

UNITED STATES OF AMERICA  
BEFORE THE NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

'84 JAN 23 P12:53

AFFIDAVIT OF ROBERT D. POLLARD

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

I, Robert D. Pollard, hereby make my affidavit as follows:

Since 1976, I have been employed in the Washington, D.C. office of the Union of Concerned Scientists (UCS) as a nuclear safety engineer.

My formal education in nuclear design began in May, 1959, when I was selected to serve as an electronics technician in the nuclear power program of the United States Navy. After completing the required training, I became an instructor responsible for teaching naval personnel both the theoretical and practical aspects of operation, maintenance and repair for nuclear propulsion plants. From February, 1964, to April, 1965, I served as the senior reactor operator, supervising the reactor control division aboard the U.S.S. Sargo, a nuclear-powered submarine. In 1965, I was honorably discharged from the U.S. Navy, and attended Syracuse University, where I received the degree of Bachelor of Science magna cum laude in Electrical Engineering in June, 1969.

In July, 1969, I was hired by the United States Atomic Energy Commission (AEC) and continued as a technical expert with the AEC and its successor, the United States Nuclear Regulatory Commission (NRC), until February, 1976. After joining the AEC, I studied advanced electrical and nuclear engineering at the Graduate School of the University of New Mexico in Albuquerque. I subsequently advanced to the positions of Reactor Engineer (Instrumentation) and Project Manager with AEC/NRC. As a Reactor Engineer, I was primarily

responsible for performing detailed technical reviews analyzing and evaluating the adequacy of the design of reactor protection systems, control systems and emergency electrical power systems in proposed nuclear facilities. In September, 1974, I was promoted to the position of Project Manager and became responsible for planning and coordinating all aspects of the design and safety reviews of applications for licenses to construct and operate several commercial nuclear power plants. Attached are copies of the NRC's "job descriptions" for the positions of Reactor Engineer and Project Manager and of the last NRC performance appraisal of my work.

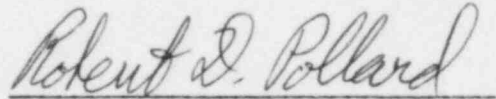
One of the specific duties I performed as a Reactor Engineer for the AEC was to participate as the technical representative of the Directorate of Licensing on technical committees of the Institute of Electrical and Electronics Engineers (IEEE). I worked for a period of two to three years on an IEEE committee developing standards to establish the minimum functional and design requirements for safety systems for nuclear power generating stations. These requirements included those pertaining to the single failure criterion, environmental and seismic qualification of safety-related equipment, and the independence of redundant safety systems.

As part of my duties with the AEC and NRC, I performed technical reviews, analyses and evaluations of designs of systems and components necessary to the safe operation of reactor facilities under normal, abnormal and emergency conditions for the purpose of determining whether such systems complied with NRC rules and provided an acceptable level of safety. Since coming to UCS, my job has required me to follow developments in the nuclear safety field. I testified as an expert witness in the TMI-1 restart proceeding.

Based upon my knowledge of NRC rules, engineering practice and nuclear plant design, I have reviewed the Three Mile Island Unit 1 emergency feedwater system. I have concluded that its design does not comply with NRC rules and that operation of TMI-1 would pose undue to risk to the health and safety of the public.

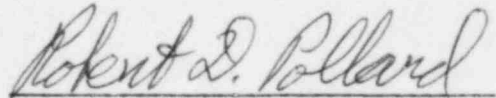
I drafted or supervised the drafting of all technical sections of the "Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System," dated January 20, 1984. I have read the final version of that Petition. The facts contained therein are true and accurate to the best of my knowledge and belief, as are the technical opinions.

By



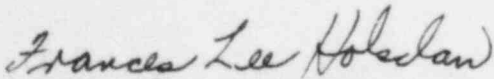
Robert D. Pollard  
Nuclear Safety Engineer  
Union of Concerned Scientists

I hereby affirm that the foregoing is true and correct to the best of my knowledge and belief.



