

ROBERT E. HODEL, P.E., MS

Senior Engineer

Mr. Hodel is a Senior Engineer at VGO with over 30 years of experience in consulting engineering. His areas of expertise include fitness-for-purpose evaluations, as well as failure investigations, on a wide variety of industrial products and components, including pressure vessels, tanks, boilers, bridges, presses, fans, shafts, boiler tubes, pipelines, etc.

BACKGROUND

Mr. Hodel came to VGO after 34 years at another local consulting engineering firm, where he started as an engineering technician and worked his way up through the company, serving as Project Engineer, Principal Engineer, Senior Vice President, and General Manager. His background includes extensive experience in laboratory failure analysis, as well as on-site investigations involving a wide variety of tools and investigative techniques, ranging from non-destructive testing, to field metallography, to strain gages and high speed data acquisition.

Mr. Hodel is a licensed Professional Engineer in Mechanical Engineering in both Oregon and Montana and has led field crews on projects in a number of states, including Oregon, Washington, California, Montana, Idaho, Utah, Alaska, and Maine, as well as in British Columbia, Canada.

PRIMARY SKILL AREAS

- Broad scientific background in physics, materials science, and engineering.
- Extensive field experience at pulp and paper mills, bridges, dams, factories, and numerous other industrial environments.
- Wide range of hands-on skills, including metallography, sample preparation, scanning electron microscopy, energy dispersive spectroscopy, macro and micro photography, fractography, tensile testing, impact testing, welding, hardness/microhardness testing, and machining (milling machine, lathe, surface grinder, lapping equipment, cutoff saws, etc.)
- Strong hands-on knowledge of non-destructive testing techniques, including magnetic particle testing, liquid penetrant testing, and ultrasonic testing. Also, familiarity with radiographic testing, acoustic emission testing, infrared testing, and eddy current testing. Ability to specify appropriate testing techniques as well as carry them out, interpret the results, and integrate them into failure analysis and fitness-for-purpose projects.
- Extensive experience with codes and standards interpretation, including ASME, ASTM, ANSI, CPSC, and API

REPRESENTATIVE PROJECT EXPERIENCE

- Managed \$550,000 contract with Oregon Department of Transportation to provide failure investigation, materials characterization, strain gage/data acquisition, and non-destructive testing services on highway bridges. Projects within the contract required the assembly of multi-disciplinary teams to assess fracture toughness, impact strength, tensile strength, stress level (via strain gages and data acquisition), and flaw sizes in bridge girders and trunnions

- On-going (25+ years) annual evaluation of Kamyr digester and other pressure vessels at a Pulp and Paper Mill in Montana. Project has involved non-destructive testing of vessels and assessment of defects/imperfections to determine need, timing, and method of repair, as well as removal of coupons and laboratory metallurgical analysis to determine cause of cracking.
- Managed various out-of-town fitness-for-purpose field assignments in boilers, tanks, pressure vessels, and dams in Oregon, Washington, California, Montana, Idaho, Utah, Alaska, and Maine.
- Led team of engineers and technicians on a design verification project of a new penstock design at a remote hydroelectric plant in Snetisham, Alaska. Project entailed installation of 192 strain gages, both inside and outside the 900-foot long steel penstock, all connected to a data acquisition system by 72,000 feet of lead wire.
- Recent failure investigations have included cracking of recovery boiler superheater tubes at tube ties, fractured ship anchor, blade failure on shipboard turbocharger, stress corrosion cracking of black liquor heat-exchanger tubes, fracture of hydroelectric turbine thrust bearing springs, fracture of motor shafts, microbial induced corrosion of fire sprinkler piping, and high temperature oxidation of fluidized bed furnace exhaust ducting.
- Product safety testing of various consumer and/or commercial products, including swimming pool slides, swimming pool and SPA alarms, washing machines, food processors, and vaporizers.

EDUCATION

Master of Science, Mechanical Engineering
University of Portland

Bachelor of Science, Physics
Oregon State University

Continuing Education courses in Failure Analysis, Metallurgy of Welding and Joining, and Metallurgy.

CERTIFICATIONS

Licensed Professional Engineer (PE), Oregon (#12244PE) and Montana (#10629PE)
NDT Industrial Level II: PT, MT, UT and RT, per ASNT SNT TC-1A