

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

PORTLAND GENERAL ELECTRIC COMPANY,  
ET AL.

(Trojan Nuclear Plant)

)  
)  
)  
)

Docket No. 50-344  
(Control Building)

AFFIDAVIT OF FRED CLEMENSON

STATE OF MARYLAND )  
COUNTY OF MONTGOMERY ) SS


I, Fred Clemenson, being duly sworn, depose and state:

1. I am a Senior Systems Analyst, Plant Systems Branch, Division of Operating Reactors, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.
2. I have prepared the statement of professional qualifications attached hereto, and, if called upon, would testify as set forth therein.
3. I am responsible for that part of the NRC Staff's review of the proposed modifications to the Trojan Control Building which deals with the effects of the proposed modification work on plant safety while the work is being performed. My specific areas of responsibility include the area of protection of safety-related equipment during construction work. Within the areas of my review responsibility, the matter described in Paragraph 4 below remains as an unresolved problem as of December 7, 1979.
4. Control of Construction-Generated Dust and of Construction Work Involved in Floor Slab and Wall Removal. Installation of the steel plates on the west wall of the Control Building requires that holes be drilled through the Control Building west wall. In addition, in its September 5, 1979 response to Staff questions, the Licensee identified certain areas in the Electrical Auxiliary Room in the Control Building where portions of the floor slab and walls are to be removed to allow anchoring of new walls to be built. These activities have a significant potential for generating dust and grit which could settle on electrical contacts in safety-related equipment and thereby render the contacts inoperable, unless affirmative measures are employed to preclude the spread of dust and grit. In addition, the work in removing portions of the floor slab

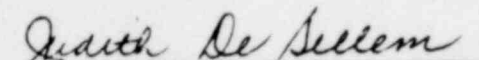
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and wall in the Electrical Auxiliary Room could damage safety-related equipment therein. The Licensee had not identified measures, other than the use of water sprays, that would preclude dust and grit from disabling electrical contacts on safety-related equipment or measures to protect such equipment in the Electrical Auxiliary Room from these construction activities. Therefore, the Licensee was requested by the Staff to do so in Staff questions 2 and 7 of September 28, 1979.

Status of Resolution. Licensee's November 21, 1979 response to question 2 of September 28, 1979 satisfactorily resolves the open items with regard to dust and grit generated from drilling through the Control Building walls. No response to Staff question 7 of September 28 has been received as of December 7, 1979 and, as such, the question as to dust control measures and protective measures for equipment for floor slab and wall removal operations remains unresolved.

  
Fred Clemenson

Subscribed and sworn to before me  
this 7th day of December, 1979.

  
Notary Public

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My Commission expires: 7-1-82 .

Fred Clemenson

PROFESSIONAL QUALIFICATIONS

PLANT SYSTEMS BRANCH

DIVISION OF OPERATING REACTORS

I am employed as a Principal Engineering Systems Analyst in the Plant Systems Branch, Division of Operating Reactors, U.S. Nuclear Regulatory Commission, Washington, D.C. My duties consist of reviewing and evaluating the associated safety considerations on nuclear plant systems and associated engineering fields on power, test and research reactors. In this capacity I am also responsible for coordinating the activities of other assigned branch members. I am responsible for providing technical input to various documents including Safety Evaluations, technical positions for Commission criteria as well as industry standards which have been assigned to the Branch.

After having served three years in the Navy (1942-1945) as an electronics technician, I attended University of Washington, Seattle, Washington and received a B.S. degree in Mechanical Engineering in 1948. Whereupon I was employed as a instructor by the Mechanical Engineering Department of Oregon State College, Corvallis, Oregon, 1949-1950 where I taught courses in Statics, Dynamics, Elements of Mechanisms, Strength of Materials and Machine Design. In September of 1950 I joined the General Electric Company's Reactor Design Division in Richland, Washington as a design engineer. From that time to the present, my professional experience has been in the field of nuclear engineering.

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I have been a licensed professional engineer in nuclear engineering from the State of California since March 1977, certificate number 1166.

