

# Practical Approaches to Safe Tank Entry, Inspection, and Repair

NISTM CO-LOCATED EVENT

April 14, 2023

8am – 5pm

Orlando, Florida

## OVERVIEW

This eight-hour course is designed specifically for midstream facility owner-operators and project managers who are expected to get their work done safely, on time, and on budget, but find themselves faced with rules and procedures that seem like they are more like barriers than aids. Candidates could include upper-level managers, or facility operators, as well as any other stakeholder that finds many aspects of these topics a bit confusing and finds conflicting interpretations of industry standards, recommended practices and best practices during the course of their workday. Many of these interpretations are just that, and they are seeking to find black and white answers, in a real world that is often fuzzy shades of gray. This is an intermediate level course, and prior field experience is highly recommended. It is a fast-paced course that covers a wide variety of topics.

The course content is prepared in a series of modules with some embedded case studies for group discussion. Course will begin with an introduction to the various modules including learning objectives for each module. As we progress through the modules, we will encounter some often-misunderstood aspects of cleaning, inspection, and repair. Where applicable, we will present the requirements of the various OSHA standards, API standards and recommended practices and discuss some of the interpretations that exist and vary plant to plant. Many interpretations are highly dependent on the owner-operators chosen level of risk acceptance. Some owner/operators don't realize that some of their risk choices may have a cost that exceeds the benefit.

We will start with a discussion in detail about confined space entry policies. We will emphasize the over-riding principle of hierarchy of controls, and this applies to all safe work practices, not just confined space entry. We will review vapor sources and sources of ignition that may be found in a facility. Some of these may be overlooked and others may be overemphasized. There will be a module on understanding the requirements of tank inspection. This includes what is required by code and what may be required by specific owner/operators. We will review the presence of coatings and how they may affect your inspection procedures. The course will look at what constitutes a good API 653 out of service inspection report and what is perhaps a "not-so-good" one. We will discuss the applicable API 653 standards and proper use of "grandfathering."

Next, we offer some industry best practices including existing and novel inspection tools. The course explores robotic in-service inspections and its current uses and some shortcomings. After reviewing the inspection report, we will review typical and atypical mechanical repairs. There will be a review of other repairs, considering cone and floating roofs using organics (epoxies), fall protection modifications, handrailing requirements and other related topics. Of course, there will be a coatings module, and will briefly consider new internal linings, and review options with respect to existing linings, i.e., when to repair, recoat, or replace.

We will finish up with a discussion of the requirements for overfill protection under the new 5<sup>th</sup> Edition of API Standard 2350 and give a brief overview of all the existing API documents that cover all this work, explaining what each document covers so you have familiarity with them and know how to look up what you now know about when you need more detailed guidance.

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In addition we will clarify some misunderstandings about strapping requirements and return to service. There will be an opportunity after each module to ask questions and there will be a question and answer at the end for any related topics of interest to the attendees.

## SPEAKERS —

### Earl Crochet, PE

- ▶ Principal of Crochet Midstream Consulting LLC & Executive VP of Perceptive Sensors Technologies
- ▶ 33 years of Owner-Operator Experience with Plantation Pipe Line and Kinder Morgan since 1988
- ▶ Various Roles in Engineering, Measurement, Quality, Operations, Maintenance, Asset Integrity, Project Management, EH&S, Business Development, Management
- ▶ BS in Mechanical Engineering from LSU –1986
- ▶ Post Graduate work in Mechanical Engineering -LSU
- ▶ MBA from LSU –2005
- ▶ Licensed Professional Engineer in GA, LA and AL
- ▶ Chair - API 2350 and TR 655 & TR 656

## MODULES

### ▼ 1 | Introduction

Safety share, introduction of presenters, and introduction of modules and learning objectives of each

### ▼ 2 | The Goldilocks Story

There are lots of lessons to be garnered from this 19th century tale. By looking at Goldilocks and her antics with the three bears we can understand how level of risk acceptance is not absolute, but relative, and this will help understand when processes and procedures are required, recommended, or merely suggested.

### ▼ 3 | Confined Spaces- No Longer Dark and Scary

Permit-required, non-permit required, alternate procedures, open door sheet? Is your roof stable? To crib or not to crib? How are they interpreted? Do you have a standby rescue team when you need one, or have one when you don't need one? Are you following OSHA general industry or construction? Which standard applies? What are we atmospheric monitoring for? Are we using the hierarchy of controls? We will review our understanding of industry best practices.

