



PSE&G

Public Service
Electric and Gas
Company

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Robert L. Mittl General Manager
Nuclear Assurance and Regulation

September 17, 1984

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, MD 20814

Attention: Mr. Albert Schwencer, Chief
Licensing Branch 2
Division of Licensing

Gentlemen:

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
FLOATING MISSILES SUPPLEMENTAL INFORMATION

On July 27, 1984, Public Service Electric and Gas Company (PSE&G) submitted technical information addressing Draft Safety Evaluation Report (DSER) Open Item Nos. 5c, 28f, 32, and 33. On July 31, 1984 representatives of PSE&G met with representatives of the NRC Staff to discuss the material submitted. During that meeting, the Staff raised various questions on the analyses performed. Attached is a response to these questions in the form of a revision to our July 27, 1984 submittal.

Should you have any questions or require any additional information on this item, please contact us.

Very truly yours,

R L Mittl / R P Douglas

8409190067 840917
PDR ADCK 05000354
E PDR

- C D. H. Wagner (w/5 sets of attach.)
USNRC Licensing Project Manager
- W. H. Bateman (w/response only)
USNRC Senior Resident Inspector

**NOTE: PLEASE
ADD THE FOLLOWING
ATTACHED TO RIDS
Sheet**

**8001
11**

BC General Manager - Engineering (w/response only)
General Manager - Hope Creek Operations (w/response only)
Project Manager - Hope Creek (w/response only)
Manager - Licensing and Analysis (w/response only)
Manager - Nuclear Licensing and Regulation (w/response only)
Chief Project Engineer - Hope Creek
Associate General Solicitor
B. G. Markowitz - Bechtel Power Corp. (w/attach.)
Conner & Wetterhahn (w/attach.)
R. Green - N.J. State Bureau of Radiation Protection (w/response only)
R. F. Yewdall (w/attach.)
A. S. Kao (w/attach.)
J. Dette, Dames & Moore (w/attach.)
A. Kalelkar, A. D. Little (w/attach.)
M. E. Smith, MES (w/attach.)
NAR Department - File (yellow) (w/attach.)
J. Ashley - Bethesda Office (w/attach.)
CARMS (w/o attach.)
Licensing File - NRC Letters (w/attach.)

HOPE CREEK GENERATING STATION

DSER OPEN ITEM NO. 5c (Section 2.4.5) Probable Maximum Surge and Seiche Flooding

As indicated in Section 2.4.1, the applicant states that all accesses to safety-related structures (doors and hatches) are provided with water tight seals designed to withstand the head of water associated with the flood protection levels. But, the applicant has not indicated whether the water tight doors are designed to withstand either the combined loading effects of both static water level and the dynamic wave impact or, as cited in Sections 3.4.1 and 3.5.1.4 of this report, the impact of a barge propelled by winds and waves associated with a hydrologic event that floods plant grade.

DSER OPEN ITEM NO. 28f (Section 3.4.1)

The applicant has not addressed our concern associated with the structural integrity of the safety-related structures during the design basis flood and the effects of "floating" missiles. Since the Delaware River is a navigable waterway with the refineries and naval shipyard in Philadelphia, the applicant must address the effects of ships and boats with a draft of less than 12 feet hitting the walls and penetrations of safety-related structures. Some ships which do travel up and down the Delaware River and can have a draft of less than 12 feet are the "Newport" class LST's (LST-1179 series), the "DeSoto County" class LST's (LST-1173 series), the "Anchorage" class LSD's (LSD-36 series), submarines (especially the non-nuclear power submarines), tug boats, visiting "American" ships from foreign countries, oil tankers (when they are empty), and a large host of pleasure craft.

DSER OPEN ITEM NO. 32 (Section 3.5.1.4)

[Based upon our review of the missile spectrum, we conclude that the spectrum was properly selected for tornado generated missiles but does not include "floating missiles" as part of the design basis flood and therefore does not meet the requirement of General Design Criteria 2 and 4 with respect to protection against natural phenomena and missiles.] The plant design does meet the guidelines of Regulatory Guides 1.76 and 1.117 with respect to identification of missiles generated by tornadoes and is, therefore, acceptable. [The missile spectrum does not meet the acceptance criteria of SRP Section 3.5.1.4. We will report resolution of this item in a supplement to this SER].

DSER OPEN ITEM NO. 33 (Section 3.5.2)

The design of the facility for providing protection from externally generated missiles does not meet the applicable acceptance criteria of SRP Section 3.5.2 and the requirements of General Design Criteria 2 and 4 with respect to missile and environmental effects. We will report resolution of these items in a supplement to this SER.

RESPONSE TO DSER OPEN ITEMS NOS. 5c, 28f, 32 and 33

Attached is a report entitled "An Analysis of the Likelihood of Waterborne Traffic and Other Floating Objects on the Delaware River Impacting the Hope Creek Generating Station in Severe Storms" prepared by Arthur D. Little, Inc. for Hope Creek Generating Station. This report replaces in its entirety the report submitted on July 27, 1984 (letter from R. L. Mittl, PSE&G to A. Schwencer, NRC) prepared by Arthur D. Little. Also attached is a report prepared by Meteorological Evaluation Services (MES) entitled "Hope Creek Generating Station - Extreme Event Site Flooding - Supplemental Report on Meteorology - August 1984" which is referenced in the Arthur D. Little Report. This August 1984 MES report supplements information contained in a report entitled "Hope Creek Generating Station - Extreme Event Site Flooding Meteorology - July 1984" previously submitted on July 27, 1984 (letter from R. L. Mittl, PSE&G to A. Schwencer, NRC). The Arthur D. Little report also references a report prepared by Dames & Moore entitled "Storm Surge Calculations for Hope Creek Generating Station - July 1984" previously submitted on July 27, 1984 (letter from R. L. Mittl, PSE&G to A. Schwencer, NRC).

The reports demonstrate that the probability of marine vessels impacting Hope Creek Generating Station is significantly less than 10^{-6} per year. The 10^{-6} per year figure is referenced in Standard Review Plan Section 2.2.3 as an acceptable expected occurrence rate for an analysis if, when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower. Based on the analyses performed, Public Service Electric and Gas Company concludes that the impact of "floating marine missiles" need not be considered in the design bases of Hope Creek Generating Station.

The reports also analyze the impact of non-marine "floating missiles" on doors for safety related structures. The results of this evaluation indicate that all the door structures are able to withstand the impact of the postulated non-marine floating missiles.

REV. 1