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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket 50-344
PORTLAND GENERAL ELECTRIC COMPANY,	)	
et al	)	(Control Building Proceeding)
	)	
(Trojan Nuclear Plant)	)	

AFFIDAVIT OF DR. WILLIAM H. WHITE  
REGARDING LICENSEE EVENT REPORT 50-07

1. I am employed by Bechtel Power Corporation (Bechtel) as an Engineering Specialist. I have participated in the performance of the seismic analyses for both Phase I and Phase II of the Trojan Control Building proceeding. I have also participated in the engineering reviews which have determined the potential impacts of differences between the top-of-wall interface conditions assumed in such analyses and those which have been determined to exist through field examinations, and in reviews of documents evidencing changes in design details requested by the construction contractor (Field Change Requests).
2. As described in paragraph 2 of Mr. Broehl's affidavit regarding Licensee Event Report (LER) 50-07, Licensee identified a location (the Auxiliary Building south wall) where the design drawings and typical details were misinterpreted by the construction contractor. For purposes of the Control Building proceeding, the wall at this location was considered a minor shear wall in Licensee's analyses of the structural capability of the Complex.

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However, since this wall is in close proximity to a parallel 4-ft.-thick shield wall and its relative strength and stiffness are comparatively low, reduction of this wall's shear capacity to zero would not reduce the capability of the as-built Complex to resist the Safe Shutdown Earthquake. The corrective action described in paragraph 3 of Mr. Broehl's affidavit has provided a connection functionally comparable to that which was specified in the original design drawing details and has restored the wall's ability to participate in the building response as assumed in the Control Building proceeding.

3. Bechtel has performed an engineering evaluation of the conditions identified in paragraphs 6-9 of Mr. Broehl's affidavit to determine their potential impacts on the structural capability of the individual walls and on the structural capability of the Complex as a whole. The results of the engineering evaluations of these conditions are described below.

- a) The incomplete grout at the top-of-wall interface of two minor shear walls in the Fuel Building at Elevation 77 ft. (paragraph 7 of Mr. Broehl's affidavit) resulted in reductions of the walls' in-plane capacities and would have resulted in a corresponding reduction in the in-plane SSE loads transmitted to these walls. The walls in the as-found condition would have been capable of resisting the reduced loads. The excess loads would have been resisted by adjacent walls which have sufficient capacity to resist such additional loads. The incomplete grout would not have reduced the capacities of these walls below those required to resist out-of-plane SSE loads. The corrective actions described in paragraph 7 of Mr. Broehl's affidavit have restored the original design capacity.

- b) Failure to provide steel angles at the top of a minor shear wall in the Auxiliary Building at Elevation 45 ft. on each side (paragraph 7 of Mr. Broehl's affidavit) reduces the in-plane capacity of the wall and results in no in-plane SEI loads being transmitted to it. The wall has sufficient capacity to resist its own in-plane SEI inertia loads. Adjacent shear walls have sufficient excess capacity to resist the loads not transmitted to this wall. The corrective action described in paragraph 7 of Mr. Broehl's affidavit will restore the wall's capacity to resist the design loads.
- c) The structural steel beam interference at the top-of-the wall interface of a minor shear wall in the Auxiliary Building at Elevation 77 ft. (paragraph 8 of Mr. Broehl's affidavit) resulted in a reduction of the capacity of this wall. However, this reduced capacity is greater than the predicted in-plane SEI loads. Likewise, this condition would not have reduced the capacity of the wall below that required to resist out-of-plane SEI loads. The corrective action described in paragraph 8 of Mr. Broehl's affidavit will restore the original design capacity.
- d) The lack of completion of one masonry wythe of a minor shear wall in the Fuel Building at Elevation 45 ft. to the slab above (paragraph 9 of Mr. Broehl's affidavit) reduces the in-plane capacity of this wall and results in no in-plane SEI loads being transmitted to it. The wall is capable of resisting its own in-plane SEI

inertia loads. The entire in-plane SSE load predicted by STADYNE to be transmitted to this wall can be resisted by adjacent structural elements. The above condition did not reduce the capacity of this wall below that required to resist out-of-plane SSE loads. Therefore, the lack of completion of this one masonry wythe to the slab above has no safety significance. The wall will not be considered to contribute to the seismic resistance of the Complex.

