



January 7th Optional Training Course Descriptions:

Fitness for Service

David A. Osage President/CEO, PE
The Equity Engineering Group, Inc.

A description of API's *de facto* International Standard for Fitness-For-Service (FFS), API 579/ASME FFS-1 will be presented by Mr. Osage, an internationally recognized industry expert and leader in the development and use of FFS technology. FFS assessments are quantitative engineering evaluations that are performed to demonstrate the structural integrity of an in-service component that may contain a flaw or other damage. The Parts of API 579/ASME FFS-1 covering specific damage mechanisms, their intent, when to use them, and the typical subject matter experts and work processes involved in typical FFS will be fully described. The fundamentals of FFS assessments concentrating on the most typical problems encountered in a Refinery or Petrochemical Plant will be discussed and illustrated using example problems. Technical background and validation of the API 579/ASME FFS-1 FFS assessment procedures will also be covered.

API 571 Corrosion Damage Mechanisms

Marc McConnell

The objective of this course is to provide knowledge and expertise in the area of Corrosion and Materials based on the information contained in API RP 571. This course is designed to inform individuals about the API 571 as well as those that are seeking an advanced knowledge of how corrosion mechanisms drive RBI conclusions.

A key first step in safely and reliably managing equipment is identifying and understanding the relevant damage mechanisms. Proper identification of damage mechanisms is important when implementing the API Inspection Codes (API 510, API 570, API 653) and in conducting risk based inspection per API 580 and API 581. When performing a fitness-for-service assessment using API 579, the damage mechanisms need to be understood and need to be considered when evaluating the remaining life.

The cost of corrosion impacts refineries production capacity. We will focus on specific technology that will increase reliability.

1. corrosion knowledge management
2. corrosion prediction and modeling,
3. corrosion damage assessment, and

This course will add significant value to your existing professional credentials. It will show your employers and clients that you are interested in a higher level of proficiency and understanding in this important field.

The course will be presented by Marc McConnell, who is a degreed and licensed engineer with thirty years of refinery experience involving project management, operations, safety and construction/maintenance codes and regulations, project engineering, project management, metallurgical engineering, mechanical integrity, and business management. He holds multiple patents on refinery processes, and has authored and presented numerous technical papers. He is currently the Director of Corrosion Technology at PinnacleAIS, where Mr. McConnell



provides clients with real world corrosion expertise, which includes predicting degradation and mitigating its effects. He is the current Chair of API 939C (Sulfidation) and a member of API-581 Task Group working on the update. Marc is an active member of the API ICP (Inspector Certification Program).

Technical Writing

Mark Smith-MSTS

This class is designed for pressure equipment inspectors and engineers working in refining and petrochemical facilities.

This class will primarily focus on the type of writing that is needed when creating Inspection Narratives (Reports created after performing an inspection). There will also be a some discussion on other types of writing like Repair Recommendations. This course provides details on the seven simple rules that are necessary for all inspection technical writing. All class examples and exercises will be applicable to the pressure equipment inspection discipline.

Since inspection findings and recommendations often result in group discussions, a 30 minute session on Persuasive Communications (how to diplomatically get your point across to skeptics) is included in this class.

The class will be taught by Mark Smith of MSTS who is well known in the industry as an excellent trainer. Mark has been teaching inspection technology and authorized inspector certification training classes for over 25 years, including this class on how best to write inspection reports and records. His classes are in high demand and usually fill up rapidly when they are posted for registration.

“Basic ASME B31.3 Requirements” as they apply to the API-570

Robert L. Yagle

BAY Technical

This presentation targets:

- Inspectors
- Owner - Users
- Reliability Personnel
- Maintenance Personnel
- Quality Assurance/Quality Control Personnel
- Operators
- Repair Organizations

The presentation will discuss the following topics:

- Repairs and alterations of process piping
- Material requirements
- Welding requirements
- Heat treating (preheating and postweld heat treating)
- Examination and acceptance requirements
- Pressure testing requirements

The presenter, Bob Yagle, is actively engaged in the inspection of process piping, process vessels, and



aboveground storage tanks therefore, this presentation is presented from an inspector's point of view. He has been

presenting API-570 examination preparation courses since 1996. He has presented examination preparation courses, to prepare personnel for the National Board of Boiler and Pressure Vessel Inspectors examinations, since 1979. He also presents examination preparation courses for the API-510, API-653, and API-580 exams. Bob started his career as a Boiler Technician in the United States Navy. He worked for The Hartford Steam Boiler Inspection and Insurance Company as a Field Inspector, Authorized Inspector, Supervising Inspector, and Project Manager of Technical Training from 1974 through 1995. Bob started BAY Technical Associates, Inc. in January of 1996 as an inspection and training company.

The presentation is intended to be interactive and audience participation is encouraged.

Risk-Based Inspection

Lynne Kaley – Principal
Trinity Bridge, LLC

The details of API's recommended practices (API 580 and API 581) will be presented by Lynne Kaley, an internationally recognized industry expert and leader in the development and use of RBI methodology. API RP 580 introduces the principles and presents minimum general guidelines for developing a RBI program for fixed equipment and piping. API 581 provides quantitative RBI methods to establish an inspection program. Together, these two documents comprise a widely-recognized standard for industry-accepted RBI practices. This API training course helps attendees understand and use RBI technology, develop a program, and learn which RBI procedures and working processes comply with industry standards.

