COURSE OVERVIEW PE0154
Bulk Liquid Storage Management & Tanks Cleaning

Course Title
Bulk Liquid Storage Management & Tanks Cleaning

Course Date/Venue
Session 1: July 05-09, 2026/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
Session 2: November 01-05, 2026/Meeting Plus 9, City Centre Rotana, Doha, Qatar

Course Reference
PE0154

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Bulk Liquid Storage Management and Tanks Cleaning. It covers the basics of storage facilities, types of liquids stored and their importance in various industries; the design elements of storage tanks, materials used and how they cater to different storage needs; the different types of storage tanks covering above-ground, underground, vertical, horizontal, single and double-walled tanks; the safety measures in bulk liquid storage including fire prevention, leak detection and containment measures; and the international, national and regional regulations on bulk liquid storage.

Further, the course will also discuss the daily operations of storage tanks, including filling, monitoring, and draining processes; the regular and preventive maintenance routines and inspections for different types of tanks; the issue of corrosion, common causes, prevention measures and maintenance practices; the lifespan of storage tanks, when to repair versus replace and cost considerations; and the emergency response planning and the importance of regular tank cleaning.

During this interactive course, participants will learn the common contaminants and their risks; the tank cleaning methods, safety measures during tank cleaning and waste management; the automated tank cleaning and non-man entry techniques; the role of technology in tank cleaning, environmental considerations and tank cleaning best practices; the quality assurance in bulk liquid storage and maintaining product integrity; the storage and cleaning procedures, preparing regulatory audits and reviewing hazardous materials regulations; and the potential consequences of non-compliance including penalties, shutdowns and environmental harm.

Course Objectives

Upon the successful completion of this course, each participant will be able to: -

- Apply and gain an in-depth knowledge on bulk liquid storage management and tanks cleaning
- Discuss the basics of storage facilities, types of liquids stored and their importance in various industries
- Identify the design elements of storage tanks, materials used and how they cater to different storage needs
- Recognize the different types of storage tanks covering above-ground, underground, vertical, horizontal, single and double-walled tanks
- Analyze safety measures in bulk liquid storage including fire prevention, leak detection and containment measures
- Identify the international, national and regional regulations on bulk liquid storage
- Apply the daily operations of storage tanks, including filling, monitoring, and draining processes
- Carryout regular and preventive maintenance routines as well as inspections for different types of tanks
- Identify the issue of corrosion, common causes, prevention measures and maintenance practices
- Discuss the lifespan of storage tanks, when to repair versus replace and cost considerations
- Apply emergency response planning and discuss the importance of regular tank cleaning
- Recognize the common contaminants and their risks as well as employ tank cleaning methods, safety measures during tank cleaning and waste management
- Carryout automated tank cleaning and non-man entry techniques
- Identify the role of technology in tank cleaning, environmental considerations and tank cleaning best practices
- Implement quality assurance in bulk liquid storage and maintain product integrity
- Document storage and cleaning procedures, prepare regulatory audits and review hazardous materials regulations
- Identify the potential consequences of non-compliance including penalties, shutdowns and environmental harm

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course covers systematic techniques and methodologies on bulk liquid storage management and tanks cleaning for process engineers, mechanical engineers, marine terminal staff, marine operation staff, managers, operations and any other professional interested in knowing more about tank farms and storage tanks.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee

Al Khobar	**US$ 7,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	**US$ 7,500** per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations:

