American Petroleum Institute | Preliminary Program

2022 API Storage Tank Conference & Expo

October 12-13, 2022 | Marriott Marquis San Diego Marina | San Diego, California, USA | www.api.org/storagetank

**As of October 6, 2022 | Agenda subject to change*

Wednesday, October 12, 2022

7:00 am – 8:00 am	**Registration, Continental Breakfast, & Exhibit Viewing**
8:00 am – 8:15 am	**Welcome: Opening Remarks and Safety Moment** 2022 Conference Co-Chairs: Dave Cushman, West Virginia Paint, LLC Earl Crochet, Crochet Midstream Consulting
8:15 am – 9:00 am	**Session K1: Keynote –You can't buy that!** *Perspectives on corporate culture and caring when bad things happen.* **Speakers: Earl Crochet, Crochet Midstream Consulting** **Dave Cushman, West Virginia Paint**
9:00 am – 9:20 am	**Morning Refreshment Break & Exhibit Viewing**
9:20 am – 10:30 am	**SESSION 1A: ASCE 7-22 Impact on Aboveground Storage Tanks** **Moderator: Mark Jordan, CB&I** *The presentation will discuss the impact of the 2022 edition of ASCE 7 on the design of aboveground storage tanks and their foundations designed to API standards. ASCE 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures, is an integral part of building codes in the United States. ASCE 7 describes the means for determining design loads including dead, live, soil, flood, tsunami, snow, rain, atmospheric ice, seismic, and wind loads and their combinations for general structural design. ASCE 7-22 will be adopted by the 2024 edition of the International Building Code (IBC) and into most state and local building codes by 2025.The presentation will provide an overview of many of the major changes made in the 2022 edition of ASCE 7-22. While changes in each chapter are discussed, most of the presentation will concentrate on the major changes in the seismic and wind chapters, including the new Chapter 32 – Tornado Loads. Some of the changes to be discussed include mandatory use of electronic databases containing loading information; New alternative method for determining loads from water in soil; New ground snow loads; 22 period multi-point response spectrum for seismic design; New seismic force equation for nonstructural components, and Addition of tornado loads for Risk Category III and IV structures.* **Speaker: Greg Soules, CB&I Storage Solutions LLC** **SESSION 1B: Floating Roof Stabilization and Cribbing** **Moderator: Mark Howard, US EPA** *Save Time, Save Money, Save the Environment, Most Important Save Lives. Get your tank back in service 15-18 days faster. Prevention of floating roof collapse during cleaning, inspections, and repairs.* **Speaker: David Bush, Delta P Technology International, LLC**
10:30 am – 11:00 am	**Morning Refreshment Break & Exhibit Viewing**
11:00 am – 12:00 pm	**SESSION 2A: You Got the Data, Now What?** **Moderator: Dan Fleck, HUVR**

Congratulations you have completed the effort to centralize your tank data into a single database. Now comes the fun part in using that data to plan out your inspection program and move to a more predictive maintenance program. Come follow this one engineer's data centralization journey including overcoming challenges and identifying pitfalls to move to an actionable database.

Speaker: Mark Kachelmyer, Plains All American

SESSION 2B: Coating in the Cold: Internal Lining under Adverse Weather Conditions

Moderator: Jerry Kolek, Consolidated Fabrication & Constructors

Your tank is out of service, it is 20 F degrees outside, it is snowing and you have to install an internal lining. What can you do to have the most successful application under adverse conditions. This program will explore the advances in coating technology along with practical considerations and shortcomings.

Speaker: David Cushman, West Virginia Paint

12:00 pm – 12:40 pm **Lunch**

12:40 pm – 1:10 pm **Exhibit Viewing**

1:10 pm – 1:55 pm **SESSION 3A: Advances in Coatings for Storing Biofuels – Next Generation Novolac Epoxy Coatings**

Moderator: Matt VanAlsburg, Advance Tank and Construction

Sherwin Williams has tested several of its primary lining technologies and some linings are showing no degradation beside slight discoloration, normal for novolac linings exposed to temperature. Exposure has been to Beef Tallow and Waste Cooking oil for six months at 71°C (160°F) including the addition of water. Biofuels are more aggressive than conventional petroleum products and require advanced technology in linings for corrosion protection

Speaker: Selwyn Williams, Sherwin Williams

SESSION 3B: Continuing Professional Development Update for API 653

Moderator: Jose Godoy, API

Continuing Professional Development hours (CPDs) will be phased in for ICP recertifications starting January 2023. These requirements will support certified individuals in enhancing and strengthening their knowledge, skill set, and overall value to industry operations. As with other professional credentials, CPDs are a significant part in ensuring that individuals are feeding the potential for continued skill enrichment. This helps establish a continued lifelong learning journey that encourages professional growth and career advancement. In this informational session we will review benefits to the inspector as well as a detailed review of the requirements

