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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.

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Contents

Surveys of Terrestrial Ecology Needed to License Thermal Power Plants

1. Scope and Purpose

1.1 **Scope.** This standard discusses the need developers of thermal power plants and their associated facilities have for information on the terrestrial environment. Utilities and regulatory agencies must collect information to predict and assess real and potential environmental impacts, and to site and design generating plants that avoid or reduce adverse effects. Users of this standard will be guided through each stage of a survey with its corresponding requirements, the relationship of the terrestrial ecologist and other specialists in a major project, sources of information, and the governing laws and regulations.

1.2 **Purpose.** The purposes for collecting environmental data are to provide the technical foundation for reasoned environmental decisions by both the government and the developer, and to disclose to the public the nature of the environment that would be impacted by the construction and operation of a proposed facility.

Assuming that a need for a facility has been demonstrated (separate issues in state and federal licensing), there are two central environmental issues: (1) the utility must determine where and how the needed facility will be constructed and (2) the government regulatory agency must determine whether a license for the proposed facility will be granted or denied for a specific location.

Before these issues can be addressed, however, options from many possible courses of action must be selected. Generally these options fall into two classes: (1) options of multiple sites and plant designs and (2) options of multiple strategies to mitigate impacts at specific sites. The task of the terrestrial ecologist is to design studies that serve these decisions. It is not adequate to perform studies only in which the principle objective is comprehensive environmental description. Undifferentiated and uninterpreted studies do little to aid decision making and, indeed, can even make it more difficult by introducing extraneous issues or information of little importance. This guide has been developed to help utilities define the type and level of study needed to evaluate the effect of a proposed facility on the terrestrial environment.

Issues that have been important in past impact assessments are identified here, but the experience and judgment of investigators are also important. The selection of a site or mitigation measure cannot be based upon inflexible standards. The basic investigations of the site serve the important function of identifying or framing issues that decision makers must consider.

It is important for users of this guide to understand that, in the decision-making process evolved under the National Environmental Policy Act of 1969 (NEPA), there are no environmental impacts that are inherently acceptable or unacceptable. This is because such impacts are not "criterion referenced" (judged against a standard) as are some, for example, under the Clean Air Act or Clean Water Act. Under NEPA, acceptability or unacceptability is determined by a "comparison reference" process; acceptability depends upon the options available (including the no-action alternative). Seldom does an option in siting or facility design emerge free of defects and, therefore, appear as the undisputed best choice. It is far more common to confront options with a range of advantages and disadvantages. This necessitates that decisions under NEPA be weighed and balanced. (The weighing and balancing process is beyond the scope of this guide, which treats only terrestrial resources. Options that are best from the standpoint of mitigating or avoiding impacts on terrestrial resources might not be chosen if countervailing considerations from other areas of investigation exist. Nevertheless, terrestrial studies should be directed towards identifying the actions or sites that would have the least environmental impact.)

It is inherent in the decision-making process, particularly when under government regulatory review, that the reasons for taking actions or recommending options are of as much interest as the actions themselves. The assessment that