PERSONNEL QUALIFICATIONS

Timothy M. Kern | Associate III

EDUCATION

- The Ohio State University
  - Bachelor of Science, Welding Engineering, 2015

PRACTICE AREAS

- Welding Engineering and Weld Inspections
- Metallurgical Evaluation
- Failure Analysis
- Acoustic Emission Testing
- Litigation Consulting
- High-Temperature Hydrogen Attack (HTHA)
- Corrosion Consulting

REGISTRATIONS

- ASNT Level III - Acoustic Emission Testing
- Professional Engineer in OH

PROFESSIONAL AFFILIATIONS

- Acoustic Emission Working Group (AEWG), voting member
- American Society of Materials (ASM)
- American Society of Nondestructive Testing (ASNT)
- American Welding Society (AWS)
- Association for Materials Protection and Performance (AMPP, formerly NACE)
- ASTM International

CONTACT

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EXPERIENCE

Timothy Kern joined WJE in 2021 as a welding engineer with more than fifteen years of experience in the evaluation of welds and the application of corrosion mitigation and nondestructive inspection technologies. He utilizes his diverse skillset to evaluate and interpret a wide array of metallurgical and welding related projects.

Mr. Kern has performed numerous welding evaluations and failure analyses on materials ranging from wrought iron and low-carbon steel to more exotic, high-temperature, and corrosion resistant alloys. He also brings prior experience with inspection and corrosion from the civil infrastructure and petroleum/chemical industries.

REPRESENTATIVE PROJECTS

Welding Engineering and Weld Inspections

- Lift Lock - Kirkfield, ON: Welding engineering support and welding procedure specification review for aluminum welding
- Parking Garage - Chicago, IL: QA/QC review and visual inspection of welded steel components
- Weldability Assessments - Various Locations: Evaluation of historical steels for weldability
- Steel Tower Evaluation - Cape Canaveral, FL: Evaluation of welds on a steel tower for the aerospace industry
- Field Metallographic Replication - Various Locations: In situ metallography and hardness testing of metallic structures

Metallurgical Evaluation

- Inventory Assessment - Union City, TN: Assessment of steel tubing inventory for an insurance claim
- Evaluation of Anchor Bolts - Chicago, IL: Assessment of steel anchors per DOT requirements

Failure Analysis

- Mississippi River Bridge Crack- TN/AR Crossing: Fractographic and metallurgical investigation of a cracked steel girder
- Oil Refinery Titanium Exchanger Tubes: Analysis of titanium heater *
- Analysis of Cooler Coils - Lynchburg, VA: Investigation of leaking stainless-steel coils

Acoustic Emission Testing (AET)

- Evaluation of Duplex Header Boxes - Jamnagar, India: AET during a hydrotest of eight duplex steel header boxes *
- Various Oil Refineries: Inspection of coke drums at oil refineries in the U.S. and internationally *
- Inspection of Forged High-Pressure Autoclave - Walton, KY: Hydrostatic test of an autoclave for the foam industry *
- Evaluation of a Surgical Device - Laboratory: Monitoring of device to detect the onset of galling leading to device failure *

Litigation Consulting

- Endoscopic Device Investigation: Metallurgical analysis of a fractured endoscopic surgical device
- Composite Facade Panel Failures - Chicago, IL: Metallurgical analysis of fractured building facade panels

High-Temperature Hydrogen Attack (HTHA)

- Plant-Wide HTHA Screening Assessment - DE: Plant-wide screening of components to screen for HTHA damage *
- HTHA Screening - Various Locations: Screening of pressurized components where operational parameters were input into a time-dependent damage model *
- Acoustic Emission Inspection for HTHA - Various Locations: Inspection of pressure vessels for HTHA damage *

Corrosion Consulting

- Design/Build/Test of Galvanic and Impressed Current Cathodic Protection Systems - Various Locations
- High-Performance Coating Installation and Inspections - Various Locations: Surface preparation and application of chemical resistant coatings
- AC Stray Current Mitigation - North TX: Survey of approximately four hundred miles of gas pipelines to assess and mitigate AC stray current corrosion

** Indicates with previous firm*