

S. David Alley
President

SUMMARY

Electrical Power Plant Project Manager & Consulting Engineer experienced in switchgear and control systems design, installation, startup and troubleshooting for cogeneration, hydroelectric, turbine, diesel and nuclear power plants and related equipment and systems.

EXPERIENCE

President and Consulting Engineer
ANNA, Inc., Annapolis, MD

8/88 to present

Manage power plant engineering consulting firm.

Projects include hydropower, reciprocating engine, and combustion turbine plants, cogeneration and energy projects for plant owners, facility owners, utilities, U. S. Navy, U. S. Air Force, environmental engineers, and switchgear and control systems manufacturers. Typical projects:

- **Designed, modified and performed startup** of switchgear and generator controls for an existing six-unit diesel plant to parallel with the local utility and regulate import and export power while providing reliable prime power for critical applications at the Lackland Air Force Base Wilford Hall Medical Center.
- **Performed** troubleshooting services for complex control systems including PLC and electronic circuits at numerous power plants.
- **Performed** root cause investigation for power plant problems such as a diesel engine failure, circuit breaker failure to open, turbine warping and cause and origin of electrical fires.
- **Designed applications, calculated settings and calibrated** protective relays.
- **Performed** startup tests for power plant electrical and mechanical equipment and systems including medium voltage switchgear (up to 34kV), power transformers, hydraulic power units, gas turbines, cogeneration plants, diesel generators, hydro turbines, process control, PLC systems, compressors, generators, cables, motors, inverters, chargers and battery systems.
- **Developed** plant specific response to issues raised by the NRC, INPO and other nuclear power industry groups. Investigated equipment failures and personnel errors using root cause analysis procedures and implemented changes to improve barriers to failure.
- **Designed** electrical systems and utility interconnection with existing systems at numerous cogeneration projects such as Rowan State College in New Jersey in 1989 and Trigen-Cinergy St. Paul LLP in 2002. Follow

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through with specifications, vendor submittal review, electrical construction oversight and startup.

Manager

7/85 to 8/88

Synergics Inc., Annapolis, MD

- **Hydropower Project Manager.** Designed, scheduled, and budgeted project. Managed political, regulatory, utility and contractor relationships for three hydropower projects.
- **Cogeneration Business Unit Manager.** Performed market analysis, developed computer models, and trained sales and engineering personnel.

Consulting Engineer

1/81 to 8/83

New York Power Authority

White Plains Engineering Office and IP-3 Nuclear Power Plant

- **Reviewed** plant instrumentation for compliance with NRC Regulatory Guide 1.97. Gathered, collated and evaluated seismic and environmental qualifications, power supply reliability, cable channel separation and physical location of instrument circuits.
- **Prepared** modification packages, wrote test procedures and plant safety evaluations of proposed modification.
- **Performed** engineering evaluations, prepared modification packages, wrote plant safety evaluations for proposed modifications and made contact with vendors.
- **Served** as Project Engineer and Electrical Engineer for station battery load study and replacement modification.

Electrical Engineer and Manager

9/72 to 1/81

Tennessee Valley Authority Division of Design and Browns Ferry and Watts Bar Nuclear Plants, Knoxville, TN, Athens, AL & Spring City, TN

- **Supervised** 10 to 16 engineering aids and associates in cable installation, conflicts resolution, cable pulling verification, cable testing, tool and test instrument calibration, equipment test and inspection, and troubleshooting.
- **Supervised** pre-service inspection and testing of equipment such as motors, switchgear, MCCs, batteries, chargers, inverters, and relay panels. Verified all aspects of contract requirements before initial operation. Resolved problems with vendors.
- **Served** as On-site Division of Design representative and assisted in restoration of BFNP plant after 1975 fire. Assured compliance with the Interim Safety Analysis Report.

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- **Designed** single-line, schematic and other drawings for numerous electrical boards for BFNP Unit 3 from logic diagrams. After designing had updating responsibility for these and for diesel generator systems drawings.

EDUCATION & CREDENTIALS

- MBA, Colgate Darden Graduate School of Business Administration, University of Virginia, Charlottesville, VA 1983-1985.
- BSEE, Clemson University, Clemson, SC 1968-1972

LICENSES

Registered Professional Electrical Engineer in fifteen states.

Certified Cogeneration Professional, Association of Energy Engineers

TRAINING COURSES ATTENDED

- Power Distribution Systems
- Electrical Systems Software (SKM, short circuit, load flow, harmonic analysis, voltage drop)
- Cogeneration Protective Relaying
- Gas Turbine Technology
- PLC Programming
- Excitation Systems
- Root Cause Analysis
- NFPA 101- Life Safety Code
- NFPA 70 - National Electrical Code
- Prime Mover Governor Control Systems

TEACHING ACTIVITIES

Instruction in power systems and troubleshooting power plant systems; theory and operations. Developed all teaching and student documents:

- *Switchgear and Control Systems for Power Plant Applications* for the Center for Professional Advancement in New Jersey
- *Operator Training* at numerous power plants throughout the world for subsystems and overall operations
- *Troubleshooting On-Site Power Generation Problems* for EGSA's On-Site Power Generation School. Awarded the James Wright Educator Award.

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CURRENT AND RECENT ORGANIZATIONS

- American Academy of Forensic Sciences (AAFS)
- Association of Energy Engineers (AEE)
- Consulting Engineers Council of Maryland (CECM)
- Electrical Generating Systems Association (EGSA), Education Committee
Chairman, Director, Board of Directors
- Institute of Electrical & Electronic Engineers (IEEE)
- Instrument Society of America (ISA)
- National Council of Examiners for Engineering and Surveying
- National Fire Protection Association (NFPA)
- National Society of Professional Engineers (NSPE)

PUBLICATIONS

Alley, S. David. 1986. *“Financing Alternatives for Cogeneration Projects.”* Paper presented to the International Cogeneration Society’s Sixth Annual Conference on Cogeneration.

Alley, S. David. 1991. *“The Thrill of Troubleshooting.”* Paper presented to the Thirteenth Annual InterNational Electrical Testing Association Conference.

Alley, S. David. 1992. *“Technological Advances and the Impact on the Electrical Testing Industry.”* Paper presented to the Fourteenth Annual NETA Conference.

Alley, S. David. 1993. *“Generator Basics Applied to Field Problems.”* NETA WORLD MAGAZINE, Summer 1993.

Alley, S. David. 1994. *“Troubleshooting Power Plant Controls.”* Paper presented to the World Energy Engineering Conference.

Alley, S. David. 1996. *“Utility Interconnection by Non-Utility Generators: Case Studies.”* Paper presented to 1996 Power Generation Conference.

Alley, S. David. 1998. *“On-Site Power Generation: A Reference Book, 3rd Edition.”* Contributing author – Troubleshooting chapter.

Alley, S. David, 2000. *“Distributed Generation Interconnection—How to Meet Your Client’s Expectations.”* Paper presented to the Electrical Generating Systems Association Spring 2000 Convention.

Alley, S. David, 2000. *“Is Peak Shaving Financially Feasible?”* ON-PEAK PERFORMANCE MAGAZINE, November 2000. A Supplement to Consulting-Specifying Engineer Featuring Information from EGSA.

Alley, S. David, 2002, *“On-Site Power Generation: A Reference Book, 4th Edition.”* Contributing author – Troubleshooting chapter.