



Alan Rose, P.E.

Sr. Design Engineer

Sr. Forensic Engineer

Tank Failure Expert

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- 500+ Forensic Engineering cases
- Designed welded steel and fiberglass chemical tanks in every state in the U.S and Internationally (Canada, Russia, Europe, China, Japan, Mexico, Brazil, Columbia, Argentina) for large chemical, petroleum, and wastewater plants
- 33+ years experience in design and failure analysis of chemical equipment and piping
- Customers include Dupont Chemical, Dow Chemical, 3M, BASF, Chevron, Exxon, Shell, Texaco, Amoco, and Suncor Oil Sands Project
- Lectured at universities and provided continuing education, possessing the ability to explain complex matters in simple terms to students, juries and arbitrators
- ASME Certified provider of continuing education in Material Science
- Led dozens of successful R&D Projects involving welded steel and fiberglass tanks
- Performed thousands of computer simulations and stress analyses including wind, seismic, and hydrodynamic analysis of steel and fiberglass tanks
- Top-Level Customer Service and Response

Mr. Rose is an industry expert in chemical tank failure analysis, possessing a rich background in design, failure analysis, applied material science, expert testimony, and investigative skills. He is proficient in forensic modeling, having performed thousands of computer simulations and stress analyses. He has lectured at universities and provided continuing education, possessing the ability to explain complex matters in simple terms to students, juries and arbitrators. He combines his 33+ years of experience in design engineering, R&D, field studies, forensic engineering, failure analysis, computer simulation, teaching, and hands-on experience to provide a uniquely qualified expert witness in chemical tank failure claims and litigation.

Licenses and Certifications:

Professional Engineer, AZ, #33697

Professional Engineer, CA, #31135

Professional Engineer, UT, # 10183449-2202

Court Qualifications/ Depositions:

State Farm v. Hague Water Quality, Failed Water Softener
Pima County Court, AZ, Case C2010-7809

Chartis Property Casualty Company v. Aquazona Aquarium Services
Maricopa County Court, AZ Case No. CV2011-005321.

Great Northern Insurance Company v. Haselden Constructors, LLC
US District Court for the District of Colorado, Civil Action No. 12-cv-00435-RPM-MJW

Raymond Heffley v. St. Joan of Arc Roman Catholic Parish Phoenix
Maricopa County Court, AZ Case No. CV2011-053198

Sentinel Insurance Company v. CSW Plumbing, Flexcon Industries,
Arizona State Superior Court, Maricopa County, Case CV2013-051203

Metropolitan Property & Casualty Insurance Co. v. Best Buy, LG, DMT USA
US District Court for the District of Arizona, Case 4:12-cv-00655-TUC-CKJ

Harry Williams v. Loew's Crown Isle Marina
Superior Court of California, Case 37-2015-00009822-CU-BC-CTL

State Farm v. Ecowater Systems
Arizona State Superior Court, Maricopa County, Case CV2013-00793

Chako v. Oregon Precision Industries, Costco
California State Superior Court, County of Los Angeles, Case BC643721

Lexington Insurance Company v. Elster Amco Water, LLC
Arizona State Superior Court, Maricopa County, Case CV2019-002372

Carrasco et al. v. Linde Gas, Thermon Inc. et al.
District Court of Harris County, TX, Cause No. 2018-28809

Allstate Vehicle and Property Insurance Company v. Zurn Industries, LLC
State Court of Gwinnett County, GA, Civil Action No. 20-C-01621-S1

Allstate Insurance Company v. LG Electronics USA
District Court for the Northern District of Alabama, Civil Action No. 2:21-CV-942-KOB

Affiliations:

American Society of Mechanical Engineers (ASME), former Vice President, lecturer, AZ ASME
The Materials Information Society (ASM), member, lecturer
Member, ASTM committee on standards development for Stainless and Alloy Steel Tubular Products (A01.10)
Member, ASTM committee on standards development for Copper and Copper Alloys Pipe and Tube (B05.04)
Member, ASTM committee on standards development for Plastic Piping Systems (F17)
Member, Society of Plastics Engineers

