

FOREWORD

In the last two decades development and testing of liquid metal fast reactor (LMFR) steam generators with sodium flow inside the heat transferring tubes and water and steam on the shell side has been conducted. A steam generator with sodium flow inside the tubes is called 'inverse steam generator' in contrast to the traditional concept with sodium flow on the shell side.

Two inverse steam generators, one of a micromodular and the second of a modular design, have been tested at the experimental LMFR BOR-60 in Dimitrovgrad, Russia, under similar conditions.

If a leak occurs in the inverse steam generator resulting in water flowing into the sodium, the rate of increase of the flow rate and the damage rate of the tube wall are lower than the corresponding rates for the traditional steam generator type.

Therefore the IAEA commissioned this technical document with the aim to collect and compare data and design concepts of both inverse steam generators which have been tested in Dimitrovgrad and to assess and compare their characteristics achieved during long term operation at BOR-60.

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The report has been reviewed by the International Working Group on Fast Reactors (IWGFR) members S.B. Bhoje (Indira Gandhi Centre, Kalpakkam, India), Mi Xu (China Institute of Atomic Energy), Y. Buksha, V. Borisov and V. Smykov (all from the Institute of Physics and Power Engineering, Obninsk, Russia).