

LONGENECKER & ASSOCIATES

EXPERIENCE SUMMARY

Richard M. Bockhorst

- Manager, Electrical Systems and Maintenance Engineering, Southern California Edison, for 10 years responsible for resolution of operation and maintenance issues related to two pressurized water reactors including preparation of change to diesel generator technical specifications.
- Supervisor, Design Engineering, Southern California Edison, for 8 years responsible for instrument setpoint program and preparation of design changes. Developed the methodology and prepared change to technical specifications to extend instrumentation surveillance intervals. Prepared a number of design changes involving environmental and seismic qualification of equipment.
- Startup Manager, Combustion Engineering, for 5 years responsible for preoperational and power ascension testing of nuclear steam supply system equipment at a two unit pressurized water reactor site.
- Engineering Services Manager, Combustion Engineering, for 5 years responsible for engineering support of pressurized water reactors. Responsible for preparation of a licensing submittal justifying continued operation of degraded steam generators

SUMMARY OF RELEVANT EXPERIENCE

Mr. Bockhorst has over forty years of engineering experience in the nuclear industry, with over twenty of these years in managerial positions. Dick has prepared and supervised the preparation of calculations and design changes for nuclear power plant instrumentation systems. Many of these design changes involved consideration of environmental and seismic qualification issues. He has led teams that developed license submittals justifying changes to technical specifications. His experience includes providing first line engineering support of operating units, design, licensing, and nuclear plant startup.

- More than 20 years of engineering analysis, design, licensing and management experience at a nuclear power facility involving construction, testing, maintenance, and operation of a two unit PWR site
- More than 10 years of experience at a nuclear steam supply system supplier in the design, licensing, modification, maintenance and operation of nuclear power plants.

SPECIFIC SKILLS AND EXPERIENCE

- Managed electrical and instrumentation engineering support for 2 pressurized water reactors. This support included evaluation and disposition of anomalous equipment conditions including those related to environmental and seismic qualification. Led the review and modification of the electrical and instrumentation preventative maintenance programs relative to INPO AP-913 guidelines.
- Developed and implemented instrument setpoint program to prepare calculations defining the basis for safety-related instrument setpoints. Participated in the preparation of ISA Standard 67-04.
- Supervised preparation of design changes for instrumentation systems including radiation monitors. Several of these design changes addressed issues relative to environmental qualification of electrical equipment.
- Led a team to prepare license submittals for technical specification changes in support of 24 month fuel cycles
- Responsible for preoperational and power ascension testing of NSSS equipment for two PWRs. Member of the Test Working Group responsible for approval of test procedures and subsequent test results to assure compliance with applicable regulatory guides.

DETAILED EXPERIENCE

Southern California Edison, San Onofre Nuclear Generating Station

2/1997 to 12/2006 **Manager, Electrical Maintenance Engineering**

Manage the Electrical Maintenance Engineering group at SONGS responsible for the Electrical, Controls, and Instrumentation. This support included evaluation and disposition of anomalous equipment conditions including those related to environmental and seismic qualification of electrical equipment. Led the review and modification of the electrical and instrumentation preventative maintenance programs relative to INPO AP-913 guidelines. Participated in numerous inspections by the Nuclear Regulatory Commission and the Institute for Nuclear Plant Operations

3/1990 - 2/1997 **Controls Group Supervisor, Nuclear Engineering Design Organization**

Supervised a group of engineers responsible for reconstructing the design basis for Radiation Monitoring Systems and replacing many of the installed analog radiation monitors with digital radiation monitors.

Supervised a group of engineers performing design and other design-related activities for SONGS Units 2 and 3 Controls Systems. Supervised a design change to replace the post-LOCA hydrogen monitors with a new system that complies with environmental qualification requirements.

Supervised a group engineers dedicated to establishing a program to prepare documented instrument setpoint calculations for Units 1, 2, and 3. Issued a design standard for this program. Established a working relationship with other nuclear utilities to improve quality and reduce the costs of the program. In parallel with this effort, also

led a successful project effort to produce design changes for Unit 1 required as a result of an ECCS Single Failure Analysis and EQ Documentation review.