Courses Instructed/ Guest Lecturer:

Diagnosing Material Failures, ASME Certified Class, University of Arizona, 2011
Portable Affordable Failure Analysis, University of Arizona, 2011
Forensic Engineering, University of Arizona, 2011
Fractography, University of Arizona, 2015

Professional Experience:

Forensic Engineering Consultant, Arizona Forensic Engineering Investigations, 2008-Present
EFI Global, Sr. Forensic Mechanical Engineer, 2008 – 2019
Innovative Engineering Solutions, Chief Design Engineer, 2003 – 2008
Parkson Corporation, Senior Design Engineer, Head of R&D, 1996 – 2002
Parkson Corporation, Design Engineer 1994 – 1996
Parkson Corporation, Project Engineer, 1990 – 1994

Education:

Bachelor of Science, Mechanical Engineering, University of Florida, Gainesville, FL 1989

Continuing Education:

Steel Storage Tanks (M42): AWWA Manual of Practice
Earthquake Design of Large Liquid-Filled Steel Storage Tanks - Kettler
Handbook of Storage Tank Systems: Codes, Regulations, and Designs - Geyer
Circular Storage Tanks and Silos - Ghali
Above Ground Storage Tanks: Design, Construction, Inspection, and Maintenance – Nassar
Above Ground Storage Tanks: A Guide to Design and Operation Using API 650 and 653 - Myers
Steel Water Storage Tanks: Design, Construction, Maintenance, and Repair - AWWA
Standard Handbook of Petroleum and Natural Gas Engineering – Colpitts
Handbook of Materials Failure Analysis with Case Studies from the Oil and Gas Industry - Makhoulf
Trenchless Technology Piping Installation and Inspection – Najafi
Defects and Failures in Pressure Vessels and Piping – Thielsch
Dynamic Nonlinear Soil-Structure Interaction - Robert
Nalco Water Handbook – Nalco Chemical Company
The Nalco Guide to Cooling Water Systems Failure Analysis – Nalco
The Nalco Guide to Boiler Failure Analysis – Nalco
Inspection, Testing, and Maintenance of Water Based Fire Protection Systems – NFPA 25
Corrosion in Water Distributions Systems -AWWA M58
Corrosion Control for Buried Water Mains - Romer

Corrosion of Polymers and Elastomers – Schweitzer
 Corrosion Engineering – Roberge
 Principles in Corrosion Engineering and Corrosion Control – Ahmad
 Fundamentals of Metallic Corrosion – Schweitzer
 The Corrosion of Copper and its Alloys – Francis
 Corrosion Resistance of Copper and Copper Alloys -Bender
 Corrosion Atlas – During
 Corrosion of Stainless Steels – Sedriks
 Corrosion of Austenitic Stainless Steels – Khatak
 Corrosion of Metals Under Thermal Insulation – Pollock
 Corrosion Under Insulation Guidelines – Winnik
 Corrosion and Materials Selection, A Guide for the Chemical and Petroleum Industries – Bahadori
 Corrosion Control in the Oil and Gas Industry - Papavinasam
 Corrosion of Linings and Coatings – Schweitzer
 Failure Analysis of Paints and Coatings – Weldon
 Forms of Corrosion Recognition and Prevention – NACE
 Metallurgy – Moniz
 Practical Metallurgy and Materials of Industry – Neely
 Corrosion, Microstructure, and Metallurgy - Northwood
 Metallurgical Failures in Fossil Fired Boilers –French
 Metallurgical Failure Analysis - Brooks
 Design of Weldments – Blodgett
 Design of Welded Structures – Blodgett
 Steel Buildings: Analysis and Design – Crawley
 Deformation and Fracture Mechanics of Engineering Materials – Hertzberg
 Failure Analysis of Engineering Materials – Brooks
 Metals Handbook Vol. 12 - Fractography – ASM
 Fatigue & Fracture Reliability Engineering - Xiong
 Fracture Mechanics – Gross
 Damage and Fracture Mechanics - Boukharouba
 Creep Mechanics -Betten
 Experimental Stress Analysis for Materials and Structures – Freddi
 Theory of Elastic Stability – Timoshenko
 Buckling of Shells and Shell-Like Structures - Buchert
 Atlas of Polymer Damage - Lothar Engel
 Failure of Plastics and Rubber Products – Rapra Technology
 Failure Analysis of Plastics – Vishu
 Forensic Polymer Engineering - Lewis
 Plastics Engineering – Crawford
 Applied Stress Analysis of Plastics - Krishnamachari
 Fractography of Rubbery Materials – Bhowmick
 Structural Plastics Selection Manual – ASCE
 Engineering Plastics – ASM
 Applied Plastics Engineering Handbook - Kutz
 Material Science of Polymers for Engineers -Osswald
 Fractography – Hull
 Plastics Failure Guide – Ezrin
 Effect of Temperature and Other Factors on Plastics and Elastomers – McKeen
 Fatigue & Tribological Properties of Plastics & Elastomers – McKeen
 The Effect of Creep and Other Time-Related Factors on Plastics and Elastomers - McKeen