Robert D. Pollard

Sworn and subscribed before me this 20<sup>th</sup> day  
of January, 1984, at Washington, D.C.



Notary Public, D.C.

My commission expires March 31, 1984

Electrical, Instrumentation and Control Systems Branch  
Directorate of Licensing

FUNCTIONAL STATEMENT:

Serves as a highly qualified specialist in the field of reactor instrumentation and control in performing technical reviews, analyses and evaluations of systems and component designs necessary to the safe operation under normal, abnormal and emergency conditions of power, testing, production, and research reactors, including DOD and AEC-owned reactors as well as licensed and authorized facilities.

REGULAR DUTIES:

Participates as a senior member of the Directorate of Licensing, Electrical, Instrumentation and Control Systems Branch, whose function is primarily one of performing technical reviews, analyses, and evaluations of designs of systems and components necessary to the safe operation of reactor facilities under normal, abnormal, and emergency conditions for the purpose of (a) determining the adequacy of the bases for such designs, (b) of determining the adequacy of such designs to meet these bases and to withstand the limits of environmental effects without loss of minimum required functional capabilities (c) of determining the acceptability of procedures for fabrication, inspection testing, and post-licensing surveillance of such designs, and (d) of developing guideline procedures, methods and models for the systematic evaluation of such designs by the Division.

Reviews Safety Analysis Reports as to the adequacy of the presented data pertaining to instrumentation, controls, and electric power and to the soundness of conclusions made on the basis of the presented information and prepare reports of such reviews.

Develops standard procedures, methods, and models for evaluations to determine whether or not the design of reactor protection systems, controls for engineering safety features, safety aspects of regulating systems, and emergency power systems is treated in an acceptable manner.

Evaluates industry and AEC-sponsored research and development programs directed towards establishment of additional basic information on reactor instrumentation and control, and to the use of such information for safety evaluation purposes, and correlates and interprets the results of such programs for the general use of the regulatory staff.

Prepares technical studies and reports bearing on unique and unusual developments in the field of reactor plant instrumentation, control, and electric power for presentation of the Advisory Committee on Reactor Safeguards.

Recommends, through the Branch Chief, safety research programs to be sponsored by the AEC.

Confers periodically with technical representatives of industrial organizations and other AEC divisions to discuss nuclear safety problems involving areas of concern related to reactor plant instrumentation, control and electrical power.

Participates, from time to time as technical representative of the Directorate of Licensing on various AEC committees, subcommittees, panels and task force assignments as well as technical and professional society committees such as the American National Standards Institute, the American Nuclear Society, the Institute of Electrical and Electronics Engineers, and others.

BASIC SKILLS:

General knowledge of the principles, theories, and practices in the field of nuclear engineering with specific knowledge of reactor plant instrumentation, control, and electric power systems is required. Competency must be sufficient to independently analyze and evaluate reactor concepts and features proposed by organizations specializing in the nuclear field, particularly with respect to the reactor protection systems, instrumentation and control for engineered safety features, reactor regulating systems, reactor plant dynamics, and electric power systems.

The basic skill requirements are considerably in excess of those secured through formal education at university level (B.S. degree) and are comparable to those achieved from graduate level training or from specialized experience in instrumentation and control in applications to reactor technology.

Knowledge of licensed and authorized as well as DOD and AEC-owned reactor installations and operations is required.

CONTACTS:

Contacts top technical and supervisory personnel of the AEC, other Government agencies, AEC contractors, industrial organizations, research institutions, universities, and professional societies to discuss technical matters relating to reactor plant instrumentation, control and electrical power systems.

RESPONSIBILITY FOR DECISIONS:

Supervision Received:

Chief, Electrical, Instrumentation and Control Systems Branch. Supervision is general on technical matters with full authority to act in matters within the framework of the broad functional assignment.

The Administrative guides are Division and overall AEC policy and precedent.



