

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-142
THE REGENTS OF THE	)	
UNIVERSITY OF CALIFORNIA	)	(Proposed Renewal of Facility License)
(UCLA Research Reactor)	)	

AFFIDAVIT OF SEAN C. HAWLEY

I, Sean C. Hawley, do hereby depose and state:

- 1) I am a research scientist employed by Battelle, Pacific Northwest Laboratory in the Health Physics Technology Section of the Radiological Sciences Department. A statement of my professional qualifications is attached to this affidavit.
- 2) I have read "Interrogatories To S. C. Hawley, R. L. Kathren and M. A. Robkin As To 'Analysis of Credible Accidents for Argonaut Reactors' NUREG/CR-2079 PNL-3691". The response that follows explains or interprets the research or results from NUREG/CR-2079, of which I was a principal author and which is based on research at the Pacific Northwest Laboratory operated by Battelle Memorial Institute. My response is numbered to correspond to a selected interrogatory.
99. Although the intervenor's question asks why the analysis of the inadvertent transient did not, "...compensate for differences between SPERT and BORAX such as different void coefficients, ratio of heat flux to temperature difference, and so on?", I interpret the question to mean differences between Argonaut-type reactors and the SPERT 1

reactor. The extensive data collection in the SPERT program permitted an analysis of the excursion behavior of the reactor. One product of this analysis was an empirical method of calculating the peak power output from a given reactor period, which can in turn be related to a particular reactivity insertion. A generic method that relates the energy release to the peak power produced a value of 9 MWs. A separate calculation of energy release, which produced a value of 12 MWs, used a reactivity coefficient that was derived from the SPERT 1 data. The reactivity coefficient implicitly takes into account the shutdown mechanisms that terminate the power rise. 12 MWs was chosen as a conservative value to calculate the expected fuel temperature. As another conservative measure it was assumed there was no heat flow from the fuel plates. Thus the type of compensation the intervenor's question refers to was not required in the method adopted from the SPERT studies.

- 3) I hereby certify that the preceding information based on the research conducted in connection with NUREG/CR-2079 is true and correct to the best of my knowledge and belief.

Sean C. Hawley  
Sean C. Hawley

Subscribed and sworn before me on this 3<sup>rd</sup> day of May 1982.

Robert L. Steichen

Notary Public

My commission expires: August 15, 1982

SEAN C. HAWLEY  
Professional Qualifications

My name is Sean C. Hawley. I am a research scientist employed by the Radiological Sciences Department at Battelle, Pacific Northwest Laboratory, Richland, Washington. I provide support to senior staff in external contacts with sponsors and technical experts and occasionally direct the activities of small groups. I occasionally interact directly with sponsors and scientists external to my group and usually publish as a junior author.

I received a Bachelor of Arts Degree in Chemistry from Reed College, Portland, Oregon in 1978. In addition, I have completed 10 credit hours of graduate level studies in Radiological Sciences at Washington State University and the University of Washington (Joint Center for Graduate Studies, Richland, Washington).

I have about eight years of experience working in areas related to research reactors. I received my first Senior Operator's Permit in 1973 for the Reed College Reactor Facility. I was employed there as a Senior Reactor Operator, Assistant Health Physicist, Reactor Supervisor and Training Supervisor. I received my second Senior Operator's Permit in 1979 for the Washington State University Reactor. I was employed there as Reactor Supervisor.

I am a member of the American Chemical Society, and the Columbia Chapter of the Health Physics Society.