

Teletype to: Jack Rainsburg - San Angelo
From: RW Felt (NRC)
Teletype # 213-572 ~~1102~~
1102

(DRAFT)

REQUEST FOR ADDITIONAL INFORMATION

HYDROLOGICAL CONSIDERATIONS
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION UNIT 1

NRC DOCKET NO. 50- ²⁰⁶ 213	FRC PROJECT C5257
NRC TAC NO. 41361, 41350, 41339, 41328	FRC ASSIGNMENT 16
NRC CONTRACT NO. NRC-03-79-118	FRC TASK 423

Prepared by

Franklin Research Center
The Parkway at Twentieth Street
Philadelphia, PA 19103

Author: J. Scherrer

FRC Group Leader: J. Scherrer

Prepared for

Nuclear Regulatory Commission
Washington, D.C. 20555

Lead NRC Engineer: D. Persinko

December 21, 1981

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, or any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use, or the results of such use, of any information, apparatus, product or process disclosed in this report, or represents that its use by such third party would not infringe privately owned rights.



Franklin Research Center
A Division of The Franklin Institute
The Benjamin Franklin Parkway, Phila., Pa. 19103 (215) 448-1000

8201110574 820107
PDR ADOCK 05000206
PDR

BACKGROUND

This Request for Additional Information (RFI) is the result of an evaluation of the information contained in the attached bibliography. Further information is needed concerning Systematic Evaluation Program (SEP) Topics II-3.B (Flooding Potential and Protection Requirements) and II-3.B.1 (Capability of Operating Plants to Cope with Design Basis Flooding Conditions) to enable FRC to resolve all outstanding issues under these SEP topics for San Onofre Nuclear Generating Station Unit 1.

Topic II-3.B Flooding Potential and Protection Requirements

The purpose of this topic is to identify, under current licensing criteria, the plant and site design basis flood level resulting from all potential flood sources external to the plant and site. It includes the evaluation of submitted documentation and the determination of significant differences between the values of parameters used for design and construction and those derived in accordance with current licensing criteria. The evaluation addresses the effects of flood and other changes in hydrostatic and hydrodynamic loads on safety-related structures, systems, and equipment and the adequacy of existing or proposed flood protection measures such as revetments, flood walls or doors, and emergency or administrative procedures.

ITEM 1

CONCERN

Local probable maximum precipitation (PMP) will cause ponding on the rooftops. The Licensee has not submitted sufficient information to permit an assessment of possible design inadequacies in rainfall control which may induce significant hydrostatic loads.

REQUEST

State the design basis of the roofs of safety-related structures in terms of the inches of ponded water the structures will support. If any design basis depths are less than the heights of the parapets around the roofs, supply complete descriptions of the roofs, parapets, scuppers, and drains, including areas, capacities, elevations, and design loads. Also provide drawings that show the roofs, parapets, scuppers, and drains.

ITEM 2

CONCERN

During a flood, protection must be ensured for equipment needed for safe shutdown. Available elevations of safety-related equipment show some levels below plant grade.

REQUEST

Provide a list of structures housing safety-related equipment, elevations of such equipment in the structures, and the elevation of the lowest non-watertight opening in each structure which might allow flooding of such equipment.

ITEM 3

CONCERN

The beach walkway seawall structure provides the only protection against tsunamis for the safety-related structures at San Onofre Unit 1. To adequately assess its ability to exclude seawater, precise information is needed about its design and component materials.

REQUEST

State the design basis wave and wave forces which the wall was intended to resist. Specify the saturated and submerged unit weights and the angle of internal friction of the sand fill under the walkway between the sheetpile seawall and the steel-reinforced concrete retaining wall. Describe the riprap in front of the walkway, including sizes and types of the stones. Specify the type of sheetpile section and the allowable and yield stresses appropriate for the type of steel used.

Topic II-3.B-1 Capability of Operating Plants to Cope
with Design Basis Flooding Conditions

Protection against postulated floods may be accomplished, if necessary, by "hardening" the plant and by implementing appropriate technical specifications and emergency procedures. The purpose of this topic is to identify and evaluate such features that were incorporated into the original design and the need for additional features to meet current licensing criteria.