Positive Material Identification (PMI) API-RP 578

Don Mears
Analytical Training Consultants, Kingwood Texas, USA

This (4) four hour Training Course offers the reasons, purpose and criteria behind the global need to perform Positive Material Identification (PMI), according to API RP 578 in today's Petrochemical Oil & Gas Industry. Topics covered include, but are not limited to: PMI using Portable X-Ray Fluorescent (XRF) and Optical Emission Spectroscopy (OES) Technologies for: New Construction QA/MVP Programs, Existing Piping Systems, Control of Incoming Materials & Warehouse, Element of Maintenance Systems, and Reporting with Test Records. This training course will address the Upstream, (Off Shore and Transportation) Sectors, Downstream (Refining and Petrochemical) Sectors, with emphasis on Government regulations and enforcement events by: (OSHA, EPA, BSEE, NTSB, and PHMSA / DOT).

Non-Destructive Testing

David Bajula
 Acuren Inspection
 101 Old Underwood – J, La Porte, Texas 77571

INDUSTRY CRY'S OUT

The ability to perform an on-stream inspection of pressure vessels in lieu of an internal inspection is invaluable to current operations. During times of expected higher production rates by the refineries and process plants, coupled with the increasing dangers associated with entering confined spaces, creates enhanced awareness and appreciation for alternative inspection techniques.

INSPECTION COMPANY RESPONDS

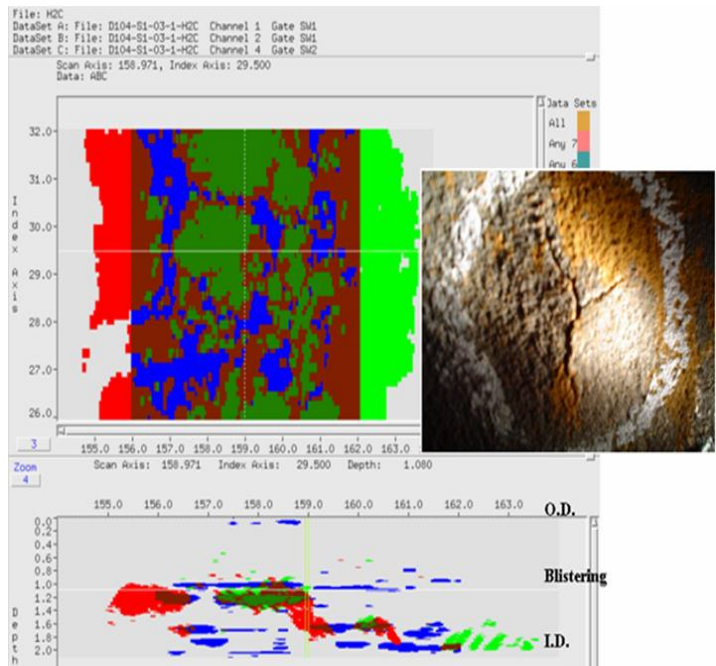
By using a combination of Automated and other Advanced UT techniques we can not only provide an alternative to an internal inspection but also offer a BETTER examination capable of evaluating not just the I.D. surface but the entire volume of welds (cracking), associated heat affected zones (stress corrosion cracking) and the base material or shell (wall loss, blistering & cracking). We can even evaluate the integrity of nozzles with repads.

During the past several years, we have developed and performed numerous AUT examinations documenting both the detection capabilities and the tremendous cost savings. This paper will detail the advantages, cost savings, code and owner/user acceptance along with the tools necessary to have a good inspection program. Additionally, I will present details on AUT C-Scan imaging, covering the full aspects of a project including, the planning, preparations, personnel safety, productivity and the expected costs.

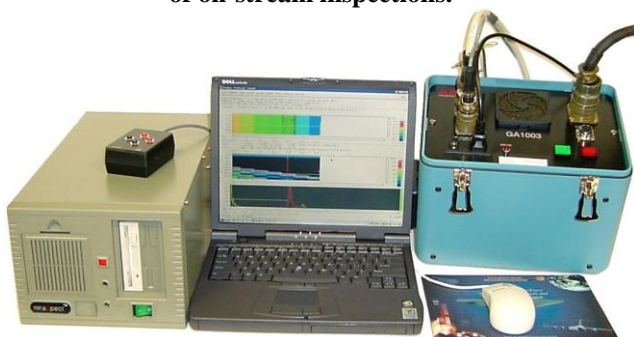
I will also discuss latest technologies such as Phased Array and how integrating phased array techniques into the inspection completes the process.



New state-of-the-art AUT system (below) & scanner specially designed to withstand high temperatures (above), enhance the productivity and performance of on-stream inspections.



Sample of AUT Data of Hydrogen Induced Cracking (HIC) that many times can be missed during an internal inspection; unless blistering reveals or burst to the I.D. surface first.





Phased Array and Time of Flight Diffraction Technique

Tutor: Tim Armitt of Lavender International NDT USA, LLC

This workshop covers the set-up and calibration of a Phased Array system followed by scanning and subsequent data analysis of a demonstration weld. Consideration will also be given to complementary TOFD simultaneously acquired with PAUT in one scan. TOFD has the benefit of being capable of detecting defects orientated at any angle within the weld. Off-line software will be demonstrated linking PAUT and TOFD data together for comprehensive data analysis. No prior experience of PAUT or TOFD is necessary and opportunity will be given for advice on specific product applications.