



Contribution ID: 329

Type: Poster

SVBR-100 PROJECT: MAIN FEATURES AND CURRENT STATE

The SVBR-100 reactor facility with a fast neutron reactor, an integral layout of the primary circuit and a lead-bismuth coolant in the primary circuit is being developed as one of the main components of serial NPPs of modular design with an average power from 100 to 600 MW (e).

The main design provisions of the SVBR-100 reactor facility, presented in the paper, are aimed at simplifying the design of reactor facility equipment and systems, using the inherent safety characteristics and passive systems to increase the resistance of the reactor facility to potential hazards. Due to the developed properties of internal self-protection, the number and complexity of safety systems has been significantly reduced in comparison with traditional reactor facilities. Key technical solutions used in reactor plant designs are based on mastered production materials and technologies.

The most important technical characteristics of the reactor facility are presented in Table below.

Main technical characteristics of reactor facility SVBR-100

Characteristic Value

Thermal power, MW 280

Pressure of generated saturated steam, MPa 7.0

Steam capacity, t/h 580

Coolant temperature at core inlets/outlets, °C 340/490

Fuel OU2

Average fuel enrichment for U-235, % 16.7

Maximum fuel enrichment for U-235, % less than 20

Core campaign, thousand effective hours 50

Time interval between refueling, years 6-7

Reactor dimensions: diameter/height, m 4.53/7.86

A significant amount of R&D has been carried out to substantiate the technical design of the reactor facility. The most important results and the main directions of activities for completing the justifications are presented in the paper.

In-depth technical and economic researches carried out on the basis of design documents demonstrate the competitiveness of the product being created.

Country OR International Organization

Russian Federation

Email address

A.Dedul@svbr.org

Confirm that the work is original and has not been published anywhere else

YES

Author: DEDUL, Alexander (JSC AKME-engineering)

Co-authors: Mr KONDAUROV, Alexaey (JSC AKME-engineering); MARTYNENKO, Alexander (JSC AKME-engineering); KOMLEV, Oleg (JSC AKME-engineering); PETROCHENKO, Vladimir (Russian Federation)

Presenter: DEDUL, Alexander (JSC AKME-engineering)

Track Classification: Topical Group A: SMR Design, Technology and Fuel Cycle: Track 1: Design and Technology Development of SMRs