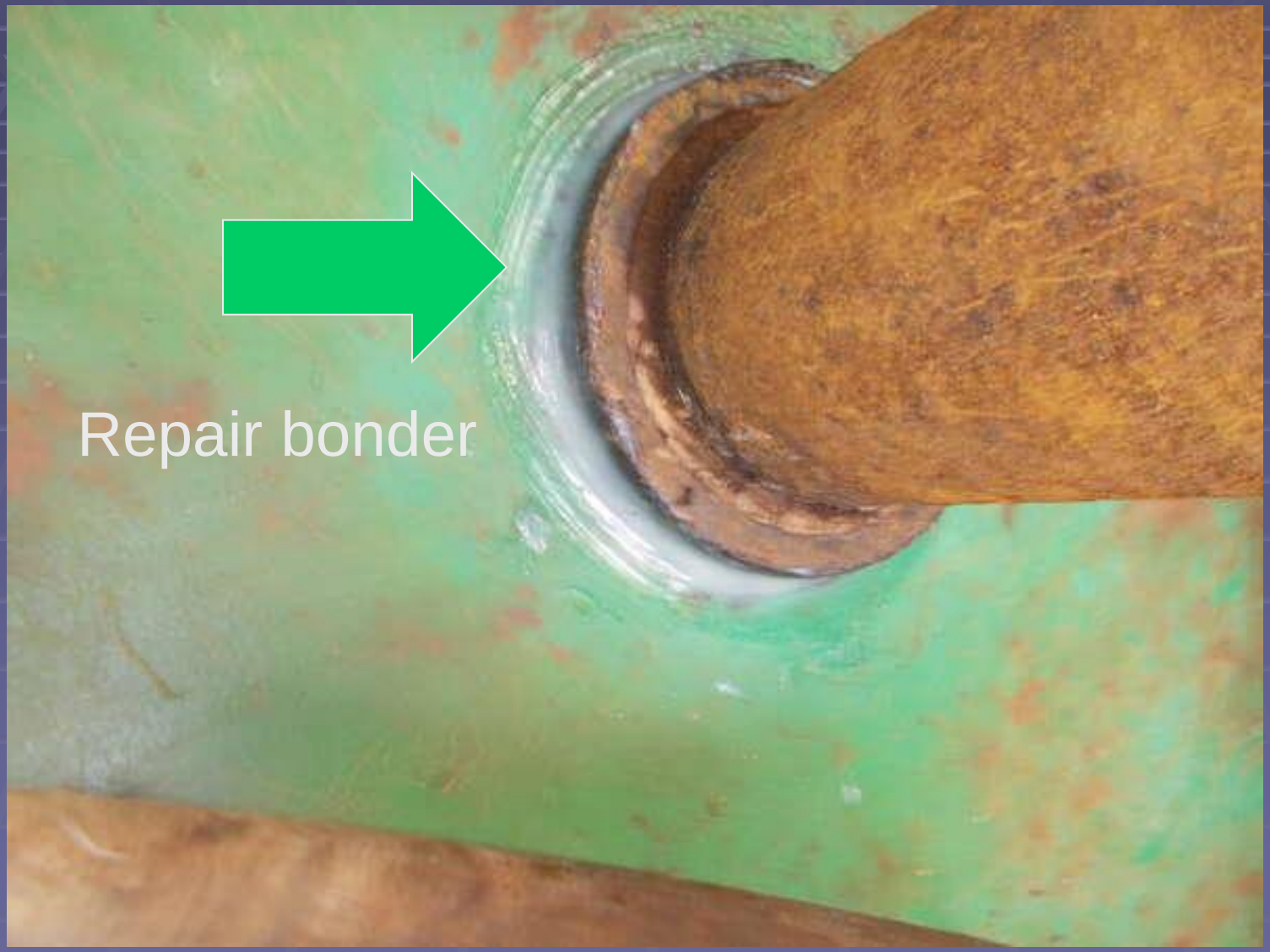


HDPE Tank Sump Repair

HDPE Tank Sump Repair

HDPE Tank Sump Repair



HDPE Tank Sump Repair

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Unrepairable UDC Sump

