

COURSE OVERVIEW PE0154
Bulk Liquid Storage Management & Tanks Cleaning

Course Title

Bulk Liquid Storage Management & Tanks Cleaning

Course Date/Venue

August 17-21, 2025/Meeting Plus 5, City Center Rotana Doha, Doha, Qatar

Course Reference

PE0154

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

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

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:

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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.

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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 Engineer** with over **25 years** of extensive experience within the **Oil & Gas, Refinery, Petrochemical & Power** industries. His expertise widely covers in the areas of **Storage Tanks Operations & Measurements, Tank Design, Bulk Liquid Storage, Inspection & Maintenance, Corrosion & Prevention, Life Cycle Management of Storage Tanks, Storage & Shipping, Tank Cleaning, Waste Management, Automated Tank Cleaning, Quality Assurance in Bulk Liquid Storage, Storage & Handling of Hazardous Materials, Storage Tank Design, Safety & Compliance, Bulk Liquid Terminal Safety & Environmental Management, Tank Farm Operations & Inventory Control, Aboveground Storage Tank (AST) Inspection & Integrity,**

Tank Storage Facility Management, Storage Terminal Management, Managing Risks in Storage Tank Operations & Cleaning, Environmental Compliance in Tank Cleaning & Liquid Storage, Decontamination Techniques for Liquid Storage, Advanced Storage Tank Operations & Environmental Controls, Optimizing Bulk Liquid Storage & Tank Turnaround Activities, Ammonia Manufacturing & Process Troubleshooting, Distillation Towers, Crude Oil Distillation, Fundamentals of Distillation for Engineers, Distillation Operation and Troubleshooting, Advanced Distillation Troubleshooting, Distillation Technology, Vacuum Distillation, Ammonia Storage & Loading Systems, Ammonia Plant Operation, Troubleshooting & Optimization, Ammonia Recovery, Ammonia Plant Safety, Hazard of Ammonia Handling, Operational Excellence in Ammonia Plants, Fertilizer Storage Management (Ammonia & Urea), Fertilizer Manufacturing Process Technology, Hydrotreating & Hydro-processing, Separators in Oil & Gas Industry, Gas Testing & Energy Isolations, Gas Liquor Separation, , Environmental Emission Control, R&D of Wax Blending, Wax Molding/Slabbing, Industrial Drying, Principles, Selection & Design, Process Safety Design, Certified Process Plant Operations, Control & Troubleshooting, Operator Responsibilities, Construction, , Atmospheric Tanks, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Performance, Efficiency & Optimization, Continuous Improvement & Benchmarking, Process Troubleshooting Techniques, Oil & Gas Operation/Introduction to Surface Facilities, Pressure Vessel Operation, Plant & Equipment Integrity, Process Equipment Performance & Troubleshooting, Plant Startup & Shutdown, Startup & Shutdown the Plant While Handling Abnormal Conditions, Flare & Relief System, Process Gas Plant Start-up, Commissioning & Problem Solving, Process Liquid and Process Handling & Measuring Equipment. Further, he is also well-versed in Heat Exchanger Overhaul & Testing Techniques, Heat Exchanger Operation, Maintenance & Repair, Heat Exchanger & Cooling Towers, Boilers, Process Fired Heaters & Heat Exchangers, Inspection, Maintenance & Repair of Heat Exchanger, Thermal Analysis and Optimization of Heat Exchangers, Compressors & Turbines Operation, Maintenance & Troubleshooting, Balancing of Rotating Machinery (BRM), Pipe Stress Analysis, Valves & Actuators Technology, Inspect & Maintain Safeguarding Vent & Relief System, Certified Inspectors for Vehicle & Equipment, Optimizing Equipment Maintenance & Replacement Decisions, Certified Maintenance Planner (CMP), Certified Planning and Scheduling Professional (AACE-PSP), Material Cataloguing, Specifications, Handling & Storage, Steam Trap Design, Operation, Maintenance & Troubleshooting, Rotating Equipment Operation & Troubleshooting, Control & ESD System, Detailed Engineering Drawings, Codes & Standards, Budget Preparation, Allocation & Cost Control, Root Cause Analysis (RCA), Production Optimization, Permit to Work (PTW), Project Engineering, Data Analysis, Process Hazard Analysis (PHA), HAZOP Study, Risk Monitoring Authorized Gas Tester (AGT), Confined Space Entry (CSE), Personal Protective Equipment (PPE), Fire & Gas, First Aid and Occupational Health & Safety.

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

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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