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Andrew Ladwig is a **Senior Process & Mechanical Maintenance Engineer** with over **25 years** of extensive experience within the **Oil & Gas**, **Refinery**, **Petrochemical & Power** industries. His expertise widely covers in the areas of **Ammonia Manufacturing & Process Troubleshooting**, **Distillation Towers**, **Crude Oil Distillation**, **Ammonia Storage & Loading** Systems, **Operational Excellence** in **Ammonia Plants**, **Fertilizer Storage** Management (Ammonia & Urea), **Fertilizer Manufacturing** Process Technology, **Sulphur Recovery**, Phenol Recovery & Extraction, **Refining Process & Petroleum Products**, **Refinery Planning & Economics**, **Hydrotreating & Hydro-processing**, **Separators** in **Oil & Gas** Industry, **Gas Testing & Energy** Isolations, **Industrial Liquid Mixing**, **Extractors**, **Fractionation**, **Water Purification**, **Water Transport** & Distribution, **Environmental Emission Control**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Plant Performance**, **Plant Startup & Shutdown**, **Process Troubleshooting** Techniques and Oil & Gas Operation/Surface Facilities. Further, he is also well-versed in **Rotating Machinery** (**BRM**), **Rotating Equipment** Operation & Troubleshooting, Root Cause Analysis (**RCA**), **Process Plant** Shutdown, Turnaround & Troubleshooting, Planning & Scheduling **Shutdowns & Turnarounds**, Optimizing **Equipment Maintenance** & Replacement Decisions, **Maintenance Planning & Scheduling**, **Material Cataloguing**, Maintenance, Reliability & Asset Management Best Practices, **Storage Tanks Operations** & Measurements, **Tank** Inspection & Maintenance, **Pressure Vessel** Operation, **Flare & Relief** System, **Flaring System** Operation, **PSV** Inspection & Maintenance, **Centrifugal & Reciprocating Compressor**, **Screw Compressor** Troubleshooting, **Heat Exchanger** Overhaul & Testing, **Pipe Stress** Analysis, **Control Valves & Actuators**, **Vent & Relief System**, **Centrifugal & Reciprocating Pump** Installation & Repair, **Heat Exchanger** Troubleshooting & Maintenance, **Steam Trapping & Control**, **Control & ESD** System and Detailed Engineering Drawings, Codes & Standards.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Mechanical Engineer**, **Project Engineer**, **Reliability & Maintenance Engineer**, **Maintenance Support Engineer**, **Process Engineer**, **HSE Supervisor**, **Warehouse Manager**, **Quality Manager**, **Business Analyst**, **Senior Process Controller**, **Process Controller**, **Safety Officer**, **Mechanical Technician**, **Senior Lecturer** and **Senior Consultant/Trainer** for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig has a **Bachelor's** degree in **Chemical Engineering** and a **Diploma** in **Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and has delivered various trainings, workshops, seminars, courses and conferences internationally.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1	***Introduction to Bulk Liquid Storage Management***
0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Bulk Liquid Storage:*** *Basics of Storage Facilities, Types of Liquids Stored & their Importance in Various Industries*
0930 – 0945	*Break*
0945 – 1030	***Design of Storage Tanks:*** *Introduction to the Design Elements of Storage Tanks, Materials Used & How they Cater to Different Storage Needs*
1030 – 1130	***Understanding the Different Types of Storage Tanks:*** *Discussion on Above-Ground, Underground, Vertical, Horizontal, Single & Double-Walled Tanks*
1130 – 1230	***Safety Features in Bulk Liquid Storage:*** *Analysis of Safety Measures, Including Fire Prevention, Leak Detection & Containment Measures*
1230 – 1245	*Break*
1245 – 1330	***Regulatory Compliance:*** *An Overview of International, National & Regional Regulations on Bulk Liquid Storage*
1330 – 1420	***Case Study:*** *Analysis of a Real-Life Bulk Liquid Storage Facility, its Design, Safety Measures & Regulatory Compliance*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2	***Operation & Maintenance of Storage Tanks***
0730 – 0830	***Routine Operations:*** *Introduction to the Daily Operations of Storage Tanks, Including Filling, Monitoring & Draining Processes*
0830 – 0930	***Inspection & Maintenance:*** *Explanation of Regular & Preventive Maintenance Routines, as well as Inspections for Different Types of Tanks*
0930 – 0945	*Break*
0945 – 1100	***Corrosion & Its Prevention:*** *Deep Dive into the Issue of Corrosion, Common Causes, Prevention Measures, & Maintenance Practices*
1100 – 1230	***Life Cycle Management of Storage Tanks:*** *Discussion on the Lifespan of Storage Tanks, when to Repair versus Replace & Cost Considerations*
1230 – 1245	*Break*
1245 – 1330	***Emergency Response Planning:*** *Creating & Practicing an Effective Response Plan for Emergencies, such as Leaks or Fires*
1330 – 1420	***Case Study:*** *An Examination of a Maintenance Event or Emergency Response Scenario at a Storage Facility*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3	***Introduction to Tank Cleaning***
0730 – 0830	***Why Tank Cleaning Matters:*** *Understanding the Importance of Regular Tank Cleaning for Safety, Efficiency & Regulatory Compliance*
0830 – 0930	***Common Contaminants & Their Risks:*** *Examination of Common Contaminants Found in Tanks, Risks Associated & Preventive Measures*
0930 – 0945	*Break*

