



TENNESSEE SECTION
KNOXVILLE BRANCH

June 24, 2015

Mr. Matt Caskey, P.E.
Chair of Tennessee Section Awards Committee
Geopier Foundation Company
5087 Brian Ridge Rd.
Arlington, TN 38002

Subject: Knoxville Branch Nomination for Daniel B. Barge, Jr. Award for Distinguished Service

Dear Mr. Caskey:

The ASCE Knoxville Branch nominates Dr. Daryl Armentrout, PhD, P.E. for the Daniel B. Barge, Jr. Award for Distinguished Service. Dr. Armentrout has forty five years of experience in engineering and management at the Tennessee Valley Authority (TVA), and two years of experience in deep well drilling and oil and gas recovery with Humble Oil and Refining Company (now named ExxonMobil). Dr. Armentrout is involved in many different engineering organizations, and has made significant contributions to the American Society of Civil Engineers (ASCE) and other engineering organizations throughout his career. Specific memberships and accomplishments include:

- Fellow and Life Member of ASCE
- Past-President, Tennessee Valley Section, ASCE, 1979
- Past-President, Knoxville Branch, ASCE 1973
- Life Member, National Society of Professional Engineers
- Past-President, Tennessee Society of Professional Engineers, 1985-1986
- Member of the United States Society on Dams
- ASCE appointed Senior Program Evaluator for ABET, Inc.
- Mentor for ABET Program Evaluators Candidates.
- Member of ASCE Committee on Accreditation Operations
- Member of the Board of Advisors for the Civil and Environmental Engineering Department at the University of Tennessee
- Past-Chairman, Local Federal Coordination Committee, Greater Chattanooga Area Combined Federal Campaign, raising over \$1 million annually

- Past-President and current Advisor, Great Smoky Mountains Alumnus Chapter, Tau Beta Pi
- Corresponding Member of ASCE Technical Committee on Practices to Reduce Failures and ASCE Committee on Accreditation Operations;
- Member of the Technical Society of Knoxville and the Chattanooga Engineers Club
- Author of several publications in professional and engineering journals.
- Currently serves as an elder at Cedar Springs Presbyterian Church in Knoxville and teaches small group Bible studies.

Dr. Armentrout's career with TVA spanned 45 years, and encompassed many different projects as both a structural engineer and a manager. A summary of his work experience is attached. One of Dr. Armentrout's most important accomplishments was developing a new design approach to the nuclear reactor containment building. This new design approach included use of a post-tension concrete structure and a steel liner anchored to the concrete inside. He worked in conjunction with other engineers and Dr. Edwin Burdette of the University of Tennessee to complete an extensive testing program. Dr. Armentrout eventually took that research and developed a finite element model which he used to complete his doctorate program in civil engineering at the University of Tennessee. This design was implemented at the Bellefonte Nuclear Plant in Alabama. In contrast, the Sequoyah and Watts Bar Nuclear plants in Tennessee have a reinforced concrete containment building with a self-supporting steel liner inside.

Dr. Armentrout's contributions to ASCE have included serving at the Branch and Section levels. He has served in officer positions, achieving the office of President of both the Knoxville Branch and the Tennessee Valley Section. He has continued to teach classes in engineering licensure and ethics in the University of Tennessee. The Work experience attachment also summarizes the awards Dr. Armentrout has won. A summary of over 18 publications Dr. Armentrout has written, and presentations that he has made is not included in order to be brief.

Dr. Armentrout is truly a worthy candidate for the 2015 Daniel B. Barge, Jr. Award for Distinguished Service. In fact, Dr. Armentrout was a friend and colleague of Daniel B. Barge Jr., and exhibits the same level of service and dedication. When in Nashville, he would regularly visit with Mr. Barge. It was largely through Mr. Barge's efforts that the Tennessee Section of ASCE was formed from the three sections that formerly comprised Tennessee ASCE members. Dr. Armentrout has also served ASCE and the profession of engineering in a remarkable and award-worthy way. If you have questions or need additional information, please call me at 865-689-1395. We appreciate your consideration.

