

Christian Astorino, EIT, API 510 & 570

Project Professional

Education

BS, Mechanical Engineering,
Clemson University, 2005

Years of Experience

Total – 8 years

Professional Registrations

ASME
Engineering-In-Training (EIT),
NC
NDT Level II:
Liquid Penetrant
Digital Ultrasonic Thickness
Magnetic Particle
API 510 & 570 Certified
Inspector

Christian Astorino has participated in a wide variety of engineering projects focusing on Mechanical Integrity as well as development of a Lock Out Tag Out program, Process Safety Management compliance, and multiple Strain Gage Services.

Mechanical Integrity

Pressure Vessels, Storage Tanks, and Process Vessels

Performed mechanical integrity inspections on storage tanks, process vessels, and pressure vessels at numerous facilities covering a wide range of industries. This included performing the inspections themselves and project management over a team of inspectors. The industries covered include, but are not limited to, the tire and rubber industry, various chemical production industries, the paper industry, and soy bean processing industry. These inspections utilized various nondestructive testing (NDT) methods and failure analysis. In a number of instances, Mr. Astorino directly maintained the clients' mechanical integrity program, including tracking inventory and scheduling inspections. Christian also developed and created electronic inspection forms to be used on a tablet device in the field.

Performed engineering analyses under various guidelines, such as the American Petroleum Institute (API), American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, and The National Board Inspection Code (NBIC). Following field inspections, performed fitness-for-service (FFS) engineering analysis in accordance with the NBIC, API, and ASME, when applicable. Analyses included minimum required thickness, maximum allowable working pressure, corrosion rate and allowance calculations, as well as next inspection and expected life calculations. In addition, performed FFS evaluations based on stresses induced by vessel supports or penetrations, utilizing Zick's, Bijlaard's, or other appropriate methods.

Designed and supervised a wide range of weld repairs for storage tanks, process vessels, and pressure vessels. This included coordination between repair contractors and plant personnel, and ensuring final approval by the Authorized Inspector (AI).

Piping

Performed initial site reconnaissance to evaluate factors such as piping circuit complexity, access for testing, and an initial determination of number and location of test areas based on ASME and API 570. Utilized a Risk Based Inspection (RBI) approach to evaluate the piping, considering various failure modes, the likelihood of failure of each mode, and the consequences of failure to provide guidelines for number of test points and locations, and testing methodologies. The types of piping mediums encountered include steam, process chemical, natural gas, fuel and process oil, and various types of water.

Utilized various NDT methods including, but not limited to, ultrasonic thickness measurements, magnetic particle testing, and bubble leak detection. During the inspection, produced field isometric drawings of the piping systems, some of which were used for generating electronic versions at the clients' request. Analyzed the piping inspection results in accordance with ASME and/or API, as applicable.

Strain Gaging Services

Planned and participated in providing strain gaging services for various clients on various projects. In general, the projects involved installing strain gages, setup of the data acquisition system, and collecting real-time strain data. After the completion of the data collection, analyzed the data for the stress and fatigue analyses. This data was then either used to design an improved system or was compared with Finite Element Analysis (FEA) stress results to ascertain their validity.

Load Rating

Performed field inspection of and engineering analyses of tire inspection machines to determine their maximum load capabilities. This entailed performing load analysis of the shafts, the main structure, and the anchoring system.

Spill Prevention Control and Countermeasure (SPCC)

Co-authored a specification for a client to provide requirements that would be utilized for the inspection and evaluation of existing, atmospheric vented storage tanks for SPCC plan compliance. This entailed review of and compliance with local, state, and federal rules and regulations.

Process Safety Management (PSM)

Assisted client in their PSM program to ensure full compliance in preparation for the facility's successful OSHA Voluntary Protection Program (VPP) recertification audit. Activities included: comprehensive review of plant operating procedures for PSM-covered processes; development of a strategy to resolve open action items resulting from Process Hazard Analyses (PHA), Incident investigations, Compliance Audits, and Management of Change (MOC) reviews; and assessment of the facility's Process Safety Information (PSI), with a complete revision to the PSI location matrix.

Lock Out Tag Out (LOTO) for Wastewater Treatment Plants and Combined Sewer Overflow (CSO) Plants

Drafted, organized, and finalized Energy Control Procedures (ECPs) for 14 wastewater treatment plants and two CSO plants. Acted as lead member of a three- to five-person LOTO team to manage daily work activities for data collection and ECP production in accordance with client approval. Planned and participated as lead role in plant procedure implementation and final deliverable presentations. Organized and participated in training of plant personnel in LOTO program.