Speaker: Andri Orphanides, API

1:55 pm – 2:15 pm **Afternoon Refreshment Break & Exhibit Viewing**

2:15: pm – 3:25 pm **Session 4A: Mechanical Assessment of a Fuel Storage Tank Under 36 Hrs. of Fire**

Moderator: Ron Santelik, Rowell Chemical Corporation

Western Region distribution Department is one of the Saudi Aramco downstream organizations that operate 125 different tanks which store Diesel oil, Kerosene, and gasoline Products. During the fire of one of the kerosene tanks, that have a capacity of 500 BBL, fire for 36 hours duration was started on the nearest tank that have a large quantity of kerosene. After extinguishing the fire, full mechanical assessment was performed to evaluate the tank shell and bottom plate, piping, and related equipment. Also, how were handle the difficulties such as the water supply, foam system, and leaking problem. In addition to the limitation of applying the FFS API for tanks after the fire is over.

Speaker: Abdulrahman Alghanmi, Saudi Aramco

SESSION 4B: Deploying Wireless Overfill Prevention Systems Per API-2350

Moderator: Mark Kachelmyer, Plains All American Pipeline, L.P

API 2350 overfill prevention philosophy & practice-The ongoing goal of all AST's having overfill prevention Industry acceptance of wireless technology Overview of an industrial wireless network based on IEC & ISA standards "Independence" – As it pertains to API 2350 types of wireless devices & systems for overfill prevention Overview of installation cost – wired vs wireless systems Proof-testing wireless overfill prevention systems.

Speakers: Johan Sandberg, Emerson Automation Solutions
Rich Ireland, Emerson Automation Solutions

3:25 pm – 3:45 pm **Afternoon Refreshment Break**

3:45 pm – 5:00 pm **SESSION 5A: Improving Differential Settlement Data and Analysis**

Moderator: Kenneth Esplin, State of Washington Department of Ecology

This presentation will go into the theory of differential settlement and how it can be applied to laser scan data. It will provide the requirements and criteria for legitimate analysis of laser scan data. Moreover, it will provide the ultimate gold standard when all settlement screening methods fail.

Speaker: Phil Myers, PEMY Consulting

SESSION 5B: Biomechanics: A Material Selection Journey for Biofuel Storage

Moderator: Rafael Rengifo, Becht

As the Renewable Fuel Standard (RFS) and other initiatives continue to impact the type of fuels and feedstocks used, there has been continuous learning of the impacts on corrosion and the related lining material selection.

Speakers: Justin Manuel, Carboline
Doug Sinitiere, Carboline

SESSION 5C: Utilizing Robotic Inspection Data to Support AST RBI Analysis

Moderator: Amy Baxter, Enbridge

This presentation will discuss the novel use of in-service robotic inspections to acquire supporting POF and COF data without taking tanks out-of-service to perform an internal inspection. Additionally, this presentation will identify the specific data fields robotics may be able to acquire and the impact this additional data may have on the RBI analysis of the tank.

Speakers: Steven Bolinger, Becht Engineering
Matt Crist, Square Robot

5:00 pm – 5:05 pm **Wrap Up of Day One**
2022 Conference Co-Chairs:
Dave Cushman, WV Paint
Earl Crochet, Crochet Midstream Consulting

5:05pm – 6:00 pm **Reception, Exhibit Viewing, & Networking – Platinum Sponsors: Bechtel, DJA Inspection Fisher Tank Company, Paso Robles Tank, Roundtable Engineering Solutions, TANCO Engineering**

Thursday, October 13, 2022

7:30 am – 8:00 am **Registration, Continental Breakfast, & Exhibit Viewing**

8:00 am – 8:15 am **Opening Remarks and Safety Moment**

8:15 am – 9:00 am **Session K2: Keynote – Common SPCC Rule Misconceptions at Petrochemical Facilities**

Come see the Top Ten SPCC regulatory misconceptions presented by the USEPA National Program Manager and SME.

Speaker: Mark Howard, US EPA

Moderator: Larry Foster, Marathon Petroleum Company

9:00 am – 9:20 am **Morning Refreshment Break & Exhibit Viewing**

9:20 am – 10:30 am **SESSION 1A: Fiber Optic Technologies for Storage Tanks**

Moderator: Peter Williams, Concord Tank

The wave of technology has been pushing its way to midstream and downstream assets, including storage tanks. Understanding some of these technologies can be confusing. However, applying these technologies to optimize your operations can have a huge return on investment. The presentation will cover overview of some newer technologies in storage tanks and tank inspection, overview of fiber-optics, history and benefits of fiber-optics, in service and out-of-service applications and positive impact to ESG and regulatory compliance programs.

