

ERIC V. SULLIVAN, P.E.

Materials and Metallurgical Engineer

Mr. Eric Sullivan has over 20 years of experience in the fields of materials, metallurgical, and welding engineering, nondestructive examination, and failure investigation. Mr. Sullivan has also provided expert testimony for deposition, mediation, and trial.

SPECIALIZED PROFESSIONAL COMPETENCE

- Failure analysis and prevention
- Remaining life analysis
- Welding engineering
- Weld procedures analysis
- Metallography
- Scanning electron microscopy
- Energy dispersive x-ray analysis
- Spectrographic analysis
- Fracture mechanics
- Incident investigation
- Accident reconstruction
- Forensic photography
- Mechanical testing
- Hazardous materials management
- Field instrumentation
- Strain gage applications
- Consulting and expert testimony
- Nondestructive examination

EQUIPMENT

- Utility and industrial boilers
- Machinery
- Pressure vessels
- Heat exchangers
- Industrial furnaces
- Ski lifts
- Bolts and fasteners
- Gasoline engines
- Diesel engines
- Automobiles and trucks
- Pumps
- Steam tubing
- Steam turbines
- Combustion turbines
- Generators
- Oil and gas pipelines
- Gas field equipment
- Welded structures
- High energy steam piping
- Fans
- Structures
- Valves and piping

INDUSTRIES

- Fossil and nuclear power
- Petrochemical
- Manufacturing
- Automotive
- Construction
- Steel
- Metals processing
- Welding

RECENT WORK

- Failure investigation of a WKM gate valve which resulted in a refinery explosion and over \$300 million in damages.
- Investigation of delivery van cargo door failure which resulted in a personal injury.
- Investigation of various industrial gas turbine failures, including blade and lubrication failures of Allison 501 KB and General Electric LM 2500 and LM 6000 turbines.

- Investigation of escalator equipment failures including step chain problems and failure of comb plates.
- Investigation of failures in industrial forge press castings and for platens and high pressure hydraulic piping for wood fiber products hydraulic presses.
- Determination of failure root cause for explosions of gas pipelines and of a high pressure natural gas filter separator.
- Failure predictions for buried piping and for boiler tubes and piping.
- Failure analysis of burst 36-inch diameter oil pipeline.
- Bolting failures in turbines and generators, materials characterization, strain gage installations and computerized data acquisition.

EDUCATION AND PROFESSIONAL BACKGROUND

- B.S. (Metallurgical Engineering), California Polytechnic State University at San Luis Obispo, California (1980)
- Professional Engineer, Metallurgical, California No. 1771
- Licensed Private Investigator, State of California
- Comprehensive Courses:
 - *Hazardous Waste Operations and Emergency Response Training*, University of California, Santa Cruz (July 1995)
 - *Scanning Electron Microscopy and X-ray Microanalysis*, Lehigh University (1992)
 - *Hazardous Materials Management*, University of California, Santa Cruz (July 1993)
 - *BATC Refinery Contractors Process Safety Orientation (May 1999)*
- Senior Metallurgist, Aptech Engineering Services, Inc.
- Metallurgical Engineer, Bechtel Group, Inc.
- Metallurgist, Pacific Gas & Electric Company
- Technician, Advanced Technology Electron Beam Welding Co.
- Recipient of ASM Metallography Award

SELECTED REPORTS, PROJECTS, PUBLICATIONS, AND INVITED LECTURES

Satellite Shaker Table Explosion Investigation, APTECH Report AES 99073751-4-1 (August 1999).

Investigation of Engine Components Failure, APTECH Report AES 99053702-4-1 (June 1999).

Investigation of Multiple Breakdowns in an Allison 501 KB5 Gas Turbine Anderson Lithograph, APTECH Report AES 99023629-4-1 (March 1999).

ASTM A320 Grade B8 Class 1 Bolting Issues, APTECH Report AES 98123578-3-1 (with E. Merrick, M. Looram, and T. Kuntz).

Investigation of Cracks in a Forge Press Hydraulic Cylinder, APTECH Report AES 98063431-4-1 (August 1998).

Investigation of Silane Gas Fire at Matheson Gas Products, APTECH Report AES 97103196-4 (February 1998).

Investigation of Structural Steel Collapse, Chino Basin Municipal Water District Water Reclamation Plant 4, APTECH Report AES 97063107-41.

Project Findings for the Investigation of the Explosion of High Pressure Natural Gas Filter Separator at McDonald Island, California, APTECH Report 93102025-4-5 (October 1996).

Evaluation of Safety Bolt Thread Stripping Strength and Effect of Length of Thread Engagement, APTECH Report AES 93102025-4-4 (August 1996).

