



**Pearl Engineering  
Corporation**

Professional Engineering Consultants  
Project Management

# UTILITY BOILER ENGINEERING CAPABILITIES

## Innovative Solutions to Complex Problems

### **WHY PEARL ENGINEERING**

Pearl Engineering started 20 years ago in the Utility Boiler driven Power Industry and our associates have decades of experience working in it. Powered by a local team of experienced associates, led by Senior ME Project Consultant Mike Anderson, with offices right here in Wisconsin, Pearl Engineering is competent and responsive in supporting your Utility Boiler Engineering needs at lower costs and with greater consistency.

### **OUR LOWER COSTS**

Because of our close vicinity to your Power Plant, Pearl Engineering eliminates the large expenses and travel time associated with airline travel, such as overnight layovers, flight delays, hotels, and meals, that many other firms will ultimately account for in their invoice. Your local Pearl Engineering team is able to drive straight to your site to do the work without the hassle of rescheduling or re-booking a flight if there is an outage delay or extension. Depending on your location, we may not even face any travel or overnight costs.

### **OUR CONSISTENCY**

Because our team is local, the Engineers and Inspectors you will interact with will be the same every time your plant calls on Pearl Engineering to perform boiler inspections, evaluations, and upgrades for years to come. As a result, the familiarity with your plants operations and having a preexisting intimate knowledge and history of your unique equipment means future work can be completed quickly, thoroughly, completely, and all the while saving your plant personnel the work of having to shepherd us around the area to do our work.

Pearl Engineering's Utility Boiler Engineering Capabilities include the following services:

#### **INSPECTIONS & CONDITION ASSESSMENTS**

- Boilers
- Deaerators
- Burners
- Coal Mills
- Coal Bunkers/Silos
- Conveying Equipment
- Fans
- Air Heaters
- Baghouses
- Precipitators
- Ductwork
- Stacks

#### **POWER PIPING SYSTEMS**

- Expansion Joints Surveys
- Insulation Evaluation
- Condition Assessment
- Pipe Hanger Surveys
- Stress Analysis

#### **PIPE THICKNESS TESTING**

- Flow Accelerated Corrosion Monitoring

#### **IBMACT AND UMATS**

- Burner Inspections
- Combustion Tune-ups

#### **COMBUSTION TUNING**

- Coal or Natural Gas Burners
- SCR or SNCR Ammonia Injection

#### **CONTROL TUNING / PERFORMANCE IMPROVEMENTS**

- Combustion Optimization
- Air / Fuel Ratio Balancing and Tuning

#### **GRAVIMETRIC FEEDER CALIBRATION**

- Coal Fineness Testing

#### **LINE BALANCING (AIR/FUEL RATIO)**

- Sootblower Optimization
- Attenuator/Desuperheater Optimization

#### **LONG TERM CONDITION ASSESSMENT OF BOILER COMPONENTS**

- Internal Oxide measurements to predict long term overheating

#### **TAKEN FROM PENTHOUSE AT TERMINAL TUBES**

- Hardness Testing
- Replications or Tube Samples

#### **OUTAGE PROJECT MANAGEMENT**

- Pulverizer Rebuilds
- Air Heater Rebuilds
- Boiler Component Replacements
- Boiler Outage Management
- Burner Replacements
- Control Upgrades (Testing/Commissioning)

#### **ELECTRICAL ENGINEERING SOLUTIONS**

- Electrical Equipment Examination (Fuses, CB, Power Supplies, Transformers, Prox Switches, Photoeyes)
- Wire, Conduit, Cable Tray Condition Examination
- Enclosure and Panel Condition Examination
- Wire Termination Examination
- Grounding Condition Examination
- Lightning Protection Examination
- Current Load Calculation

#### **3D FIELD SCANNING AND AS BUILT DRAWINGS**

- Structural and Piping

#### **P&ID UPDATES**

#### **MONITOR MOVEMENT/DEGRADATION**

#### **RIGGING BEAM DESIGN**

#### **PULVERIZER OPTIMIZATION**

#### **AIR FLOW TESTING**

Pearl Engineering's dedicated engineering staff have experience working for the major boiler OEMs and for owner/operators maintaining and operating all styles of boilers.

We have the engineering expertise and experience to address any problem; and if not we have the integrity to say so and the resources to refer the client to someone who can.

Whether it is designing a new system, managing your replacement project, or inspecting your equipment and offering the best repair solutions, Pearl Engineering is committed to only providing good value to our clients.