
LONGENECKER and ASSOCIATES

Brian Haynes

EXPERIENCE SUMMARY

30 years of progressive managerial and engineering experience in the domestic and international process, power, nuclear and communications industries. The following is a brief overview of experience highlights:

- Technology integration of power and process plant control and protection systems including all aspects of specification, design, software development, integration, testing, operation and field support.
- Contract negotiation, project management and control, enterprise resource planning, life cycle cost analysis, change and document management controls, and production forecasting.
- Operations and outage management including all aspects of safety management, quality assurance, continuous improvement/total quality management, scheduling and workflow analysis.
- Design and operation experience with ABB, Siemens, Honeywell, Westinghouse, Invensys, Bailey and Yokogawa safety, distributed control and computer systems, power plant instrumentation, electrical systems, network equipment, operating systems, and communication systems.
- Management responsibilities for technical organizations of up to 200 personnel.
- Technical and project management responsibilities for project budgets up to \$350,000,000.
- Past member ISA Standards Committees 67.04, 67.06, 67.16 and EPRI Steering Committees for Digital Modernization and Equipment Qualification.
- 50.59 qualified: TVA, Progress Energy, Exelon, Constellation Energy, Dominion, FPL, STP, Comanche Peak
- Design support for over 70 reactors world-wide. Extensive experience with C-E, Westinghouse, B&W, GE and VVER reactors.
- Primary licensing interface with national regulatory and oversight organizations including the U.S. Nuclear Regulatory Commission.
- Primary consultant for establishment of comprehensive digital safety and control system upgrade program for 7 major domestic and international nuclear utilities.
- TUV Functional Safety Engineer (Cert. No. TUVFSEng 904/07).

DETAILED EXPERIENCE

Invensys

Project Manager (July 03 to current)

Systems Integration Center Project Manager responsible for all aspects of project delivery. Primary technical consultant for all aspects of system architecture, licensing, qualification/dedication, design (system and network), startup and life-cycle implementation of nuclear safety and mission critical control and protection systems. Responsible for all activities associated with design and project management of nuclear systems. Specifically, specification development, hardware design, software design, equipment qualification/dedication, EMI/RFI consulting, software specification, software design, licensing interface and support, integrated system testing, startup and system life-cycle software and hardware management programs. Example of current projects include RPS/ESFAS design, R.G. 1.97 post accident monitoring systems (ICCMS, QPSDS), S/R Control Room HVAC, plant process control system replacement, main turbine control, feedwater control, and reactor vessel level control systems.

Terran Technologies, Inc.

Management and technical consultant to the Domestic and International Nuclear Power Industry
President (1/96 – 4/06)

Responsible for operations of a 65 engineer consultant firm. **Examples** of recent assignments of interest include:

Triconex (9/02 to 5/03)

Project Manager and technical consultant in support of the performance of Safety Related and Non-Safety Related projects for the following customers: Southern California Edison, Omaha Public Power District, Nebraska Public Power District, Duke Power, Florida Power and Light, Pacific Gas and Electric, Northwest Energy, American Electric Power, China Nuclear Power, Atomic Energy of Canada, Ltd., Tractabel, General Electric/Hitachi, and the U.S. Department of Energy. Day-to-day technical and project management performance for the development of safety and control system designs and testing (FAT/SAT). Individual project values up to \$15 M (U.S.D).

South Carolina Electric & Gas - V.C. Summer Station (12/01 to 8/02)

Senior I&C Consultant for the development of Station's I&C Modernization Program. Analyzed existing plant system operations, performance and maintenance history to prioritize the modernization of all plant I&C systems. Developed system architecture, conceptual design, implementation schedule, and budgetary estimates for the modernization of control and information systems for the next 20 years of operation. Revised Station Software Configuration Management Programs and established I&C Modernization Committee to support senior station management in the selection and modification of station control and information systems. Coordinated all station organizations and corporate IT to define technology needs and integration requirements. Also provided modification and licensing support for digital feedwater system replacement and implementation of Westinghouse 7300 Process Control System modernization.

Bulgarian National Electric Utility (NEK) (6/99 to 5/00)

I&C Consultant to the Bulgarian Minister of Energy and National Electric Utility for the modernization of all I&C and communication systems for the Kozloduy Nuclear Station. Specifically responsible for the development of system/equipment specifications, design basis documentation, conceptual designs, budgetary planning, schedule development, and performance of bid evaluations and contract negotiations. Developed software and hardware configuration management programs for the operation and maintenance of state-of-the-art process control and safety systems provided by Framatome-Siemens and Westinghouse. Directly responsible for the selection and contract oversight of vendors for \$350M (U.S.D) in assigned projects. Developed "Interface Control" procedures to ensure the continued safe operation of Units 5 and 6 (1,000 Mwt PWRs) and effective coordination of all aspects of design, construction, and commissioning of impacted systems during modernization and retro-fit activities.