Investigation of the Collapse of a Conveyor Structure at Sims-Lmc Recyclers, APTECH Report AES 96012628-4-1 (February 1996).

Evaluation of a Turbine Blade Failure at Mt. Poso Cogeneration Facility, APTECH Report AES 95052456-4-1 (July 1995).

Investigation of Unit 1 Power Transformer Failure and Fire at Colgate Hydroelectric Generation Station, Dobbins, California, APTECH Report AES 95052449-4-1 (June 1995).

Investigation of Mazak Laser Cutting Machine, APTECH Report AES 94052184-4-2 (May 1995).

Metallurgical Evaluation of a Failed Fastener from Puna CT-3 Power Turbine, APTECH Report AES 94112314-2-2 (March 1995).

Investigation of a Pinhole Leak in a Petroleum Products Pipeline, Declaration of Mechanisms Which Could Cause a Through Wall Penetration in Carbon Steel Pipeline Material, Trial Declaration of Facts, APTECH Project AES 94112317-4 (February 1995).

Investigation of the Explosion of an Abandoned Natural Gas Pipeline, Project Notes, APTECH Project 95012355-4 (January 1995).

Evaluation of a Natural Gas Pressure Vessel Failure (Explosion), APTECH Report AES 93102025-4-2 (October 1994).

Graphitization Evaluation Program for the High Temperature Steam Lines at P.T. Badak, Bontang, Indonesia, APTECH Report AES 94032136-3-2 (August 1994).

Analysis of a Failed Electro Hydraulic Servo Valve, APTECH Report AES 93021851-2-1 (March 1993).

Failure Analysis of Type 304 Stainless Steel Feedwater Heater Tubes From a Heat Recovery Steam Generator, APTECH Report AES 92061711-2 (June 1992).

Estimation of Critical Flaw Sizes and Failure Probabilities for Check Valve Swing Arms at Palo Verde Nuclear Generating Station, APTECH Report AES 90031209-1Q-2 (with E. Zebroski) (September 1991).

Evaluation of Service Suitability [Nuclear] of Borg-Warner Bolted-Bonnet Check Valve Swing Arms, APTECH Report AES 90031209-1Q-1 (with P. Lindsay and J. Grover) (April 1991).

Failure Analysis of a Fractured High Pressure Gas Connector Fitting, APTECH Report AES 90101328-3-1 (November 1990).

Examination of Damaged Cooper-Bessemer Diesel Engine Crankshaft and Evaluation of Feasibility of Proposed Repairs, APTECH Report AES 90081295-4 (October 1990).

Failure Mode Evaluation of Broken Wires in Telephone Operators Headsets, APTECH Report AES 90101332-5-1 (October 1990).

Replication Inspection for Superheat Header Weld Repairs at Boston Edison Company's New Boston Station, Unit 1, APTECH Report AES 8610713-2-1 (February 1987).

Field Metallography Equipment and Techniques, International Metallographic Society, Boston (August 1986), *Microstructural Science*, Vol. 15 (1987).

Failure Analysis of Main Steam Stop Valve Stem at Sierra Pacific Power Company's Valmy Station, APTECH Report AES 8602639-B-1 (April 1986).

Replication Evaluation of Throttle Valve Which Had Signs of Excessive Creep-Swell Deformation, APTECH Report AES 8510595-B-1 (with M. Cronin) (February 1986).

Evaluation of Cracked Outer Case of Niagara Mohawk Power Corporation's Huntley Station, Unit 6, High Pressure Turbine, APTECH Report AES 8507569-B-1 (with M. Cronin and T. Rettig) (November 1985).

Methods for In Situ Metallography and Materials Characterization, Presented to Bechtel Power Corporation Personnel and Project Managers (1985).

Life Assessment of the Main Steam and Hot Reheat Lines for Beckjord Station, Unit 3, Bechtel Group, Inc., Technical Report 8412-003 EV (December 1984).

Failure Analysis of a Feedwater Pump Wear Ring, Palo Verde Nuclear Generating Station, Bechtel Group, Inc., Technical Report 11 83-03FA (November 1983).

Nondestructive Examination Quality Verification Report for the WNPP-2 Nuclear Power Plant in Richland Washington, Prepared for Bechtel Materials and Quality Services Department for Washington Public Power Supply System, Technical Report (August 1983).

Analysis of Fan Blade Failure at San Onofre Nuclear Generating Station, Unit 2, Bechtel Group, Inc., Technical Report (May 1981).

Failure Analysis of a Fractured Gas Connector Fitting for a High Pressure Natural Gas Vehicle Tank Filling Connector.

ADDITIONAL INFORMATION

For more information regarding APTECH's personnel and services, please contact our Corporate Headquarters in Sunnyvale, California (USA) at (408) 745-7000 or visit our website (<http://www.aptecheng.com>).