Speaker: Robert Smith, Axon4D

SESSION 1B: Don't Let Poor Soils Limit Your Tank's Potential: Two Decades of Storage Tanks Supported on Ground Improvement

Moderator: Todd McClellan, Colonial Pipeline

Storage tanks are typically built over weaker soil profiles that may limit the tank capacity or require costly deep foundations. Ground improvement provides an economical foundation alternative that mitigates unsuitable soil conditions and achieves the performance requirements with lower costs and quicker schedules, and in many cases allowing for more storage capacity. In this presentation we will review case histories of ground improvement supported storage tanks, illustrating the option(s) selected and the geotechnical challenges mitigated.

Speaker: Brian Frelich, Keller North America

10:30 am – 10:50 am **Morning Refreshment Break & Exhibit Viewing**

10:50 am – 12:00 pm **SESSION 2A: Bottom Leakage Due to SCC**

Moderator: Kathy Hawks, Colonial Pipeline

An unexpected bottom leakage in a sugarcane anhydrous ethanol tank with no general corrosion leaded Brazilian engineers to find out the occurrence of SCC. The solutions approached involved coating tractive stress regions and central column bottom attachment redesign.

Speaker: Mauricio Jardim, Petrobras

SESSION 2B: A Novel Approach to Hydrocarbon Removal from Tank Wash Wastewater

Moderator: Phil Myers, PEMY Consulting

A case study showcasing one of the largest tank terminal companies validated new wastewater treatment system, maintaining permit compliance, reducing treatment times, secondary sludge, and greenhouse gas emissions. This is helping the company reduce operational costs, ensure compliance, and achieve decarbonization goals.

Speaker: Sophia Babbanova, Aquacycl

12:00 pm – 12:40 pm **Lunch**

12:40 pm – 1:10 pm **Exhibit Viewing**

1:10 pm – 1:55 pm **SESSION 3A: Low Pressure Tank Vents in Vapor Collection Service**

Moderator: David Nadel, Chevron

Collaborative presentation between a Vent and Flame Arrestor Manufacturer and a Low-Pressure Tank Overpressure System Design Engineer on how to address the hydraulics of a low-pressure tank vent in a collection system in conjunction with ignition control.

Speakers: John Burgess, Smith & Burgess

1:55 pm – 2:15 pm **Afternoon Refreshment Break & Exhibit Viewing**

2:15 pm – 3:25 pm **SESSION 4A: Lightning Strike, Explosion, Tank Fire, and Lessons Learned**

Moderator: George Morovich, Tank and Environmental Technologies, Inc.

This is a case study of a tank lightning strike event that ignited a small explosion at the external floating roof seal. We will review the fire response, damage assessment, and repairs. Important lessons learned include maintenance issues, response preparedness, seal and floating roof design, engineering tools, and repair methods. There were competing theories on the root cause, and we will investigate the leading root causes of the fire and best practices for prevention.

Speaker: Andrew Yearwood, PEMY Consulting

SESSION 4B: Ammonia Storage Configurations

Moderator: Joe Mentzer, Steel Tank Institute

A recent big push toward green energy transition has increased demand for large capacity ammonia storage tanks as ammonia can be used as means to transport hydrogen molecules. Specific liquefied ammonia storage system selection, including storage tank configuration and insulation type, are dependent on risk assessment, regulatory requirements, ambient conditions, and the project budget. This presentation examines pros and cons of various ammonia storage configurations, to help the tank system owner make an educated selection of the refrigerated ammonia storage system most suitable for purpose.

Speaker: Alex Cooperman, CB&I Storage

3:25 pm – 3:45 pm **Afternoon Refreshment Break & Exhibit Viewing**

3:45 pm – 4:55 pm **SESSION 5A: Assessments of Dents and Shell Deformation in API 650 Tanks for Fertilizers and Chemical Storage**

Moderator: Earl, Crochet

Recent substantial increase in cost to build new tanks and repair existing tanks necessitates novel approaches to assess both suitability for service and remaining life of a tank after denting or deformation. Advanced analysis and fitness-for-service assessment procedures can help avoid costly repairs and downtime when tank shells are dented or deformed.

Speaker: Siji Abraham, Quest Integrity

SESSION 5B: FEA Based Level 3 Assessment of Deformed Tanks

Moderator: Andrew Yearwood, PEMY Consulting

This paper describes a methodology used to evaluate the FFS approach of the deformed tanks under gravity, internal hydrostatic pressure, wind, snow, seismic and external pressure using modern measurement techniques, FEA, and CAD tools. This paper shows the complete workflow of importing a laser scan data of a deformed storage tank into CAD, creating a realistic surface from the scan data, and importing that realistic surface into FEA software to perform detailed Level 3 FFS of the tank.

Speaker: Arindam Chakraborty, VIAS3D

4:55 pm – 5:00 pm **Closing Remarks**
2022 Conference Co-Chairs:
Dave Cushman, West Virginia Paint LLC
Earl Crochet, Crochet Midstream Consulting

5:00 pm – 6:00 pm **Closing Reception and Networking**

American Petroleum Institute

Preliminary Program