

WebCorr Corrosion Consulting Services Presents

API 579-1 / ASME FFS-1 (2021) Fitness-For-Service Assessments

Date: As published on website Venue: As published on website

Course Overview

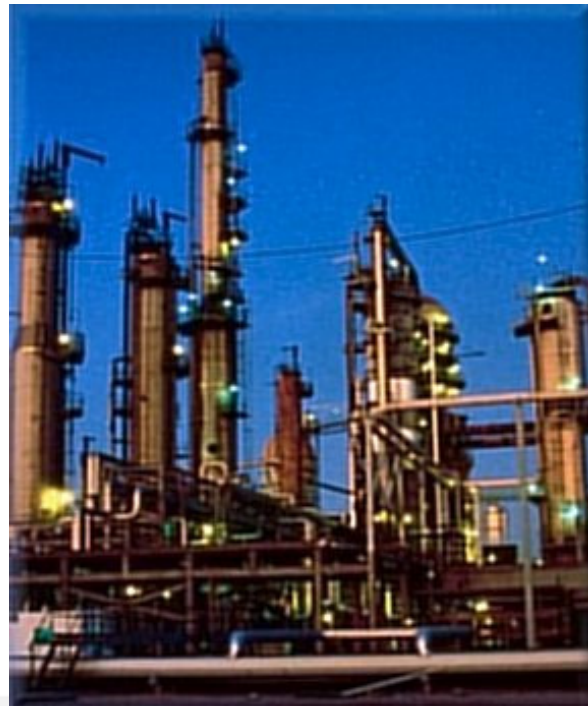
The Fitness-For-Service (FFS) assessments are quantitative engineering evaluations that are performed to demonstrate the structural integrity of an in-service component that may contain a flaw or damage. This 5-day advanced course provides guidance for conducting FFS assessments in accordance with the latest edition of API 579-1/FFS-1 (2021) standard using methodologies specifically prepared for pressurized equipment. The guidelines discussed in this course can be used to make run-repair-replace decisions to help determine if pressurized equipment containing flaws that have been identified by inspection can continue to operate safely for some period of time. These FFS assessments are currently recognized and referenced by the API Codes and Standards (510, 570, & 653), and by NB-23 as suitable means for evaluating the structural integrity of pressure vessels, piping systems and storage tanks where inspection has revealed degradation and flaws in the equipment. This course is available for in-house training, online and distance learning worldwide.

Who Should Attend

Designers, Inspection Engineers, Maintenance Engineers, Plant Inspectors, Mechanical Engineers, and Process Engineers interested in Fitness-for-Service assessments.

Course Outline

- 1 INTRODUCTION
 - 1.1 What is Fitness-for-Service Assessment?
 - 1.2 The Need for Fitness-for-Service Assessment
 - 1.3 The Benefits of Fitness-for-Service Assessment
 - 1.4 The Multi-disciplinary Nature of Fitness-for-Service Assessment
 - 1.5 Areas of Expertise Required
 - 1.6 Overview of API 579-1/ASME FFS-1
 - 1.7 Where is Fitness-for-Service Assessment Applicable?
 - 1.8 When is Fitness-for-Service Assessment Applied?
 - 1.9 Application Examples of Fitness-for-Service Technology



- 2 FITNESS-FOR-SERVICE ENGINEERING ASSESSMENT PROCEDURE
 - 2.1 General
 - 2.2 Applicability and Limitations of the Fitness-for-Service Assessment Procedures
 - 2.3 Data Requirements
 - 2.4 Assessment Techniques and Acceptance Criteria
 - 2.5 Remaining Life Assessment
 - 2.6 Remediation
 - 2.7 In-Service Monitoring
- 3 ASSESSMENT OF EXISTING EQUIPMENT FOR BRITTLE FRACTURE
 - 3.1 General
 - 3.2 Applicability and Limitations of the Procedure
 - 3.3 Data Requirements
 - 3.4 Assessment Techniques and Acceptance Criteria
 - 3.5 Remaining Life Assessment – Acceptability for Continued Service
 - 3.6 Remediation
 - 3.7 In-Service Monitoring
 - 3.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Brittle Fracture

