

Fiberglass Reinforced Plastics Institute, Inc.

Syllabus

Course Name: FRP302 – Introduction to Inspection of Aboveground Storage Tanks in Operation

Duration: One (1) day totaling eight (8) hours, with continuing education PDH credit opportunity.

Description:

This course is a condensed version of the four (4) day FRP831 Field Inspection of Aboveground Chemical Bulk Storage Tanks course. While it suits many different needs, its content is structured for those that may consider themselves a junior inspector who wants to get into tank inspection and may want to build up experience required for becoming credentialed someday as a certified FRPI 8310 Inspector. Subjects enable insight essential for inspectors in training to immediately begin condition assessment of Fiberglass Reinforced Plastic (“FRP”) Aboveground Storage Tanks (“AST’s”) that are in operation, whether in or out of service. Courses are conducted in the FRPI training and demonstration theater, with a maximum of twelve (12) participants per one (1) instructional leader. The one-hundred-twenty (120) inch projection screen with stereo sound, supplemented by dozens of hands on demonstrations integrating actual production materials, laminate cutouts and runouts, specimens extracted from equipment taken out of service, laboratory test remains plus inspection tools, provides for a tremendously interactive learning involvement. FRP laminate identification, visual imperfections, damage mechanisms plus integrity and leak testing course content makes up a significant portion of this course. This content also applies to inspection of pressure vessels, piping, ductwork, odor and air pollution control systems, underground storage tanks plus other such related process equipment.

Key Learning Objectives: After attending this course, participants should begin to be able to:

1. Identify tank component laminate types, express composition by layer and calculate thicknesses.
2. Recognize originally manufactured laminate visual quality as benchmark for material performance.
3. Recite and put to use appropriate inspection tools.
4. Qualify and quantify laminate damage mechanisms and describe their potential causes.
5. Investigate integrity and leak testing options based on advantages, disadvantages and limitations.
6. Calculate estimated laminate degradation rates and remaining useful life.
7. Discuss AST suitability for continued service.
8. Consider inspection intervals based on findings.
9. Apply principals governing proper use of applicable FRPI Standard Practices.
10. Implement minimum reporting and record keeping procedures.

General Course Content and Outline:

Introductions. Overview of course content, agenda and learning objectives. Tank construction features and basic design. Explore FRPI SP1010, SP1020, SP1030 and SP1040, including: raw materials, laminating methods, fabrication, secondary bonding (welding), quality control, manufacturing variables affecting laminate performance, laminate specification writing, normal aging process related to laminates in chemical service, visual inspection and damage assessment, basis and deterioration of design safety factors, proper inspection tools, damage mechanism examples plus closer look at pros and cons of Barcol hardness testing. Topics from FRPI SP8310 will also be highlighted, including: tank inspection checklist and test plan, determination of estimated laminate degradation rates, remaining useful life, suitability for continued service and inspection intervals plus minimum reporting and record keeping. Summarize key elements of course content related to general monthly or annual routine AST inspection leading up to more critical inspection intervals.

Who Should Attend:

- Personnel with an opportunity to begin or is already associated with or directly responsible for inspection, condition assessment, maintenance and regulatory compliance of FRP AST’s.

- Individuals desiring someday to be credentialed as a certified “FRPI 8310 Inspector” for FRP AST’s or as a means for demonstrating or otherwise differentiating their expertise when meeting employer, tank Owner and/or government regulator tank inspection requirements.

Prerequisites: Purchase and review of FRPI “Aboveground Storage Tank Inspector Certification and Licensing Manual”. Course participants will be required to present a Manual copy at time of course check in, with their name included in original authentic unaltered license stamp on all Manual pages. Total of all participants from a given employer shall not exceed number of Manual copyright licenses employer has purchased. Prior understanding of FRP industry standards, laminate design, manufacturing and inspection may result in establishing broader and deeper learning experience.

Recognition: A course completion certificate will be issued to all attendees who participate in entire program, with eight (8) Professional Development Hours (“PDH’s”) recorded for professional engineers. FRPI has been vetted and is recognized by RCEP (www.rcep.net) since 2011 as a provider of continuing education for licensed professional engineers. Participants desiring PDH credits will be given a program evaluation survey at the end of course and required to complete it. See Terms and Conditions of Course Registration for more information pertaining to PDH credit opportunities.

Instructional Leader: Gary L. Arthur – FRPI Executive Director and President (see Bio/CV)