AFFIDAVIT OF EDWARD M. BURNS

Commonwealth of Pennsylvania

County of Allegheny

Edward M. Burns being duly sworn according to Law deposes and says;

(1) I am a Senior Engineer in Mechanical and Fluid Systems Evaluation, Nuclear Safety Department, for the Nuclear Technology Division, Westinghouse Electric Corporation, and as such I am authorized to execute this Affidavit. A statement of my Professional Qualifications is attached.

(2) The pressurizer of each unit of the Diablo Canyon Power Plant (DCPP) is equipped with three pressurizer power-operated relief valves (PORVs). These valves are designed to relieve steam to limit the maximum pressure in the reactor coolant system during full load rejection transients without reactor trip. Under normal conditions, the PORVs remain closed. In the Final Safety Analysis Report accident analyses for DCPP, credit has not been taken for the automatic actuation of the pressurizer PORVs. If automatic PORV actuation had been considered in the analyses, the calculated consequences would have been less severe. Under actual transient conditions the PORVs would a tuate prior to the safety-grade valves since the PORV setpoint is lower.

The valves supplied to DCPP for this use were designed and manufactured by Masoneilan International and are identified as Masoneilan Model 20000 Series. The valves have two-inch bodies with three-inch end connections. These valves are air-operated globe valves. The valves are designed to be leak tight at the hydrostatic test pressure. The valve bodies, bonnets and flanges were designed and built to USAS-B16.5-1968 and MSS-SP-61. In addition to the requirements of these standards, the

PORVs were originally qualified to withstand seismic loadings equivalent to 3.0g in the horizontal direction and 2.0g in the vertical direction. Subsequently, the PORVs were qualified to withstand loading due to the Hosgri seismic event accelerations in addition to normal operating and deadweight loads.

Prior to shipment to the DCPP, each of the valves were inspected and subjected to testing. All pressure boundary cast steel parts were radiographed and liquid penetrant inspected. All forged parts were liquid penetrant inspected. Tests on the assembled valves included a hydrostatic test, as well as backseat and seat leakage tests. All of the DCPP PORVs successfully completed these tests.

As part of the design verification process, valves of the Model 20000 Series were successfully tested in a thermal test loop at 2485 psig and $550^{o}F$.

After installation in the DCPP, these valves were successfully tested during hot functional testing. In addition, Masoneilan Model 20000 Series valves are installed in six Westinghouse designed operating plants in the United States and have also been successfully tested during hot functional testing.

Westinghouse has conducted a survey of Westinghouse designed operating plants in the United States to determine the number of times that pressurizer PORVs have been opened during plant operations. This survey covered plants with a total of 181 reactor years of operation through October 1980. Responses to the survey indicated that there were 163 occurrences of PORV openings with no failures to close. Of these occurrences, 59 of them involved Masoneilan Model 20000 Series valves. There have been no known failures of these valves in these plants since October 1980. Details of PORV operational data have been documented in WCAP-9804," Probabilistic Analysis and Operational Data in Response to NUREG-0737 Item II.K.3.2 for Westinghouse NSSS Plants."

(3) The pressurizer of each unit of the DCPP is equipped with three pressurizer PORV block valves. These valves are located upstream of the pressurizer PORVs and are provided to isolate the inlets of tne PORVs for maintenance and testing.

The block valves supplied to DCPP for this use were designed and manufactured by Velan Engineering Company and are identified as Velan Model B10-3054B-13MS. This model has a three-inch inlet and a three-inch outlet. These valves are motor-operated gate valves. The valve pressure boundary parts are designed in accordance with USAS-B16.5-1968. The block valves were originally qualified to withstand seismic loadings equivalent to 3.0g in the horizontal direction and 2.0g in the vertical direction. Subsequently, the block valves were qualified to withstand loading due to the Hosgri seismic event accelerations in addition to normal operating and deadweight loads.

Prior to shipment to the DCPP, each of the valves was inspected and subjected to testing. All surfaces of pressure containing cast parts were radiographed and liquid penetrant inspected. Tests on the assembled valves included a hydrostatic test, as well as backseat and seat leakage tests. All of the DCPP PORV block valves successfully completed these tests.

Further the affiant sayeth not.

Edward M. Burns

Sworn to and subscribed before
me this 15th day of December, 1981.

PROFESSIONAL QUALIFICATIONS

EDWARD M. BURNS

WESTINGHOUSE WATER REACTOR DIVISIONS
WESTINGHOUSE POWER SYSTEMS COMPANY
WESTINGHOUSE ELECTRIC CORPORATION

My name is Edward M. Burns. My business address is Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania, 15230. I am employed as a Senior Engineer in Mechanical and Fluid Systems Evaluation within the Nuclear Safety Department of the Nuclear Technology Division. I am responsible for the safety evaluation of various fluid systems and their components including the pressurizer safety, relief, and block valves.

From 1967 through 1971, I attended Milwaukee School of Engineering and received a Bachelor of Science Degree in Mechanical Engineering. Following graduation I entered the United States Army and served as an enlisted man, Lieutenant and Captain at several locations within the United States and Europe. From March 1977 to August 1979, I served with the United States Army Armor and Engineer Board as a project officer responsible for the planning, conduct, analysis and reporting of operational tests of ground mobility equipment and ordinance.

I enrolled in 1977 in the University of Southern California night school program and received in March 1979 a Master of Science in Research and Development Systems Management. Upon leaving the Army in September 1979, I attended the University of Wisconsin and received a Master of Science Degree in Nuclear Engineering in December 1980. Additionally, from May to December 1980, I worked as an assistant to the head of the University of Wisconsin Fusion Studies program. In this capacity, I was responsible for coordinating parametric studies input for a conceptual heavy ion beam fusion reactor.

Following graduation, I was employed by Westinghouse Electric Corporation in the Nuclear Safety Department. I have since been responsible for evaluating the compliance of fluid systems and components with applicable safety and design criteria. Specifically, I have reviewed the implementation of safety grade cold shutdown design improvements for three domestic and two foreign nuclear power plants. Additionally, I am the technical coordinator for the Westinghouse review of the pressurizer safety and relief valve test program being conducted by the Electric Power Research Institute.