

COURSE OVERVIEW DE0946
Applied Water Technology in Oil and Gas Production

Course Title

Applied Water Technology in Oil and Gas Production

Course Reference

DE0946

Course Duration/Credits

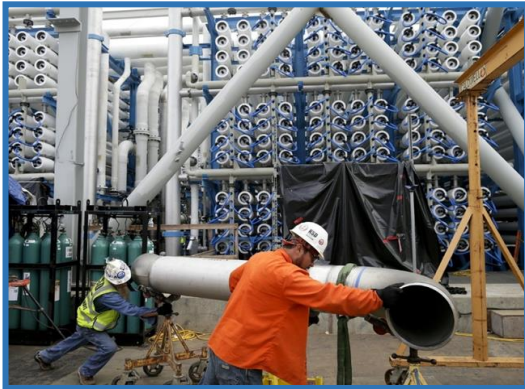
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

December 23-27, 2024/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE



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.

Multiple types and sources of water streams are encountered in oil and gas operations. The two primary ones are produced and surface water. Produced water is salty water that is produced as a byproduct along with oil or gas during the treatment. Water is brought along with the oil and gas when these are lifted from the surface. The water is then treated before the discharge or re-injection process. Surface water encompasses fresh (river or lake) and saline (seawater) sources.



Water sources are treated for disposal, injection as a liquid, or injection as steam with three types of facilities. Produced water is treated in offshore operations for overboard disposal or injection into a disposal well, but when onshore, it is treated for surface disposal, liquid injection, or steam injection. In all instances, the produced water must be cleaned of dispersed and dissolved oil and solids to level suitable for environmental, reservoir, or steam-generation purposes. Surface water is treated offshore for liquid injection and onshore for liquid-or steam-injection purposes. In all instances, the surface water must be cleaned of dispersed and dissolved solids to a level suitable for reservoir or steam-generation purposes.



This course is designed to provide an overview of the main water handling systems typically encountered in upstream (E&P) production operations, both onshore and offshore. The chemistry of the main water-related problems of mineral scales, corrosion, bacteria and oily water will be reviewed both from the theoretical and practical aspects. Produced water treatment equipment and typical water quality specifications will also be reviewed, as well as water injection and disposal systems.

The course will cover the basics of oilfield water chemistry and how to monitor and control corrosion, scale, and bacterial growth in produced water and water injection/disposal systems. It will discuss how to implement system surveillance programs to detect potential problems before system damage occurs. Participants will learn about the produced (oily) water treatment options and related treatment equipment and how to use the knowledge gained to identify typical system problems and be able to propose solutions.

An exercise will be given to identify typical system problems and to apply the knowledge you gained to propose solutions. Emphasis will be placed on understanding and resolving operational problems in process equipment.

Course Objectives

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

- Apply and gain a comprehensive knowledge on applied water technology in oil and gas production
- Discuss the basics of oilfield water chemistry, water chemistry fundamentals and apply water sampling and analysis
- Monitor and control corrosion, scale and bacterial growth in produced water and water injection/disposal systems
- Describe water treatment microbiology and various produced water discharge/disposal and treatment principles
- Recognize disposal standards and characteristics of produced water as well as apply scale removal and control scale using chemical inhibitors
- Determine sand and other suspended solids, system and equipment description, sizing skim tanks and skim vessels and oil/water/sediment coalescing separators
- Explain skimmers/coalescers, precipitators/coalescing filters, free-flow turbulent coalescers and performance considerations
- Identify the flotation units, hydrocyclones, general considerations and operating principles
- Recognize separation mechanism, orientation and operating considerations, static hydrocyclones and dynamic hydrocyclones
- Define disposal piles, skim piles and drain systems
- Recognize produced (oily) water treatment options and related treatment equipment

- Discuss the theory of operation, advantages and disadvantages and the importance of oil droplet size
- Identify the skim tank, SP pack system, CPI separator, cross-flow devices, flotation unit and disposal pile
- Carryout water injection and disposal systems by choosing the proper filter and measuring water compatibility
- Implement system surveillance programs to detect potential problems before system damage occurs
- Use the knowledge gained to identify the typical system problems

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, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

Who Should Attend

This course is intended for managers, petroleum engineers, production engineers, reservoir engineers, facility engineers, corrosion/materials engineers, chemists and operators needing to understand water-related problems in oil and gas production and their solutions.

