

Docket No. 50-413/414 - OLA Official Exh. No. 48 stc

RAS 8310

In the matter of Duke CatawbaStaff af IDENTIFIED 7/14/04Applicant ✓ RECEIVED 7/14/04

Intervenor _____ REJECTED _____

Cont'g Off'r _____

Contractor _____ DATE _____

Other _____ Witness _____

Reporter Robert C. Harvey**ROBERT C. HARVEY****Duke Power****526 South Church St****Charlotte, NC 28202**Attachment 2DOCKETED
USNRC

August 9, 2004 (11:45AM)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF**QUALIFICATIONS:**

25 years of Thermal Hydraulic and Safety Analysis experience supporting the reload and licensing of pressurized water reactors. Mr. Harvey has performed numerous safety analysis calculations using the RELAP4, RELAP5, RETRAN, TOODEE-2, CONTEMPT-LT, and MAAP computer codes.

EDUCATION:

Nuclear Engineering Graduate Studies, University of Lowell (1980-1982)
BS, Nuclear Engineering, University of Lowell, 1979
Supervisory Training, Yankee Atomic Electric Company, 1994
MAAP Code Utilization and Phenomena seminar, Fauske & Associates
Two-Phase Gas-Liquid Flow Seminar, University of Houston
Nuclear Power Reactor Safety Seminar, Massachusetts Institute of Technology (MIT)
Simulator Training, Combustion Engineering (CE)
Two-Phase Flow and Heat Transfer, Rensselaer Polytechnic Institute

EXPERIENCE:**Senior Engineer - Duke Power Company**

2/99 - present

Lead Engineer responsible for the LOCA analysis supporting the Oconee, McGuire, and Catawba nuclear plants. Responsibilities include providing interface and oversight of the vendor analyses. In addition, performs LOCA mass and energy release calculation used as input to the containment analysis and performs UFSAR Chapter 15 non-LOCA safety analysis. Specific accomplishments include supporting the Oconee reanalysis to support steam generator replacement and the transition to best-estimate LOCA analysis methods for the McGuire and Catawba units. Serves as a member of the Emergency Operations Facility (EOF) in the position of Accident Assessment Manager.

Provided an independent assessment of the Texas Utilities LOCA analysis supporting the transition to Westinghouse fuel.

Engineer - Duke Engineering & Services - (12/97 - 1/99); Senior Nuclear Engineer - Yankee Atomic Electric Company (5/91 - 11/97)

Lead Engineer for pressurized water reactor (PWR) LOCA analyses supporting licensing for the Yankee Rowe, Maine Yankee and Seabrook Nuclear Power Stations. Areas of involvement included LOCA and containment analyses and severe accident analyses related to Individual Plant Evaluations (IPEs). Specific accomplishments included supporting the Maine Yankee small break loss of coolant accident (SBLOCA) analysis to justify a return to 2440 MWth operation, and providing oversight of Siemens Power Corporation SBLOCA re-analysis. Served as a response team member to Maine Yankee 1996 Independent Safety Assessment.

In addition, supported General Electric (GE) in severe accident analysis for simplified boiling water reactor (SBWR) certification and provided consulting to the Siemens fuel user group in the area of LOCA analysis.

Provided support to Northeast Utilities on severe accident management guidelines (SAMGs) for Millstone Units 2 & 3 and the Seabrook Nuclear Power Station and performed a technical review of ABB/CE reload analysis of St. Lucie Unit 2 for FP&L.

***Senior Engineer - Yankee Atomic Electric Company
5/88 - 5/91***

Lead Engineer for Yankee Rowe and Seabrook LOCA analysis related activities and for all severe accident analysis activities. Duties involved reload licensing analysis for the Yankee Rowe plant and vendor oversight of Seabrook LOCA analysis activities. Supported the plant specific model development and certification of the Yankee Rowe plant simulator. Participated in the Yankee Rowe plant life extension (PLEX) effort providing support in severe accident evaluations and pressurized thermal shock (PTS) analysis. Also, provided training to Texas Utilities personnel in LOCA analysis method applications.

