American Nuclear Society

WITHDRAWN

July 28, 2000 ANSI/ANS-54.8-1988

metal fire protection in LMR plants

an American National Standard

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 This standard may contain outdated material or may have been superseded by another standard.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 NUCLEAR SOCIETY

555 North Kensington Avenue La Grange Park, Illinois 60526-5592 USA Tel: 708/352-6611 E-Mail: NUCLEUS@ans.org http://www.ans.org Fax: 708/352-0499

It is intended that this statement be placed on the list of

Historical American National Standards

published by

The American Nuclear Society

Users of these documents should be aware that these standards either have been superceded, or they have not been maintained in accordance with ANSI/ANS requirements. They can be made available to users in printed format or electrostatic copies and will be priced accordingly.

American National Standard for Liquid Metal Fire Protection in LMR Plants

Secretariat American Nuclear Society

Prepared by the American Nuclear Society Standards Committee Working Group ANS-54.8

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

Approved November 30, 1988 by the American National Standards Institute, Inc.

American National Standard

Designation of this document as an American National Standard attests that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standard has been achieved.

This standard was developed under the procedures of the Standards Committee of the American Nuclear Society; these procedures are accredited by the American National Standards Institute, Inc., as meeting the criteria for American National Standards. The consensus committee that approved the standard was balanced to assure that competent, concerned, and varied interests have had an opportunity to participate.

An American National Standard is intended to aid industry, consumers, governmental agencies, and general interest groups. Its use is entirely voluntary. The existence of an American National Standard, in and of itself, does not preclude anyone from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard.

By publication of this standard, the American Nuclear Society does not insure anyone utilizing the standard against liability allegedly arising from or after its use. The content of this standard reflects acceptable practice at the time of its approval and publication. Changes, if any, occurring through developments in the state of the art, may be considered at the time that the standard is subjected to periodic review. It may be reaffirmed, revised, or withdrawn at any time in accordance with established procedures. Users of this standard are cautioned to determine the validity of copies in their possession and to establish that they are of the latest issue.

The American Nuclear Society accepts no responsibility for interpretations of this standard made by any individual or by any ad hoc group of individuals. Requests for interpretation should be sent to the Standards Department at Society Headquarters. Action will be taken to provide appropriate response in accordance with established procedures that ensure consensus on the interpretation.

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

Published by

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

Copyright © 1988 by American Nuclear Society.

Any part of this standard may be quoted. Credit lines should read "Extracted from American National Standard ANSI/ANS-54.8-1988 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 Foreword is not a part of American National Standard for Liquid Metal Fire Protection in LMR Plants, ANSI/ANS-54.8-1988.)

Sodium/NaK fires present unique challenges to the safe operation and shutdown of the Liquid Metal Reactor (LMR) plants. As a result of the increased design and development activities directed toward the establishment of commercial LMR plants, the need for developing specific requirements and guidelines is recognized. Experiences from the ongoing LMR development programs have been included. The requirements and guidelines presented here could change with increasing operating and design and development experience.

The ANS-54.8 Working Group which prepared the final version of this standard consisted of the following membership:

- C. A. Bijlani, Chairman, Burns and Roe Enterprises
- J. Bell, Hanford Engineering Development Laboratory
- C. Boasso, Westinghouse Electric Corporation

J. Hagelston, Rockwell International

At the time of approval of this standard, the American Nuclear Society Standards Subcommittee ANS-54 consisted of the following membership:

- R. T. Lancet, Chairman, Rockwell International Corporation
- R. F. Stearns, Secretary, Bechtel Group, Inc.
- H. Alter, U.S. Department of Energy
- C. Bijlani, Burns & Roe Enterprises
- H. W. Buschman, Argonne National Laboratory-West
- C. Cox, Westinghouse-Hanford
- S. Gray, Electric Power Research Institute
- G. L. Gyorey, G E Advanced Nuclear Technology

T. L. King, U.S. Nuclear Regulatory Commission H. R. Michael, Stone & Webster Engineering Corporation

- M. Natta, Institute de Protection et de Surete Nucleaire (France)
- J. M. Rich, Sargent & Lundy
- W. R. Rolf, Commonwealth Edison Company
- W. J. Rowan, Consultant
- L. E. Strawbridge, Westinghouse Electric Corporation

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

-

L. J. Cooper, Chairman

M. D. Weber, Secretary

 W. M. Andrews. R. V. Bettinger. F. Boorboor C. O. Coffer L. J. Cooper. 	Pacific Gas & Electric Company United Engineers & Constructors Pacific Gas & Electric Company
J. D. Crawford	Combustion Engineering Corporation
W. H. D'Ardenne (Vice-chairman)	General Electric Company
S. N. Ehrenpreis	
S. B. Gerges	
C. J. Gill	Bechtel National, Inc.
C. E. Johnson D. Lambert	
R. T. Lancet	Bockwell International Corporation
J. C. McCall	
J. F. Mallay	Advanced Technology Systems, Inc.
R. E. Miller	
J. A. Nevshemal	
P. T. Reichert	
W. M. Rice	
J. C. Saldarini	institute of Electrical & Electronics Engineers, Inc.)
M. O. Sanford	
S. L. Stamm	
J. D. Stevenson	
	(for the American Society of Civil Engineers)
T. J. Sullivan	
C. D. Thomas, Jr.	
W. T. Ullrich	
G. L. Wessman	· · · · · · · · · · · · · · · · · · ·
G. J. Wrobel	

Contents	SectionF1. Introduction and Scope1.11.1 Introduction1.21.2 Purpose1.31.3 Scope1.4Limits of Application1.4	1 1 1
	2. Definitions	1
	 General Design Objectives 3.1 Fire Safe Design 3.2 Design Considerations Concerning Operations 	2
	 4. Fire Protection Requirements	3 6
	 Detection and Alarm Systems 5.1 Automatic Fire Detection and Alarm Systems 5.2 Oxygen Monitors 	6
	6. Power Supplies	7
	 7. Testing, Inspection and Maintenance 7.1 Preoperational Testing 7.2 Periodic Inspection, Testing and Maintenance 	8
	8. References	8
	Appendix A	9