



**COURSE OVERVIEW DE0465**  
**Surveillance – Surface, Producers and Injectors**  
**(E-Learning Module)**

**Course Title**

Surveillance - Surface, Producers and Injectors (E-Learning Module)

**Course Reference**

DE0465

**Course Format & Compatibility**

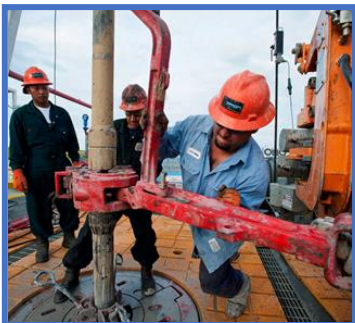
SCORM 1.2. Compatible with IE11, MS-Edge, Google Chrome, Windows, Linux, Unix, Android, IOS, iPadOS, macOS, iPhone, iPad & HarmonyOS (Huawei)

**Course Duration**

30 online contact hours  
(3.0 CEUs/30 PDHs)



**Course Description**



This E-Learning course is designed to provide participants with a detailed and up-to-date overview of surveillance on surface, producers and injectors. It covers the basics of wellhead control panel and the typical wellhead and Xmas tree assemblies; the wear bushing, combination wear bushing running tool, BOP test plug and hydrate control in coiled tubing completions; the BOP test plug (PTP), subsea wellheads, coiled tubing well heads, chokes, subsurface safety valves and valve removal tool (PVRT); the basics of wellhead control panel (WHCP) and HIPPS system; the casing head housing, casing heads C-22Bowl, slip type casing hangers C-22 and C-29 and slip type casing hangers C-21, test plug, casing head spool and casing spools C22; and the elastomer and metal to metal seals.

During this course, participants will learn the reducer bushings, tubing head spool, TC-60-ET tubing heads, internal latch THS, tubing hanger, tubing head adapters and etc.; the HP-Hy hydraulic actuator, HP-PN pneumatic piston actuator and HP- HYW hydraulic shear actuator; the well testing on surface safety valve, wellhead desander, sand filters, transfer pump, high pressure flexible hose, horizontal separator and super green burner; the delivery of significant efficiencies through predictive maintenance and transformation of maintenance business model; the predictive analytics project; and the key components of the well digital twin.



### **Course Objectives**

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

- Apply and gain an in-depth knowledge on surveillance on surface, producers and injectors
- Discuss the basics of wellhead control panel and the typical wellhead and Xmas tree assemblies
- Employ wear bushing, combination wear bushing running tool and BOP test plug and hydrate control in coiled tubing completions
- Describe BOP test plug (PTP), subsea wellheads, coiled tubing well heads, chokes, subsurface safety valves and valve removal tool (PVRT)
- Discuss the basics of wellhead control panel (WHCP) and HIPPS system as well as carryout surface surveillance
- Recognize casing head housing, casing heads C-22Bowl, slip type casing hangers C-22 and C-29 and slip type casing hangers C-21, test plug, casing head spool and casing spools C22
- Identify elastomer and metal to metal seals, reducer bushings, tubing head spool, TC-60-ET tubing heads, internal latch THS, tubing hanger, tubing head adapters and etc.
- Differentiate HP-Hy hydraulic actuator, HP-PN pneumatic piston actuator and HP- HYW hydraulic shear actuator
- Carryout well testing on surface safety valve, wellhead desander, sand filters, transfer pump, high pressure flexible hose, horizontal separator and super green burner
- Deliver significant efficiencies through predictive maintenance and transform maintenance business model
- Carryout predictive analytics project successfully and identify the key components of the well digital twin

### **Who Should Attend**

This course provides an overview of all significant aspects and considerations of surveillance on surface, producers and injectors for engineers, geoscientists, field operation staff, management personnel and others involved in various aspects of petroleum reservoir management such as reservoir engineers.

### **Course Fee**

As per proposal




### Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course.

### Certificate Accreditations


Certificates are accredited by the following international accreditation organizations: -

-  USA International Association for Continuing Education and Training (IACET)

Haward Technology is an Authorized Training Provider by the International Association 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 1-2013 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 1-2013 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 Association 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.

-  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.

### **Training Methodology**

This Trainee-centered course includes the following training methodologies:-

- Talking presentation Slides (ppt with audio)
- Simulation & Animation
- Exercises
- Videos
- Case Studies
- Gamification (learning through games)
- Quizzes, Pre-test & Post-test

Every section/module of the course ends up with a Quiz which must be passed by the trainee in order to move to the next section/module. A Post-test at the end of the course must be passed in order to get the online accredited certificate.

### **Course Contents**

- Surveillance Surface - Basics of Wellhead Control Panel
- Typical Wellhead & Xmas Tree Assemblies
- Wear Bushing
- Back Pressure Valve
- Lubricator
- Valve Removal Plugs
- Act X-Mas Tree Cap
- Surface Safety Valve with Hydraulic Actuator
- Combination Wear Bushing Running Tool and BOP Test Plug
- BOP Test Plug (PTP)
- Subsea Wellheads
- Coiled Tubing Well Heads
- Hydrate Control in Coiled Tubing Completions
- Chokes
- Subsurface Safety Valves
- Valve Removal Tool
- Valve Removal Tool (PVRT)
- Basics of Wellhead Control Panel (WHCP)
- Overview of HIPPS System