Independent Action:

Responsible for making recommendations for action to be taken by the Chief of the Electrical, Instrumentation and Control Systems Branch.

Develops standard procedures, methods, and models for those aspects of safety evaluations involving physio-chemical considerations.

SUPERVISION:

None

WORKING CONDITIONS:

Normal office conditions while at official station. Exposure to mild radiation from reactors may be encountered occasionally during field trips.

EFFORT:

Normal effort involved in any administrative position. Increased physical effort may be required while on field trips.

Project Manager, GS-14  
Directorate of Licensing

#### FUNCTIONAL STATEMENT

Experienced in the engineering and physics aspects of nuclear reactors, the incumbent plans and coordinates the technical reviews, analyses, and evaluations of applications for licenses and authorizations for the construction and operation of reactors and the reviews of certain aspects of their design and operation.

#### REGULAR DUTIES

Plans and coordinates the pre-review of applications to determine if they are sufficiently complete to accept as an application.

Plans and coordinates the review of Safety Analysis Reports as to the adequacy of the technical and engineering design data and information contained therein, the soundness of the basis for the conclusions of the proposed designs and operating procedures. Coordinates the preparation of the safety evaluation in conjunction with such reviews.

Serves as project manager for group evaluation of power reactor license applicants for which he has been assigned responsibility.

Confers with technical representatives of organizations proposing new reactors to identify or resolve general questions of doubt concerning design and operating characteristics which have a bearing on safety.

Coordinates the preparation of safety evaluation reports relating to license applications for power reactor plants, as well as military and AEC reactor plants for presentation to the Advisory Committee on Reactor Safeguards. Attends such meetings and subcommittee meetings as a representative of the Directorate of Licensing's evaluation staff.

May participate at public hearings on reactor licensing proceedings to assist other AEC representatives or testify as an AEC staff witness to present technical testimony.

Serves as a member of reactor inspection teams as may be necessary to discharge reactor safety evaluation and judgment.

Plans and coordinates the review of nuclear safety aspects of proposals to build any AEC-owned reactors exempt from licensing.

Assists in the preparation of technical specifications for operating reactors; reviews operating experience reports during initial phases of operation; and evaluates requests for license amendments and technical specification changes during initial phases of operation, utilizing the expertise of persons outside of his immediate division where necessary.

### BASIC SKILL

Knowledge of the principles, theories and practices in the field of nuclear reactor technology with specific knowledge of reactor and nuclear engineering. Competence must be sufficient to adequately evaluate various proposed reactor concepts and modifications primarily as related to reactor construction and operation.

Knowledge of operations at AEC-owned reactor installations.

Experience in the field of reactor core design and operation to supplement basic engineering training.

Basic skill requirements are in excess of those secured through formal education at the university level (B.S. Degree) and are comparable to those obtained from graduate level training or specialized experience in reactor technology and related subjects.

### CONTACTS

Contacts are with top technical personnel in AEC, AEC contractors, industry, and other government agencies to discuss technical matters relating to the hazards inherent to design, operation, and site location of proposed new reactors or significant modification of existing reactors.

### RESPONSIBILITY FOR DECISIONS

#### Supervision Received

Assigned Branch Chief, Directorate of Licensing.

Supervision is general on technical matters, but specific on policy and operating procedures.

Administrative guides are AEC Manual, Commission Rules and Regulations, and AEC policy. Operational guides are in the form of memoranda, written guides, precedent, and verbal directives. Incumbent contributes to the development of original standards, guides, and codes in his field of endeavor.



Independent Action

Incumbent is responsible for preparation of and adherence to review schedules and for making recommendations on conventional engineering matters for action to be taken by the Branch Chief in regard to the acceptability of the hazards involved in specific reactors. Incumbent's judgement, in many cases, is subject to only a general review.

SUPERVISION

None.

WORKING CONDITIONS

Normal office conditions. May be exposed to mild radiation while on field trips.

EFFORT

Normal.

