

Central files

FEB 27 1984

Docket No. 50-206

MEMORANDUM FOR: Christopher I. Grimes, Acting Chief
 Systematic Evaluation Program Branch, DL

FROM: Thomas M. Cheng
 Systematic Evaluation Program Branch, DL

SUBJECT: SUMMARY OF FEBRUARY 8-9, 1984 MEETING - SEP TOPICS
 II-4.F, "SETTLEMENT OF FOUNDATIONS AND BURIED
 EQUIPMENT," AND III-6, "SEISMIC DESIGN CONSIDERATIONS
 San Onofre Nuclear Generating Station, Unit 1

On February 8-9, 1984, myself and Banad Jagannath of the Structural and Geotechnical Engineering Branch met with representatives of the Southern California Edison Company (SCE) and their consultants at the plant site and at Woodward-Cyldes Consultants' office in Los Angeles, California. The purposes of this meeting were: (1) to perform site inspection on the geotechnical features, e.g., sea wall, site excavation, structural foundations, etc.; (2) to discuss the staff's concerns as the result of SEP Topic II-4.F review; and (3) to discuss additional items related to the restart plan. A list of attendees at this meeting is contained in Enclosure 1. Enclosure 2 lists the geotechnical items which are needed for the evaluation of SEP Topic II-4.F. Enclosure 3 summarizes the discussion related to the restart plan.

The licensee has committed to respond to all of the staff's concerns addressed in this meeting summary; however, no submittal date has been established for these issues.

original signed by /

Thomas M. Cheng
 Systematic Evaluation Program Branch
 Division of Licensing

Enclosures:
 As stated

cc w/enclosures:
 See next page

SEPB:DL <i>mc</i>	SEPB:DL <i>CG</i>	SEPB:DL <i>EM</i>
TCheng:dk	CGrimes	EMcKenna
2/24/84	2/21/84	2/21/84

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 PDR



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Systematic Evaluation Program Branch, DL

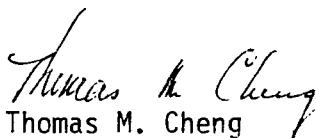
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See next page

MEETING NOTICE SUMMARY

Docket No.: 50-206

Central Files

NRC PDR

Local PDR

SEPB Reading

HDenton/ECASE

DEisenhut/RPurple

FMiraglia

RVollmer

TNovak

SVarga

GHolahan

MWilliams

JMiller

JYoungblood

ASchwencer

GKnighton

CThomas

JStolz

DVassallo

DCrutchfield

Project Manager E. McKenna

OELD

JTaylor, I&E

EJordan, I&E

ACRS (10)

NSIC

RSchaffstall, KMC

T. Cheng

B. Jagannath

J. Rainsberry, SCE

D. Johns, SCE

M. Knarr, SCE

I. Idriss, WCC

J. Barneich, WCC

R. Day, BPC

T. S. Atalik, BPC

ATTENDEES

<u>NAME</u>	<u>ORGANIZATION</u>
J. Rainsberry	Southern California Edison Co.
D. Johns	Southern California Edison Co.
M. Knarr	Southern California Edison Co.
I. Idriss	Woodward/Clyde Consultants
J. Barneich	Woodward/Clyde Consultants
T. Cheng	Nuclear Regulatory Commission
B. Jagannath	Nuclear Regulatory Commission
R. Day	Bechtel Power Corporation
T. S. Atalik	Bechtel Power Corporation

GEOTECHNICAL INFORMATION NEEDED FOR SEP TOPIC II-4.F REVIEW

1. Justification for separating the settlement of loose fill as seismic-settlement taking place during the seismic event and post-seismic-settlement taking place after the seismic event.
2. Degree of accuracy in estimating the settlement of loose granular fill due to SSE at this site.
3. Additional settlement, if any, caused by the footing load on loose granular fill during a SSE event.
4. Copy of a table presenting the settlement of structures due to a SSE event, as estimated by members of the review panel (Drs. H. Seed, I. Idniss and R. McNeill).
5. Plot of low and high bounds of shear modulus as a function of shear strain, used by Bechtel in the SSI analysis.

ISSUES (RESTART PLAN) DISCUSSED DURING FEBRUARY 9, 1984 MEETING

1. Masonry Walls Adjacent to "Hot Stand-by" Systems - A combined approach of analysis and testing was used by the licensee. The analysis report including evaluation criteria was submitted and is being reviewed by the staff. The test report will be submitted for review in the near future.
2. Electrical Cable Trays - As a part of SEP seismic review, the evaluation criteria were submitted on August 17, 1982 and are being reviewed by the staff. According to the licensee, about 80% of safety related cable trays have been evaluated and upgraded, as required, based on the proposed evaluation criteria and the results from the tests performed by Bechtel. The licensee agreed to submit the test reports for review. However, no schedule was decided. As far as the remaining 20% of cable trays, the licensee is planning to complete its evaluation and modification, as necessary, by the next refueling outage.
3. Sea Wall - The licensee provided the evaluation report (calculations) for review. After an extensive discussion during the meeting and a conference call, the licensee agreed to respond to the staff's concerns listed below:
 - a. Provide justification or back-up data for the coefficients of earth pressure for the dynamic conditions.
 - b. Perform a new equivalent static analysis by using the peak spectral acceleration multiplied by a factor of "1.5" as input. In addition, evaluate the adequacy of the sea wall by modelling the wall as a vertical cantilever beam.
 - c. Provide the actual elevation of the top of sea wall, particularly in the vicinity of the seawater intake conduit pipes.
 - d. For the case of the sea wall under tsunami loading, the analysis should include hydrostatic pressure on the sea side of the wall, between the elevations +5.0 ft. and 15.6 ft. Provide calculations to show the new (or revised) factor of safety.
4. Application of "Ductility Factor" to the Evaluation of Structural Elements - The staff will attempt to have Dr. William J. Hall, who was the co-author of NUREG/CR-0098, review all the submittals related to the "Ductility Factor" application. A meeting would be arranged after the review is completed.
5. Vent Stack - It is the staff's concern that the failure of the stack caused by earthquake loadings will affect the safety of portions of the "Hot Stand-by" systems, e.g., auxiliary feedwater system piping.

The licensee previously committed to perform an evaluation to demonstrate the structural integrity of the stack. However, no schedule was proposed for the completion of this evaluation. The staff believes that the licensee should either demonstrate that failure of the stack will not likely affect the safety of the "Hot Stand-by" system or demonstrate structural integrity of the stack before the plant returns to power.