



Miller Engineering Services

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Overview and Forensic Specializations

- Construction Management of Site Safety & Quality Procedures
- Quality Manager for large industrial & infrastructure projects
- Electrical Safety, fire, alarm, and control systems
- Manufacturing, Petrochemical, Refining, Oil & Gas Processing Facilities (including electrically hazardous classified area installations)
- OSHA Job Hazard Analysis, Safety Procedures
- Electrical Transmission and Distribution, Substations, Grounding
- Electric shock and electrocution forensic investigations
- Electrical distribution equipment failures & workplace injuries
- Equipment mechanical, corrosion and metallurgical failure analysis
- Fire & Explosion Investigation with possible electrical causation (Residential, Commercial & Industrial)
- Notable Forensic Investigations have included;
 - **Deepwater Horizon** Blowout Preventer Control System for the Chemical Safety Board – 2010-2014
 - **Gramercy On the Park** – Apartments Fire, North Dallas 2009-2010
 - **PEPCON** rocket fuel plant explosion Henderson Nevada for Southwest Gas - 1988

Background

Greg Miller is a Registered Professional Engineer in the State of Texas (#60429) with 30 years of electrical experience including design and construction of manufacturing, refining, petrochemical, oil and gas processing facilities. Specializing in electrical power transmission, distribution, substations, industrial motor control, instrumentation, industrial & construction safety, OSHA and the National Electrical Code.

Mr. Miller has many years of domestic and international project experience, and has on-shore and offshore experience in the Oil & Gas industry. He has served in the capacity of Quality Manager on large projects, participated in periodic owner quality reviews/audits and has developed corporate and specialized quality inspection and testing plans for various clients as an independent consultant. Greg has participated in factory reviews and inspections of vendor-provided material and engineered equipment.

Greg has served as an expert witness in the support of litigation and insurance investigations in electrical engineering, equipment failures, electric shock, electrocution, arc flash burns, and human factors related to defects in and the use of electrical

equipment. His numerous forensic investigations have included more than 100 fires/explosions and 35 electric shock/electrocution incidents.

Education

Tri-State College (General Motors Scholar) - Renamed "Trine University"
Angola, Indiana
B.S., Electrical Engineering, 1973

Registrations

Registered Professional Engineer (Electrical), State of Texas, #60429

Positions & Experience

- **Owner & Sr. Consultant**
Miller Engineering Services
Austin, TX
Professional Engineering Practice
2003 - present
 - Expert witness in electrical & construction loss/injury investigations
 - OSHA & MSHA regulation reviews as consultant to law firms
 - Electrical Design Consulting for commercial & industrial projects
 - Development of quality & safety manuals and Inspection and Testing Plans (ITP's) for manufacturing and construction
 - Consultant and expert witness for Texas Office of Attorney General regarding taxation of electrical manufacturing and use studies
 - Accidental electrical power line contact by construction cranes
 - Marina electrical systems and potential for swimming electrocutions
 - Testing and inspection of equipment failures using X-ray technology

- **Saudi Aramco Project Management**
Dhahran, Saudi Arabia
Sr./Lead Project Engineer
1991 – 2002
 - Complete project management from project conception through commissioning of oil & gas facilities. Multiple small projects and large projects including electrical distribution/substations & large motors.
 - Management of project safety in compliance with US based standards including National Electrical Code, National Electric Safety Code, OSHA regulations, UL, API, ANSI, NEMA, ASME standards and codes
 - Safety manager in construction job hazard identification & analysis
 - Project lead in HAZOP studies for utility and natural gas processes
 - Quality manager in development and application of quality assurance manual/procedures/methods and contract quality auditing of contractors
 - Development of plant electrical system software models