Sincerely,

Helen S. Hennon, P.E.
2014-2015 ASCE Knoxville Branch President

DARYL R. ARMENTROUT, Ph.D., P.E.

Work Experience Summary

As Senior Advisor in Environmental Services at the Tennessee Valley Authority, he advises the senior management on matters related to environmental services and systems support for TVA's fleet of hydro, fossil, and nuclear generation units.

- Provides advice on matters related to environmental services and systems support for TVA's fleet of hydro, fossil, and nuclear generation units.
- Lead an assessment of the support services (\$200 million annual reimbursable) within TVA's Generation Group to determine both the taxonomy of services being provided and the appropriate business sourcing models for providing these services.
- Mentors young TVA engineers and managers in developing skills in leadership and ethics; encourages young engineers to pursue licensure as Professional Engineers.

Provided environmental engineering and field services to TVA's organizations (Fossil Power, Hydro Power, Power System Operations, and Nuclear Power). Also provides these services to organizations outside of TVA.

- Directed a team of engineers and technicians that provides environmental services to TVA organizations. Included in these services are ground water and storm water monitoring and sampling to maintain TVA's compliance with environmental law, collecting surface water profiles in order to maintain water quality of TVA reservoirs, manifesting and managing hazardous waste disposals, and the operations of a waste water treatment plant for TVA's Watts Bar Nuclear Plant.
- Provide environmental services to the U.S. Forest Service and the US EPA, including a source water protection project for Native Tribes in the southeast.
- Taught, as an adjunct to the Civil Engineering Faculty at The University of Tennessee, two courses in engineering professional development.

Identified opportunities for strengthening TVA's effectiveness through partnering and contracts services. Some examples of the major tasks accomplished include:

- Prepared white papers for identifying outsourcing opportunities, focusing on showing how outsourcing can strengthen TVA's ability to manage its broad range of activities.
- Also prepared a white paper defining the purposes of grants and cooperative agreements in TVA. At the time there were no controlling procedures in TVA for describing these types of contract instruments.
- Authored ***RSO&E Standard Processes and Procedures (SPP-4.0), Supply Chain***, which, defined all the types of processes and instruments used for purchasing and selling of materials, equipment, and services.

Provided business integration and direction for developing a suite of products and services based on TVA's water management expertise.

- Directed the development of water resources related products and services for marketing to state agencies and other governmental agencies, as well as to the private sector.
- One of the major products developed was named Integrated Pollutant Source Identification (IPSI). This product provided a process for estimating specific point and non-point pollutants in a watershed. External revenues, generated from this service, have been in excess of \$3 million.

Established and managed a program of business and marketing support for the Norris Engineering Laboratory.

- Provided customer focus and client management for TVA Engineering Laboratory in Norris, Tennessee.
- Identified business opportunities, both within and external to TVA, for providing specialized, multi-disciplinary hydraulics expertise and services, in support of TVA's environmental stewardship and economical power production.

Provided customer focus and client management for TVA Engineering & Technical Services.

- Identified power generation and transmission related business opportunities both within and external to TVA. Developed planning models for providing, more competitively, engineering and technical services to TVA in preparation for deregulation.
- Led a TVA task force that evaluated air quality related uncertainties for planning future environmental strategies.

Provided oversight of engineering, procurement, and construction work at Watts Bar Nuclear Plant to assure that quality and regulatory requirements were met prior to commercial operation of Unit 1.

Directed nuclear assurance audits and assessments for all TVA nuclear plants.

- Managed the nuclear quality audits of TVA's nuclear operations, engineering, modifications, maintenance, security, chemistry, emergency preparedness and radiological control for five commercial nuclear units.
- Directed TVA participation in the Cooperative Management Audit Program which cooperatively conducted QA audits at other utilities in the United States, an initiative that increased the credibility of TVA nuclear assurance program.

Directed material and procurement quality supplier audits and inspections for TVA's nuclear power program.

