Southern California Edison Company

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ROSEMEAD, CALIFORNIA 91770

April 12, 1982

Director, Office of Nuclear Reactor Regulation
Attention: D. M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
SEP Topics II-3.B and II-3.B.1
San Onofre Nuclear Generating Station
Unit 1

Your letter dated January 7, 1982 requested additional information for your review of the subject SEP hydrology topics. The requested information is provided as Enclosure 1 to this letter. In addition, the drawings listed in Enclosure 2 are also provided for your use.

If you have any questions or require additional information please let us know.

Very truly yours,

RW Krieger

R. W. Krieger
Supervising Engineer
Licensing, San Onofre Unit 1

Enclosure

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APERTURE DIST.
SEND DRWGS to:
Paulson

March 24, 1982

Additional Information on SEP Hydrology Topics

Topic II - 3.B Flooding Potential & Protection Requirements

Item No. 1: Concern - Roof Ponding on Safety Related Buildings

Request:

1. State the design basis of the roofs of safety related structures in terms of the inches of ponded water the structures will support.

2. 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.

3. Also provide drawings that show the roofs, parapets, scuppers, and drains.

Response:

1. The Control Building, Reactor Auxiliary Building, Sphere Enclosure Building, and Post-Accident Sampling Building have free draining roofs without parapets or are below grade in which case surfaces are graded for free drainage.

   With the exception of the Diesel Generator Building, the other safety related structures were not considered in terms of inches of ponded water they will support. General consideration to water is in terms of roof slope, deflections under design loads, and drainage provisions i.e., drains, scuppers, etc. Design loads include appropriate dead loads and UBC live loads. Roof details are shown on the attached drawings.

   The Diesel Generator Building was designed for water ponding to the top of the parapet which varies in height from 9 inches to 1'-0" at the two drain locations.

2. Structures with design basis depths less than the height of the parapet are described as follows:

Building	Roof Description
A. Fuel Storage Building	Parapet height varies from 8 inches to 1'-2", at the two roof drains. The roof slopes down from the two fifths point of building and from the east and west wall to the drains at a slope of almost 1/4" per foot. The two drains, drain a roof area of approximately 2,665 sq. ft. The drains are Zurn Z-100 ERC with 3" diameter down spouts. A 2" x 8" scupper is provided at each drain location.
B. Ventilation Building	Parapet height varies from 10 inches to 1'-3". The roof slopes down from west wall of the building and from the north and south walls to the drain located near the middle of east wall. The single drain drains a roof area of approximately 855 sq. ft. The drain is a 3" diameter Zurn Z-100 ERC with 3" diameter down spout. A 2" x 8" scupper is provided at the drain location.

3. Drawings are attached.

Diesel Generator Building - 5149213, 5149256
Fuel Storage Building and
Ventilation Building - 568145, 567676, 567677, 567678

Item No. 2: Concern - Flooded Safety Related Equipment

Request:

1. Provide a list of structures housing safety related equipment.

2. Elevations of such equipment in the structures.

3. The elevation of the lowest nonwatertight opening in each structure which might allow flooding of such equipment.

Response: The following is a list of structures that house safety related equipment and the floor elevations on which equipment rests. Grading of the site has been provided along with drainage structures as appropriate to prevent flooding of structures and equipment. If this were not the case, elevations of the lowest opening that might allow flooding of the equipment have also been included in the following list:

Structure	S.R. Equip. Elev.	Lowest Opening Elev.
Reactor Auxiliary Bldg.	5'-0"	20'-0"
Administration and Control Bldg.	42'-0", 20'-0" 14'-2"	14'-2"
Diesel Generator Bldg.	20'-6"	20'-6"
Fuel Storage Bldg.	14'-2"	14'-2"
Turbine West Heater Platform	14'-0"	14'-0"
Turbine East Heater Platform	14'-0"	14'-0"
Turbine South Extension	20'-0"	20'-0"
Turbine North Extension	14'-0"	14'-0"
Sampling Station Bldg.	7'-8"	20'-0"
Ventilation Bldg.	20'-0"	20'-0"
Intake Structure	-6'-6"	-6'-6"

Item No. 3: Concern - Tsunamis on Seawall

Request:

1. State the design basis wave and wave forces which the wall was intended to resist.

2. Specify the saturated and submerged unit weights and the angle of internal friction of the sandfill under the walkway between the sheetpile seawall and the steel-reinforced concrete retaining wall.

3. Describe the riprap in front of the walkway, including sizes and types of the stones.

4. Specify the type of sheetpile section and the allowable and yield stresses appropriate for the type of steel used.

Response:

1. The design basis wave which the wall is intended to resist is a wave which has a period of 4 seconds and a breaking height of 7 feet. The force, Rm, is 3200 pounds per lineal foot acting at elevation 15.6 MLLW.

2. Since the water table is at Elevation 5 MLLW, saturated and submerged units weights were not used. The moist unit weight is 120 pounds per cubic foot and the angle of internal friction of the sand fill for the post seismic soil condition is 41 degrees.

3. The riprap used in front of the walkway consists of four basic layers. The top three extend horizontally from heel to toe of the riprapped slope and consist of rock in the range of diorite to granodiorite with a bulk specific gravity of approximately 2.7, absorption of less than 1.3%, and an abrasion loss at 500 revolutions of less than 28%.

   The first, or top layer, consists of rock which has an average weight of 1350 pounds. Rock size and weight of the second and third layers are progressively smaller with the third layer or filter weighing as little as a fractional pound.

4. The sheet pile section used was U.S. Steel MZ-27 with a minimum yield stress of 38.5 ksi and air allowable stress of 25 ksi. Allowable stress including an increase for seismic is 40 ksi.

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

Item: Concern - Technical Specifications for Flood Protection

Request:

1. Provide the most recent flood emergency procedure for San Onofre Unit 1.

2. If more than one emergency procedure is used, identify the application of each of the procedures.

3. Also, identify whether these flood emergency procedures are incorporated in the plant's Technical Specifications.

Response:

1. A copy of the most recent procedures are attached.

2. Two procedures are used. The first is applicable for Condenser Bay Flooding, the second for predicted and unpredicted tsunamis.

3. These procedures are not part of the plant's Technical Specifications.

Enclosure 2

LIST OF ENCLOSED DRAWINGS
SAN ONOFRE UNIT 1

5153116-3
5153117-2
568883-6
81067-7
8884-4
5149213-6
5149256-1
568145-5
567676-9
567677-5
567678-1
5153098-1
5160385-2
5160386-2
5160387-2
5160388-2
5160389-2

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