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Unrepairable Tank Sumps

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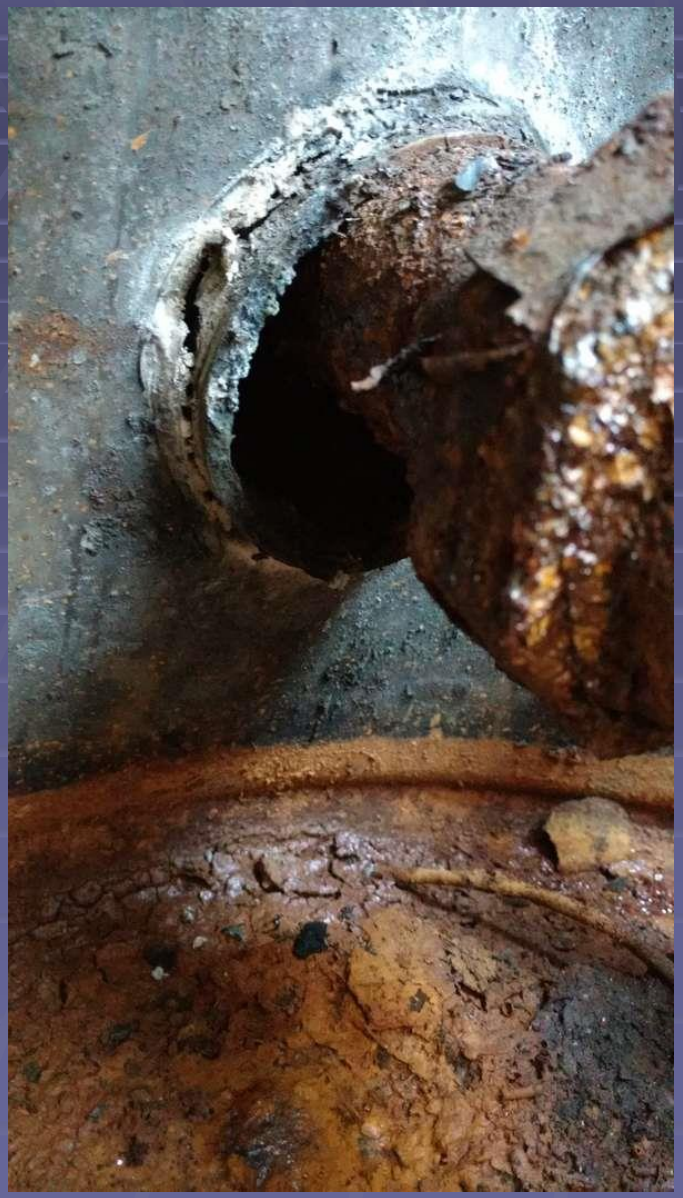
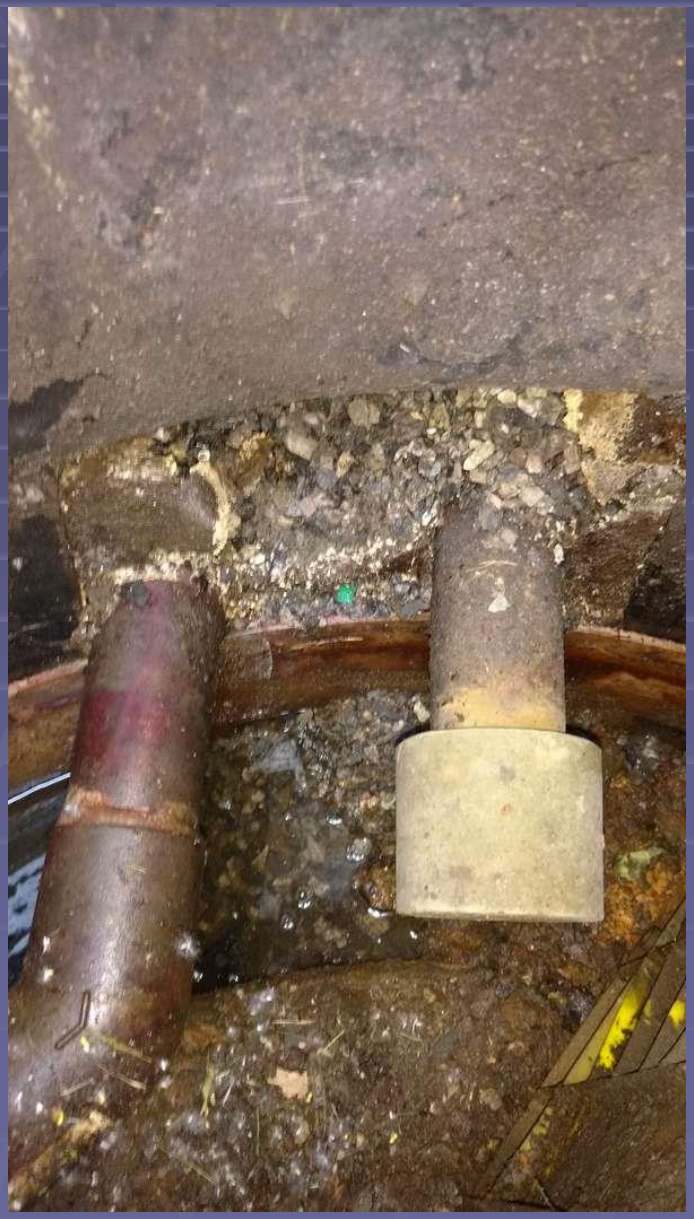