PERFORMANCE APPRAISAL AND RECORD OF INTERVIEW FOR NON-SUPERVISORY  
PROFESSIONAL TECHNICAL EMPLOYEE

PROFILE

NAME: Robert D. Pollard

GRADE/STEP: 14/2

POSITION: Project Manager

TIME IN GRADE: 19 months

APPRAISER & DATE:

D. B. Vassallo

11-10-75

TIME IN STEP: 7 months

REVIEWER & DATE:

R. C. DeYoung

11-17-75

TIME IN PREVIOUS GRADE: 12 mo

PREVIOUS APPRAISER & DATE: D. B. Vassallo  
11/11/74

AEC/NRC SERVICE (YEARS): 6-1/2

PROFESSIONAL EXPERIENCE (YEARS)

HOW LONG SUPERVISED BY APPRAISER: 13 months

DATE OF BIRTH: 2/13/40

EDUCATION (DEGREE & YEAR):

B.S. (Elec. Eng.) 1969

DISCUSSION TOPICS

BACKGROUND & EXPERIENCE SUMMARY - Bob received a B.S. in Electrical Engineering from Syracuse University in 1969. After joining the AEC in 1969, he studied electrical and nuclear engineering at the Graduate School of the University of New Mexico (1970-1971) in conjunction with the AEC Intern Program. Bob served for six years with the U. S. Navy as an electronic technician. He served as an instructor, reactor operator, and was in charge of the reactor control division aboard a nuclear-powered submarine.

After joining the AEC in July 1969, Bob participated primarily in technical review groups in the review of instrumentation, control, and electrical systems of nuclear power plants. For a brief period, he was a member of the Standards group and participated in developing standards and safety guides. He also served as a member of IEEE Committees. Bob transferred to RL as a project manager in September 1974.

KNOWLEDGE OF JOB - Although Bob has excellent expertise in the instrumentation, control, and electrical systems of nuclear power plants, he has also developed very good overall knowledge of nuclear power plant design. Since transferring to RL, he has shown the capability to rapidly expand his knowledge and understanding of the diverse technical review areas with which a project manager must be familiar. Although he may require a little more exposure in certain review areas (e.g., auxiliary systems and site related matters), Bob is

technically very perceptive. He has enough confidence to challenge reviewers on questionable technical matters and to pursue resolution of those in controversy.

In a very short time, Bob has developed an excellent understanding of the technical, management, and administrative aspects of project management. He manages to keep himself informed of current developments in technical, policy, legal, and general licensing matters.

MANAGEMENT CAPABILITY - Because of his past experience in TR, Bob had a good understanding of the LPM's role. He has made a very rapid transition in assuming a project management philosophy. In the year that he has been in RL, he has demonstrated an excellent capability to manage radiological safety reviews. Bob is an exceptionally thorough project manager who performs his tasks with a very critical view and in a very organized manner. He is very knowledgeable of, and quick to grasp and implement administrative procedures. He is very effective in maintaining full cognizance of all aspects of his projects. He works very effectively with TR, OELD, and applicant representatives and gets along very well with the branch secretaries and licensing assistant.

Bob has shown excellent capability to effectively organize and manage several concurrent projects. His principal assignment has been the OL review of the McGuire plant. However, he was also assigned as the LPM for the completion of the Comanche Peak and Catawba CP reviews. The latter required a considerable amount of LPM interaction with OELD because of the applicant's request for an exemption from meeting the ECCS criteria. Bob showed great adeptness at understanding and handling the unique technical - legal aspects for bringing the Catawba project to an end; i.e., issuance of a CP. Because of the recent loss of an LPM from LWR 1-1, Bob was also assigned the task of completing the OL review of Indian Point 3, another project with a long history of complexities. In handling all of these projects, Bob has shown a great deal of resourcefulness in moving these projects forward concurrently without diminishing his efforts in any one of them.