ITEM

CONCERN

It is recognized that during an extreme event, flooding of the site is possible and emergency procedures may be needed to protect safety-related equipment to ensure continued safe operation or safe shutdown of the plant.

Plant Technical Specifications should identify emergency procedures and methods of operation required to protect San Onofre Unit 1 from the consequences of a flood.

REQUEST

Provide the most recent flood emergency procedure for San Onofre Unit 1. If more than one emergency procedure is used, identify the application of each of the procedures. Also, identify whether these flood emergency procedures are incorporated in the plant's Technical Specifications.

BIBLIOGRAPHY

1. K. P. Baskin (Southern California Edison Company)
Letter to D. M. Crutchfield (ORB/NRC) Subject: Transmittal of
"Additional Information, San Onofre Nuclear Generating Station Unit 1,
Structural Topics."
September 8, 1980
2. G. Lear (NRC)
Letter to W. T. Russell (DOL, NRC) Subject: Transmittal of Hydrologic
Engineering Safety Evaluation (Draft) for San Onofre Unit 1
March 13, 1981
3. W. C. Moody (Southern California Edison Company)
Letter to D. M. Crutchfield (ORB/NRC) Subject: Transmittal of
Information Pertaining to Groundwater Level at San Onofre
April 20, 1981
4. D. M. Crutchfield (ORB/NRC)
Letter to R. Dietch (Southern California Edison Company)
Subject: Transmittal of Systematic Evaluation Program Topic III-3.C
(Draft) for San Onofre Unit 1
July 27, 1981
5. Final Safety Analysis Report (FSAR)
San Onofre Nuclear Generating Station Unit 1
Sections 1.1, 1.2, 1.4, 1.7
6. 7.5' Quadrangle Maps: San Onofre Bluffs,
California; and San Clemente, California
United States Geological Survey (USGS)
1968, Photorevised 1975
7. Beach Walkway Drawings, San Onofre Units 1, 2, and 3
5180940-0: General Notes and Drawing List (11-26-80)
5180941-0: Permanent and Temporary Plan (11-26-80)
5180942-0: Details (11-26-80)
5180943-0: Sections and Details (11-26-80)
5180944-0: Sections and Details (11-26-80)
5180945-A: Permanent Walkway Details (2-17-81)
8. Final Safety Analysis Report (FSAR)
San Onofre Nuclear Generating Station Unit 1
Part II: Supplementary Information, Volume V, Section 9.3
9. Final Safety Analysis Report (FSAR)
San Onofre Nuclear Generating Station Units II and III, Section 2.4

10. Water Transport Through a 5000-Foot Long Section
Along SONGS Unit 1 Outfall Line
Southern California Edison Company
November 1972

11. Report on Pumping Test
San Onofre Nuclear Generating Station Units 2 and 3
Final Safety Analysis Report (FSAR)
Appendix 2.4A

12. Drawings, San Onofre Nuclear Generating Station Unit 1
 - 5133522-2: Grading Plan at Diesel Generating Building (4-27-78)
 - 5133523-1: Grading Plan at East Turbine Generator Area (4-27-78)
 - 5153107-2: Grading and Drainage North Plant Area (7-19-77)
 - 5153116-3: Curbs, Grading and Paving West Plant Area (7-28-77)
 - 5153117-2: Grading, Paving and Curbs South Plant Area (8-31-77)
 - 5153118-1: Grading and Paving West Plant Area Sections and Details
(10-13-77)

 - 567760-1: Excavation Plan Plant Area (5-12-64)
 - 567762-9: Grading and Paving Plant Area (8-6-64)
 - 568883: Nuclear Plant Unit No. 1 Site Grading (2-14-64)
 - 569103-0: Project Area Location Map
 - 81067-7: Topographic Map of San Onofre Nuclear Generating Station Site,
Units 2 and 3, Additional Sheet 7 of 9 (8-29-76)