At the General Electric Company I designed an automatic shutdown mechanism and a remotely operated handling system for radioactive materials.

From November 1951 to May 1956 I was employed by American Machine and Foundry Co., (AMF) New York, New York. There I assisted in activities related to the design and development of a wide variety of specialized mechanical equipment for the production reactors at Savannah River Project, and AMF's line of swimming pool type research reactors. During this time, I served as a development and testing engineer for the prototype and production models of the control and shutdown mechanisms for the Savannah River production reactors. Following this I served as the senior company representative, field engineer and consultant to E.I. DuPont de Nemours and Company during the installation, checkout and acceptance tests of the control, shutdown and refueling equipment designed by American Machine and Foundry Company on all five production reactors. Following this, I directed the design, development, assembly and testing of a versatile research reactor control rod drive mechanism and other accessories.

From May 1956 to June 1958, I was employed by Combustion Engineering Inc., Windsor, Conn. as a Nuclear Engineer III. During this time, I served as the mechanical core design group leader where I directed the design of refueling equipment, fuel elements and supporting structure for a submarine reactor. Patent applications were applied for on two

methods I developed to support the fuel elements.

From July 1958 to June 1961, I was employed as a Staff Engineer by General Nuclear Engineering Corporation, Duneden, Florida. I was responsible for the conceptual and detailed design of two prototype control rod drive mechanisms for a low enriched, gas-cooled nuclear power reactor, as well as a test stand to test a high temperature, high pressure gas manifold assembly. A patent application was submitted on the method I developed to decelerate a control rod.

From September 1961 to October 1963, I was employed by the Atomic Division, Nuclear Space Group of American Machine and Foundry Company, Greenwich, Conn., where I developed a remote handling system used in the maintenance and disassembly of the radioactive Nerva engine as well as assisting in other nuclear space proposals.

From October 1963 to April 1966, I was employed as a Senior Engineering Specialist by the Nuclear Division of Martin Marietta Company, Inc. During this time, I was responsible for the design and development of remotely operated handling equipment required in processing highly radioactive heat sources, the manufacturing tooling required in the manufacture of thermo-electric devices, and the manufacturing tooling utilized for the fabrication of the fuel elements and control rods for the MH-IA, a floating nuclear power plant built by the Department of the Army.

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From May 1966 to the present, I have been employed by the U.S. Atomic Energy Commission and U.S. Nuclear Regulatory Commission. During the first two years I was in the Division of Reactor Standards where I worked on the development of standards and assisted the Division of Reactor of Licensing on a number of projects. For the next three years I was a project leader in one of the boiling water reactor project branches in the Division of Reactor Licensing. In addition to working on a number of special technical assignments I participated in the review of the Southwest Experimental Fast Oxide Reactor (SEFOR) and the Enrico Fermi Atomic Power Plant Unit 2, a boiling water reactor.

From April 1972 to December 1975 I was assigned as a Senior Systems Engineer to the Auxiliary and Power Conversion Systems Branch of Division of Technical Review. I was responsible for the review of the design, development and operation of auxiliary and power conversion systems of BWRs, PWRs and HTGRs. I developed generic positions on specific NRC concerns such as Ultimate Heat Sinks, Fuel Cask Handling, Tornado Missiles, Turbine Missiles and Fire Extinguishants. I developed Standard Review Plans and participated in the development of industry standards on Safety Related Valves and Emergency Onsite Diesel Generator Fuel Oils Storage and Supply Systems.

From December 1975 to the present I've been a member of the Plant Systems Branch, Division of Operating Reactors. My duties in this branch consist of safety reviews and evaluation of systems design and

operation of nuclear power, test and research reactors. As required, I prepare safety evaluations and make presentations to the Advisory Committee on Reactor Safeguards. I have participated in the development of industry standards, Regulatory Guides, and NUREG documents relating to safety relief valves, emergency onsite diesel generators, heavy load handling equipment and reactivity control system requirements and modifications.

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