COURSE OVERVIEW FE0191-4D

Essential PIMS (Pipeline Integrity Management System)

Course Title

Essential PIMS (Pipeline Integrity Management System)

Course Date/Venue

Session 1: May 13-16, 2024/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: December 09-12, 2024/Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

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, 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 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.

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.

Accommodation

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

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.

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: -

- 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.

- 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), Pencol 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 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

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

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

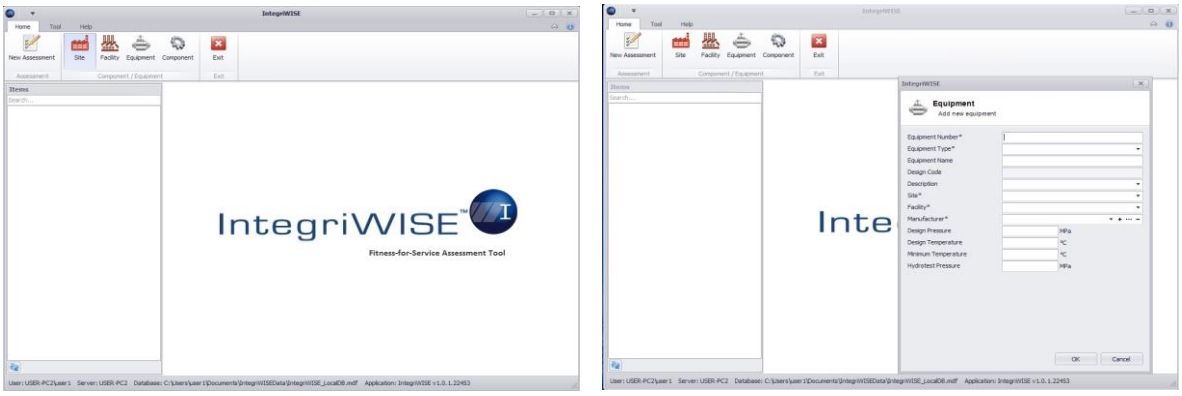
0730 – 0830	***External Surveys-Pipeline Integrity & Electrical Surveys*** *Prioritisation • Methods and Techniques • Interpretation and Use of the Results • Innovation Aspects • ECDA (External Corrosion Direct Assessment)*
0830 - 0930	***Pressure & Leak Testing*** *The Purpose of Hydro Test • Theory • 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

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

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.



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Course Coordinator

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