

AUGUST 17 1982

DMB 016

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Docket No. 50-312

Mr. J. J. Mattimoe
 Assistant General Manager and
 Chief Engineer
 Sacramento Municipal Utility
 District
 6201 S Street
 Sacramento, California 95813

Dear Mr. Mattimoe:

SUBJECT: RESUMPTION OF OPERATION FOLLOWING STEAM GENERATOR REPAIR
 AND AUXILIARY FEEDWATER (AFW) SYSTEM MODIFICATION

By letter on May 18, 1982 and August 3, 1982 Sacramento Municipal Utility District (SMUD) has submitted information related to the AFW system modifications and SG repairs at the Rancho Seco facility. Further discussions with your staff were held on August 13, 1982. While our review and evaluation of this information is not yet complete, we have completed our review of certain aspects which allows us to conclude that it is acceptable for you to resume limited operation. This will permit you to conduct certain tests which we require as a result of the AFW modifications.

SMUD has replaced the internal AFW header at each SG with an external header. The new design is a modified design of the external AFW header used at other operating B&W plants. The design includes an external header with individual riser pipes for injection of AFW through new penetrations which have been bored into the SG. The design utilizes six riser pipes each with flow equalizing orifices at the header. The existing header is to be solidly secured in place to continue to function as an extension of the steam tube shroud; however, it will no longer function as part of the AFW system.

The modified AFW arrangement is similar to designs which have been in service for 22 reactor years without any reported rapid condensation induced high pressure damage. However, the new arrangement injects feedwater at a slightly higher elevation (3 inches) than the earlier in-service design and flow equalizing orifices are used. The latter feature will result in higher flow resistance.

In your November 30, 1981 letter, you stated that a AFW test would be performed to verify that the AFW flow meets the minimum flow requirements specified in your Auxiliary Feedwater Flow Evaluation. We require that this test be performed as a condition to receiving NRC approval of the header repair.

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Additionally, your August 3, 1982 letter provided responses to our June 23, 1982 request for information. Item 11 of the staff's June 23 letter requested a description of the water hammer test to be performed prior to resumption of power operation. Your response was that no water hammer test was necessary since no water hammer damage has been reported with the proposed AFW header design. NUREG-0800, Standard Review Plan, Section 10.4.7, "Condensate and Feedwater System" and Branch Technical Position ASB 10-2, "Design Guidelines for Water Hammers in Steam Generators with Top Feeding Design" require water hammer testing in order to meet the requirements of General Design Criterion 4, "Environmental and Missile Design Bases" with respect to the dynamic effect associated with possible fluid flow instabilities. We conclude that the ability of the new steam generator configuration at Rancho Seco to operate free from such flow instabilities as those caused by rapid condensation induced high differential pressure constitutes an unreviewed safety question in accordance with 10 CFR 50.59 and that a water hammer test is necessary to resolve this operation. Therefore a water hammer test must be performed on Rancho Seco, in accordance with the aforementioned documents, in order to receive NRC approval of the header repair.

We have not yet completed our review of the measures taken to secure the retired internal AFW header and of the structural soundness of the header itself. Consequently, we still have active concerns as to the ability of the retired header to withstand forces which might be produced by steam flow and vibration during power operation and under accident conditions. Therefore, it is not possible for us to conclude, at this time, that plant operation is acceptable when significant steam flow is produced.

You have proposed to limit operation of Rancho Seco to not greater than 50 percent of rated power until NRC approval of the AFW header repair is provided. We conclude that your proposed interim operating limit is acceptable based on:

1. The similarity of the new AFW system to existing proven designs,
2. Verification of required minimum AFW flow,
3. The performance of a water hammer test, and
4. The forces on the stabilized retired header at power levels which do not exceed 1% will be minimal.

Sincerely,

ORIGINAL SIGNED BY

Gus C. Lainas, Assistant Director
for Operating Reactors
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cc: See next page

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DATE	8/17/82	8/17/82	8/17/82				

Sacramento Municipal Utility
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- 1 -

Rancho Seco, Docket No. 50-312

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- 2 -

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