- Consolidated all nuclear procurement quality assurance functions (manufacturing inspections and supplier nuclear auditing) into one organization (approximately 80 employees). Managed all procurement quality assurance activities for TVA nuclear program. Restructured this group to be more efficient in performing these tasks.
- Directed the evaluation and approval of more than 600 suppliers of nuclear-grade material, equipment and services. Controlled the quality assurance requirements for approximately \$50 million annual procurement of nuclear grade materials and equipment.

Directed the cost estimating, budget planning and scheduling for a \$1 billion annual capital engineering and construction program.

- Represented engineering and construction (OEDC) on TVA's Strategic Planning Committee.
- Led a management review and a follow-up review of TVA's quality assurance program, making recommendations for improvements in both the OEDC and Power organizations.
- Directed TVA activities under the Hydroelectric and Water Resources Protocol between the United States and China, which included seminars in both the US and China. The focus of these seminars was to teach TVA's principles in integrated resource management.

Established and managed an engineering support staff.

- Initiated and managed TVA's first computer aided design and drafting service and design engineering modeling of power plants.
- Directed the development of computerized business information systems for TVA's design engineering and directed the development of TVA's first computerized microfilm records management system.

Provided structural design services for TVA power facilities.

- Designed structural features of fossil and nuclear power plants, including the main steel in the powerhouse, turbine buildings, and precipitator support structures at Cumberland, Bull Run, Kingston Fossil Plants and Bellefonte and Sequoyah Nuclear Plants. Designed switchyard structures at Shawnee Fossil Plant.
- Developed design criteria for the Bellefonte Nuclear Plant containment structure, including research leading toward a doctorate degree in civil (structural) engineering.

Prepared plans and provided technical field support for drilling oil wells for Humble Oil and Refining Company (now named ExxonMobil) in Louisiana.

Education

Harvard University, John F. Kennedy School of Government, Cambridge, MA, Graduate - Senior Executive Fellow (SEF) Program, 1983

The University of Tennessee, Knoxville, TN, B.S. Civil Engineering, 1965 and Ph.D. Civil Engineering, 1981

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA, M.S. Structural Engineering, 1968

Grace College, Winona Lake, Indiana, Liberal Arts (Mathematics), 1960 - 1962

Awards

- Distinguished Service Award, Tennessee Society of Professional Engineers, Knoxville Chapter, 2012
- *Marquis Who's Who* (2011 Edition)
- Outstanding Alumni Award, The University of Tennessee, Civil and Environmental Engineering, 2009
- TVA Federal Engineer of the Year Award and Top Ten Finalist in the National Society of Professional Engineers Federal Engineer of the Year Award, 2009
- *Marquis Who's Who* in Science and Engineering (2006-2007 Edition)
- Chi Epsilon Chapter Honor Member, The University of Tennessee, 2006
- American Society of Civil Engineers, Tennessee Section, Government Engineer Award, 2003
- Tennessee Valley Authority Environmental Excellence Award for Management Commitment, 2002
- United States Office of Personnel Management, Certificate of Achievement, Combined Federal Campaign of Chattanooga, 1996
- TVA Nuclear "Power of Excellence Award" for outstanding performance in support of the ASME/Regulatory Issues program assessment at Sequoyah Nuclear Plant, 1993
- American Association of Engineering Societies, *Who's Who in Engineering*, Sixth Edition
- Outstanding University of Tennessee Engineering Alumnus, 1988
- Tennessee Society of Professional Engineers Presidential Award, presented by grateful membership for outstanding service, dedication, and professionalism, 1987
- Outstanding Young Member Award, American Society of Civil Engineers, Knoxville Branch, 1975
- Outstanding Young Engineer Award, Tennessee Society of Professional Engineers, Knoxville Chapter, 1974
- National Science Foundation Fellowship at Virginia Polytechnic Institute and State University, 1966-1968
- Tau Beta Pi, Chi Epsilon, Phi Kappa Phi, and Sigma Xi honorary societies