



COURSE OVERVIEW FE0191-4D

Essential PIMS (Pipeline Integrity Management System)

Course Title

Essential PIMS (Pipeline Integrity Management System)

Course Date/Venue

August 12-15, 2024/Al Azziya Hall, The Proud Hotel Al Khobar, KSA

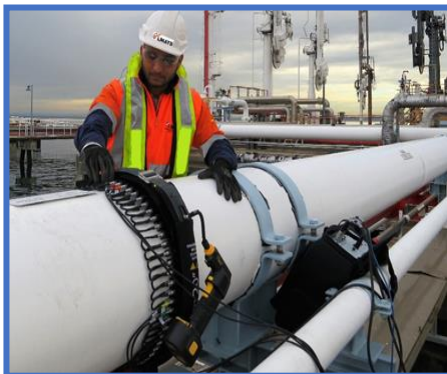
Course Reference

FE0191-4D

Course Duration/Credits

Four days/2.4 CEUs/24 PDHs

Course Description



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

Pipeline Integrity Management is the process of managing pipeline operational risk and mitigating it effectively to ensure pipeline assets are maintained in safe and reliable condition.



Pipelines generally constitute a single point failure for any facility which can often result in serious safety, environmental and business consequences once loss of containment has occurred. By monitoring the condition of the pipeline, the likelihood of an unplanned failure/shutdown of the pipeline can be prevented.

Understanding the condition of the pipeline can also help to improve the planning of pipeline maintenance and inspection activities by identifying key activities in advance to allow the appropriate budgets to be implemented and reduce the amount of spending associated with unplanned activities.



This course is designed to cover the practical and aspects of Essential PIMS (Pipeline Integrity Management System) including corporate objectives, risk assessment, planning integrity programs, internal inspection tools, anomaly identification and analysis, repair, coating, and pressure testing. Participants will be introduced to the technical basis for determining pipeline integrity.

The course will provide information, reinforced by case studies and exercises on pipeline defects, such as corrosion, cracking and third party damage. Methods will be discussed that can be used to make decisions on whether pipeline is fit for service.

The course will provide participants the best practices on how to manage gathered data from various inspection techniques and apply them in modelling the potential failures. It will also teach attendees on how to optimize the inspection and maintenance resources to develop a comprehensive integrity management program covering both pipelines and their associated facilities. The necessary elements of such a program are described in detail with examples of typical program content including an overarching view of where detailed risk analysis and defect assessment fits in the program.

Finally, the course will review the various repair techniques, their advantages and shortcomings and the logic to be followed in making repair decisions and selecting the applicable repair. In addition, pressure testing will be studied, including an exercise based on an actual hydrostatic pressure test.

Course Objectives

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

- Apply and gain an in-depth knowledge on essential PIMS (pipeline integrity management system)
- Discuss the various standards and codes used for integrity management plans
- Analyze pipeline design, construction and maintenance versus integrity
- Develop integrity management plan and conduct baseline and direct assessment
- Define time dependent defects theory and differentiate various types and forms of corrosion on basis of internal and external
- Employ methods of risk assessment and failure prevention and mitigation
- Describe the internal inspection tools and perform external surveys, pressure and leak testing, pipeline rehabilitation and repair techniques
- Discuss geological aspects and verify the integrity of an old pipeline and perform remote monitoring and control of cathodic protection systems
- Design integrity management plans for facilities and report quality control

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 provides an overview of all significant aspects and considerations of essential PIMS (pipeline integrity management system) for engineers, inspectors and for those who are responsible for the inspection, testing, integrity, defect assessment, maintenance and repair of pipelines and associated facilities.

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 **2.4 CEUs** (Continuing Education Units) or **24 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(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. John Dickerson, PE, BTEch, is a Senior Piping & Pipeline Engineer with over 45 years of experience within the Oil & Gas, Petrochemical and Refinery industries. His expertise lies extensively in the areas of Liquid Hydrocarbon Pipelines & Storage Terminal Systems, Transmission Pipeline Systems, Pump Stations, LNG Import, Storage Regasification, Pipeline & Compression, Natural Gas Transport, Oil & Gas Pipeline Infrastructure, Pipeline Inspection, Testing & Integrity Assessment, Pipeline Defect Assessment, Pipeline Integrity Management, Pipeline Pigging, Pipeline & Piping Design, ASME B31.3 Process Piping Design, Forensic Assessment, Single Point Mooring System, Bulk Oil Storage & Transportation, Pipeline Refurbishment & Recommissioning, Raw & Stripped Associated Gas, Oil Depot, Tank Farm Storage Depot, NGL Recovery & Stabilization, LP Gas Compression, Gas Dehydration, Gas Dew Point Control, HP Gas Booster Compression, Custody Transfer Metering, Condensate Stabilization, Mechanical & Process Design, Route Selection, Control System and Onshore Pipeline Engineering (ASME B31.3 & 31.8). He is also well versed in Tank & Tank Farms, Cathodic Protection, Corrosion, Pressure Vessels, Storage Tanks, Offshore Pipeline, Subsea Pipeline, Slurry Pipeline, Gas Pipeline System and Gas Treatment. He is a subject-matter expert in most ASME and API standards relating to pipelines, piping, pressure vessel and tanks such as ASME B31, API 510, API 653, API 579, API 580, API 581, API 1169, etc.

