



THE BETA METALLURGICAL LABORATORY does not just provide testing capabilities but rather a knowledgeable problem solving team. Averaging over 25 years of experience per staff member, BETA's Metallurgy Unit has materials engineers, metallurgists, and technicians knowledgeable in areas such as material selection, fabrication and damage modes for diverse industries like automotive, refining, chemical and utilities (Nuclear, Fossil, Hydro, and Advanced Processes). The staff has obtained valuable real life experience by working in research centers, foundries, forges, fabrication shops, machine shops, engineering/construction firms and utility plants. Thus they have not only studied about the problems but have actually experienced and been involved with the resolution of real life materials problems and failures. Additionally, BETA Lab has the ability for customers to remotely and securely view their samples under evaluation on our metallographs and more importantly our scanning electron microscopes. Customers can remain at their office during the analysis and participate in the process via the internet in real time.

Industries Served

- Utilities, Refineries and Chemical Plants
- Fabricator and Heat Treaters
- Insurance Companies and Legal Firms
- Engineering Companies and Laboratories

Metallurgical Capabilities

- Image Analysis on metallographs and scanning electron microscopes
- Microscopic Elemental Analysis of Materials and Corrosion/Combustion Layers using SEM/EDS
- Remote Real Time Viewing under Optical and SEM Microscopes
- Chemical Analysis by Optical Emission Spectroscopy, LECO C/S and Inductive Coupled Plasma
- Portable Optical Emission Spectroscopy, and X-ray Fluorescence for onsite chemical analysis
- Optical Microscopy
- Macro and Micro Hardness
- Field Replication and Hardness Testing

Typical Equipment Evaluated

- Waterwall, Superheated tubes, and High Energy Piping.
- Balance of Plant Piping, Heat Exchangers, Valves, Duct/Structural Members and Pumps
- Bearings, Rotating Turbines/Generators, Pulverizing and Material Conveying
- Fasteners and General Manufactured Products
- Circuit Board Components

Materials

- Ferrous, Nickel, Copper, Aluminum, Cobalt and Titanium Alloys
- Weld Metals by numerous Welding Processes
- Non-Metallic Coatings, Refractory and Polymer Materials
- Metallic Castings, Coatings and Diffusion Processes

Services

- Failure Analysis on Corrosion, Mechanical and Metallurgical Damage Modes
- Consulting Services in the Area of Materials Engineering and Selection
- Materials Testing for a wide variety of Materials, and Environments
- Knowledge in State-of-the-art and advanced Energy Processes
- Boiler Tube and Turbine Blade Deposit Index and Chemical Analysis
- Evaluation of Remaining Useful Life of Boiler tubes
- Dedication and Quality Control Testing