### ▼ 4 | Hot Work and Vapor Sources-May the Two Never Meet

This module is a thorough examination of ignition sources including hot work, combustion engines and low energy hot work. It reviews hot work requirements and looks at the definition of hot work. We will look to find all potential vapor sources, and not overlook anything. . We will consider potential vapor sources found in a typical petroleum facility. The module looks at various policies considering the cost and usefulness of each.

### ▼ 5 | Understanding Tank Inspections

When you call for a tank inspection, do you have any expectations? API 653 is not very prescriptive. What is required? What is recommended? No inspection ever covers 100% of the tank or tank bottom, and each inspection technique has limitations. Are you familiar with them? Consequently, there are risk choices to be made. This module looks at the current state of the art with out of service and in service robotic inspections.

### ▼ 6 | Understanding the Inspection Report

The stories you are about to hear are true, but the tank numbers have been changed to protect the innocent. This is a somewhat light-hearted look at what makes a good and a not-so-good tank inspection report. We will let you decide innocence or guilt.

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## SPEAKERS —

### David Cushman, CSP

- ▶ General Manager, West Virginia Paint LLC since 2001
- ▶ Midstream contractor installing protective coatings with same organization since 1980
- ▶ BS Economics, Univ. of Pennsylvania, 1980
- ▶ AAS Mechanical Engineering Technology, 1988
- ▶ MS Occupational Safety, SSEM, Eastern Kentucky Univ. 2010
- ▶ Certified Safety Professional CSP-38923
- ▶ OSHA Outreach Instructor, Construction 10 and 30 hour, #12-000196378
- ▶ Chair - API 2015, 2026, 2207

## MODULES

### ▼ 7 | Getting the Best from Your Inspection

Our thoughts about the industry best practices. It considers the presence of coatings (good and bad), along with the limitations on each NDT technology. We will discuss the dreaded “required or recommended” repair section, looking at the language in API 653.

### ▼ 8 | Mechanical Repairs- Putting the Metal to the Metal

This discussion centers on making mechanical repairs in accordance with API 653. We review the fact that API 653 is often more about what you cannot do than what you can do. We will review repairs and effect on working capacity, “grandfathering”, and other related topics.

### ▼ 9 | Other Repairs- Roofs, Composites, and Railings-What Are the “Other Guys” Doing?

API 653 is not just about welding repair. There are many other repairs that should be done during out-of-service inspections and they don’t all involve metal. What are your neighbors doing? We will look at different owner operator approaches to common tank repair issues.

### ▼ 10 | The Three Rs of Coating-Repair, Recoat, Replace

When it come to new coating, should you coat a bottom? What are the risks of you don’t? We will look at repairs to existing coatings, and when they need to be replaced.

### ▼ 11 | Overfill Protection, Strapping and Return-to Service- Final Question and Answer

We will wrap it up with an overview of the new API Standard 2350 overfill requirements and a clarification of strapping requirements. There will be time for question and answers following this topic.

# NISTM Co-Located Event: Practical Approaches to Safe Tank Entry, Inspection, and Repair Registration Form

## Practical Approaches to Safe Tank Entry, Inspection, and Repair

April 14, 2023

8:00am – 5:00pm

### Registration Fees:

- 1 Attendee is \$475.00
- 2 Attendees is \$850.00
- 3 Attendees or more is \$375.00 per person

### NISTM Conference & Trade Show

April 12-14, 2023

- [Conference Agenda](#)
- [Free Admittance to Trade Show](#)

### Cancellation & Refund Policy

In the event of a cancellation, it is the registrant's responsibility to contact NISTM in writing by March 16, 2023 and receive a full refund (a \$50 processing fee will be charged). Another option is reserve your payment amount as a credit towards the next event(s) of your choice. After March 16, 2023 no refunds will be issued.

Name(s): \_\_\_\_\_

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Cell: \_\_\_\_\_

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### Payment Information:

\_\_\_\_\_ **Check in Mail** (Payable to NISTM)

Mail check to: PO Box 26008, Tampa, FL 33623

\_\_\_\_\_ **American Express** \_\_\_\_\_ **Discover** \_\_\_\_\_ **MasterCard** \_\_\_\_\_ **VISA**

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CVV # \_\_\_\_\_ Billing Full Address \_\_\_\_\_

Billing City, State, and Zip \_\_\_\_\_

Name on Card: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Conference & Trade Show Location:

Rosen Shingle Creek Hotel  
9939 Universal Blvd  
Orlando, FL 32819

Phone: 866.996.9939  
Single/Double Rooms: \$229.00  
Booking ID #57889

To submit this registration form, you may either Fax it to **813.851.1705** or Scan/Email it to [janelle@nistm.org](mailto:janelle@nistm.org)