


| United States Nuclear Regulatory Commission Official Hearing Exhibit | |
|--|---|
| In the Matter of: | Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3) |
|  | ASLBP #: 07-858-03-LR-BD01 |
| | Docket #: 05000247 05000286 |
| | Exhibit #: NRC000103-00-BD01 |
| | Admitted: 10/15/2012 |
| | Rejected: |
| Other: | Identified: 10/15/2012 |
| | Withdrawn: |
| | Stricken: |

NRC000103
Submitted: March 30, 2012

Statement of Professional Qualifications

Allen L. Hiser, Jr.

**Senior Technical Advisor for License Renewal Aging Management
Division of License Renewal
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission**

Summary

Dr. Allen Hiser, Jr., is the Senior Technical Advisor for License Renewal Aging Management in the Division of License Renewal, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (NRC), in Washington, District of Columbia (DC). His academic credentials include a doctorate in materials science and engineering and degrees in mechanical engineering. His technical background includes extensive involvement in most of the challenging materials engineering issues related to safe nuclear power plant operations, including neutron embrittlement of reactor pressure vessels, integrity of reactor components (pressure vessel, steam generators including tubes, piping), and management of aging effects in reactor materials for license renewal. Dr. Hiser has numerous publications and has extensive experience in making presentations to a variety of technical and public audiences, including the Advisory Committee on Reactor Safeguards. Dr. Hiser has been a participant in American Society of Mechanical Engineers (ASME) Working Groups on Flaw Evaluation and Pipe Flaw Evaluation dating back in the early 1980s. For some of this time, he was the voting member and the NRC representative of these working groups. Currently, he is a member of the Special Working Group on Nuclear Plant Aging Management.

Education:

University of Maryland (College Park, Maryland), Mechanical Engineering, BS, 1981
University of Maryland (College Park, Maryland), Mechanical Engineering, MS, 1989
Johns Hopkins University (Baltimore, Maryland), Materials Science & Engineering, PhD, 2003

Experience:

United States Nuclear Regulatory Commission

February 2009 to Present:

Senior Technical Advisor for License Renewal Aging Management
Division of License Renewal / Office of Nuclear Reactor Regulation

This position is actually self-explanatory, in that I provide advice to management, division and higher, related to license renewal aging management issues. My official responsibilities include the technical, safety, and regulatory compliance reviews of a variety of mechanical and materials engineering topics, including metal fatigue time-limited aging analyses, fatigue monitoring programs, flow-accelerated programs, steam generator inspection programs, and small bore socket weld inspection for applicants for license renewal. I provide advice to management, supervisors and staff to support the activities of the division, including review of license renewal applications, preparation of guidance for future reviews

October 2005 to February 2009:

Chief, Steam Generator Integrity and Chemical Engineering Branch
Division of Component Integrity / Office of Nuclear Reactor Regulation

This position included supervision of about 9 staff, with a focus on issues related to steam generator integrity and chemical engineering. The steam generator integrity work focused on tube integrity issues, including review of license amendment requests to limit the scope of inspection in the tube contained in the tubesheet. The chemical engineering work included a range of issues, including flow-accelerated corrosion, Generic Safety Issue 191 (potential for clogging emergency core cooling system strainers after a loss-of-coolant accident), alternative source term, reactor water chemistry, and degradation of neutron absorbers. The scope of work included review of license renewal applications, power uprate requests, license amendment requests, and other licensing issues. My responsibilities included oversight of reviews by branch staff, review and approval of work products from my branch, including requests for additional information related to the reviews and safety evaluation report.

October 2003 to October 2005:

**Assistant Chief, Materials Engineering Branch

Division of Engineering Technology / Office of Nuclear Regulatory Research

(** After a reorganization, became Chief, Component Integrity Section)

This position included supervision of about 12 staff, with a focus on materials related issues, including stress corrosion cracking, fatigue, boric acid corrosion, reactor vessel embrittlement and integrity, nondestructive testing, and steam generator tube integrity. The specific duties of the position were supervision of staff, development of research plans, review of contracting documents including statement of work, and review of work products such as technical reports. Significant issues during this time include a time-based predictive analysis of progression of the boric acid corrosion hole in the head of the Davis-Besse reactor pressure vessel, and development of the technical basis for revisions to the pressurized thermal shock rule (PTS).

November 2001 to October 2003:

Senior Materials Engineer

Materials and Chemical Engineering Branch

Division of Engineering / Office of Nuclear Reactor Regulation

During this period I was the NRC's lead technical reviewer for reactor vessel head penetration nozzle cracking. My responsibilities included development of agency policy on appropriate inspections, including implementing documents such as Orders and Bulletins, review and evaluation of licensee submittals and inspection plans, communication and coordination of these plans through NRR and agency management (EDO, Commissioner TAs and Commissioners), extensive activities to brief and coordinate with external groups, including ACRS, NEI, the Materials Reliability Project, and various media groups. These activities included extensive interactions with many licensees, to clarify understanding of their inspection plans and results, and to elicit more thorough and effective inspections than the licensee may have initially committed to implementing. Stemming from this work, I later testified in criminal trials for several utility personnel charged with providing false information to the NRC.

