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AMERICAN NUCLEAR SOCIETY

555 North Kensington Avenue
La Grange Park, Illinois
60526-5592 USA

Tel: 708/ 352-6611
E-Mail: NUCLEUS@ans.o
http://www.ans.org
Fax: 708/ 352-0499

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American National Standard for Evaluation of Radionuclide Transport in Ground Water for Nuclear Power Sites

Secretariat
American Nuclear Society

Prepared by the
American Nuclear Society
Standards Committee
Working Group ANS-2.17

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Foreword

(This Foreword is not a part of American National Standard for Evaluation of Radionuclide Transport in Ground Water for Nuclear Power Sites, ANSI/ANS-2.17-1980.)

The purpose of this document is to specify standards for determining the concentrations of radionuclides in the ground water resulting from both potential accidental and routine releases from nuclear power plants. This standard was prepared by Working Group ANS-2.17 of ANS-2 Subcommittee, Site Evaluation, of the American Nuclear Society Standards Committee.

The initial meeting of the working group was held in October, 1974. At that meeting, the working group was designated as ANS-2.9, Standards for Evaluating Water Supply and Waterborne Radionuclide Transport for Nuclear Power Sites. This working group was subdivided into surface water and ground water subgroups, and, the working group was formally subdivided at the March, 1975 meeting of the ANS-2 subcommittee into ANS-2.9, Standards for Evaluating Water Supply and Waterborne Radionuclide Transport for Power Reactor Sites: Ground Water, and ANS-2.13, Standards for Evaluating Water Supply and Waterborne Radionuclide Transport for Power Reactor Sites: Surface Water.

The draft standard, ANS-2.9, was balloted on May 31, 1977, by the ANS-2 Subcommittee with 12 approved, 10 approved with comments, 2 disapproved, 1 not voting, and 2 unreturned ballots. As a result of comments received during this balloting, the draft standard was further sub-divided into ANS-2.9, American National Standard for Evaluation of Ground Water Supply for Nuclear Power Sites, and ANS-2.17, American National Standard for Evaluation of Radionuclide Transport in Ground Water for Nuclear Power Sites. These draft standards, dated January, 1978, were transmitted to the ANS-2 Subcommittee in June, 1978, for information and informal comments. The draft standards were revised to incorporate these informal comments. As a result of these revisions, the two disapproved ballots were changed to approved with comments.

This standard covers parts of the material that meet the requirements of Section 2.4, Hydrologic Engineering, and Section 11.2, Liquid Waste Management Systems, of the "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Regulatory Guide 1.70, issued by the Nuclear Regulatory Commission (NRC).

Before preparing the Safety Analysis Report (SAR) Sections 2.4 and 11.2, for the licensing of nuclear power plants, the applicant should be aware of hydrologic work which has been done by others in the area of interest. Almost invariably, much work can be saved by utilizing all or parts of studies of local, state, and federal agencies. Such information as historical ground water levels, pumping tests, well logs, withdrawal and recharge rates, geologic data, hydraulic parameters of underlying formations, location and extent of aquifers, and water quality can be obtained from such sources.

Federal agencies which have useful data are the U.S. Geological Survey, Corps of Engineers, Bureau of Reclamation, Soil Conservation Service, Forest Service, Tennessee Valley Authority, Environmental Protection Agency, and the Nuclear Regulatory Commission. Most states have one or more agencies which are concerned with various aspects of water resources. Various local and interstate agencies, including soil and water conservation districts, irrigation districts, and river basin commissions, can be sources of information. SAR's for other nuclear facilities in the region can provide data.

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. In such discussions the scope of work can often be reduced, and methodologies and procedures can be agreed upon, which will save many man-hours and dollars, both for the applicant and for the NRC staff.

Working Group 2.17 of the Standards Committee of the American Nuclear Society had the following membership:

David L. Siefken, Chairman, *Sargent & Lundy*
Y. C. Chang, *Stone & Webster Engineering Corporation*
Stanley N. Davis, *University of Arizona*
James O. Duguid, *Battelle Memorial Institute*
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John A. McLaughlin, *Pacific Gas and Electric Company*
William M. McMaster, *Tennessee Valley Authority*
Thomas Nicholson, *Nuclear Regulatory Commission*

The chairman of the working group prior to the preparation of Draft 4, dated December, 1978 was Patrick J. Ryan, Bechtel, Inc. Prior to his retirement, Donald L. Milliken represented the Nuclear Regulatory Commission.

Subcommittee ANS-2, Site Evaluation, of the American Nuclear Society Standards Committee had the following members at the time of its approval of this standard:

R. V. Bettinger, Chairman, *Pacific Gas and Electric Company*
Luis E. Escalante, *Los Angeles Department of Water and Power*
J. A. Fischer, *Dames & Moore*
Walter W. Hays, *U.S. Geological Survey*
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R. Noble, *Dames & Moore*
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N. R. Wallace, *Bechtel, Inc.*
Donald A. Wesley, *General Atomic Company*
Earl Ivan White, *General Atomic Company*
Karl Wiedner, *Bechtel Power Corporation*

The members of American Nuclear Society's Nuclear Power Plant Standards Committee (NUPPSCO) at the time it balloted this standard in July 1979 were:

J. F. Mallay, Chairman
M. D. Weber, Secretary

Name of Representative	*Organizations*
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R. E. Basso	*Catalytic, Inc.*
R. G. Benham	*General Atomic Company*
	(for the Insitiute of Electrical and Electronics Engineers)
R. V. Bettinger	*Pacific Gas & Electric Company*
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