***Nuclear Engineer - Yankee Atomic Electric Company
5/85 - 5/88***

Lead Engineer for Yankee Rowe LOCA analysis related activities. Activities included large break loss of coolant accident (LBLOCA) model development and applications related to reload licensing, steam generator tube rupture (SGTR) analysis and plant request responses. Participated in the development of Yankee Rowe, plant specific emergency operating procedures (EOPs) based on the generic Westinghouse Owners Group (WOG) emergency response guidelines (ERGs). Performed a plant specific analysis to support deviations from the generic WOG guidelines. Also, provided training to Korean Power (KEPCO) engineers in LOCA analysis methods.

Engineer - Yankee Atomic Electric Company

6/79 - 5/85

Performed LBLOCA analyses in support of reloads for the Yankee Rowe and Maine Yankee plants. Contributed to model enhancements of the LBLOCA methods used for Yankee Rowe. Participated in developing and assessing the RELAP5YA computer code used for PWR SBLOCA analysis.

PROFESSIONAL AFFILIATIONS/CERTIFICATIONS:

American Nuclear Society (ANS), Member
The Research Society of Sigma Xi, Associate Member
Registered Professional Engineer
North Carolina (Registration # 027387)
South Carolina (Registration # 22237)

SELECTED PUBLICATIONS:

1. Maine Yankee Steam Generator Tube Sleaving Thermal-Hydraulics and Safety Analysis Impacts, co-authors K. R. Rousseau, S. Palmer, P. A. Bergeron, presented at the American Power Conference, Chicago, Ill., 1995.
2. Maine Yankee Cycle 15 Core Performance Analysis, YAEC-1907, co-authors, January 1995.
3. Yankee Rowe Pressurized Thermal Shock, Thermal-Hydraulic Analysis, International Heat Transfer Conference, co-authors P. A. Bergeron, N. Fujita, August 1993.
4. Maine Yankee Level II PRA Results, ASME/JSME International Conference on Nuclear Engineering, co-author K. E. St. John, March 1993.
5. Thermal Hydraulics Analysis of the Yankee Plant Due to a Stuck Open PORV Using RELAP5/MOD3 Computer Code, RELAP5/TRAC-B International Users Seminar, co-authors W. S. Yeung, R. K. Sundaram, November 1991.
6. Yankee Plant Small Break LOCA Analysis, YAEC-1732, co-authors S. Mihaiu-Westerlind, R. K. Sundaram, July 1990.
7. Yankee Nuclear Power Station Core 21 Performance Analysis, YAEC-1731, co-authors, July 1990.
8. Yankee Nuclear Power Station Severe Accident Closure Submittal, YAEC-1711, co-authors, December 1989.

9. Plant-Specific Analysis to Support the Yankee Emergency Operating Procedures, YAEC-1663, co-authors, April 1989.
10. Seabrook Station Risk and Plant Response for Low Power Operating Conditions, YAEC-1623, co-authors, March 1988.
11. RELAP5YA Simulation of LOFT Small Break Experiments L3-6 and L5-1, Transactions American Nuclear Society, Volume 55, co-authors, L. Schor, November 1987.
12. Estimate of Peak Clad Temperature and Its Uncertainty in a Large Break LOCA at Yankee Nuclear Power Station, YAEC-1431P, co-authors, R. K. Sundaram, K. E. St. John, May 1984.
13. RELAP5YA - A Computer Program for Light Water Reactor System Thermal-Hydraulic Analysis, YAEC-1300P, co-authors, R. T. Fernandez, R. K. Sundaram, J. Ghaus, A. Husain, J. N. Loomis, L. Schor, R. Habert, October 1982.
14. RELAP4 and RELAP5 Calculation of LOFT L3-5 and L3-6 Experiments: Comparison to Data, ANS Specialists Meeting on Small Break Loss-of-Coolant Accident Analyses in LWRs, co-authors, L. Schor, J. N. Loomis, A. Husain, August 1981.
15. RELAP4 Analysis of CREARE Flashing Transients with Reverse Core Steam Flow, Transactions American Nuclear Society, Volume 38, co-authors G. J. Brown, A. Husain, August 1981.
16. Applications of a Lower Plenum Phase Separation Model to Yankee Rowe Large Break LOCA Analysis, YAEC-1231, Revision 1, co-authors, March 1981.
17. Maine Yankee Cycle 5 Core Performance Analysis, YAEC-1202, co-authors, December 1979.