September 1994 to November 2001:

Materials Engineer

Materials and Chemical Engineering Branch

Division of Engineering / Office of Nuclear Reactor Regulation

My responsibilities have focused on evaluation of industry submittals related to the structural integrity of reactor components, in particular the reactor pressure vessel (RPV), reactor vessel

internals, and the reactor coolant system. The topics of these submittals have included license renewal, pressure-temperature curve submittals and other RPV related items, cracking of RPV internal components and a petition for rulemaking to modify Appendix G to 10 CFR Part 50 (on-going). I have served as a branch lead in reviewing pertinent RES programs and tracking user needs in this area, as well as a lead reviewer on several generic efforts. From 9/94 to 12/97, I was on an NRC Senior Graduate Fellowship at Johns Hopkins University, as a full-time graduate student. Prior to my return to NRC, I completed most of the university requirements for the degree. My dissertation was completed in fall of 2002 and my degree will be conferred in May 2003. The research that I pursued evaluates the suitability of ultrasonic attenuation as a parameter for determining the neutron embrittlement of RPV steels.

January 1990 to September 1994:

Materials Engineer

Materials Engineering Branch

Division of Engineering Technology / Office of Nuclear Regulatory Research

My responsibilities included initiating, procuring, planning, coordinating and managing research efforts focused on the structural integrity of primary system components (principally the RPV and piping) of nuclear reactors. The emphasis of this work was on fracture mechanics and other material properties of RPV and piping materials, and degradation in the properties due to neutron embrittlement and exposure to other characteristics of the operating conditions; development and validation of fracture mechanics analysis methods for assessing the structural integrity of reactor component; and, methods for non-destructive evaluation of reactor components. Other responsibilities included the development of regulations and regulatory guides regarding the structural integrity of reactor components; work with the codes and standards organizations, and coordination of meetings and interactions with international colleagues. An additional area of responsibility was in support of NRR licensing activities, through the review of licensing submittals and the performance of comparison calculations to benchmark the licensee submittals, such as in the case of evaluations of the Yankee Rowe RPV.

Materials Engineering Associates, Inc.

January 1982 to January 1990:

Mechanical Engineer

Lanham, Maryland

My responsibilities included the development, planning, and execution of fracture mechanics research programs, principally looking at environmental effects (e.g., neutron embrittlement, high or low test temperature, and aqueous environment) on the fracture mechanics properties of structural steels, generally steels (weld metals, plates and forgings) used in the fabrication of components in nuclear power plants, principally the reactor pressure vessel and piping. A major portion of my time (~60%) was spent on planning and coordinating utilization of manpower and equipment, procurement of needed equipment and materials, and coordinating with vendors for fabrication of test specimens and fixtures. In addition, ~20% was spent on preparation of reports and presentation material, ~10% on industry interactions (ASME Code, ASTM standards, etc.), and ~10% on interactions with sponsors. During my entire tenure I was active in standards and code committees. Projects of note during this period include: (1) fracture toughness of irradiated low upper shelf RPV weld metals (including correlations between Charpy upper shelf energy and fracture toughness), (2) dose rate effects on neutron embrittlement of RPV steels, and (3) development of the Piping Fracture Mechanics Data Base. During this time I supervised three technicians.

ENSA, Inc.

August 1981 to January 1982:
Mechanical Engineer
Buffalo, New York

This job was a transition from a part-time position during school to a post graduation position with a company in the Washington, DC area. My duties included fracture toughness testing on irradiated materials, including development of test procedures and test equipment, test execution and post-test analysis of data.

US Naval Research Laboratory

June 1977 to August 1981:
Student Trainee
Washington, DC

This job was part-time during school (20 hours per week) and full-time (40 hours per week) during school breaks. My duties included fracture toughness testing on irradiated materials, software development, data analysis and graphics preparation. Skills that I developed during this time include the use of servo-hydraulic test equipment, hardness tester, Charpy-V test machine and various computer systems, along with an introduction to general engineering methods and procedures.

Honors/Awards:

NRC Meritorious Service Award – May 2005
NRC Performance Awards –1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010
NRC Senior Graduate Fellowship – September 1994 to December 1997
NRC High Quality Increase / Special Act Awards – December 1991, March 1992, December 1993, September 1998, April 2002, November 2003, May 2006
NRR Employee of the Month – July 2001
Man of the Year awarded by South Bowie Boys & Girls Club – February 2001

Publications:

Over 90 publications, including:
"Determination of Toughness and Neutron Embrittlement for Reactor Pressure Vessel Steels Using Ultrasonic Measurements," PhD dissertation submitted to Johns Hopkins University
September 2002