American Nuclear Society

WITHDRAWN
October 27, 1997
ANSI/ANS-59.51-1989

fuel oil systems for emergency diesel generators

an American National Standard

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American Nuclear Society
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ANSI/ANS-59.51-1989
Revision of
ANS-59.51-1976 (N195)

American National Standard Fuel Oil Systems for Emergency Diesel Generators

Secretariat
American Nuclear Society

Prepared by the
American Nuclear Society
Standards Committee
Working Group ANS-59.51

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by the
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American National Standard

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Comments on this standard are encouraged and should be sent to Society Headquarters.

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Foreword

(This Foreword is not a part of American National Standard Fuel Oil Systems for Emergency Diesel Generators, ANSI/ANS-59.51-1989.)

This standard is applicable to light water reactor nuclear power plants and is the first in a series of standards sponsored by the LWR Criteria Management subcommittee (MC-1) intended to cover the design of auxiliary systems that support the operation of emergency diesel generator units. Other standards in this series being developed by this working group are listed below:

Proposed Standard	Subject
ANS-59.52	Lubricating Oil Systems
ANS-59.53	Starting Air Systems
ANS-59.54	Combustion Air Systems
ANS-59.55	Coolant Systems

This standard interfaces with American National Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations, ANSI/IEEE 387-1984. The scope of IEEE 387-1984 includes "The fuel oil system from the fuel oil day tank to the engine, including filters and strainers between the day tank and the engine." However, no fluid system or component performance or design criteria are specified in that standard. To address these fluid system requirements, this revision to ANSI/ANS-59.51 includes in its scope instrumentation and control functions, piping, and piping components between the day tank and the diesel engine terminal connections. Based on discussions with the Working Group chairman for IEEE 387, it was agreed that the intent of IEEE 387 is to address only the overall qualifications and boundaries of the diesel generators auxiliary systems and not the specific performance or design criteria which should be addressed in ANSI/ANS-59.51-1989.

The purpose of this standard and the related standards under development is to provide guidance to nuclear plant owners, designers, manufacturers, regulatory authorities, and operators in the design of reliable onsite power systems. The reliability of the fuel oil system shall be considered when satisfying the overall reliability requirements of the diesel generator units. This is especially important if fuel oil systems have components that are shared between reactor units, where consideration is given to the application of the single failure criterion.

This standard was initially approved and issued by the American Nuclear Society in April 1976 and has been completely revised to conform to American Nuclear Society Nuclear Power Plant Standards Committee (NUPPSCO) Policy 2.5, "Format Guide for Systems Criteria Standards." Also, this standard has been revised to conform to the latest revisions of American National Standards Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants, ANSI/ANS-51.1-1983 (R1988) and Nuclear Safety Criteria for the Design of Stationary Boiling Water Reactor Plants, ANSI/ANS-52.1-1983 (R1988) and to resolve comments from previous ballots issued in 1982 for reaffirmation, in 1985 for withdrawal and in 1986 for reaffirmation. The NRC's proposed "station blackout" rule that appeared in the Federal Register/Vol. 51, No. 55/ Friday, March 21, 1986 has also contributed to a renewed interest in this standard.

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators," endorsed ANSI N195-1976/ANS-59.51 as providing an acceptable method for complying with the pertinent requirements of General Design Criterion 17 of Appendix A to 10CFR Part 50, subject to some clarifications and additional requirements. This revision has considered and incorporated where appropriate these clarifications and additional requirements.

This revision to the standard has been prepared by Working Group ANS-59.51 of the American Nuclear Society, which was reformed in 1986 and had the following membership as of 1989:

R. E. Fortier, Chairman, *Stone & Webster Engineering Corporation*
W. J. McFarland, *Philadelphia Electric Company*
S. M. Peterson, *Cooper Nuclear Station*
C. L. Ray, Jr., *Duke Power Company*
E. B. Tomlinson, *U.S. Nuclear Regulatory Commission*
N. A. Traeger, *Colt Industries - Fairbanks Morse Engine Division*

ANS-59.51 had been under the management of ANS-30, ANS-50, and ANS-3 subcommittees. In 1985, this standard was placed under the management of MC-1 subcommittee. It was under MC-1 that a working group was reformed in 1986 to prepare this revision.

MC-1, LWR Criteria Management Committee, had the following membership at the time of the standard's approval:

W. H. D'Ardenne, Chairman, *General Electric Company*
E. J. Borella, *Ebasco Services, Inc.*
R. Fortier, *Stone & Webster Engineering Corporation*
J. C. Glynn, *U.S. Nuclear Regulatory Commission*
P. Hepner, *Combustion Engineering, Inc.*
D. G. Keith, *Bechtel Power Corporation*
S. A. Nass, *Duquesne Light Company*
H. G. O'Brien, *Tennessee Valley Authority*
H. C. Shaffer III, *Yankee Atomic Electric Company*
D. J. Spellman, *Advanced Technology Engineering Systems, Inc.*
R. C. Surman, *Westinghouse Electric Corporation*
E. W. Swanson, *Babcock & Wilcox Company*

The American Nuclear Society's Nuclear Power Plant Standards Committee (NUPPSCO) had the following membership at the time of its release of this standard:

L. J. Cooper, Chairman
M. D. Weber, Secretary

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F. Boorboor ..... United Engineers & Constructors*
C. O. Coffer ..... Pacific Gas and Electric
L. J. Cooper ..... Nebraska Public Power District (for the American Nuclear Society)
J. D. Crawford ..... Combustion Engineering Corporation
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D. Lambert ..... Tennessee Valley Authority
R. T. Lancet ..... Rockwell International Corporation
J. F. Mallay ..... Management Analysis Company*
J. K. McCall ..... Pacific Gas & Electric Company
R. E. Miller ..... Duke Power Company
J. A. Nevshemal ..... Toledo Edison Company
P. T. Reichert ..... United Engineers & Constructors
W. M. Rice ..... Duke Power Company (retired) (for the Institute of Electrical & Electronics Engineers, Inc.)
J. C. Saldarini ..... Ebasco Services, Inc.
M. O. Sanford ..... GPU Nuclear Corporation
S. L. Stamm ..... Stone & Webster Engineering
J. D. Stevenson ..... Stevenson & Associates
T. J. Sullivan ..... Institute of Nuclear Power Operations
C. D. Thomas ..... Yankee Atomic Electric Company
W. T. Ullrich ..... Philadelphia Electric Company
G. P. Wagner ..... Commonwealth Edison Company
G. L. Wessman ..... Consultant
G. J. Wrobel ..... Rochester Gas & Electric Corporation

*Affiliation at time of balloting

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