

MAY 08 1975

Docket Nos.: 50-~~275~~[✓] and 50-323

Applicant: Pacific Gas and Electric Company (PG&E)

Facility: Diablo Canyon Nuclear Power Station, Units 1 & 2 (OL)

SUMMARY OF MEETING HELD APRIL 4, 1975 TO DISCUSS SEISMIC DESIGN OF
DIABLO CANYON

On April 4, 1975, representatives of PG&E and their contractors met with the NRC staff in Bethesda, Maryland to discuss seismic design of Diablo Canyon.

A list of attendees is enclosed.

Significant points discussed are summarized below.

The staff stated that it intended to perform a review in depth of the Diablo Canyon seismic design. This would include a visit of about one week to PG&E headquarters to review detailed information and meet with individuals responsible for various design aspects. This review would include:

1. A review of how the criteria in the FSAR were satisfied.
2. A review of what structures and equipment are qualified and by what means.
3. A review, in detail, of the design of certain selected structures and components. Structures would include the containment building, intake structure and turbine building. Components would include the steam generators, reactor coolant pumps, and supports for both.
4. A review of design control measures.

PG&E and Westinghouse made presentations on the following aspects of the seismic design:

1. Containment analysis. This was performed using a finite element method, including a portion of the rock foundation. It was also performed using a lumped spring-mass model, which agreed well with the finite element results.

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2. Auxiliary Building Analysis. This was performed using a lumped mass/spring method. Soil/structures interactions were accounted for by modeling the soil as springs.
 3. Turbine Building Analysis. This structure was originally designed to the Uniform Building Code. In order to demonstrate that the building would not fail in the event of a design basis earthquake (0.4g), a time history analysis was performed. Some modifications to the original design were made as a result of this approach. In December 1974, when typical structures were analyzed for certain 0.5g earthquakes, the turbine building was not included.
 4. Salt Water Cooling Pipe Design. These pipes, along with the circulating water conduits, are contained in a concrete sheath poured in competent rock. Dresser couplings provide flexibility at the connections to buildings. The staff expressed an interest in discussing the flexibility provisions further at the next meeting.
 5. Westinghouse Methods and Criteria. Westinghouse described the General Methods of performing system and component analyses and the structural criteria utilized. Generally, these components are designed for envelope loads which assume peak loads from a loss of coolant accident and a design basis earthquake occurring simultaneously. They are then checked to ensure that these envelope loads assure qualification for each particular application. If needed, a specific analysis for the particular application would then be performed.
 6. Reactor Coolant System Piping and Supports Analysis. Westinghouse described these analyses and the results. Regarding the steam generator supports, Westinghouse confirmed that they are designed for coincident LOCA reaction forces, jet impingement forces and design basis earthquake forces. The staff expressed interest in discussing the capability of the steam generator supports for a 0.5g earthquake at the next meeting.
 7. Primary Equipment Component Analysis. Westinghouse described the analyses and results for the steam generators, pressurizer, reactor coolant pumps, control rod drive mechanisms, reactor pressure vessel, reactor vessel internals and fuel.
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Pacific Gas and
Electric Company

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8. Auxiliary Equipment Seismic Analyses. Westinghouse described the analyses and results for pumps, tanks, heat exchangers and valves.
9. Instrumentation and Control Seismic Qualifications. Westinghouse described the qualification program. The staff expressed an interest in discussing the hot shutdown panel and the seismic qualification program for balance of plant equipment further at the next meeting; particular interest was expressed in items qualified by analysis.

It was agreed that a further review would be conducted April 28, 1975, to May 2, 1975.

Original Signed By
Dennis P. Allison

Dennis P. Allison, Project Manager
Light Water Reactors Project Branch 1-3
Division of Reactor Licensing

Enclosure: Attendance List

cc w/enclosures:
Pacific Gas and Electric Company
Philip A. Crane, Jr., Esq.
Andrew J. Skaff, Esq.
Mr. Frederick Eissler, President
Ms Elizabeth E. Apfelberg
Ms. Sandra A. Silver
Mr. John Forster
Mr. Lonnie Valentine
Mr. William P. Cornwell
Mr. W. J. Lindblad, Project Engineer

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|-----------|-------------|--------------------|--|--|--|--|
| OFFICE ➤ | LWR 1-3 | LWR 1-3 | | | | |
| SURNAME ➤ | DP Allison: | ODParr | | | | |
| DATE ➤ | 5/8/75 pam | 5/7/75 | | | | |

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ENCLOSURE NO. 1

LIST OF ATTENDEES

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON 1 & 2

MEETING APRIL 4, 1975

NRC Staff

D. Allison
G. Bagchi
J. Costello
P. Chen
R. C. DeYoung
R. Hoffman
D. Jeng
K. Kapur
J. Knight
R. Maccary
R. Lipinski
L. Shao
R. Stuart

PG&E

F. Brady
V. Ghio
H. Ghormley
W. Lindblad
E. Wollak

JOHN BLUME & ASSOCIATES

R. Gallagher

WESTINGHOUSE

P. Blau
R. Balwanz
J. Dorycott
G. Downes
T. Esselman
S. Jarecki
L. Knapp
A. Kuenz
S. Legge
C. Lin
D. Miller
E. Rusnica
P. Smith
A. Villasor
E. Vogoeling
L. Wohker

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NRC PDR

Local PDR

NRR Reading (M. Groff)

R. DeYoung

V. Moore

D. Skovholt

D. Muller

R. Denise

K. Goller

G. Lear

W. Butler

J. Stolz

R. Clark

T. Spies

D. Vassallo

K. Kniel

O. Parr

A. Schwencer

D. Ziemann

P. Collins

R. Purple

G. Knighton

G. Dicker

B. J. Youngblood

W. H. Regan, Jr.

R. Vollmer

W. Houston

S. Varga

R. Klecker

F. Schroeder

K. Kapur

R. Lipinski

R. Tedesco

V. Stello

R. Maccary

H. Denton

V. Benaroya

J. Collins

J. Kastner

G. Lainas

D. Ross

T. Ippolito

J. Knight

S. Pawlicki

L. Shao

B. Grimes

W. Gammill

R. Ballard

P. Fine

T. Novak

M. Spangler

EP Project Manager - W. J. Ross

Attorney, ELD

IE (3)

V. Wilson

ACRS (14)

Project Manager - D. Allison

LWR 1-3 File

T. J. Hirons

G. Bagchi

J. Costello

P. Chen

R. Hoffman

D. Jeng

R. Stuart