- Surveillance Surface - Surface wellhead
- Casing Head Housing
- CasingHeadsC-22Bowl
- Slip Type Casing Hangers C-22 and C-29
- Slip Type Casing Hangers C-21
- Test Plug
- Casing Head Spool
- Casing Spools C22
- Elastomer Seals & Metal to Metal
- Reducer Bushings
- Tubing Head Spool
- TC-60-ET Tubing Heads
- Internal Latch THS
- Tubing Hanger
- Tubing Head Adapters
- Basic Adapters
- ESP Adapters
- Tubing Suspension Adapters
- Coupling Adapters
- Valve Model 120
- Valve Model 130/150
- Basic Single Completion
- Loose Valve X-Tree
- Solid Block X-Tree
- Actuators
- HP-Hy Hydraulic Actuator
- HP-PN Pneumatic Piston Actuator
- HP- HYW Hydraulic Sheer Actuator
- Well Testing
- Choke Manifold
- Well Testing - Surface Safety Valve
- Well Testing - Wellhead Desander
- Well Testing - Surface Equipment - Sand filters



- Well Testing - Surface Equipment - Transfer Pump
- Testing Solutions - Mega Flow Separator
- Well Testing - Multiphase Metering
- Well Testing - Produced Water Treatment
- Diverter Manifold
- Well Testing - Surface equipment - High Pressure Flexible Hose
- Well Testing - Surface equipment - Horizontal Separator
- Well Testing - Surface equipment - Super Green burner
- Delivering Significant Efficiencies through Predictive Maintenance in the Oil & Gas Industry
- Predictive Maintenance – Transforming of Maintenance Business Model
- Predictive Analytics Help Connect Data to Effective Action by Drawing Reliable Conclusions about Current Conditions and Future Events
- How does Predictive Maintenance Deliver?
- What if I could tell you that a specific asset is 90% likely to fail within one week for Reasons A, B and C?
- How to Deliver a Predictive Analytics Project Successfully
- When Predictive Maintenance Works Well
- End-to-End Approach is Required
- Digital Transformation Smart and Connected Oilfield Operations
- Digital Shift
- Digital Vision: E&P Business Outcomes
- E&P Digital Transformation relies on Asset Intimacy
- Represent | Know | Affect
- What is Digital trying to do?
- Smart and Connected Oilfield Operations-Enabled by Digital Solutions
- Enterprise Architecture: Open, Modular, Collaborative - Business Strategy + Technology Architecture
- Digital Twin
- Key Components of the Well Digital Twin
- Cloud-Based Digital Platform
- Halliburton Solutions for Digital Twin: fc2
- Halliburton Field Appliance™ - Edge Analytics enabling Intelligent Operations
- Halliburton Solution: Well Construction 4.0
- Well Construction Lifecycle





- Digital Leverage: Drilling Automation - Optimize Objective Functions for Real Time, Advisory and Planning
- Continuous Reservoir Optimization with the Voice of the Oilfield™
- Digital Twin in Action with The Voice of the Oilfield™
- Case Study: Digital Well Pad PoC
- Digital Leverage: Connectivity, Integration E&P's Only Open, Cross-Domain Platform
- Digital Ecosystem Based on an Application Platform
- Co-Innovation, Co-Engineering, Partnerships
- Well Testing - Enclosed Solids Handling Tank
- Well Testing - Surface equipment - Burner booms
- Well Testing - Surface equipment - Steam Heat Exchanger
- Surveillance Injectors
- Underground Injection Wells for Produced Water Disposal
- History
- Program Oversight
- Primacy
- Well Classifications
- Class II Wells
- Salt Water Disposal Wells
- Chesapeake Barnett SWD Construction
- Volume and Pressure
- Wellbore Integrity
- Economics
- Brentwood SWD Site
- PA Experience
- Water Reuse
- Reclamation / Disposal Combinations
- Underground Injection Wells or Produced Water Disposal
- Surveillance Injectors
- Problem Delineation
- Background Issues
- Factors influencing plugging and clogging
- Rehabilitation Challenges for Remediation Wells



- Causes of Well Problems
- Extraction versus Injection Wells: Differences
- Flow Volume Changes
- Biofouling and the Impact of Biofilms
- Considerations in Selecting a Rehabilitation Strategy
- Drawdown Changes
- Baseline Data Requirements and Interpretation
- Pump Test Data
- Development Data
- Well Construction
- Video Borehole Log
- Ground Water Geochemistry
- Biological Assay Data
- Extraction/Injection and Draw Down Results
- Impact on Wells and Plant
- Invasive or Fouling Bacteria
- Attenuation and Degradation of, or by, Biological Constituents
- Permitting Requirement for Disposal Water
- Treatment Plant Capability to Handle Flow and Constituent Changes
- Evaluation of Treatment Alternatives
- Introduction to Treatment Alternatives
- Survey of Potential Treatment Applications
- Overview of Physical Treatments
- Overview of Chemical Treatments
- Overview of treatments blending chemical and physical methods
- Rehabilitation Treatments Currently Commercially Available
- Chemical Treatments - Traditional versus New
- Completion of Rehabilitation
- Assessment of Original Development Records
- Records of Rehabilitation
- Objective Criteria to Judge Completion of Rehabilitation
- Collection, Disposal and/or Treatment of Rehabilitation Water
- Cost Analysis



- Cost Benefit Analysis
- Economic Impact of Biofouling
- Approximate Costs of Radical Well Rehabilitation
- Range of Costs for Various Treatments
- Redevelopment Concerns
- Equipment and Supplies Required
- General
- Pump Extraction Equipment
- Spare Parts and Pumps
- Chemical Mixing and Injecting Equipment
- Chemical Supplies
- Safety Equipment
- Prevention of Cross Contamination
- Tools required for Maintenance
- Chemical Dosages for Wells
- Types of Chemicals
- Chemical Blends
- Calculation Work Sheets
- Health and Safety Concerns
- Health and Safety Plan
- Level of Protection for mixing and Well Application
- Chemical Handling Hazards
- Mixing Chemicals
- Checklists
- Type and Frequency of Data to be Collected
- Well Maintenance Log
- Rehabilitation Calculation Work Sheet
- Other Records