BERKELEY RESEARCH COMPANY

# CURRICULUM VITAE updated May 2014

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## AREAS OF CONSULTATION

Failure Analysis & Forensics
Corrosion
Materials Selection
Scanning Electron Microscopy (SEM)
Energy Dispersive X-Ray Spectroscopy (EDS)
Fractography

## EDUCATION

- Bachelor of Science in Metallurgical Engineering; The University of Texas at El Paso; 1988
- Graduate studies in the Department of Chemical Engineering and Materials Science at UC Davis; 2006-2007

## PROFESSIONAL EXPERIENCE

Metallurgical Consultant, Berkeley Research Company; 2006 - Present

Provide consultation in failure analysis and forensics, as listed above and below.

Metallurgical Consultant, Berkeley Engineering and Research, Inc.; 1999 - 2006

Specialized expertise in determining root cause for failure of metal and non-metal industrial equipment and consumer products including: stainless steel, aluminum and plastic flexible water supply hoses; brass plumbing fixtures, threaded fittings and valves in water service; plastic water filters; dishwasher pump motors; fire protection systems; plastic coupling nuts on water supply hoses; water pressure reducing valves; copper tubing in water service; rubber washing machine hoses; water heaters; windows; brass flexible connectors for gas; gas compressor cylinders; high temperature gas turbine engine components such as turbine blades, vanes, fuel nozzles and combustion cans; bicycle stems and forks; PVC, ABS & CPVC pipe & fittings; tires and wheels including tread separation; plastic patio chairs; metal office chairs; clothes dryers; kitchen appliances; hip replacement joints; toilet tank fill and flush valves; washing machines; clothes dryers; bicycles; ladders. Determined fracture modes using visual and microscopic methods. Provided consultation in the areas of metal corrosion, including corrosion rate measurement, evaluation of different modes of corrosion, determination of root causes for corrosion, and materials recommendation. Performed testing of consumer and industrial products such as water heaters, electrical appliances, water filtration units and propane/natural gas equipment.

Senior Metallurgical Engineer, FTI Anamet, Hayward, CA; 1995 - 1999, inter alius vicis

Specialized in failure analysis of gas compressor and turbine engine components, shafting from rotating equipment, welded steel pipelines, shipping container lashing rods, ABS and PVC piping, plastic recreational equipment, brazed and welded components and medical devices. Provided expert witness testimony in legal cases, including binding arbitrations.

Mechanical Design Engineer, Powis Parker, Inc., Berkeley, CA; 1994 - 1995

Designed components for a book binding machine. Drafted designs on Autocad and specified manufacturing methods.

Project Engineer, Pyromet Industries, San Carlos, CA; 1992 - 1994

Designed processes, tooling and equipment for repair of turbine engine components. Developed repair procedures for Pratt & Whitney jet engine high pressure compressor stators.

Metallurgical Engineer, Dow Chemical, Freeport, TX; 1988 - 1992

Performed failure analysis on chemical process equipment. Conducted corrosion studies using laboratory and on-line corrosion rate measuring devices, and interpreted data for materials recommendations. Estimated life of downhole tubing for geothermal energy plant using corrosion weight loss measurements.

## PROFESSIONAL AFFILIATIONS

Registered Metallurgical Engineer, State of California MT license 1926
Treasurer, The Society of Forensic Engineers and Scientists (SFES)
Member, The National Association of Corrosion Engineers (NACE)

## PUBLICATIONS & PRESENTATIONS

- "Comparison of MIC Pit Morphology with Non-MIC Pits in Types 304/304L/E308 Stainless Steel Base Metal/Welds", Paper No. 159, presented at NACE International's Corrosion 99 Conference in San Antonio, TX.
- "Why Turbine Blades Fail" presented at the Society of Forensic Engineers and Scientists Seminar in September of 2000 and at ASM International in April of 2002
- "Time for Anchor Rod Problems on the Bay Bridge" presented at the Society of Forensic Engineers and Scientists Seminar in March of 2014

## CURRENT PROJECTS

- Co-authored a paper discussing the hydrogen embrittlement cracking failures of 32 anchor rods on the new eastern span of the Oakland-San Francisco Bay Bridge: Y. Chung and L. K. Thomas: High Strength Steel Anchor Rod Problems on the New Bay Bridge, Rev. 1, http://media.sacbee.com/smedia/2013/12/07/21/47/Djfhs.So.4.pdf
- Testified at Senate Transportation and Housing Committee on January 24, 2014: http://stran.senate.ca.gov/sites/stran.senate.ca.gov/files/LThomaspresentation.pdf
- Conducted analysis of corrosion samples from the anchor rods and main cable strands: http://www.sacbee.com/2014/04/12/6319522/new-bay-bridge-shows-signs-of.html
- Conducting an on-going review of results of Caltrans' anchor rod testing program

## FEES AND TERMS

$250 per hour plus expenses for consulting, appearance at deposition, arbitration, trial or similar proceedings, including travel and waiting. 2% per month late payment fee after 30 days. Laboratory fees are additional as are assistant and associate fees. Minimum fee per case is $500. Minimum time unit is 1 hour. Fees may be required in advance. A retainer, typically $1000 - $5000, may be required, to be applied toward final invoice. Forwarding of case material implies acceptance of fees and terms. TIN 32-0182949.