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\$ 8,000 per Delegate + **VAT**. 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


Certificates are accredited by the following international accreditation organizations: -

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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.

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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**. 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.

Course Instructor

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



Mr. Samer Shukri, BSc, IWCF, is a Senior Drilling & Petroleum Engineer with over 25 years of offshore and onshore experience in the Oil & Gas, Refinery & Petrochemical industries. His wide expertise includes Applied Water Technology, Oil & Water Wells, Water Sampling & Analysis, Water Treatment, Water Microbiology, Water Formed Scales, Workovers & Completions, Well Completion Design & Operations, Well Intervention, Well Life Cycle, Well Stimulation & Workover Planning, Workover Practices,

Workover Operations, Well Integrity System, Well Control, Workover/Remedial Operations & Heavy Oil Technology, Plug & Abandonment of Oil & Gas Wells, Petroleum Engineering, Open Hole & Cased Hole Logs, Petroleum Risk & Decision Analysis, Well Testing Analysis, Stimulation Operations, Coiled Tubing Operations, Coiled Tubing Equipment, Rigless Operations, Reserves Evaluation, Reservoir Fluid Properties, Reservoir Engineering & Simulation Studies, Reservoir Monitoring, Geology & Reservoir Engineering, Artificial Lift Design, Gas Operations, Oil & Gas Production, X-mas Tree & Wellhead Operations & Testing, Wellbore Design & Construction, Drilling Fluids & Solids Control, Drilling Fluids & Cementing Operations, Drilling Practices & Techniques, Well Control & Blow Out Prevention, Stuck Piping & Fishing Operations, Rig Equipment Maintenance & Inspection, Rigging & Lifting Operations, WellCAP Driller, WellCAP Supervisor, Artificial Lift Systems (Gas Lift, ESP and Rod Pumping), Well Cementing, Oil Field Cementing, Production Optimization, PLT Correlation, Slickline Operations, Well Testing, Production Logging, Wireline Logging, Wireline Technology, Wireline Fishing Operations, Project Evaluation & Economic Analysis. Further, he is also well-versed in Marine Environment Protection, Maritime Professional Training, Operational Audit, Improvement, Planning & Management, Climate Change & Emissions Trading Services, International Trade & Shipping, **Fitness for Service-API 579, Refining Process & Petroleum Products, OSHA (General Industry & Construction), IOSH (Managing Safely, Working Safely), HSE Standards & Procedures in the Oilfield, HSE Principles, Incident Prevention & Incidents, Working at Height, First Aid, H2S Awareness, Defensive Driving, Risk Assessment, Authorized Gas Tester (AGT), Confined Space Entry (CSE), Root Cause Analysis (RCA), Negotiation & Persuasion Skills, ISO-9001 Quality Management System (QMS), ISO-14001 Environmental Management System (EMS), ISO-45001 Occupational Health and Safety Management System (OHSMS), ISO-17020 Conformity Assessment, ISO/TS-29001 Quality Management System, IOS-50001-Energy Management System (EnMS) and Basic Offshore Safety Induction & Emergency.** Currently, he is actively involved in **Project Management** with special emphasis in **commissioning of new wells, completion design, well integrity management, production technology** and field optimization, performing conceptual studies, economic analysis with risk assessment and field development planning.

During his career life, Mr. Samer has gained his field experience through his various significant positions and dedication as the **Senior Production Engineer, Well Services Department Head, Senior Well Services Supervisor, Senior Well Integrity Engineer, Senior HSE Engineer, Well Services Supervisor, Drilling/Workover Supervisor, International oil & Gas Trainer, Leadership & Management Instructor** and **Senior Instructor/Trainer** from the various international companies such as the ADCO, Al Furat Petroleum Company (AFPC), Syrian Petroleum Company (SPC), Petrotech, Global Horizon-UK, HDTC, Petroleum Engineers Association, STC, Basra University and Velesto Drilling Academy, just to name a few.