Course Outline

- 4 ASSESSMENT OF GENERAL METAL LOSS
 - 4.1 General
 - 4.2 Applicability and Limitations of the Procedure
 - 4.3 Data Requirements
 - 4.4 Assessment Techniques and Acceptance Criteria
 - 4.5 Remaining Life Assessment
 - 4.6 Remediation
 - 4.7 In-Service Monitoring
 - 4.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for General Metal Loss
 - 4.9 Exercises
- 5 ASSESSMENT OF LOCAL METAL LOSS
 - 5.1 General
 - 5.2 Applicability and Limitations of the Procedure
 - 5.3 Data Requirements
 - 5.4 Assessment Techniques and Acceptance Criteria
 - 5.5 Remaining Life Assessment
 - 5.6 Remediation
 - 5.7 In-Service monitoring
 - 5.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Local Metal Loss
 - 5.9 Exercises
- 6 ASSESSMENT OF PITTING CORROSION
 - 6.1 General
 - 6.2 Applicability and Limitations of the Procedure
 - 6.3 Data Requirements
 - 6.4 Assessment Techniques and Acceptance Criteria
 - 6.5 Remaining Life Assessment
 - 6.6 Remediation
 - 6.7 In Service Monitoring
 - 6.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Pitting Corrosion
 - 6.9 Exercises
- 7 ASSESSMENT OF HYDROGEN BLISTERS AND HYDROGEN DAMAGE ASSOCIATED WITH HIC AND SOHC
 - 7.1 General
 - 7.2 Applicability and Limitations of the Procedure
 - 7.3 Data Requirements
 - 7.4 Assessment Techniques and Acceptance Criteria
 - 7.5 Remaining Life Assessment
 - 7.6 Remediation
 - 7.7 In-Service Monitoring
 - 7.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Hydrogen Blisters, HIC and SOHC
 - 7.9 Exercises
- 8 ASSESSMENT OF WELD MISALIGNMENT AND SHELL DISTORTIONS
 - 8.1 General
 - 8.2 Applicability and Limitations of the Procedure
 - 8.3 Data Requirements
 - 8.4 Evaluation Techniques and Acceptance Criteria
 - 8.5 Remaining Life Assessment
 - 8.6 Remediation
 - 8.7 In-Service Monitoring
 - 8.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Weld Misalignment and Shell Distortions
 - 8.9 Exercises
- 9 ASSESSMENT OF CRACK-LIKE FLAWS
 - 9.1 General
 - 9.2 Applicability and Limitations of the Procedure
 - 9.3 Data Requirements
 - 9.4 Assessment Techniques and Acceptance Criteria
 - 9.5 Remaining Life Assessment
 - 9.6 Remediation
 - 9.7 In-Service Monitoring
 - 9.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Crack-like Flaws
 - 9.9 Exercises
- 10 ASSESSMENT OF COMPONENTS OPERATING IN THE CREEP RANGE
 - 10.1 General
 - 10.2 Applicability and Limitations of the Procedure
 - 10.3 Data Requirements
 - 10.4 Assessment Techniques and Acceptance Criteria
 - 10.5 Remaining Life Assessment
 - 10.6 Remediation
 - 10.7 In Service Monitoring
 - 10.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Creep Damage
 - 10.9 Exercises
- 11 ASSESSMENT OF FIRE DAMAGE
 - 11.1 General
 - 11.2 Applicability and Limitations of the Procedure
 - 11.3 Data Requirements
 - 11.4 Assessment Techniques and Acceptance Criteria
 - 11.5 Remaining Life Assessment
 - 11.6 Remediation
 - 11.7 In-Service Monitoring
 - 11.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Fire Damage
 - 11.9 Exercises
- 12 ASSESSMENT OF DENTS, GOUGES, AND DENT-GOUGE COMBINATIONS
 - 12.1 General
 - 12.2 Applicability and Limitations of the Procedure
 - 12.3 Data Requirements
 - 12.4 Assessment Techniques and Acceptance Criteria
 - 12.5 Remaining Life Assessment
 - 12.6 Remediation
 - 12.7 In-Service monitoring

12.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Dents and/or Gouges
 12.9 Exercises
 13 ASSESSMENT OF LAMINATIONS
 13.1 General
 13.2 Applicability and Limitations of the Procedure
 13.3 Data Requirements
 13.4 Assessment Techniques and Acceptance Criteria
 13.5 Remaining Life Assessment
 13.6 Remediation
 13.7 In-Service Monitoring
 13.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Laminations
 13.9 Exercises

14 Assessment of Fatigue Damage
 14.1 General
 14.2 Applicability and Limitations of the Procedure
 14.3 Data Requirements
 14.4 Assessment Techniques and Acceptance Criteria
 14.5 Remaining Life Assessment
 14.6 Remediation
 14.7 In-Service Monitoring
 14.8 Worked Examples: Step-by-Step Guide to the FFS Calculation Procedures for Fatigue Damage
 14.9 Exercises

15 END OF COURSE EXAM

Course Registration

Please register online at www.corrosionclinic.com
 Or use the form below (photocopies of this form may be used for multiple bookings).

Dr/Mr/Ms _____

Organization _____

Contact Person _____

Contact Dept _____

Telephone _____ Fax _____

Email _____

Payment should be made by TT or online banking. Currencies in Australian Dollar, Canadian Dollar, US Dollar, Euro and Sterling Pound can be transferred directly without conversion. Our bank details can be found at the link below:

<https://www.corrosionclinic.com/payment.html>

Course Fee and Discount

Standard: \$3,500 **Discount:** \$3,150

The fee includes a hardcopy of course note, certificate, light lunch, coffee breaks each day during the course.

Discount applies to a group of 3 or more persons from the same organization registering at the same time, or early-birds making payment at least 8 weeks before the course commencing date.

Cancellation and Refunds

Cancellation or replacement should be conveyed to WebCorr in writing (email or fax). An administration charge of 50% of the course fee will be levied if the cancellation notice is received from 14 to 7 days before the course commencing date. No refund will be made for cancellation notice received 6 days and less. No refunds will be given for no-shows. Should WebCorr find it necessary to cancel a course, paid registrants will receive full refund. Refund of fees is the full extent of WebCorr's liability in these circumstances.

WebCorr has NACE certified Corrosion Specialist (#5047) providing customized in-house training, online and distance learning corrosion courses, corrosion seminars and workshops on corrosion, materials, metallurgy, paints and metallic coatings. Our corrosion courses are developed and taught by NACE certified Corrosion Specialist with over 30 years of practical experience in the field. Our training success is measured by your learning outcome.