Illinois Power Company – Clinton Station (5/98 to 7/99)**Florida Power Corporation – Crystal River Steam Electric Plant (12/96 to 7/98)**

I&C Design Engineering Re-Start Program Manager for the successful re-starts of Clinton Station and Crystal River Steam Electric Stations. Responsible for I&C Design Engineering activities associated with the closure of all re-start action items. Directly responsible to the

U.S.NRC for interface, program definition, open item resolution, and establishment and implementation of corrective actions for Engineering and Maintenance Programs. Responsible for the day-to-day technical and administrative management of up to 50 engineers/technicians responsible for system modifications, calculation development, configuration management program development, licensing submittals, corrective action report resolution, action item resolution, audit support, field engineering, re-start testing, and safety evaluation development.

Hurst Consulting, Inc.

Management and technical consulting to the Domestic Power and Process Industries

Manager of Projects/Senior Technical Consultant (6/93 – 11/96)

Responsible for P&L, sales and delivery of all company projects. Provided day-to-day technical management of 28 engineers and technicians.

As a Senior Consulting Engineer/Project Manager, provided I&C and electrical design engineering services to clients. Specific responsibilities included the project management and technical performance of the development of design modification packages for digital upgrade and plant process computer replacement projects, software verification and validation programs, the performance of utility initiated I&C self-assessment audits, the development of design basis documents and design guide methodologies, system hardware and software specifications, and the development and performance of Factory Acceptance Test Programs.

Served as on-site technical consultant to the South Texas Project for the system hardware and software design (including distributed architecture, communication, MMI, database, simulator upgrades and application programs) for the \$20,000,000 plant process, ERF, and annunciator replacement projects.

Science Application International Corporation (SAIC)

Management and technical consulting to the Nuclear Power Industry

Division Manager – Process Controls Division (4/91 – 6/93)

P&L, sales and delivery responsibilities for project management and design services in the areas of electrical and I&C systems design, integration and commissioning. Projects included developing software and hardware systems utilizing Foxboro I/A for Digital Feedwater Control Systems for Brunswick, Hope Creek, and Brown's Ferry Stations; expert system design for plant process computer control applications; smart annunciation systems and the development and licensing of EPRI's ICMP on-line data acquisition system to reduce equipment calibrations and surveillance testing. Developed detailed I&C Systems Modernization Programs for Baltimore Gas & Electric and the Tennessee Valley Authority. Responsible for the development, implementation and approval of the 10 CFR 50 Appendix B Design Program for the company.

Served as Bechtel Electrical Design Engineering Program Manager for the restart of Browns Ferry Nuclear Station. Responsible for the resolution of an NRC issued Stop Work Order against electrical calculation/analyses development. This effort required the development and implementation of a corrective action program to improve calculation efficiencies and ensure quality. This included the establishment of a quality trending program, direct NRC licensing interface, and closure of all corrective action program requirements. Specific responsibilities included the management and technical direction of 85 electrical design engineers responsible for the development of electrical system level calculations to support the design basis reconstitution and Unit 3 restart and the development of calculations to support design modifications for the Unit 2 Cycle 6 Outage and Unit 3 restart.

ABB Impell

Technical Consulting to the Domestic Power Industry

Electrical/I&C Engineering Supervisor – Systems Engineering Division (12/89 – 4/91)

Responsible for the technical management of 50 design engineers developing design packages, configuration management programs, technical studies, electrical drawings, P&ID's, instrument calculations, electrical calculations, equipment specifications, design basis documents, design guides, and regulatory positions. Supervisory responsibilities included the training and technical direction for proposal development, section/project financial performance, project engineering, and resource planning. Lead I&C design engineer for key projects that included major plant process computer and digital control system (1E and N1E) upgrades for Tennessee Valley Authority, Baltimore Gas & Electric, TU Electric, Pennsylvania Electric Company, Commonwealth Edison, Dominion Resources, and the New York Power Authority.

Texas Utilities

Power Plant I&C Design Engineering

I&C Systems Design Engineering Manager - Comanche Peak Steam Electric Station (7/82 – 11/89)

Responsible for the supervision of up to 200 design and testing engineers for startup and on-going support of all plant instrumentation, process/safety control, security and computer systems. Specific responsibilities also included the technical direction and performance monitoring of architect-engineers and equipment vendors with annual budgets of up to \$80M (U.S.D). Responsible for direct interface with the U.S. NRC for the resolution of all I&C system design questions for the license issue for the units.

Tennessee Valley Authority

Engineering Aide/Technician

I&C Systems Engineering – Sequoyah Steam Electric Plant (6/78 – 6/82)

Provided technical support and direction to craft and junior engineering personnel for the initial calibration and scaling of plant instrumentation, system start-up testing, maintenance of plant instrumentation and the resolution of system operation and performance issues.

EDUCATION

- Bachelor of Science, Electrical Engineering – 1982 – University of Tennessee, Knoxville, TN
- Masters of Science Program work in Engineering Management, University of Tennessee, Knoxville, Tn.