Gary L. Stevens, P.E.

Senior Materials Engineer

Education

MS, Mechanical Engineering, San Jose State University, San Jose, CA, 1991
BS, Mechanical Engineering, California Polytechnic State University, San Luis Obispo, CA, 1981

Professional Associations

Registered Professional Mechanical Engineer, State of California, since 1986
Registered Professional Mechanical Engineer, State of Colorado, since 2000
Registered Professional Mechanical Engineer, State of Maryland, since 2010

Professional Experience

2015 to Present	U.S. Nuclear Regulatory Commission, Rockville, MD Office of Nuclear Reactor Regulation Senior Materials Engineer
2010 to 2015	U.S. Nuclear Regulatory Commission, Rockville, MD Office of Nuclear Regulatory Research Senior Materials Engineer
1999 to 2010	Structural Integrity Associates, Inc., Centennial, CO Senior Associate
1996 to 1999	Structural Integrity Associates, Inc., San Jose, CA Associate
1995 to 1996	Structural Integrity Associates, Inc., San Jose, CA Senior Consultant
1981 to 1995	GE Nuclear Energy, San Jose, CA Senior Engineer

Summary

Mr. Stevens has 34 years of technical and supervisory experience in the nuclear energy field. His experience includes reactor pressure vessel integrity evaluation and regulatory experience, ASME Code stress, fatigue, and fracture mechanics analyses, analytical computer applications, and on-line fatigue monitoring of critical plant components. Mr. Stevens also has significant business and project management experience, which includes technical project management, technical proposal preparation and related customer interface, hardware design interface, and computer application development and management.

Mr. Stevens joined the U.S. Nuclear Regulatory Commission (NRC) in January 2010 as a Senior Materials Engineer in the Office of Nuclear Regulatory Research in Rockville, MD, where he contributed to nuclear reactor pressure vessel embrittlement research. This research included projects related to the technical bases for reactor pressure vessel fracture toughness requirements (10 CFR 50 Appendix G), and preparation of several regulatory guides and supporting technical bases documents, including one for the Alternate Pressurized Thermal Shock Rule (10 CFR 50.61a). Mr. Stevens also participated in the NRC's Extremely Low Probability of Rupture (xLPR) project, which is a major software project devoted to evaluating the probability of rupture in nuclear plant piping systems, and he hosted several public meetings on a variety of technical topics.

Since 2010, Mr. Stevens has led the NRC's research efforts on environmentally assisted fatigue in nuclear power plant components. Current activity in this research area includes preparation of Revision 1 to Regulatory Guide 1.207, "Guidelines For Evaluating the Effects of Light-Water Reactor Coolant Environments in Fatigue Analyses of Metal Components," and the supporting technical basis document, NUREG/CR-6909, Revision 1, "Effect of LWR Coolant Environments on the Fatigue Life of Reactor Materials." Mr. Stevens is also a technical contributor to the NRC's Subsequent License Renewal efforts for plant operation beyond 60 years.

Mr. Stevens has been an attending member for several ASME Section XI Committees since the early 1990s. His current participation includes the Subgroup on Evaluation Standards (where he has served as secretary since 2002), the Executive Committee on Nuclear Inservice Inspection, and the Standards Committee on Nuclear Inservice Inspection. As part of Standards Committee membership, Mr. Stevens collects and manages all NRC technical input for all ASME Section XI ballot actions and for NRC Rulemaking efforts.

In March of 2015, Mr. Stevens moved to the Office of Nuclear Reactor Regulation where he works on a variety of reactor pressure vessel safety evaluations associated with licensee submittals (examination relief requests, pressure-temperature curve submittals, etc.). He also was the primary author for a Regulatory Issue Summary (RIS) issued in 2014 that provides clarification of reactor pressure vessel fracture toughness requirements.

At Structural Integrity Associates, Mr. Stevens was responsible for a variety of projects for both PWR and BWR systems. These included the development of Class 1 fatigue management programs for plant license renewal applications (including environmental fatigue-related issues), the management, development, and installation of on-line fatigue and fatigue crack growth monitoring systems, finite element model stress and fatigue analyses, and a variety of fracture mechanics applications including limit load and linear elastic fracture mechanics methodologies. He was Structural Integrity's Product Lead for BWR License Renewal Services, BWR Fatigue Monitoring, and BWR Pressure-Temperature Curves. Mr. Stevens was actively involved with developing nuclear plant Class 1 fatigue management programs. He also was a key contributor to the fracture mechanics work related to BWR internals, which was developed under funding from the BWR Vessel and Internals Project (BWRVIP).

At GE, Mr. Stevens began his career as a participant in the Edison Engineering Training Program,

which provided three rotating work assignments before participants accepted a permanent position. His rotational work experience included nuclear fuel channel design, computer program design and development, spare parts, document database development, and structural analysis and design. After selecting a permanent position in March 1983, Mr. Stevens spent over 12 years performing ASME Code stress, fatigue, and fracture mechanics evaluations for BWR vessel, piping, and vessel internals components. He was a key participant on most BWR vessel internals structural issues from the first significant incidences of detected cracking in 1993. During his tenure at GE, Mr. Stevens became recognized as a structural analysis expert for BWR services, he received the prestigious "Young Engineer Award" for his contributions in the structural analysis area, and he received the "Product Application - Service Engineering Award" for his successful implementation of thermal cycle monitoring in Japan.

Over his career, Mr. Stevens has authored more than 40 technical papers covering all of the technical areas in which he worked (bibliography attached). He has also provided selected technical training to clients in the areas of fatigue and fracture mechanics. Mr. Stevens has developed an extensive working knowledge of the stress, fatigue and fracture mechanics areas through this experience, and he has gained related computer and analysis experience in several computer environments (C, FORTRAN, BASIC, UNIX, and HP BASIC). In addition, he has extensive past experience in the use and application of the ANSYS finite element computer code to structural evaluation of nuclear components.

PROFESSIONAL PUBLICATIONS

Master's Thesis: Stevens, Gary L., "Simulation of an Unsteady Thin Oil Film," A Thesis Presented to the Faculty of the Department of Mechanical Engineering, In Partial Fulfillment of the Requirements for the Degree of Master of Science, San Jose State University, May 1991.

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[11] Stevens, G. L., Gerber, D. A., and Rosinski, S. T., "Latest Advances in Fatigue Monitoring Technology Using EPRI's FatiguePro Software," Paper ID Number: D3-A1-US, 15th International Conference on Structural Mechanics in Reactor Technology (SMiRT-15), Seoul, Korea, August 15-20, 1999.

[12] Gore, P., Wilton, B., Mattson, R. A., Langdon, J. W., Yemma, L., and Stevens, G. L., "Alternate Core Plate Rim Hold-Down Bolt Evaluation," ICONE-8260, Proceedings of ICONE 8, 8th International Conference on Nuclear Engineering, Baltimore, MD, April 2-6, 2000.

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[45] Kirk, M., Stevens, G., Erickson, M., Server, W. and Gustin, H., "Options for Defining the Upper Shelf Transition Temperature (T_C) for Ferritic Pressure Vessel Steels,"PVP2015-45307, ASME, 2015 Pressure Vessels and Piping Conference, Boston, MA, July 19-23, 2015.

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