PERSONNEL QUALIFICATIONS

Bernard Schulze | Principal and Unit Manager

EDUCATION

- Illinois Institute of Technology
  - Bachelor of Science, Metallurgical and Materials Engineering, 1984

PRACTICE AREAS

- Failure/Damage Investigations
- Bridges and Civil Infrastructure
- Rail Components and Track Work
- Process Industries/Refinery
- Power Industry
- Instrumentation/Monitoring/ Load Testing
- Metallurgical Evaluations
- Nondestructive Examinations
- Fitness for Service
- Litigation Consulting

PROFESSIONAL AFFILIATIONS

- ASM International
- American Institute of Chemical Engineers
- Society of Plastics Engineers
- Institute of Packaging Professionals

CONTACT

bschulze@wje.com
847.272.7400
www.wje.com

EXPERIENCE

Bernard Schulze joined WJE in 2017 as a metallurgical engineer with more than thirty years of experience in industrial consulting and forensic investigation. He has extensive experience in failure analysis, nondestructive inspection, instrumentation, and component testing. Mr. Schulze has performed numerous investigations of material degradation, corrosion and mechanical failure, such as fatigue, fracture, and plastic deformation. His other pertinent experience relates to damage assessment of structures following exposure to fire and other high-temperature events. Mr. Schulze has experience in a broad range of industries, including refinery and petrochemical processing, oil and gas, bridges and structures, rail car and track work, medical devices, and consumer products. He routinely provides strategic and technical guidance on equipment integrity, safety, and/or regulatory compliance.

REPRESENTATIVE PROJECTS

Failure/Damage Investigations

- Apartment Building - WA: Forensic corrosion assessment of post-tensioned (PT) cable strands *
- Pedestrian Bridge - FL: Failure analysis of PT bar separated from bearing plate *
- Transit Center - WI: Precast connection, metallurgical failure analysis *
- Natural Gas Transmission Line - PA: Pipeline reducer fitting failure analysis involving weld and metal fabrication quality *
- Hammer Union Fitting - OK: Failure analysis of hammer union from fracking well installation *

Bridges and Civil Infrastructure

- Bridge Health Monitoring - LA: Installation of truss (stress) monitoring system to measure construction related loads *
- Bridge Cables and Strands - MO and IN: Inspection and corrosion assessment of cable wires and strands *
- Anchor Bolts - WV: Anchor bolt inspection and metallurgical failure analysis *

Rail Components and Track Work

- Railroad Couplers - IL: Mechanical testing, failure analysis, and metallurgical assessment of knuckle couplers *
- Rail Car Truck Components - IL: Mechanical testing and failure analysis of bolsters and side frames *
- Track Work - IL: Mechanical testing and metallurgical assessment of flash butt and thermite rail welds *
- Track Work - IL: Mechanical testing and assessment of resilient fastener systems and concrete ties *

Process Industries/Refinery

- Unit Inspection Plans - IN: Development of fixed equipment inspection plans for refinery process units based on corrosion studies and historical reviews *
- Fire Damage Assessment - OH: Fitness for service assessment of post-fire exposed vessels, piping, support structures, and ancillary equipment *
- Coke Drum Study - IL: Drum replacement study reviewing mechanical, structural, inspection, and repair scenarios *
- Turnaround Support - WY: On-site metallurgical engineering support during unit maintenance and repair outages *
- Fired Heater Tube Life Assessment - IL: Heater tube remaining life predictions and inspection planning *

Instrumentation/Monitoring/Load Testing

- Coke Drum Monitoring - IN: Vessel health monitoring system comprised of high-temperature strain gages and thermocouples *
- Adhesive Testing - MA: Anchor adhesive long-term creep testing *
- Anchor Bar Testing - IL: Mechanical testing of forged head anchor bars *
- Bridge Bearing - NJ: Elastomeric bearing material characterization to AASHTO specifications *
- Aerated Concrete - IL: Flexural testing of reinforced aerated concrete elements *

Metallurgy and Nondestructive Evaluation

- Reformer Tubes - OH: High-temperature materials characterization Cr-Ni-Nb alloys after creep and rupture testing *
- High-Temperature Hydrogen Attack (HTHA) - CO: Metallurgical screening of hydro-treater reactor for the detection of HTHA *
- Superheater Header - IN: Evaluation of SA-335, P91 header material for potential overheating during postweld heat treatment (PWHT) *

** Indicates with previous firms*