Introduction to Maintenance of Aboveground Atmospheric Storage Tanks

Potential PDH: 16

Description:

Upon completion of this course, participants will have gained an overall understanding of the maintenance requirements of aboveground atmospheric storage tanks in accordance with API-653. This course discusses the maintenance requirements of aboveground atmospheric storage tanks and includes numerous example problems and exercises.

Outline:

- Introduction to API-653
  - Scope of API-653
  - Definitions
  - Starting an API-653 Compliance Program
  - Cost of an API-653 Compliance Program
- Tank Inspection
  - Objectives
  - Prioritization
  - Inspection Frequencies
  - Record Keeping
  - Inspector Qualification
- Tank Component Evaluation
  - Shell
  - Bottom
  - Nozzles
  - Roof
  - Foundation
  - Shell and Bottom Settlement
- Leak Detection Methods
- Tank Repair and Alteration
  - General Considerations
  - Material Considerations
  - General Requirements for Repair and Alteration

- Removal, Repair, and Replacement of Shell Plate Material
- Repair, Addition, Replacement, and Alteration of Shell Penetrations
- Repair of Tank Bottoms
- Tank Roof Repair

- Dismantling and Reconstruction
  - Dismantling Methods
  - Reconstruction
  - Dimensional Tolerances
- Examination and Testing
  - General
  - Welding Inspection
  - Hydrostatic Testing

Subject Matter Expert (SME):

Nadarajah ("Ranjan") Chithranjan, Ph.D, PE, career has spanned over 18 years of worldwide involvement in petrochemical industries for ExxonMobil Research and Engineering. Prior to joining Becht Engineering, he worked as a fixed equipment specialist at ExxonMobil Research and Engineering and he has worked in more than a dozen countries worldwide to solve complex mechanical plant problems as well as mechanical support for large scale projects. He has extensive knowledge in pressure vessels, piping, and storage tanks, design and maintenance codes. At ExxonMobil, he was the lead fitness for service specialist and he is very well versed with the fitness for service codes as well as linear and non-linear finite element methods to solve complicated plant problems. Ranjan was also the Mechanical Delayed Coker and Storage Tank subject matter expert at ExxonMobil Research and Engineering. He was a former member of API-650 Welded Steel Tank for Oil Storage and presently he is a member of the ASME Working Group on Section VIII, Division II, Design by Analysis and Working Group on Section VIII, Division II, High temperature design. He has more than twenty publications and two patents. Dr. Nadarajah received his PhD and Bachelors in Mechanical Engineering from the University of Strathclyde, Glasgow, United Kingdom.