Mr. Samer has **Bachelor's degree in Petroleum Engineering.** Further, he is an **Accredited IWCF Drilling & Well Intervention Instructor, a Certified Instructor/Trainer, a Certified Train-the-Trainer** and further delivered innumerable training courses, seminars, conferences and workshops worldwide.

Course Program

The following program is planned for this course. However, the course instructor 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: Monday 23th of December 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Water Chemistry Fundamentals
0930 – 0945	Break
0945 – 1100	Water Sampling & Analysis
1100 – 1230	Water Formed Scales
1230 – 1245	Break
1245 – 1330	Corrosion Control
1330 – 1420	Corrosion Control (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Tuesday 24th of December 2024

0730 – 0930	Water Treatment Microbiology
0930 – 0945	Break
0945 – 1100	Produced Water Discharge/Disposal & Treatment Principles Disposal Standards • Characteristics of Produced Water • Scale Removal
1100 – 1230	Produced Water Discharge/Disposal & Treatment Principles (cont'd) Controlling Scale Using Chemical Inhibitors • Sand & Other Suspended Solids • System Description
1230 – 1245	Break
1245 – 1330	Produced Water Discharge/Disposal & Treatment Principles (cont'd) Equipment Description & Sizing Skim Tanks & Skim Vessels • Oil/Water/Sediment Coalescing Separators
1330 – 1420	Case Study #1 Determining the Dispersed Oil Content in the Effluent Water from a CPI Plate Separator
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Wednesday 25th of December 2024

0730 – 0930	Produced Water Discharge/Disposal & Treatment Principles (cont'd) Skimmer/Coalescers • Precipitators/Coalescing Filters • Free-Flow Turbulent Coalescers
0930 – 0945	Break
0945 – 1100	Produced Water Discharge/Disposal & Treatment Principles (cont'd) Performance Considerations • Flotation Units • Hydrocyclones
1100 – 1230	Produced Water Discharge/Disposal & Treatment Principles (cont'd) General Considerations • Operating Principles • Separation Mechanism
1230 – 1245	Break



1245 – 1330	Produced Water Discharge/Disposal & Treatment Principles (cont'd) Orientation & Operating Considerations • Static Hydrocyclones • Dynamic Hydrocyclones
1330 – 1420	Produced Water Discharge/Disposal & Treatment Principles (cont'd) Disposal Piles • Skim Piles • Drain Systems
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Thursday 26th of December 2024

0730 – 0930	Produced Water Treating Equipment Theory of Operation • Advantages & Disadvantages
0930 – 0945	Break
0945 – 1100	Produced Water Treating Equipment (cont'd) The Importance of Oil Droplet Size • Skim Tank
1100 – 1230	Produced Water Treating Equipment (cont'd) SP Pack System • CPI Separator
1230 – 1245	Break
1245 – 1330	Case Study #2 Design the Produced Water Treating System
1330 – 1420	Produced Water Treating Equipment (cont'd) Cross-Flow Devices • Flotation Unit • Disposal Pile
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Friday 27th of December 2024

0730 – 0830	Water Injection & Disposal Systems Theory of Operation • Corrosion, Scale and Biological Control • Solids Removal Theory
0830 – 0930	Water Injection & Disposal Systems (cont'd) Diffusional Interception • Filter Types • Removal Ratings
0930 – 0945	Break
0945 – 1100	Water Injection & Disposal Systems (cont'd) Choosing the Proper Filter • Measuring Water Compatibility
1100 – 1230	Water Injection & Disposal Systems (cont'd) Solids Removal Equipment Description • Gravity Settling Tanks
1230 – 1245	Break
1245 – 1345	Case Study#3 Solid Removal Process Complete Water Injection System
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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