Unrepairable Tank Sumps

Unrepairable Tank Sumps

Unrepairable Tank Sumps



Unrepairable Tank Sumps

Unrepairable Tank Sumps

Unrepairable Tank Sumps

Unrepairable Tank Sumps

After repairs, TEST!

13.0 Testing

Prior to the sump being returned to service, the sump shall be tested for liquid tightness in accordance with either section 13.1 or 13.2 below. The individual performing the sump testing must be aware of state requirements which may stipulate that the tester possess a license/certification for conducting this testing. Sump lids may be tested for their ability to keep water out of the sump by following the procedures in section 13.4.

> **NOTE:** It is the opinion of the workgroup which collaborated on this standard that testing of sumps which have been repaired needs to be performed with water at a level that is (at a minimum) 4 inches above the highest penetration or side-assembly seam, as a hydrostatic test is the most appropriate means of assessing a repaired sump's ability to contain a leak of the substance it is designed to contain. This is primarily because hydrostatic testing provides a realistic set of conditions which would slightly exceed the conditions of the sump required to contain the liquids stored on site (i.e. water weighs ~8.34 lbs./gallon and is heavier than

Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities

PEI

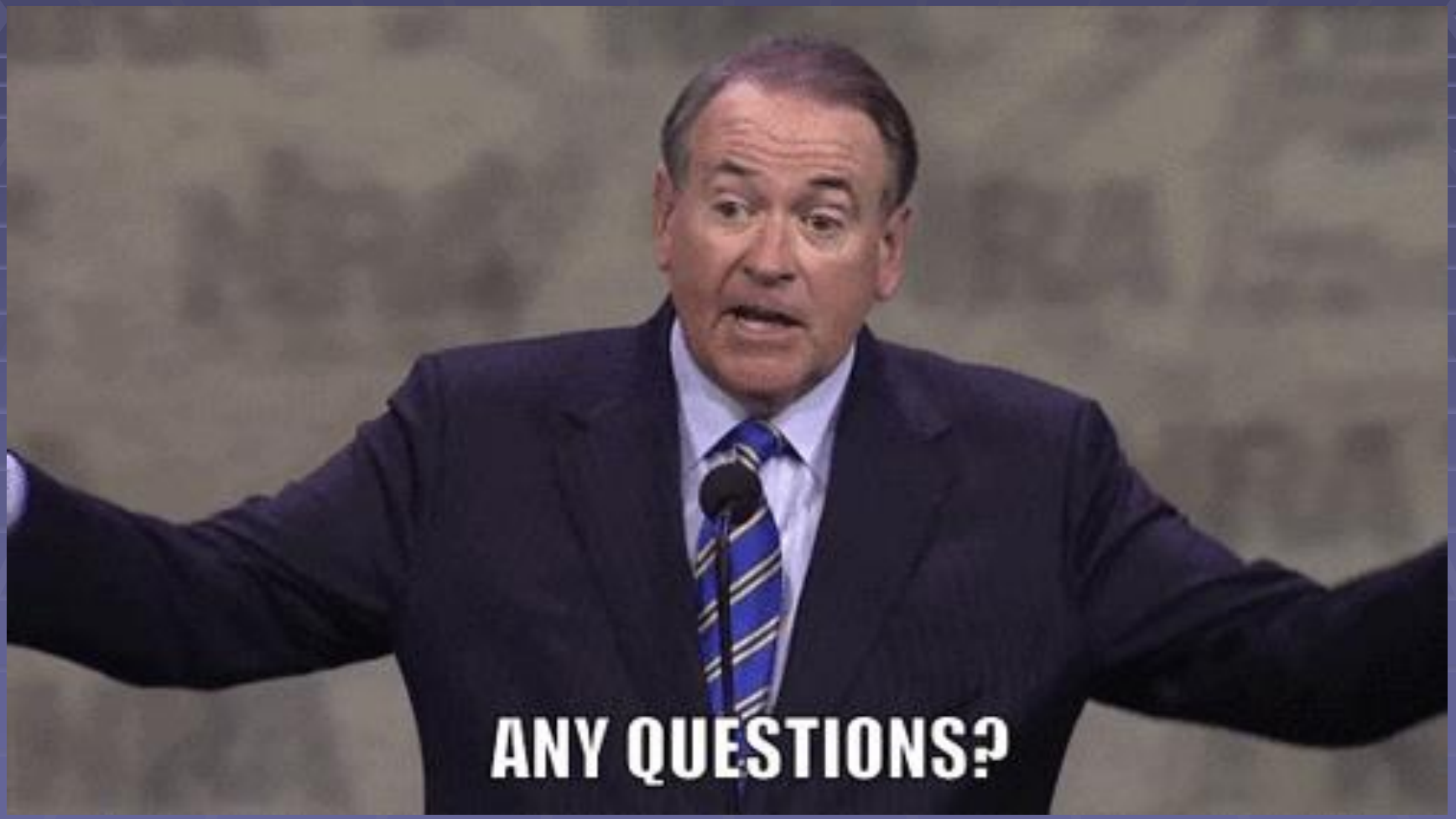
- Low liquid level hydrostatic sump testing does not assess the integrity of the entire containment sump but, instead, tests only the integrity of the lower portion of the containment sump and the ability of the liquid sensor or mechanical float device to shut down any submersible turbine pumps (STPs) or dispensing devices associated with that sump.