0945 – 1100	***Overview of Tank Cleaning Methods:*** *Introduction to Manual, Automated & Non-Man Entry Tank Cleaning Methods*
1100 – 1230	***Safety Measures During Tank Cleaning:*** *Detailed Look at Safety Considerations During Cleaning, such as Ventilation, Confined Space Entry & the use of Personal Protective Equipment*
1230 – 1245	*Break*
1245 – 1330	***Waste Management:*** *Handling & Disposal of Waste Materials Generated During Tank Cleaning*
1330 – 1420	***Case Study:*** *Analysis of a Tank Cleaning Operation, Looking at the Method Used, Safety Measures & Waste Disposal*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4 ***Advanced Tank Cleaning Techniques***

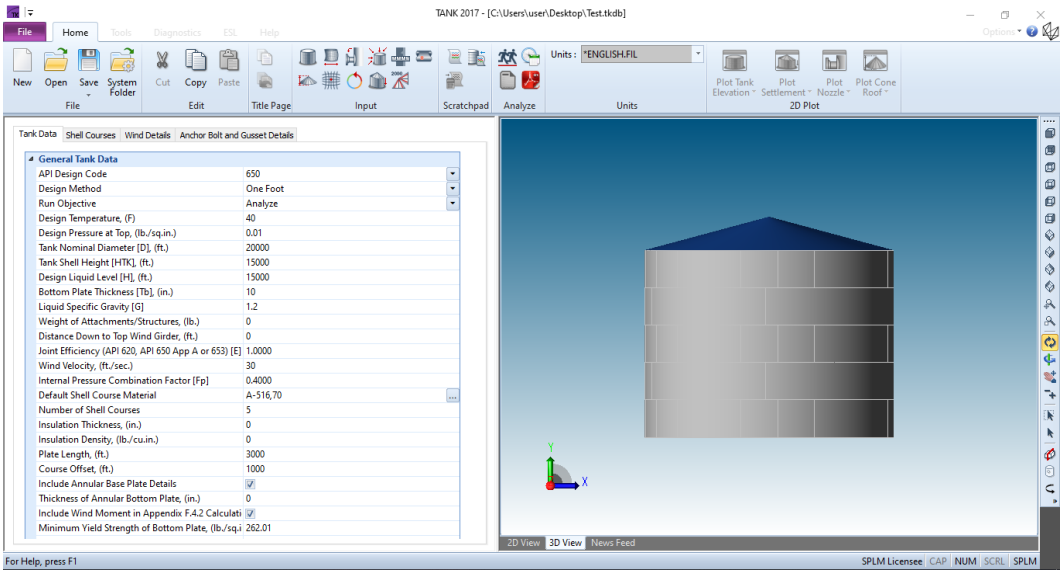
0730 – 0830	***Automated Tank Cleaning:*** *Detailed Study of Automated Cleaning Systems, their Benefits, Limitations & Ideal Applications*
0830 – 0930	***Non-Man Entry Techniques:*** *Deep Dive into Techniques Like Robotics & Chemical Cleaning, Focusing on Safety & Efficiency*
0930 – 0945	*Break*
0945 – 1100	***Role of Technology in Tank Cleaning:*** *Overview of Recent Technological Advancements Aiding the Tank Cleaning Process*
1100 – 1230	***Environmental Considerations:*** *Analysis of How to Minimize Environmental Impact During Tank Cleaning Operations*
1230 – 1245	*Break*
1245 – 1330	***Tank Cleaning Best Practices:*** *Comprehensive List of Best Practices for a Safe & Efficient Tank Cleaning Process*
1330 – 1420	***Case Study:*** *A Real-World Example of a Complex Tank Cleaning Operation, Focusing on the Techniques Used, Challenges Faced & Solutions Implemented*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5 ***Quality Assurance & Regulatory Compliance***