4/1987 - 3/1990 **Senior Engineer, Operations and Maintenance Support**
Assigned as Lead Engineer, Special Projects. These special projects included managing an SCE task force effort to obtain NRC approval to extend all technical specification refueling surveillance intervals to 24 months. Developed a microcomputer-based system to monitor instrument calibration status while on-line that will support the extension of the calibration interval as well as justify a reduction in the number of required calibrations. Developed and implemented a microcomputer-based system to collect and edit meteorological data which resulted in annual cost savings of over \$100,000.

9/1984 - 4/1987 **Principal Project Engineer, Engineering and Construction**
Responsible for on-site design changes at San Onofre Units 1, 2, and 3, which were required as a result of installation and initial operation of the change. Managed a group of 20 to 120 SCE and contractor engineers. Responsible for resolution of problems encountered during the installation and testing of design changes including issuing engineering changes to these packages.

Significant contributions included developing, testing and installation of an alternative control valve for the Main Steam and Feedwater Isolation Valves to improve the reliability of these important valves.

Combustion Engineering, Inc., Nuclear Power Systems Division

8/1979 - 9/1984 **Nuclear Startup Manager**
Assigned as the C-E Site Startup Manager at the San Onofre Nuclear Generating Station (SONGS) Units 2&3. Responsible for interfacing with the client and other groups on-site in the startup of two 1100 MWe units and providing technical advice concerning operation and testing of the nuclear steam supply systems. Duties involved selection and management of the group of C-E startup engineers assigned to San Onofre. Member of the Test Working Group responsible for approval of test procedures and subsequent test results to assure compliance with applicable regulatory guides.

12/1975 - 8/1979 **Engineering Services Manager**
Responsible for providing C-E engineering services to Northeast Utilities relative to their 3 nuclear units. Developed approaches to solving various types of problems. Prepared proposals for implementing improvements and conducting routine activities. Coordinated execution of these activities with respect to cost, schedule, and quality. Responsible for preparation of a licensing submittal justifying continued operation of degraded steam generators

6/1972 - 12/1975 **Senior Nuclear Engineer**
Assigned as a Senior Nuclear Startup Engineer and participated in startup evolutions at three nuclear power stations, Fort Calhoun Unit 1, Calvert Cliffs Unit 1, and Arkansas Nuclear One - Unit 2. Responsible for supervising testing of safety-related electrical, control, mechanical, and fluid systems as well as integrated plant tests. Assisted in developing administrative procedures. Conducted operator training classes. Received a Senior Reactor Operator license at Fort Calhoun Unit 1.

General Electric Company, Knolls Atomic Power Laboratory

1/1971 - 6/1972 **Shift Supervisor**

In January, 1971 GE assumed responsibility for the operation of the S1C Prototype from Combustion Engineering. Qualified as a shift supervisor. In this capacity, assumed responsibility for testing, operation, maintenance and training for one of the operating crews.

Combustion Engineering, Inc., Naval Nuclear Systems Division

4/1969 - 1/1971 **Assistant Shift Supervisor**

Assigned as an Assistant Shift Supervisor at the S1C Nuclear Submarine Prototype. Qualified as an Engineering Officer of the Watch (EOOW) and was responsible for supervising the operation and training of the watch section. The EOOW qualification program is a six month program including two months of classroom instruction and four months of operational instruction.

National Lead Company of Ohio, Feed Materials Production Center

9/1966 - 4/1969 **Engineer**

Assigned as a staff engineer responsible for conducting various studies associated with processing uranium from ore concentrates to fuel elements for the Atomic Energy Commission's isotope production reactors. Several studies involved developing computer models and associated codes to solve production optimization problems.

EDUCATION

Graduated from Purdue University in 1966 with a Bachelor of Science in Industrial Engineering.

LICENSES

Licensed as a Professional Engineer, Mechanical Engineering, in the State of California. Senior Reactor Operator's license, Fort Calhoun Unit 1