

American Nuclear Society

WITHDRAWN

July 26, 2002

ANSI/ANS-2.8-1992

**determining design basis
flooding at power reactor sites**

an American National Standard

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published by the
American Nuclear Society
555 North Kensington Avenue
La Grange Park, Illinois 60525 USA

**American National Standard
for Determining Design Basis
Flooding at Power Reactor Sites**

Secretariat
American Nuclear Society

Prepared by the
**American Nuclear Society
Standards Committee
Working Group ANS-2.8**

Published by the
**American Nuclear Society
555 North Kensington Avenue
La Grange Park, Illinois 60525 USA**

Approved July 28, 1992
by the
American National Standards Institute, Inc.

American National Standard

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Published by

American Nuclear Society
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Printed in the United States of America

Foreword

(This Foreword is not a part of the American National Standard for Determining Design Basis Flooding at Power Reactor Sites, ANSI/ANS-2.8-1992.)

The purpose of this document is to specify criteria for determining design basis flooding at power reactor sites. This standard was prepared by Working Group ANS-2.8 of ANS-2 Subcommittee, Site Evaluation, of the American Nuclear Society Standards Committee. The directive to the working group was as follows: "Guidelines are to be developed to establish design basis flooding at power reactor sites as a result of river, stream, or seismically induced dam failure; surge, seiche, or wave action flooding, or any combination of these events. Methodology will be described for evaluating the worst site-related flood at a power reactor site caused by either a probable maximum flood on streams and rivers and any dam failures resulting therefrom: a seismically induced dam failure flood; a probable maximum surge and seiche flood; and any attendant wind-generated wave activity associated with these events, or caused by a reasonable combination of less severe events."

This standard covers material that meets the requirements of Section 2.4, Hydrologic Engineering, of Regulatory Guide 1.70, Revision 3, November 1978, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," issued by the Regulatory Staff of the U.S. Nuclear Regulatory Commission (NRC). This standard does not cover requirements of this Regulatory Guide on the following Standard Format 2.4 sections:

- (1) Low Water Considerations—Addressed by American National Standard Evaluation of Surface-Water Supplies for Nuclear Power Sites, ANSI/ANS-2.13-1979 (R1988).
- (2) Dispersion, Dilution, and Travel Times of Accidental Releases of Liquid Effluents in Surface Waters—Addressed by American National Standard Evaluation of Radionuclide Transport in Ground Water for Nuclear Power Sites, ANSI/ANS-2.17-1980 (R1989).
- (3) Groundwater—Addressed by American National Standard Evaluation of Ground Water Supply for Nuclear Power Sites, ANSI/ANS-2.9-1980 (R1989).
- (4) Technical Specifications and Emergency Operation Requirements.
- (5) Probable Maximum Tsunami Flooding.

Before preparing the Safety Analysis Report (SAR) Section 2.4, Hydrologic Engineering, for the licensing of nuclear power plants, the applicant should be aware of hydrologic work that has been done by others in the area of interest. Almost invariably, much work can be saved by utilizing all or parts of studies by local, state, and federal agencies. Such information as dimensioned or dimensionless unit hydrographs, loss rates, lag times, historical floods, and geologic and groundwater data, etc., may be obtained from such sources. Sometimes the probable maximum flood has already been derived at the site or at a point near enough to be transposed.

The prime source of such information is the U.S. Army (Corps of Engineers). Other federal agencies that may have useful data are the Bureau of Reclamation, Soil Conservation Service, Weather Service, Geological Survey, Tennessee Valley Authority, Environmental Protection Agency, Federal Energy Regulatory Commission (formerly Federal Power Commission), Federal Emergency Management Agency, and the NRC. Most states have one or more agencies that are concerned with various

aspects of water resources. Power companies, particularly those with hydropower capacity, are another source, as are municipal or regional water-supply organizations.

Safety Analysis Reports for other nuclear plants in the area may also provide useful information. It is also profitable to discuss the specific site in detail with the hydrology staff of the NRC prior to starting preparation of Section 2.4.

The first issue of the standard was approved by the American National Standards Institute, Inc., on November 1, 1976, and was published by the American Nuclear Society as American National Standard for Determining Design Basis Flooding at Power Reactor Sites, N170-1976 (ANS 2.8).

The first revision of the standard was approved on February 17, 1981; it was published as American National Standard ANSI/ANS-2.8-1981.

This revision of the standard was developed by a reconstituted working group of ANS-2.8, which had the following members:

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