4. The Control Building N-line wall at Elevation 45 ft. identified in paragraph 10 of Mr. Broehl's affidavit was considered a major shear wall in the analyses of the seismic capability of the Complex. The 3 ft. 11 in. wide opening above a portal of this wall which extends to the floor slab above results in a reduction of the in-plane capacity of this wall. The reduced capacity is approximately 40 percent greater than the in-plane SSE loads predicted by STADYNE. The above condition did not reduce the capacity of this wall below that required to resist out-of-plane loads. Thus, corrective action is not required for this wall to perform properly in the event of an SSE. The proposed modifications to the Control Building pursuant to Phase-II of these proceedings would increase the ratio of capacity to in-plane OSE load for this wall above 1.4.
5. In the present as-built condition of the Complex the cumulative impact on the structural capability of the results of the analyses of individual walls described in paragraphs 2-4 above, prior to any corrective action, is to reduce the capacity of the Complex by approximately 1.1 percent in the N-S direction and approximately 3.0 percent in the E-W direction. These cumulative reductions in capacity are insignificant. The effects of the above-referenced conditions on the overall distribution

of loads in the Complex and on the floor response spectra, are negligible. Following completion of corrective actions described in Mr. Broehl's affidavit the only reduction in capacity will be 1.1 percent in the N-S direction.

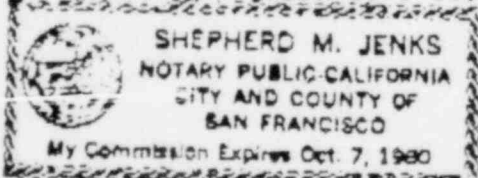
6. Following the modifications to the Complex proposed in Phase II of this proceeding, the cumulative impact of the reduced capacity for the two walls (paragraphs 3.e and 4 above) for which corrective action is not planned would continue to be insignificant, and the effects on overall distribution of loads and on floor response spectra will also continue to be insignificant.

I, William H. White, being first duly sworn, state that I have reviewed the foregoing affidavit, and that the statements contained therein are true and correct to the best of my knowledge and belief.

William H. White  
William H. White

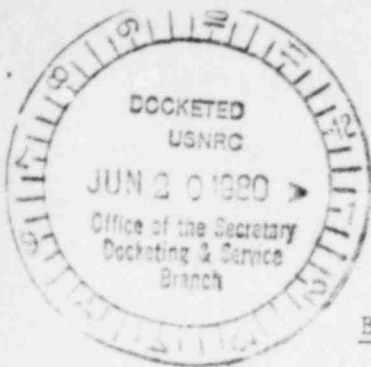
STATE OF CALIFORNIA       )  
                                  ) ss.  
County of San Francisco )

~~Subscribed and sworn to before me this 16th day of June 1980.~~



Shepherd M. Jenks  
Notary Public of California

My Commission Expires: Oct 7 1980



RELATED CORRESPONDENCE

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 ) Docket 50-344  
PORTLAND GENERAL ELECTRIC COMPANY, )  
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(Trojan Nuclear Plant) )

CERTIFICATE OF SERVICE

I hereby certify that on June 16, 1980:

- (1) Licensee's letter, dated June 16, 1980, to the U. S. Nuclear Regulatory Commission, Region V, with Supplement 1 to Licensee Event Report 80-07;
- (2) Licensee's Affidavit, dated June 16, 1980, of Donald J. Broehl regarding Licensee Event Report 80-07; and
- (3) Licensee's Affidavit, dated June 16, 1980, of Dr. William H. White regarding Licensee Event Report 80-07

have been served upon the persons designated with an asterisk by delivery to a messenger for prompt service and on the remaining persons listed below by depositing copies thereof in the United States mail with proper postage affixed for first class mail.

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