

- ✓ Improvement and assessment of safety analysis codes
- ✓ Improvement of accident management measures for prevention of severe accident,
- ✓ Development and evaluation of the passive safety systems

To contribute to the higher level of safety for LWR

OUTLINE

In order to contribute to the higher level of safety for LWR, improvement and assessment of safety analysis codes, improvement of accident management measures for prevention and mitigation of severe accident, and development and evaluation of the passive safety systems are being investigated.

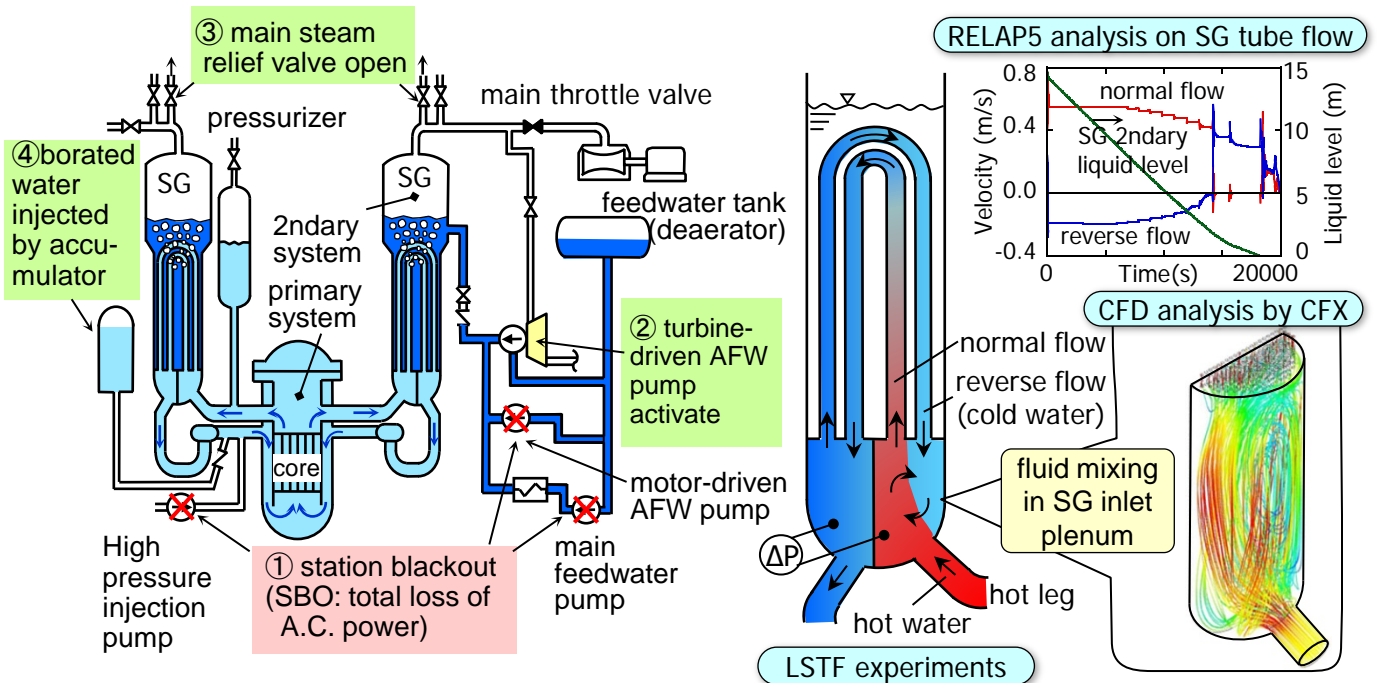
RESEARCH WORKS

Assessment of accident management measures for prevention of severe accident

For a station blackout (SBO) transient at the PWR, the secondary feed and bleed with use of the turbine-driven auxiliary feedwater (AFW) and the relief valves is effective to keep core cooling by the primary loop natural circulation (Fig.1). However, the experiments by using the LSTF of JAEA have shown that the non-uniform flow distribution among the steam generator (SG) heat transfer tubes and the multi-dimensional flow in the SG inlet plenum affect the flow characteristics of the primary loop natural circulation. In order to increase the applicability of the safety analysis code to such a multi-dimensional phenomena, the assessment of the best-estimate codes and the improvement of models have been carried out by using CFD code as a tool (Fig. 2).

Fig.1 Accident Management Measures for PWR Station Blackout (SBO) transient

Fig.2 Experiments and Analyses on multi-dimensional flow in SG during SBO transient



PRESENT STATUS AND FUTURE PERSPECTIVE

Most important issue after Fukushima Dai-ichi accident is 'Prevention of severe accidents'

Based on lessons learned from the accident, the safety assessment codes, the accident management measures, and the passive safety systems are being investigated.

We must contribute to the higher level of safety for LWR

MESSAGES FOR APPLICANTS

Research and education are performed using not only our university but also research facilities at Japan Atomic Energy Agency (JAEA).