FOREWORD:

THE STATUS AND TECHNOLOGY OF MOLTEN-SALT REACTORS—A REVIEW OF MOLTEN-SALT REACTOR WORK AT THE OAK RIDGE NATIONAL LABORATORY

Molten-salt breeder reactors (MSBR's) are being developed at the Oak Ridge National Laboratory because of their promise for generating low-cost power while conserving and extending our resources of fissionable uranium. The circulating liquid fuel makes MSBR's much different from present power reactors, but this type fuel provides the potential for reducing both power costs and the amount of uranium that must be mined to fuel the nuclear power industry.

Although the development of molten-salt reactors began over 20 years ago, and two MSR's have been operated, molten-salt reactor technology is not widely known. This series of papers has been written, therefore, to provide an up-to-date review of molten-salt technology with emphasis on important developments that have occurred since earlier reviews were published. The first paper is an introduction to the series and provides perspective to MSBR development and potential. Subsequent papers describe the Molten-Salt Reactor Experiment, molten-salt chemistry, materials development, fuel reprocessing development, reactor physics and fuel cycle analyses, and design features of molten-salt breeder reactors. With this information, the nuclear community will be in a better position to evaluate the role that molten-salt reactors should have in power reactor development.

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