- Design and construction of a major electrical distribution upgrade in the the largest oil handling facility in the world
 - Project management of a major expansion of one of the world's largest natural gas plants
 - Scoping study and design support for 230 kV transmission and substation system for Eastern Province oil plants in world's largest oil field.
- **CH&A Corporation**
Kingwood, TX
Electrical Consultant
1986 – 1990
 - Expert witness and consultant to law firms and insurance industry
 - Electrical, fire and explosion investigations
 - Electrical equipment failure analysis
 - Attended electrical product safety course with Underwriter’s Laboratory
 - Investigation of Pepcon rocket fuel plant explosion, Henderson NV
 - Inspection of equipment wiring failures using Scanning Electron Microscopy
- **Miller Engineering Services**
Kingwood, TX
Electrical Consultant
1984 – 1985
 - Electrical design consultant on several Texas Gulf Coast industrial projects
 - Electrical control logic and assured grounding control system for flammable product truck loading facility
- **Exxon Co. USA / Esso Middle East**
Houston, TX
Project Engineer
1982 – 1983
 - Lead electrical project engineer on large energy conservation and cogen project for Exxon Co. USA in Baton Rouge. Development of project construction procedures to minimize existing plant shutdowns.
 - Project purchasing coordinator for Esso handling US procurement of engineered equipment for Saudi Arabian oil facility projects. Included oversight of quality control, vendor inspection and factory testing.
- **Saudi Aramco Project Management**
Dhahran, Saudi Arabia
Project Engineer
1976 – 1981
 - Electrical project/Lead Engineer/Project Manager responsible for multiple small projects design and construction in oil, gas, residential, commercial and transportation facilities.
 - Provided emergency design & construction support for critical plant rebuilds following accidental explosions and fires
 - Design and construction support for power distribution to 110 kV

- **General Motors, Central Foundry Div.**

Defiance, OH

Plant Project Engineer

1973 – 1975

- Electrical design, contracting and construction supervision for plant process lines and electrical expansions
- EPA requirement air discharge testing of pollution control systems
- Electrical construction support for river water pump lifting station
- Safety logic design for large multi-zone gas-fired kiln
- Programmable logic control design for process systems

Experience Summary

- Expert witness in numerous cases involving residential, commercial and industrial fires, explosions, electrical equipment and appliance failures, shock, electrocution, National Electrical Code (NEC), OSHA and other industry code compliance.
- Design criteria and installations for industrial hazardous / classified area installations, grounding, and lightning protection.
- Preparation of large project budget briefs, scope of work, bid packages, equipment specifications, safe construction/operating procedures and quality assurance testing criteria for electrical, mechanical, civil and structural equipment and facilities.
- Quality Assurance/Quality Control Team Leader on major gas processing facility expansion, including factory acceptance testing, welding procedures, electrical equipment testing and other construction quality procedure approvals. Periodic reviews and auditing of contractor quality function.
- Total Project Management and financial responsibility for multiple substations, cabling, transformer and switchgear upgrade for one of the world's largest oil handling facilities.
- Construction Site Safety Team Leader - developed site hazard analyses.
- Supervision of Project Team and Contractor personnel during design, construction and commissioning phases of projects.
- Computer simulation modeling of mechanical and electrical power systems and transient analysis.

Affiliations

- Institute of Electrical and Electronics Engineers (IEEE)
- National Fire Protection Association (NFPA)
- International Association of Arson Investigators (IAAI)

Continuing Education

- AIChE – Hazard Evaluation Procedures
- Underwriter's Laboratory (UL) – Product Safety Design
- Fire Findings – Gas & Electric Appliance Fire Course

- CII & Corporate Project Management Courses – Several
- ETAP – Electrical Transient Analysis (Software) Program
- Texas Construction Law for Engineers
- Arc Flash Hazard Analysis and Mitigation
- Lightning and Static Electrical Protection
- Digital Photography for Fire Investigators
- Current Legal Issues Facing Workplace Issues and the Courts
- Cathodic Protection
- Root Cause Analysis
- CATIA Wiring Harness Quality Investigation
- Quality & Safety In Construction
- Forensic Fire Scene Reconstruction
- Programmable Logic Controller Implementation
- Corporate Safety Courses - Many