



Process for Infrastructure Aging Management and Life Extension of Nonreactor Nuclear Facilities

An American National Standard

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**American National Standard
Process for Infrastructure Aging
Management and Life Extension
of Nonreactor Nuclear Facilities**

Secretariat
American Nuclear Society

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Foreword

(This foreword does not contain any requirements of American National Standard “Process for Infrastructure Aging Management and Life Extension of Nonreactor Nuclear Facilities,” ANSI/ANS-3.14-2021, but is included for informational purposes.)

A significant number of nonreactor nuclear facilities (NRNFs) are reaching or have achieved their originally anticipated period of operation but are slated for continued operations for a number of additional years. As facilities age, safety and reliability margins provided by the design tend to decrease, and operations and maintenance costs and facility outages usually increase, unless age-related degradation of structures, systems, and components (SSCs) is appropriately managed by engineering and operations and maintenance personnel. The aging of facility SSCs important to safety needs to be effectively managed to ensure that the required safety functions are available throughout the life of the facility. In addition, those SSCs important to mission reliability also need to be properly managed for age-related degradation for reliable and economic facility operation.

While these aging facilities have maintenance programs to support ongoing operations, they face several aging challenges that could impact sustained safe operations: (1) systems that are degrading, (2) unavailability of replacement parts for critical SSCs, and (3) degrading supporting infrastructure. To support continued safe operations of aging facilities, this standard provides a risk-informed methodology for establishing requirements and methods for the selection of critical SSCs. This standard also provides an approach for conducting in-depth studies and inspections beyond routine maintenance programs needed for extending the life of selected SSCs through appropriate Aging Management Programs.

The objective of this standard is to provide an approach to evaluate the site and facility infrastructure, processes, and physical conditions and provide examples of how that information can be used to develop the essential elements required to establish an enhanced aging management and life extension process for NRNFs.

This standard incorporates the concept of risk-informed insights as part of selection of equipment to which the standard is applied. Performance-based decisions are also applied in the determination of condition monitoring techniques in the assurance of safe and reliable equipment operation. The working group has determined that the incorporation of more defined risk-informed and/or performance-based requirements in this standard may be worthwhile and intends to consider this in a future revision.

This standard might reference documents and other standards that have been superseded or withdrawn at the time the standard is applied. A statement has been included in the references section that provides guidance on the use of references.

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