# **American Nuclear Society**

### REAFFIRMED

October 3, 1989 ANSI/ANS-18.5-1982 (R1989)

# surveys of terrestrial ecology needed to license thermal power plants

## an American National Standard

### WITHDRAWN 1999

No longer being maintained as an American National Standard. This standard may contain outdated material or may have been superseded by another standard. Please contact the ANS Standards Administrator for details.



published by the American Nuclear Society 555 North Kensington Avenue La Grange Park, Illinois 60525 USA American National Standard for Surveys of Terrestrial Ecology Needed to License Thermal Power Plants

Secretariat American Nuclear Society

Prepared by the American Nuclear Society Standards Committee Working Group ANS-18.5

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

Approved September 22, 1982 by the American National Standards Institute, Inc.

# National

American An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The Standard existence of an American National Standard does not in any respect preclude anyone, whether he has approved the standard or not from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review and users are cautioned to obtain the latest editions.

> CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of this standard may receive current information, including interpretation, on all standards published by the American Nuclear Society by calling or writing to the Society.

#### Published by

#### **American Nuclear Society** 555 North Kensington Avenue, La Grange Park, Illinois 60525 USA

Price: \$30.00

Copyright © 1982 by American Nuclear Society.

Any part of this standard may be quoted. Credit lines should read "Extracted from American National Standard, ANSI/ANS-18.5-1982, with permission of the publisher, the American Nuclear Society." Reproduction prohibited under copyright convention unless written permission is granted by the American Nuclear Society.

Printed in the United States of America

**Foreword** (This Foreward is not a part of American National Standard for Surveys of Terrestrial Ecology Needed to License Thermal Power Plants, ANSI/ANS-18.5-1982.)

The effects a thermal power plant will have on the terrestrial environment will vary with location, engineering design, and methods of construction and operation. Utilities and regulatory agencies attempt to predict these effects by analyzing data gathered at a proposed site. The guidelines presented in this standard promote uniformity in the designing, conducting, analyzing, and reporting involved in surveying and monitoring the terrestrial environment; however, the peculiarities that could be encountered at any site make definitive guidance impractical. This standard therefore is intended as an aid to, not a substitute for, professional judgment. It is possible that the approach in this guide might not always adapt to the requirements of all regulatory agencies; therefore, before becoming committed to any major study program, users of this guide should consult with appropriate regulatory officials. Suggestions for improvement of this standard will be welcome. They should be sent to the American Nuclear Society, 555 North Kensington Avenue, La Grange Park, Illinois 60525.

At the time it processed and approved this standard, Working Group ANS-18.5 of the American Nuclear Society Standards Committee had the following members:

- W. T. Tucker, Chairman, Power Authority of the State of New York
- J. H. Braswell, D'Appolonia Consulting Engineers
- J. D. Buffington, Council on Environmental Quality
- S. Eabry, State of New York, Department of Pub-
- lic Service
- G. J. Eicher, Portland General Electric Company
- J. Ghiselin, Consulting Ecologist
- R. Harvey, E. I. duPont de Nemours & Company, Savannah River Laboratory

The working group acknowledges the contribution of the following past members:

- R. L. Ballard, U.S. Nuclear Regulatory Commission
- J. W. Blake, Power Authority of the State of New York
- L. Dean, Mississippi Power and Light
- R. P. Grill, U.S. Nuclear Regulatory Commission
- R. M. Hartman, Envirosphere Company
- R. J. Heath, U.S. Environmental Protection Agency A. Pierce, Nuclear Fuel Services, Inc.
- T. R. Rice, National Marine Fisheries Service
  - 1. R. Rice, National Marine Fisheries Service

The subcommittee also acknowledges the assistance of:

B. R. Bernard (editor), United Engineers & Constructors, Inc. Jean Woo, United Engineers & Constructors, Inc.

At the time of its review and approval of this standard, American Nuclear Society Standards Subcommittee 18, Environmental Impact Evaluation, had the following membership:

- P. G. Voilleque, Chairman, Science Applications, Inc.
- M. J. Cambria, Gilbert Associates
- R. W. Engelhart, NUS Corporation
- R. Garton, Western Fish Toxicology Laboratory
- M. I. Goldman, NUS Corporation
- F. J. Gottlich, Boston Edison Company
- P. J. Hanson, National Marine Fisheries Service
- R. M. Hartman, Envirosphere Company
- A. J. Hogan, Philadelphia Electric Company
- J. W. Lentsch, Portland General Electric Company T. R. Rice, National Marine Fisheries Service
- D. S. Smith, U. S. Environmental Protection Agency
- G. F. Stone, Tennessee Valley Authority
- D. S. Trent, Battelle Pacific Northwest Laboratories
- B. F. Waters, Pacific Gas and Electric Company
- C. D. Wilkinson, General Electric Company

- J. Kline, U. S. Nuclear Regulatory Commission R. J. Kuckyr, Cajun Electric Power Cooperative
- R. J. Kuckyl, Cajun Electric Fower Cooperative
- W. F. MacCallum, Woodward-Clyde Consultants
- K. McLoughlin, New York Power Pool
- R. E. Munson, United Engineers and Constructors, Inc.
- B. F. Waters, Pacific Gas & Electric Company

At the time it balloted and approved this standard, American National Standards Committee N19, Nonradiological Environmental Effects, had the following membership:

#### R. F. Foster, Chairman M. D. Weber, Secretary

#### ${\it Organization}\ {\it Represented}$

#### Name of Representative

R. Ploss

E. C. Raney J. Z. Reynolds J. G. Robinson K. J. Stimpfl

American Institute of Fisheries Research Biologists American Nuclear Society American Society of Limnology and Oceanography Association of Power Biologists Atomic Industrial Forum Bureau of Sport Fisheries & Wildlife, U.S.	R. F. Foster W. O. Forster B. F. Waters R. M. Hartman
Department of the Interior	
Edison Electric Institute	M. L. Brehmer
Lake Michigan Federation	T. J. Murphy
Los Angeles Department of Water and Power	B. Sokolow
Seismological Society of America	A. T. Molin
Soil Conservation Society of America	
U. S. Nuclear Regulatory Commission	R P Grill
U. S. Department of Energy	A Schoon
U.S. Department of A grigulture Forest Service	C I Kmigman
U. S. Department of Agriculture, Forest Service	S. L. Krugman
Individual Members	
	R. Geiger
	W. Mac Callum
	J. H. Hughes
	D. L. Morrison
	R. E. Nakatani

## Contents Section

#### Page

1.	1.1 Scope	d Purpose
2.	2.1 Envi	nformation
		dating Types of Information 2   ciples Involved in the Design of Ecological Surveys 2
3.	<ul><li>3.1 Gene</li><li>3.2 Stage</li><li>3.3 Plant</li></ul>	omponents
4.	<ul><li>4.1 Gene</li><li>4.2 Site \$</li><li>4.3 Preco</li><li>4.4 Preo</li></ul>	al Information by Survey Stages 66 ral 66 Selection Phase 77 onstruction Phase 111 peration Phase 188 ation Phase 19
Ap		ummary of Environmental Legislation and Regulations oncerning Power Plant Siting, Construction, and Operation
Та	bles	
		Matrix for Balancing Environmental Factors in the Selection of Sites and Cooling Methods
	Table 2	Matrix for Balancing Terrestrial Factors in the Selection of Sites
		Analysis of Routing Alternatives
	Table A1	Chemical Monitoring Programs
	Table A1	Plants as of January 1979
	Table A2	States with No Single Authority Specifically Related to Power Plants as of January 1979
Fi	gures Figure 1	Typical Schedule of Development for Power Plants in the   United States in 1977