



**SMUD**

SACRAMENTO MUNICIPAL UTILITY DISTRICT □ 6201 S Street, Box 15830, Sacramento, California 95813; (916) 452-3211

May 15, 1980

Director of Nuclear Reactor Regulation  
Attention: Mr. Robert W. Reid, Chief  
Operating Reactors, Branch 4  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Docket 50-312  
Rancho Seco Nuclear Generating  
Station, Unit 1

Dear Mr. Reid:

Your letter of April 14, 1980, requested that we provide a scope and schedule for a new seismic assessment of the Rancho Seco Nuclear Generating Station. Attachment 1 provides our proposed program which we believe is responsive to the concerns expressed in your letter.

This work, including the final review by our panel of experts, can be completed in about 7 months. We plan to start this work on June 1, 1980, and should be completed by January 1, 1981.

If you have any question on this program, please contact us.

Sincerely,

*John J. Mattimoe*  
John J. Mattimoe  
Assistant General Manager  
and Chief Engineer

Attachment

*ADD:*  
*5*  
*1/1*  
*ADD:*      *UR* *Enc*  
*Geosciencia 22*      *1 1*

8005280 548

PROPOSED STUDY OF IMPACT OF RECENT FOOTHILLS FAULT SYSTEM  
INFORMATION ON RANCHO SECO SITE

BACKGROUND

At the time of PSAR submittal for Rancho Seco Unit 1 (1968), the scientific community generally believed that the Foothills fault system of the western Sierra Nevada Range had been inactive since at least Cretaceous time (65 million years before present) and perhaps since Jurassic time (135 MYBP). This was principally a result of the extremely low level of seismicity, and absence of historic ground rupture along the fault system. On August 1, 1975, a magnitude 5.7 earthquake occurred on a branch of the Foothills fault system in the Oroville area, about 85 miles north of the plant. Studies of this earthquake carried out by various public agencies, as well as investigations of the Foothills fault system conducted by several agencies and private organizations since 1975 have produced evidence that portions of the fault system have moved in geologically recent times and may in fact be active at the present time. There is no doubt that the Cleveland Hill fault, which ruptured the ground surface during the Oroville earthquake, is presently active.

The Foothills fault system consists of two main branches, the Melones fault zone on the east, and the Bear Mountains fault zone on the west. The closest approach of the Bear Mountains fault zone to Rancho Seco is about 13 miles to the east of the plant. In view of the Oroville earthquake, and the conclusions of many in the scientific community that the Foothills fault system is potentially active at least in part, a concern has been raised regarding the effects of potential earthquakes occurring on this fault system close to the site.

In a letter dated April 14, 1980 from R. W. Reid of the NRC to J. J. Mattimoe of SMUD, the NRC has requested that SMUD assess the impact of recent data on the Rancho Seco site. An attachment to this letter outlines the concerns of the NRC staff reviewers.

The NRC staff has raised three specific questions, namely:

1. Is the Bear Mountains fault zone active in the Rancho Seco area?
2. Are there any active parts of the Bear Mountains fault system closer than ten miles to the site?
3. What is the maximum magnitude earthquake which should be considered on the Bear Mountains fault and what effect can be expected at the site from this event?

They have recommended that a complete evaluation be undertaken with these three questions included for consideration.

PROPOSED SCOPE OF THE STUDY

The study proposed herein is intended to be responsive to the NRC concerns and to be comprehensive enough to adequately address the pertinent issues raised by the recent data. The scope of the proposed study consists of seven basic elements described below:

### Literature Review

Assess the recent geologic literature which has been produced subsequent to termination of geologic licensing activities at Rancho Seco. This new literature includes a large amount of both published and unpublished information. Those reports most pertinent to the Rancho Seco site will be evaluated in detail and comments and conclusions will be prepared for each. The evaluation will include field reconnaissance of selected geologic features as described below. -

### Field Reconnaissance

As an integral part of the literature review described above, considerable effort will be spent evaluating specific features in the field as required. Those locations and features described in the literature whose interpretation is critical to assessment of the fault system will be examined in surface exposure and documented by mapping, logging, or photography. The approach will be to emphasize reconnaissance techniques. No subsurface investigation such as trenching is contemplated at this time.

### Discussions with Experts

As an adjunct to reviewing the literature, prominent experts in the field will be interviewed to obtain the benefit of their opinions. One or more of these experts may be retained as consultants to review the results and conclusions of the study.

### Review and Update Existing Data on Lineaments in the Rancho Seco Area

Studies of remote sensing lineations (lineaments) in the site region were performed as a part of the EIR activities for Rancho Seco Unit 2 in 1974 and 1975. These studies included analyses of various types of imagery, identification of lineaments, field reconnaissance, and some trenching of lineaments. The studies were described in two reports prepared in 1975. These studies will be reviewed and updated as necessary since they specifically address some of the present NRC concerns.

In addition, more recent imagery will be obtained and studies to make sure that no additional lineaments exist in the site region which escaped study in 1975.

### Review and Finalize Existing Bechtel Trenching Data

In 1975 a program of trenching was carried out in the site area to investigate several of the lineaments identified in the remote sensing study. The detailed trench logs will be reviewed and these logs will be incorporated in the final report.

### Analyze Ground Acceleration at Rancho Seco Site in Light of the Results of the Above

After assessing the capability of faults of the Foothills system in the vicinity of Rancho Seco, a determination of maximum credible earthquake will be made. This will be based on the available literature as well as consultations with experts. Ground acceleration at the site will be re-evaluated based on attenuation of energy from the maximum credible earthquake on the closest capable fault at its closest approach to the plant. Site geology will be utilized in determining the most appropriate attenuation relationship.

Prepare Report

A comprehensive report will be prepared presenting the results of the above studies and specifically addressing the NRC concerns. The report will present the evaluation of the new information developed by others with comments and conclusions on pertinent aspects of significant individual items. It will include data previously developed by Bechtel during preliminary investigations for Unit 2 which were never submitted to the NRC. It will also include the opinions of the consultant(s).

The report will present the conclusions regarding the disposition of the Bear Mountains fault, the maximum credible earthquake on the closest capable fault, and the expected free-field ground acceleration at Rancho Seco site from such an earthquake.