- Disabling the operation of a dispenser may not stop a leak because the STP is still operational and the piping is pressurized.
- Under no circumstances should the low liquid level hydrostatic sump testing protocol be employed for testing of newly installed containment sumps or for initial testing of containment sumps that have been repaired. Subsequent periodic testing may be performed using the low liquid level test method.

After repairs, TEST!

13.2 Alternate test method

13.2.1 Testing of the sump can be accomplished using a method other than hydrostatic testing as long as this method is approved by the AHJ and is deemed by that AHJ to be no less protective of the environment in its ability to assess a repaired sump's ability to contain a leak of the substance it is designed to contain.

THANK YOU!



Q&A

Please address all questions to a specific speaker

Thank You, Speakers!

Russ Brauksieck, Senior Analyst | *U.S. EPA*

Tony Rieck, President and CEO | *T.R. Consulting, Inc.*

Ed Kubinsky, Director of Regulatory Affairs, Training and Certification | *Crompco, LLC*

UST Inspector Training Series: https://neiwpcc.org/our-programs/underground-storage-tanks/ust-training-resources-inspection-leak-prevention/webinar-archive-inspector-training/

LUST Corrective Action Series: https://neiwpcc.org/our-programs/underground-storage-tanks/lust-training-resources-corrective-action/webinar-archive-corrective-action/

LUST Line: https://neiwpcc.org/our-programs/underground-storage-tanks/l-u-s-t-line/

UST INSPECTOR TRAINING WEBINAR SERIES:

NLPA/KWA STANDARD 823 – PREVENTATIVE MAINTENANCE, REPAIR AND IN-SITU CONSTRUCTION OF PETROLEUM SUMPS

12/14/2020

Thank you for your participation!