Fractography in Failure Analysis of Polymers – Shah
 SEM of Plastics Failure – Engel
 Electron Microscopy of Polymers - Michler
 Handbook of Plastics Failure Analysis - Kurr
 Environmental Stress Cracking of Polymers - Wright
 Fiber Composites – Mallick
 Mechanics of Composite Materials –Kaw
 Failure Analysis and Fractography of Polymer Composites - Greenhalgh
 Dynamic Failure of Composite and Sandwich Structures - Abrate
 Fatigue Damage in Composite Materials - Revuelta
 Failure Criteria in Fiber Reinforced Polymer Composites – Hinton
 Deformation and Fracture Behavior of Polymer Materials – Grellmann
 Joining of Plastics – Rothheiser
 Plastic Part Design for Injection Molding - Malloy
 Structural Analysis of Thermoplastic Composites – Trantina
 Handbook of Plastics Testing Technology –Shar
 Handbook of Plastics Testing and Failure Analysis – Shah
 Compositional and Failure Analysis of Polymers - Scheirs
 Advanced Topics in Characterization of Composites – Kessler
 Fundamental Principles of Polymer Materials - Rosen
 Handbook of Acrylics for Submersibles, Hyperbaric Chambers and Aquaria - Stachiw
 Practical Plant Failure Analysis – Sachs
 Practical Machinery Management for Process Plants - Bloch
 Facility Managers Maintenance Handbook - Payant
 Failure Modes & Failure Mechanisms - Daley
 Pressure Vessel Design Handbook – Bednar
 Wastewater Treatment Plants – Qasim
 Water Treatment Principles & Design – Montgomery
 Petrochemicals – Burdick
 Oil and Gas Exploration and Production –Favenec
 Failure Analysis of Industrial Composite Materials –Gdoutos
 Material and Component Failure, Failure Analysis, and Litigation – Murr
 Structural Adhesive Joints in Engineering – Adams
 Seals and Sealing Handbook – Warring
 Handbook of Fluid Sealing – Brink
 Harris' Shock and Vibration Handbook – Piersol
 Mechanical Vibrations – Hartog
 Introduction to the Design and Behavior of Bolted Joints– Bickford
 OSHA and EPA Process Safety Requirements – Dennison
 Guidelines for Engineering Design for Process Safety – Center for Chemical Process Safety
 Guidelines for Hazard Evaluation Procedures – Center for Chemical Process Safety
 Chemical Process Safety – Sanders
 Safety and Health for Engineers – Brauer
 Safety Assessment for Chemical Processes – Steinbach
 Lees' Loss Prevention in the Process Industries - Mannan
 Atlas of Creep and Stress-Rupture Curves – Boyer
 Atlas of Stress and Strain Curves – ASM International
 Atlas of Stress Corrosion and Corrosion Fatigue Curves - McEvily
 Atlas of Fatigue Curves – Boyer
 Atlas of Material Damage – Wypych