

FOREWORD

This publication contains detailed data on liquid metal cooled fast reactors (LMFRs) - specifically plant parameters and design details. Each LMFR power plant is characterized by about 400 parameters, by design data and by relevant materials.

The report provides general and detailed design characteristics including structural materials, data on experimental, demonstration, prototype and commercial size LMFRs. The focus is on practical issues that are useful to engineers, scientists, managers and university students and professors with information on the following topics:

- general information;
- core and blanket: layout, geometry and characteristics;
- fuel design and performance;
- control rods and control rod drive mechanisms;
- main and auxiliary heat transport systems and components;
- shielding, containment and safety features;
- control systems;
- fuel handling systems including refueling operations, and
- in-service inspection provisions.

The recurring themes are the problems and difficulties associated with the choice of plant parameters, coolant, fuel design, structural materials, and plant design/layout and how these problems can be solved.

This report has been prepared by the Division of Nuclear Power with contributions from China, France, Germany, India, Italy, Japan, the Russian Federation, the United Kingdom and the United States of America. The responsible IAEA officer is A. Rinejski of the Division of Nuclear Power.

The report includes updated information contained in IAEA previous publications on LMFR plant parameters: IWGFR/51 (1985) and IWGFR/80 (1991) and reflects experience gained from two consultants meetings held in Vienna (1993, 1994). This compilation of data was produced by members of the IAEA International Working Group on Fast Reactors (IWGFR).

In the preparation of this document valuable contributions and reviews have been particularly made by J.I. Bramman (International Relations Department, AEA Technology, UK), M.F. Troyanov and A.A. Kamacev (Institute of Physics and Power Engineering, Russia Federation) and Mi Xu (Institute of Fast Reactor Technology, China).

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