KENNETH R. RIDINGS, P.E.
Engineering Design & Testing Corp.
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EDT
Forensic Engineering & Consulting

ENGINEER: MECHANICAL

EDUCATION

1979 — **Bachelor of Science in Mechanical Engineering**
University of Utah, Salt Lake City, Utah

EXPERIENCE

2005 to Present — **Engineering Design & Testing Corp.**
Oakland, California

Consulting Engineer
Investigation of incidents involving natural gas piping systems and facilities; moisture intrusion and damage in residential and commercial buildings and industrial facilities; infrastructure utilities and piping systems; HVAC and refrigeration systems; fire suppression systems; cranes/heavy equipment, machinery and equipment. Services provided include failure analysis and causation identification, scope of damage evaluations, estimate repair/replacement costs, claims analysis, standards and codes interpretation, fire origin and cause, and construction monitoring and timeline scheduling.

1998 to 2004 — **Pacific Gas & Electric Company**
San Francisco, California

Manager
Conducted investigations of major gas incidents. Responsible for development and implementation of construction, engineering, operations and maintenance standards, procedures for gas distribution piping systems. Prepared expert testimony and testified in California Courts on behalf of PG&E's gas distribution capital and expense investments for the 1999 regulatory funding proceedings.

1993 to 1998 — **Pacific Gas & Electric Company**
San Francisco, California

Senior Distribution Engineer
Investigated cause and emergency response of gas distribution and transmission incidents. Interpreted regulatory code requirements. Developed engineering, construction, and operations and maintenance standards for pipe rehabilitation, valves, fittings, pressure control facilities and substructure enclosures. Investigated system operations, material, equipment, and facility failures.

1989 to 1993
1984 to 1988 — **Pacific Gas & Electric Company**
Fresno, California

Division Engineer
Supervised multi-disciplined work groups responsible for the engineering, design, operations and maintenance of gas transmission and distribution systems, including cathodic protection. Investigated gas incidents including fires and explosions and damage caused by third party dig-ins.

1988 to 1989 **Pacific Gas & Electric Company**
Fresno, California

Transmission and Regulation Supervisor
Supervised technical workgroup responsible for operations and maintenance on 2,700 miles of pipeline and 165 pressure control stations. Scheduled work prepared and directed system sequence of operations changes and diagnosed system operations.

1984 to 1988 **Pacific Gas & Electric Company**
Antioch, California

Area Engineer
Responsible for cathodic protection, facility records management, design and cost estimate preparation, engineering of gas transmission pipelines and associated facilities.

1979 to 1984 **Pacific Gas & Electric Company**
Walnut Creek, California

Engineer
Designed and engineered gas transmission pipeline, metering, and compressor station facilities. Specified water treatment and heat exchanger operations and maintenance at compressor stations. Performed pipe loading and stress analysis, and hydraulic capacity and system planning analysis.

1978 to 1979 **Northwest Pipeline Company**
Salt Lake City, Utah

Engineering Intern
Facility engineering perform cathodic protection analysis and prepare recommendations.

EXPERIENCE

Engineering Investigations *(partial list)*

Natural Gas Pipeline and Facilities

Damage to Pipelines Caused by Third Party Dig-Ins — *Multiple Locations, California*

Examine damaged pipe and site location, review utility locate and mark records, review "call before you dig" records, review third party records, and determine cause of dig-in. Evaluate scope of damage, emergency response and repair activities. Review utility repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Compressor Station Fire — *Gillette, Wyoming*

Examine station and equipment, review operating records and other documents and determine cause of fire.

Gas Explosions and Fires — *Multiple Locations, California and Washington*

Investigate and determine whether natural gas fueled explosions and fires were caused by natural gas utility facilities and/or operations.

Underwater River Crossings — *Calgary, Canada*

Examine three separate pipeline crossings underneath flooded rivers, review inspection records, conduct underwater survey, and determine scope of damage of pipelines. Evaluate the repair/ replacement scope of work and estimated costs.

Over-pressurization of Low-Pressure Distribution System — *Alameda, California*

Lead investigation and determine cause of over-pressurization of a low-pressure system and evaluate gas utility emergency response. Examine pressure control station equipment

and maintenance records, system operation records, emergency response sequence of events.

Pressure Regulator Stations — *Multiple Locations, California*

Determine cause of pressure regulator valve failures at multiple regulator stations and metering facilities.

Commercial and Residential *(Single and Multi-Story)*

Moisture/Water Intrusion — *Multiple Locations*

Investigation of 200+ incidents involving water supply, irrigation, HVAC, waste, drainage, and fire sprinkler system piping and associated fittings, connector hoses, and equipment; water heaters and boilers; restroom and kitchen faucets and appliances; washing machines.

