

Longenecker & Associates

Wayne E. Booth, P.E.

EXPERIENCE SUMMARY:



Mr. Booth has over 30 years of experience as a senior manager and consultant supporting the commercial and government nuclear industry both domestically and internationally. Mr. Booth acquired his nuclear experience with architect-engineering firms, engineering and environmental consulting firms, an electric power utility, an NSSS supplier, the Liquid Metal Engineering Center (ERDA laboratory) and through independent consulting.

Areas of experience include nuclear power plant design, construction, and operation, nuclear component procurement and fabrication, uranium enrichment facilities, site characterization activities for high- and low-level waste facilities, spent nuclear fuel storage, transportation, and disposal, and DOE fuel reprocessing. Disciplines of expertise include project management; independent assessments and readiness reviews; regulatory commitment management; management system design; program and procedure development; corrective action; integrated safety management; quality assurance; safety conscious work environment and employee concerns.

Mr. Booth has contributed to the development of national quality assurance standards, guidance documents, NRC Regulatory Guides, rules, and regulations pertaining to nuclear power plants, nuclear facilities, and environmental programs. Mr. Booth also contributed to the development of DOE Orders and RDT Standards. He was the principal author of DOE's Quality Assurance Requirements and Description document (DOE/RW 0333P) for the spent nuclear fuel and high-level waste repository at Yucca Mountain.

KEY PROJECTS:

Oak Ridge Operations Office, Department of Energy. Member of the DOE team that conducted a Phase I / Phase II re-verification of the management and integration contractor's Integrated Safety Management System.

Civilian Radioactive Waste Management Program, Department of Energy. Civilian Radioactive Waste Management Program, Department of Energy. Developed an integrated management system for the Office of National Transportation (ONT). This effort involved designing a document hierarchy, identifying ONT's business functions and processes, systematic identification and allocation of DOE requirements, developing a Transportation Quality Assurance Plan and implementing procedures, and integrating the requirements of DOE Order 414.1, *Quality Assurance* and DOE Policy 450.4, *Safety Management Systems* into one management system. Contributed to the development of numerous key Transportation Program documents to include the Transportation Concept of Operations, Transportation System Operations Plan, Project Execution Plan for the Nevada Infrastructure Project,

Transportation System Requirements Document, Transportation System Policy, and the Transportation System Process Flow Definitions document. Supported project management activities for the implementation of DOE M 413.3-1, *Project Management for the Acquisition of Capital Assets* on transportation projects (Cask Systems, Rolling Stock, Fleet Management Facility, Operations Center, and Nevada Rail).

Program Manager for the OCRWM Management Assessment Project. Conducted over 70 integrated management assessments of DOE, the M&O contractor, the National Spent Fuel Program, USGS, and National laboratories including Sandia, Livermore, Berkeley, Los Alamos. Consultant to DOE for the development, modification, and review of quality assurance program policy, requirements, guidance, planning and implementation documents.

Sandia National Laboratories: Developed the Quality Assurance Program Description document and assisted in the transition for Sandia's role as the Lead Laboratory on the Yucca Mountain Project.

Bruce, Pickering and Darlington Nuclear Stations, Ontario Hydro Nuclear. Upgraded the regulatory commitment management program and contributed to the development of the licensing basis reconstitution plan. Established the safety conscious work environment (SCWE) program and developed related documents. Related documents include the Communication Plan, Role Documents, briefings, Process Model, Case Process, and Safety Culture Change Strategy. Also upgraded the Human Resource and Ombudsman Programs with charters, policies, program documents, and procedures.

Tank Waste Remediation System Privatization Project. Developed strategy and options for implementing a graded QA program based on the risk-significance of items and activities.

Portsmouth Gaseous Diffusion Plant, United States Enrichment Corporation. Operational Readiness Review (design and construction) for facility start-up to recover HEU heels.

Calvert Cliffs Nuclear Power Plant, Baltimore Gas & Electric Company. Designed a management control system and procedures hierarchy to support the entire nuclear program contributing to the restart of units 1 and 2. Also contributed to the development of the regulatory affairs and software quality assurance programs.

Pennsylvania Low-level Radioactive Waste Disposal Facility. Conducted oversight inspections of licensee activities on behalf of the regulator, Commonwealth of Pennsylvania. Licensee activities included project management, geographic information systems, public involvement, quality assurance, and site screening.

