

International Conference on Fast Reactors and Related Fuel Cycles: Next Generation Nuclear Systems for Sustainable Development (FR17)



Contribution ID: 402

Type: ORAL

Development of the new generation power unit with the BN-1200 reactor

Monday, June 26, 2017 1:40 PM (20 minutes)

One of the most important stage of works for the BN-1200 power unit project, which are implemented since 2007 according to Rosenergoatom Concern JSC program and Target Federal program “Nuclear energy technologies of the new generation for 2010-2015 and for perspective to 2020”, became the development of technical designs of the RP, turbine plant and materials of the power unit project in 2014.

Main requirements at the technical design of the RP project defined development of the technical solutions in comparison with the solutions implemented in the previous projects, and ensured not only complete integration of the primary circuit in the reactor pressure vessel, but also significantly reduced number of systems, equipment, valves and pipelines, and optimized architectural solutions of the main and auxiliary buildings and constructions of the power unit, and optimized general layout of the site. These improved the main technical and economical indicators of the BN-1200 power unit and ensured their comparability with VVER RP not only in the field of safety, but also in the field of specific capital costs and LCOE.

Further development of the project was defined with the design research of systems and equipment in the second half of 2015 and 2016, which indicated the following main directions of design work:

increase of the power of the unit without change of the equipment design;

change of design and layout solutions of the primary circulating pumps, emergency heat removal system, cold absorption trap filter of the secondary circuit, refueling box, and the secondary circuit.

Implementation of the proposed technical solutions defines further optimization of the architectural solutions for the power unit and improvement of the technical and economical indicators without reduction of the safety level.

Country/Int. Organization

Russia/JSC “Afrikantov OKBM”

Primary author: Mr SHEPELEV, Sergey (JSC “Afrikantov OKBM”)

Presenter: Mr SHEPELEV, Sergey (JSC “Afrikantov OKBM”)

Session Classification: 1.1 SFR DESIGN & DEVELOPMENT - 1

Track Classification: Track 1. Innovative Fast Reactor Designs