Heat and Smoke Damaged Generator Ductwork — *Mesa, Arizona*

Review of drawings, fire damage reports, repair costs, business interruption estimates and other documents to determine scope of damage. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Leaking Chiller Tubes at Medical Center — *Bakersfield, California*

Examine chiller system and evaporator, review manufacturer drawings and equipment specifications, review operating records. Determine cause and scope of damage. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Dry Cleaning Equipment — *Chandler, Arizona*

Examine equipment, review equipment specifications, service records and other documents, determine cause of leaks in equipment steam chamber.

Collapsed Car Lift — *San Francisco, California*

Examine steel member framed, hydraulic powered car lift, review manufacturer specifications, drawings and other documents, determine cause of collapse.

Hail Damaged Roof Top HVAC Condensers — *Scottsdale, Arizona*

Examine condensers, identify impact damage caused by hail and determine reparability. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Leaking Hydraulic Elevator Casing — *Multiple Locations*

Examine elevator equipment, service records and other documents and determine cause of leak.

Water Damage to Elevator Components (multiple) — *Multiple Locations*

Examine elevator system components, identify water contacted components, and determine scope of damage, if any, to water contacted components. Evaluate repair cost proposals as to appropriateness of repair and associated costs.

Construction

Crane Tip-over — *San Ramon, California*

Examine crane and highway construction site, review crane specifications, operator log and other documents and determine cause of tip-over. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Mechanical Lift Tip-over — *Groveland, California*

Examine lift and residence construction site, review lift specifications and determine cause of tip-over.

Crawler Crane Tip-over — *West Olive, Michigan*

Examine crane at generation plant, determine scope of damage from tip-over and cost to repair. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Leaking Toilets in Condominiums Building — *San Jose, California*

Examine toilet installations, review manufacturer specifications and instructions, review test reports and determine cause of leaks.

Leaking Water Supply Valves in Multi-Unit Residential Buildings — *Walnut Creek, California*

Examine valves and installation, review manufacturer specifications and literature, determine cause of fractures in valve bodies.

Fire Investigations

Equipment and Appliances — *Multiple Locations*

Investigation of fires involving furnaces, water heaters, cooking and other appliances.

Industrial

Moisture/Water Intrusion — *Multiple Locations*

Investigation of incidents involving water supply, HVAC, boilers and water heater equipment, piping, and associated fittings.

Imploded Milk Storage Tank — *Hanford, California*

Examine tank, tank service and dairy operating records, manufacturer drawings and specifications and determine cause of implosion.

Imploded Fermentation Tank — *Ukiah, California*

Examine tank and process equipment at brewery, review operating records, drawings, sequence of operations, manufacturer specifications and other documents and determine cause of implosion. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Imploded Storage Tank at Ethanol Plant — *Cambridge, Nebraska*

Examine plant and tank, review operating records and system design, coordinate testing of valve, and determine cause of collapse.

Single-Axis Solar Panel Tracker System Detachment — *McCarran, Nevada*

Examine tracker system and panels, review operating records and design documents, review snowfall and other weather records, and determine cause of detachment.

Ammonia Release at Cold Storage Facility — *Phoenix, Arizona*

Examine refrigeration equipment, review manufacturer specifications, review maintenance records, test components, and determine cause of ammonia release.

Utilities Service Interruption — *Harahan, Louisiana*

Review documents and determine duration and cause of service interruptions to a cold storage facility.

Shiploader Tip-over — *Vancouver, Washington*

Examine shiploader and bearing assembly, review design drawings and operating records, review video of incident, supervise other discipline engineers, and determine cause of tip-over.

Damaged Retort MIG Thermometer — *Corning, California*

Examine retort, thermometer, and process equipment at olive processing facility, review operating records, FDA requirements, sequence of operations, manufacturer specifications and other documents and determine cause of damage to thermometer.

Logging Vehicle Fire Suppression System — *Burns Lake, British Columbia, Canada*

Examine fire damaged logging vehicle and fire suppression system, review multiple documents and determine why suppression system did not discharge.

Controlled Atmosphere Room at Cold Storage Facility — *Multiple Locations, Washington*

Examine facility Atmosphere Control System and refrigeration system, review test reports and facility records, and with a fruit harvest specialist, determine if damage to stored fruit was the result of a malfunction in the systems.

Chiller Coil Tube Leaks at Cold Storage Facility — *Reedley, California*

Examine facility and chiller tubes, review facility operations, review test reports and other documents and determine cause of leaks.

Fire Damaged Distillation Column at Ethanol Plant — *Clinton, Iowa*

Examine plant and column and review plant drawings and records. Determine scope of damage, cost of repairs and work schedule to facilitate repairs.