Mr. Dickerson has worked with major international clients including **Worley Parsons, Sasol, Qatar Petroleum, J.P. Kenny Pty Ltd, Pipetech Pty Ltd, PLT Engineering Ltd (London), Pencil Engineering Consultants, Barrerra Nominees Pty Ltd, EPCM, CMPZ Storage Depot, 3PL Project Company SA, HOAPP, Padma Oil, NNPC, EWURA, Tanzania Petroleum Development Corp., Bulk Oil & Storage Transportation Company Ltd., and Perth Pipelines & Terminals as the Director/Co-Founder, Project Director, Projects Lead, General Manager, Operations Manager, Project Manager, Technical Manager, Design Manager, Business Unit Manager, Engineering Manager, Study Manager, Chemical Specialist, Oil Pipeline Specialist, Consultant Engineer, Process Engineer, Senior Pipeline Engineer and Technical Advisor.**

Mr. Dickerson has **Bachelor of Technology** degree with **Honours** in **Chemical Engineering** from the **University of Bradford, UK**. Further, he is a **Registered Professional Engineer** from the Engineering Council of South Africa (**ECSA**), **Certified Instructor/Trainer**, a **Certified Internal Verifier/Trainer/ Assessor** and has delivered numerous trainings, courses, seminars and workshops internationally.

Course Fee

US\$ 4,500 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.

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 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: Monday, 12th of August 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction Pipeline Integrity Assessment – Practical Aspects – Course Overview • Corporate Policies • Regulation • Standard Practices
0930 – 0945	Break
0945 – 1045	Standards & Codes Overview of Codes Used in Developing Integrity Management Plans • DOT 49 CFR 195 and 192 • Onshore Pipeline Regulations and CSA Z662 Annex N • NACE Recommended Practice 102 • Brief History of the Requirement for Integrity Management Plans • ASME B31.8S "Managing System Integrity of Gas Pipelines" • API Standard 1160 "Managing System Integrity for Hazardous Liquid Pipelines"
1045 – 1215	Pipeline Design, Construction & Maintenance versus Integrity Pipeline Design • Operation • Economics
1215 – 1230	Break
1230 – 1330	Integrity Management Plan (IMP) Threat Identification – ASME B31.8S Threat Categories • Baseline Assessment Plan • Direct Assessment Plan
1330 – 1420	Conducting an Assessment Gathering, Reviewing and Integrating Data • Data Base: Types, GIS Software Compatibility and Risk Analysis • Data Integration: Common Systems of Reference • Cartographic Information • Record Keeping Provisions and Communication Plans • Performance Plan • Management of Change Process
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One



Day 2: Tuesday, 13th of August 2024

0730 – 0830	Time Dependent Defects Theory Corrosion Principles • Corrosion Thermodynamics • Corrosion Kinetics • Corrosion Rate Expressions
0830 - 0930	Types & Forms of Corrosion (Internal and External) Corrosion Monitoring • Corrosion Protection (Including Cathodic Protection) • Internal Corrosion Modelling and Risk Assessment • Fatigue – Heavy Fouling/Clogging • Time Independent and Stable Factors
0930 – 0945	Break
0945 – 1045	Risk Assessment Objectives of Risk Assessment • Understanding Pipeline Failure Causes - PRCI's 21 Common Causes • Data elements for a Prescriptive Integrity Management Plan • Data Requirements for a Goal Oriented (Performance-Based) Approach to IMP • High-Consequence Areas • Risk to the Environment • Quantitative and Qualitative Methods of Risk Assessment • Advantages / Disadvantages and Limitations of each Approach • Combined Approaches Based on the Relative Importance of Different Threats
1045 – 1215	Failure Prevention & Mitigation Third-Party Damage • Coating Damage & Repairs • Cathodic Protection Close Interval Surveys • Pipeline Patrols, Aerial Surveillance
1215 – 1230	Break
1230 – 1420	Internal Inspection Tools API 1163 • Types of Internal Inspection Tools • Preparing to Inspect • Data Assessment • Inspection Reports • Other Issues
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two

Day 3: Wednesday, 14th of August 2024

0730 – 0830	External Surveys-Pipeline Integrity & Electrical Surveys Prioritisation • Methods and Techniques • Interpretation and Use of the Results • Innovation Aspects • ECDA (External Corrosion Direct Assessment)
0830 - 0930	Pressure & Leak Testing The Purpose of Hydro Test • Theory • Designing a Pressure Test • How to Conduct a Hydro Test
0930 – 0945	Break
0945 – 1045	Practical Aspects & Case Histories Microbial Corrosion • A.C. Corrosion • Stray Current Corrosion • Stress Corrosion Cracking
1045 – 1215	Pipeline Rehabilitation - Repair Techniques
1215 – 1230	Break
1230 – 1420	Geological Aspects Aspects Tied with the Pipeline
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Three



Day 4: Thursday, 15th of August 2024

0730 – 0830	Verifying the Integrity of an Old Pipeline <i>A Case History</i>
0830 - 0930	Remote Monitoring & Control of Cathodic Protection Systems
0930 – 0945	Break
0945 – 1100	Integrity Management Plans for Facilities <i>Risk-Based Approach to Maintenance • Failure Modes, Fault Trees and Root-Cause Analysis • Use of Historical Data on Incidents and Spills</i>
1100 – 1200	Integrity Management Plans for Facilities (cont'd) <i>Risk-Based Inspection (RBI) • Resource Allocation • Reliability-Centered Maintenance (RCM)</i>
1200 – 1215	Break
1215 – 1345	Quality Control - Reporting
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Simulator (Hands-on 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 various exercises using the “IntegriWISE™” simulator.



Course Coordinator

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