PREFACE

PLANT WATER CHEMISTRY

PAUL COHEN

Westinghouse Electric Corporation, Advanced Reactors Division
P.O. Box 158, Madison, Pennsylvania 15663

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Under the sponsorship of the Power Division, it was my privilege to organize and chair the session on Plant Water Chemistry, held at the 1975 Annual Winter Meeting of the American Nuclear Society, San Francisco, California, November 19, 1975. Four papers were presented, followed by a panel discussion. The extended text of the speakers' remarks are here reproduced for the benefit of the readers of *Nuclear Technology*.

The topic of Plant Water Chemistry was selected because of its current and long-term significance for the safe and economic operation of water reactor power plants.

A reasonable concensus has been achieved among reactor vendors on primary coolant specifications, and considerable operating experience has been accumulated. Within this framework, a number of concerns exist, and each of the invited speakers was asked to identify and address specific concerns.

In boiling water reactors, the oxygenated coolant presents a unique corrosion environment, dictating careful selection and control of materials of construction. Based on the extensive work carried out at Atomic Energy of Canada Limited, LeSurf and Allison discuss the use of ammonia for suppression of oxygen formation by radiolysis.

In high isotopic purity, ^{7}LiOH is the coolant additive of choice for control of corrosion and corrosion product behavior in pressurized water reactors. As reported by Hicks and Riess, experience has been good, but concern exists about the continued availability of the material. Means for reducing requirements are discussed. Control of chloride content has been troublesome at times, and Hicks addresses this problem.

Radioactivation of plant surfaces is an inherent consequence of water reactor operation, and general and specific problems, particularly related to inspection and repair of steam generators, are highlighted. Deposits of corrosion products on core surfaces comprise the primary source of plant radioactivity. Solomon and Roesmer describe techniques used in the survey of a number of cores and present valuable data on this significant phenomenon.

In summary, the authors have ably presented us with a timely and valuable insight to the state of the art of primary coolant management for water reactors. I am grateful to the authors for their efforts in preparing and presenting the papers and to the Editor of *Nuclear Technology* for publication.