PROFESSIONALISM - Bob is an extremely conscientious and dependable project manager. He conducts himself with a degree of maturity and professionalism well beyond his age. In his associations with applicant representatives, he is very fair, but firm, and can take a strong stance when the occasion warrants it. Bob does extremely well at planning and scheduling his workload. He is consistently able to complete assignments on schedule without needing reminders.

Bob does not require much supervision. On the contrary, he seems to have a unique instinct of knowing the type of licensing action that a situation requires and then begins to take the appropriate action without waiting for direction from the branch chief. In this regard, Bob has an outstanding knowledge of the Regulations and works very effectively with lawyers (e.g., has prepared some quite involved technical - legal documents in conjunction with the Catawba and Indian Point 3 projects). He is very persistent in trying to get stalled actions moving. Bob does an excellent job of keeping his branch chief apprised of major review matters.

JUDGMENT - Bob is a careful thinker and uses good logic in making judgments. He has a very good understanding of the licensing program and uses good judgment consistent with regulatory objectives.

#### COMMUNICATIONS

Oral - Bob has very good oral communication skills. He speaks clearly, with thought, and is very easily understood. He handles meetings extremely well. When he was a member of TR, he had considerable experience and was very effective in presentations before the ACRS and was also exposed to public hearings.

Written - Bob writes extremely well. The documents he prepares are concise and clear. As mentioned above, he has a decided instinct for knowing the type of action required and can translate this in writing without any apparent difficulty. His written work requires very little editing.

PERSONAL CHARACTERISTICS - Basically, Bob is a very serious minded but personable employee. He does not make rash decisions, but rather uses a more deliberative approach. Bob manages to maintain a rather even composure no matter how difficult a situation may get.

Bob is an extremely conscientious, responsible, and dependable employee. Occasionally he appears to become somewhat perplexed in rationalizing the implementation of licensing policy. In my opinion, this is because Bob has an exceptional understanding of the Commission's rules and regulations and takes his role of regulator very seriously. However, this has not affected his performance as a project manager.

AREAS NEEDING IMPROVEMENT - Since transferring from TR, Bob is becoming exposed to a number of review areas with which he did not previously have a great deal of familiarity. These are principally in the areas of site safety, effluent treatment, and some portions of auxiliary systems. He has made great strides in understanding what the major review objectives are for these areas. With the continued exposure he is now obtaining in managing his projects, I do not foresee any problem in Bob becoming completely conversant in all review subjects.

PROMOTION POTENTIAL - Bob has shown excellent project management capability. He is well organized, is able to keep his projects under control, and to meet schedule milestones. On the basis of his previous experience in TR and with further experience in project management, Bob has an excellent potential for attaining higher levels.

SUMMARY - Although Bob has been in RL for about one year, he has demonstrated excellent skills in managing safety reviews without requiring a great deal of supervision. Through his versatility, he has performed extremely well in handling diverse assignments in a highly professional manner; e.g., taking on the management of complex cases such as Catawba and Indian Point 3 in the final stages of licensing effort.

REVIEWER'S COMMENTS

*I concur with this appraisal. J. J. 1-13-75*

EMPLOYEE'S COMMENTS

Acknowledgement

I have read the above performance appraisal.

Signature: *Robert J. Pollard*

Date: *December 17, 1975*

Comments by Employee

*None*



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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CERTIFICATE OF SERVICE

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

I hereby certify that copies of "Union of Concerned Scientists' Petition for Show Cause Concerning TMI-1 Emergency Feedwater System," have been served on the following persons by deposit in the United States mail, first class postage prepaid, this 20th day of January 1984.

Nunzio Palladino, Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Victor Gilinsky, Commissioner  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

James Asselstine, Commissioner  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Frederick Bernthal, Commissioner  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Thomas Roberts, Commissioner  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Docketing and Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Herzel Plaine, Esq.  
General Counsel  
U.S. Nuclear Regulatory Commission  
Washington, D.C.

Mr. Henry D. Hukill  
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GPU Nuclear Corporation  
P. O. Box 480  
Middletown, PA 17057

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Washington, D.C. 20036

