

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SAFETY AND LICENSING BOARD

In the Matter of)
WISCONSIN ELECTRIC POWER COMPANY) Docket Nos. 50-266
(Point Beach Nuclear Plant,) 50-301
Units 1 and 2) (Repair to Steam Generator Tubes)

AFFIDAVIT OF JAI RAJ N. RAJAN

I, Jai Raj N. Rajan, being duly sworn, depose and state:

1. I am presently assigned as a Mechanical Engineer in the Mechanical Engineering Branch, Division of Engineering, Office of Nuclear Reactor Regulation.
2. A copy of my professional qualifications is attached to this affidavit.
3. The purpose of this affidavit is to address Board Question 2 raised by Judge Bloch during the September 9, 1982 telephone conference.

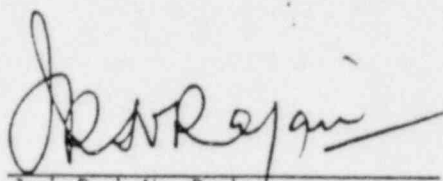
Board Question 2

On page 16 of the SER the Staff states that the computer analysis code, the WECAN code, which is currently under review by the Staff, is used to determine, et cetera. I just wanted to know from the Staff what we should take from that statement that it is currently under review. I would like to have a Staff opinion as to whether there is a question about its validity. Tr. 1331.

4. The WECAN Code has been verified and benchmarked for linear piping stress analyses by the Staff several months ago, prior to issuance of the SER. Determination of stress levels in the Point Beach tube/sleeve/braze configuration for pressure and temperature loading conditions involves a linear elastic analysis. The Staff, therefore,

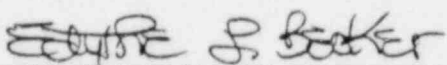
considers the WECAN Code acceptable for such an application.

5. The Code is currently being reviewed by the Staff and Oak Ridge National Laboratory for verifying its applicability to certain large non-linear dynamic analysis problems. This review is expected to be complete in the near future, but the results of this review will not affect the current Point Beach tube/sleeve analysis.



Jai Raj N. Rajan

Subscribed and sworn to before me
this 23 day of September, 1982.



Notary Public

My Commission expires: 7/1/86.

PROFESSIONAL QUALIFICATIONS

JAI RAJ N. RAJAN

U. S. NUCLEAR REGULATORY COMMISSION

MECHANICAL ENGINEERING BRANCH

DIVISION OF ENGINEERING

I am a mechanical engineer responsible for reviewing and evaluating safety analysis reports with regard to mechanical engineering aspects of components, the dynamic analyses and testing of safety related systems and components and the criteria for protection against the dynamic effects associated with postulated failures of fluid systems for nuclear facilities. I am the Mechanical Engineering Branch's principal reviewer on the issue of the structural integrity and plugging criteria of degraded steam generator tubes. I am also responsible for the review and evaluation of vibration problems of a generic nature in the piping systems and components of nuclear facilities.

I received a B.S. degree in 1953 from Lucknow University India majoring in Physics, Mathematics and Chemistry. In 1956 I received a B.S. in Civil Engineering from Roorkee University, India majoring in Structural and Hydraulic Engineering. In 1962 I received a M.S. degree from Duke University majoring in Applied Mechanics and Ph.D. degree in 1966 from the same university with majors in Fluid Mechanics. From 1960 to 1962 I was an instructor in structural engineering at Duke University. From 1962 to 1966 I was employed by the U.S. Army Research Office in Durham, N.C. as a research engineer conducting theoretical and experimental research in

high pressure pneumatic and hydraulic shock tubes and investigating wave propagation phenomenon in pipes. From 1966 to 1973 I worked as a project mechanical engineer and subsequently as a senior project mechanical engineer at the Naval Research and Development Center at Annapolis, Md. Major projects involved design analysis, test and evaluations of fluid piping systems and power fluid systems of advanced nuclear submarines. Investigations were multidisciplinary in scope utilizing advanced techniques. Mathematical models of power plant machinery and piping systems of nuclear submarines were developed and analyzed to determine system response to flow induced vibrations and hydraulic shock. Thermodynamic and hydrodynamic analyses of naval boilers and steam plants were conducted including full scale tests.

In April of 1974 I joined the U. S. Atomic Energy Commission prior to the formation of the U. S. Nuclear Regulatory Commission and have remained with the Mechanical Engineering Branch of the Division of Engineering as a mechanical engineer performing the type of work as previously described.

I have taught at the University of Maryland on a part-time basis since 1967 both at the graduate and undergraduate levels in courses of mechanics of materials, fluid mechanics and applied mechanics.

Publications include Journals of AIAA and ASME and I am an associate member of Sigma Xi honor society.