10338 Miller Road
Dallas, TX 75238

DUANE L. COCHRAN, P.E.
SENIOR CONSULTANT

dlcochran@engsys.com

Mr. Cochran is a highly trained electrical engineer with broad experience in the design, construction, master planning, commissioning, operation, and maintenance of electrical distribution systems for a wide variety of applications and markets, ranging from commercial needs, to mission critical facilities, to heavy industrial and utility requirements. His expertise ranges from theoretical analysis to hands-on.

Prior to joining ESi, Mr. Cochran spent over 30 years as a consulting design engineer lending his expertise to various industries in the construction and renovation of facilities to suit the technical and business needs of the client.

Mr. Cochran has worked for some of the largest, most renowned engineering design houses and has consulted for global financial institutions, major telecommunications companies, utilities, fortune 500 corporations, medical institutions, NASA, FAA, Naval Facility Engineering Command, and various military contractors. As the “Engineer of Record”, he has designed and sealed over $4 billion of construction.

Areas of Specialization

- Electric Shock and Electrocution
- Standard of Care
- Electrical Safety
- Design and Analysis of Electrical Systems ranging from 120V thru 230kV (230,000 volts)
- Ground Systems
- Equipment selection, specification, and procurement
- Protective Relaying
- Station Batteries – 480 VDC
- Codes and Standards
- Construction, Start Up Testing, and Commissioning
- Operations and Maintenance (O&M)
- Copper / fiber data cabling
- Engineering / Construction Contract Scope
- MOPs (Method of Procedure) and SOPs (Standard Operating Procedure)

Industries / Market Segments

- Critical Facilities
- Utility
- Power Generation
- Campus Distribution
- Central Plant
- Federal
- Defense Industry
- Civilian Aviation
- Municipal
- Institutional
- Hospital / Medical
- Performing Arts
- Food Service
- Commercial

February 2025

Education

B.S., Electrical Engineering, University of Illinois, 1984
Curriculum in Power Applications

Licensed Professional Engineer (P.E.)

State of Texas 98812
State of California..... E-13364
State of Colorado 45878
State of Missouri PE-2010-029705
State of Oklahoma 25561
State of Arkansas..... 14951
State of Maryland 53745
State of Kansas..... 26759
State of New Mexico 20752
State of Louisiana 28315
State of Minnesota…….58582
State of Georgia…….46519
State of Michigan 6201309564
State of Florida.....91386
State of Indiana.....Retired
NCEES Record 35592

Licensed Marine Electrician

Republic of Panama..... Retired

Professional Affiliations

Institute of Electrical and Electronic Engineers (IEEE)
Member
Power & Energy Society
Industry Applications Society

Positions Held

Engineering Systems, Inc., Dallas, Texas
Senior Consultant, December 2018 – Present

Cyxtera (Formerly CenturyLink), Dallas, Texas
Manager, Global Engineering Operations, December 2014 – February 2018

Syska Hennessy Group, Dallas, Texas
Associate Partner / Technical Manager, August 2006 – October 2014

Carter Burgess, Los Angeles, California
Principal Electrical Engineer, August 1998 – July 2006

DMJM, Engineers & Constructors, Los Angeles, California
Chief Electrical Engineer, January 1995 – August 1997

Carlson Design Construction, Los Angeles, California
Chief Electrical Engineer, September 1992 – December 1994

Daniel, Mann, Johnson & Mendenhall (DMJM), Los Angeles, California
Senior Electrical Engineer, August 1990 – August 1992

Facilities Systems Engineering Corporation, Los Angeles, California
Electrical Engineer, November 1988 – July 1990

Majestic Cruise Lines, Curacao, Netherlands Antilles
Ship Chief Electrician, July 1986 – May 1988

Sargent & Lundy, Chicago, Illinois
Electrical Engineer, June 1984 – April 1986

Partial List of Representative Projects / Areas

Power

- Multiple 230 kV substations
- Multiple combined cycle combustion turbine / steam turbine power plants
- EUSERC (Electric Utility Service Equipment Requirements Committee) standards for forming municipal utility
- Commercial nuclear power stations
- Multiple campus power distribution systems
- Multiple steam plants, largest being 500,000 pounds per hour
- 100,000 ton-hour thermal storage (stratified water) facility
- 35,000-ton district cooling plant

Critical Facilities

- Uptime Institute™ Certified Tier 4™ data centers
- Multiple (non-certified) Data Centers
- Multiple financial Operations Centers
- Multiple Co-location Facilities
- Telecommunication Facilities
- Emergency Operations Center
- Multiple FAA facility projects
- Campus data distribution for Military / Universities

Industrial

- Multiple Department of Defense facility projects
- Multiple NASA facility projects
- Domestic and international commercial airports
- Rail maintenance facility
- Rocket test gantry
- Rocket fuel research facility
- Various aircraft testing facilities for defense contractors

Commercial

- Mental health facility
- Solar arrays
- High Security Penitentiary
- Municipal water pumping stations
- Performing arts theater
- Municipal school district facilities
- Stadium lighting
- Medical facilities
- Laboratories
- Animation studio
- Commercial office towers
- Residential apartment building

Seminars Attended

International Computer Room Experts Association
Mexico City, Mexico, May 2015

Uptime Institute™
Fall Conference, October 2015

BattCon – Stationary Battery Conference
Advanced Lead Acid Battery Consortium, June 2017

Onshore Energy Conference
London, UK, November 2019

Publications/Presentations

"Medium Voltage Uninterruptable Power Supply, Case Study", Presentation for:
Data Center Dynamics, Dallas, Texas, November 2010
Data Center Dynamics, New York, New York, March 2011
Data Center Dynamics, Sao Paulo, Brazil, October 2011
CB Richard Ellis National Conference, Dallas, Texas, August 2013
International Computer Room Experts Association, Mexico City, Mexico, May 2015

"Transformers in Power Generation and Distribution", Presentation for:
Onshore Energy Conference, Masterclass, London, UK, November 2019

Technical Reports

Mr. Cochran has authored countless reports addressing various topics such as:

- Motor failure due to Inverter Drives
- Transformer Failures due to Transients related voltage restrike in medium voltage vacuum breakers
- Proper Design and Application of High Resistance Grounding Systems
- Integrating Signal Reference Grid into Code required Safety Grounding
- Code Requirements for Grounding, Bonding, and Insulated Ground Conductors
- Analysis of Vertical Cable Supports
- Code Analysis of Service Entrance Requirements
- Economic Analysis and ROI for High Efficiency Medium Voltage Transformers
- Code Analysis of NFPA 75 and Emergency Power Off device for Data Center Application
- Code Analysis of NFPA 76 and Emergency Power Off device for Telecommunication Application
- Cause of Electric Shock and Electrocution
- Contractor / subcontractor responsibilities
- Evaluation of the electrical means and methods
- Evaluation of electrical safety in accordance with OSHA 1910 Subpart S, OSHA 1926 Subpart K, and NFPA-70E Standard for Electrical Safety in the Workplace
- Evaluation of Maintenance requirements in accordance with NFPA 70B Maintenance and International Electrical Testing Association (NETA)
- Evaluation of high voltage electrical safety for catenary lines in accordance with OSHA 1910.268, OSHA 1910.269, and the National Electrical Safety Code
- Evaluation of installation of overhead communication lines in accordance with OSHA 1910.268 and the National Electrical Safety Code