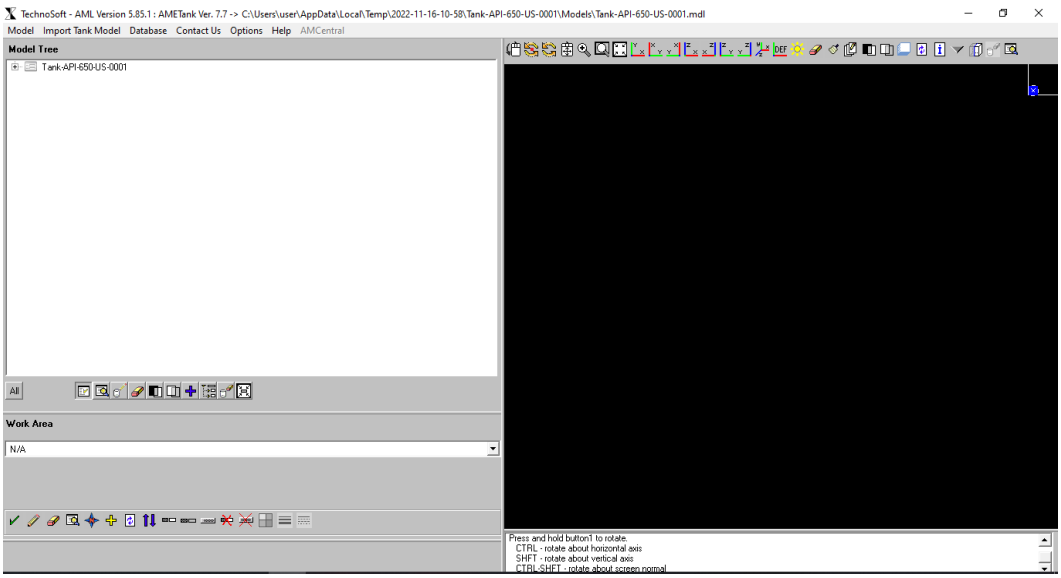
0730 – 0830	***Quality Assurance in Bulk Liquid Storage:*** *Understanding the Importance of QA, Processes & Maintaining Product Integrity*
0830 – 0930	***Documenting Storage & Cleaning Procedures:*** *Discussion on Maintaining Proper Records of all Procedures, Inspections & Maintenance Activities*
0930 – 0945	*Break*
0945 – 1030	***Regulatory Audits:*** *Preparation for Local, State, Federal & Industry Audits & Inspections*
1030 – 1130	***Hazardous Materials Regulations:*** *Deep Dive into Regulations Concerning the Storage & Handling of Hazardous Materials*
1130 – 1230	***Non-compliance:*** *Understanding the Potential Consequences of Non-Compliance, Including Penalties, Shutdowns & Environmental Harm*
1230 – 1245	*Break*
1245 – 1345	***Case Study:*** *Review of a Company Dealing with a Regulatory Issue, Focusing on the Problem, the Company's Response & the Final Outcome*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

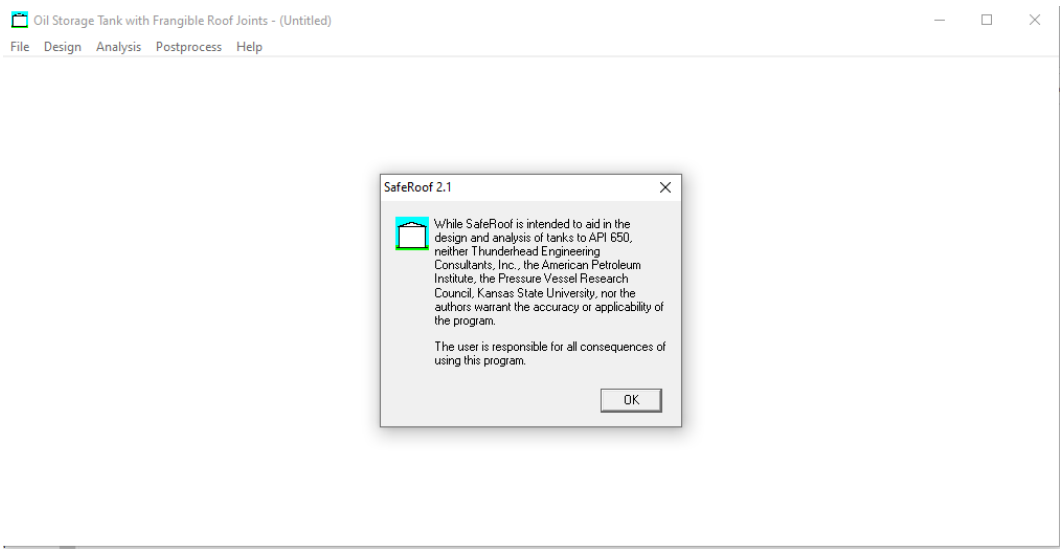
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout welding inspection using the “Hexagon PPM COADE TANK 2017 SP1 v9.00.01 (Integraph Tank)”, “AME Tank v7.7” and “SafeRoof v2.1” simulator



Hexagon PPM COADE TANK 2017 SP1 v9.00.01 (Integraph Tank)



AME Tank v7.7



SafeRoof v2.1

Course Coordinator

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