Digester Overpressure, Water Treatment Plant — *Delano, California*

Examine digester and associated equipment, review facility drawings, operating records and determine cause of overpressure.

Damaged PVC Piping System Containing CO2 Gas — *Corning, California*

Examine Carbon dioxide vaporizer and overhead PVC piping system in olive processing facility, review drawings, service records, weather records, operating and other documents and determine cause of damage.

Water Well Contamination — *Live Oak, California*

Examine well, review well inspection videos, water quality reports and other documents, and determine cause of contamination.

Water Well Collapse (2) — *Corcoran, California*

Examine well head and inspection videos, review drilling logs well test records and other operating documents and determine cause of collapse. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Water Pumping Plant — *Walnut Creek, California*

Examine plant, review manufacturer specifications, design drawings and other documents, and determine cause of coupling detachment. Supervise other engineering disciplines to evaluate scope of water damage to building components, and electrical and mechanical equipment. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Water Treatment Plant — *Livermore, California*

Examine damaged clarifier equipment, review construction, maintenance and test records, and determine cause of damage. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Whirlybird Type Crane Tipover — *Seattle, Washington*

Examine crane, determine scope of damage, conduct research on used crane prices, and determine value of damage.

Fire Damaged Conveyor, Recycling Power Generation Plant — *Oroville, California*

Examine conveyor and associated electrical and mechanical equipment. Review construction drawings, operating records, repair cost estimates and other documents. Engage other engineering disciplines to determine scope of damage and reparability. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Ammonia Refrigeration System — *Coalinga, California*

Examine refrigeration system, review facility and system drawings, service records and other documents and determine cause of ammonia release.

Corroded At-Grade Water Storage Tank — *San Luis Obispo, California*

Examine tank and attached piping, review cathodic protection system installation and service records, review other records, test insulation points, and determine cause. Determine scope of damage. Review repair documents as to appropriateness of repairs and reasonableness of costs. Monitor repair schedule.

Leaking At-Grade Gasoline Storage Tank — *Las Vegas, Nevada*

Examine tank, associated equipment, and tank farm cathodic protections system. Review tank and cathodic protection system drawings, operating records, manufacturer instructions, test records and other documents. Determine cause of leaks.

Marine

Ship Container Fire — *Pacific Ocean*

Examine ship containers and contents at Port of Seattle, review ship drawings and records, review manufacturer specification of container contents, and determine cause of fire.

Water Damaged Motors — *Fairfield, California*

Examine motors and packaging, review transport records and historical weather records, conduct laboratory tests, and determine if source of moisture was during transit or after motors were off-loaded from truck.

Pontoon Boat Lift Separation — *Discovery Bay, California*

Examine lift and documents and determine cause of separation.

Other

Hiker Fall — *Muir Woods, California*

Review documents, examine fall location, and determine if the involved trail had been maintained in accordance with regulatory requirements and to determine if the conditions of the incident location were dangerous and hazardous.

Rollerblader Fall — *Ixtapa, Mexico*

Conduct elevation survey and coefficient-of-friction tests on concrete trail.

Mobile Paper Shredder Truck — *Fresno, California*

Examine truck and paper shredder, review design drawings and determine cause of mechanical damage to shredder.

Legal Consultation – Peer Review *(partial list)*

Natural Gas Explosion — *Seattle, Washington*

Review gas utility maintenance and emergency response records, review Washington State regulatory requirements, review regulatory agency reports, review expert and testing agency reports and other documents and provide opinion as to the cause of the explosion.

Natural Gas Explosion — *Sublette, Kansas*

Review gas utility maintenance standards, maintenance and operating records, Kansas State regulatory requirements and other documents. Provide opinion as to cause of explosion.

Moisture Intrusion — *Multiple*

Review manufacturer, engineering, and investigation reports regarding separated piping system components. Provide opinions as to cause of separated components.

REGISTRATIONS and CERTIFICATIONS

Registered Professional Engineer in Arizona (44546)

Registered Professional Engineer in California (#M27526)

Registered Professional Engineer in Nevada (021117)

PROFESSIONAL ORGANIZATIONS

American Society of Mechanical Engineers (ASME)

East Bay Claims Association – Vice President 2012-13 (EBCA)

National Fire Protection Association (NFPA)

CONTINUING EDUCATION

2016 Fire and Explosion Investigation, National Association of Fire Investigators, Seattle, Washington

2010 Fire Pump Seminar, National Fire Protection Association, Reno, Nevada

2007 Investigation of Gas & Electric Appliance Fires, Western Michigan University, Kalamazoo, Michigan

2006 Fire and Explosion Investigation, National Association of Fire Investigators, Sarasota, Florida
Mechanical and Electrical Estimating, RS Means, Las Vegas, Nevada