Sequoyah Nuclear Power Plant, Browns Ferry Nuclear Power Plant, Watts Bar Nuclear Power Plant, and Bellefonte Nuclear Power Plant, TVA. Technical manager of the site procedures staff for plant procedure activities including procedure preparation, review, verification, validation, and implementation of human factors techniques to enhance human performance. Quality concerns program improvement. Task force chairman for the systematic identification and incorporation of regulatory and program management requirements for all corporate and site functions.

Hatch Nuclear Power Plant, Quad Cities Nuclear Power Plant, and Nine Mile Point Nuclear Power Plant. Performed QA oversight for induction heating stress improvement on reactor vessel Class 1 piping systems.

Fluorinel Dissolution Processing and Metal Clad Fuel Storage Facility, and the Slagging Pyrolysis Incinerator, DOE. QA Project Manager responsible for the development of the facility designer's quality assurance program and quality assurance procedures. Provided quality engineering services such as QA cost estimates, project surveillance, audits, training, quality engineering design review, and supplier qualification.

Material Inventory Program for the Liquid Metal Fast Breeder Reactor, DOE (ERDA). QA Project Manager for the procurement and storage of long-lead nuclear components for the Liquid Metal Fast Breeder Reactor Program.

High Temperature Gas Cooled Reactor (HTGR). Performed quality system audits for all aspects of the HTGR Program.

Commercial Spent Nuclear Fuel Industry. Developed quality assurance programs to meet the requirements of 10CFR71, 10CFR72, and NQA-1 and upgraded corresponding procedures and processes for cask fabricators. Developed reports for spent fuel cask designers on industry issues, quality problems, and NRC recommendations. Conducted supplier qualification audit for design services. Conducted oversight of static and dynamic testing of impact limiter components.

Office of River Protection, Department of Energy. . Conducted integrated QA management assessments of DOE-ORP operations.

ACCOMPLISHMENTS:

- Contributed to the development and implementation performance improvement plans for the recovery of five nuclear power plants in response to NRC Special Inspection Team findings, NRC SALP Assessments, and INPO evaluations.
- Established and directed corporate quality assurance policy for a multinational engineering firm and its subsidiaries providing engineering support to nuclear power facilities.
- Developed strategies for the integration of augmented quality assurance programs, (such as Station Blackout, PAM, ATWS, and Fire Protection) into a 10 CFR 50, Appendix B quality assurance program to achieve an efficient, graded approach to quality assurance.
- Contributed to the development of national quality assurance standards, guidance documents, Regulatory Guides, rules, and regulations pertaining to nuclear power plants, nuclear fuel/waste storage and disposal facilities, and environmental programs.
- Managed quality assurance functions during design, procurement, and construction of large scale nuclear and non-nuclear projects, such as the Yanbu Industrial Complex, Yanbu, Saudi

Arabia; the Fluorinel Dissolution Processing and Metal Clad Fuels Storage Facility (a nuclear fuel reprocessing facility); the Slagging Pyrolysis Incinerator (a low-level nuclear waste reduction facility); the liquid Metal Fast Breeder Reactor Program; and the Civilian Radioactive Waste Management Program.

- Conducted performance-based management assessments and simulated NRC inspections on quality assurance programs for nuclear power utilities and Department of Energy.
- Conducted oversight inspections of low-level radioactive waste activities that included project management, geographic information systems, public involvement, quality assurance, and site screening. Contributed to the development of a licensing plan for the LLRW regulator.
- Developed a management control system to integrate and control all management and technical processes for a single-site, two unit nuclear utility; and contributed to the development of a similar system for a large utility with four nuclear sites.
- Principal author of the quality assurance requirements document (DOE/RW 0333P) for the siting, design, and construction of high-level radioactive waste storage and disposal facilities owned by the Department of Energy under the Office of Civilian Radioactive Waste Management.

EDUCATION:

- X Bachelor of Science, Business Administration
University State of New York, Albany, NY

PROFESSIONAL CREDENTIALS:

- X Professional Engineer, Quality Engineering, California, 1977, No. 1709
- X Certified Lead Auditor - NQA-1
- X ASQC Certified Quality Engineer, E-4108
- X ISO 9000 Quality Systems Auditor, No. Q04139

PROFESSIONAL RECOGNITION:

- X Member, American Society of Mechanical Engineers (ASME)
- X Senior Member, American Society of Quality Control (ASQC)
- X Past Chairman, Subcommittee for Operational QA Handbook
- X Past Member, DOE QA Review Group for DOE QA Rules and Safety Guides
- X ISO 9000, Lead Assessor Training and Examination
- X External User Review Group for ANSI/ASQC E4

SECURITY CLEARANCE:

- Department of Energy "Q" (granted 1993 expired 2003)