Fukushima Daiichi Nuclear Power Station - Unit 3
Diversification of A Method of Water Injection to Nuclear Reactor by Adding Core Spray System Line

August 23, 2011

Tokyo Electric Power Company

TEPCO 東京電力

Objective of Diversification of Core Spray System

Target of Step 2

Reduction of Radiation Dose by Controlling Radioactive Material Release

<Goal>

- **To Bring a State of "Cold Shutdown" by Continuing Circulating Injection Cooling and Monitoring Pressure Vessel Temperature**

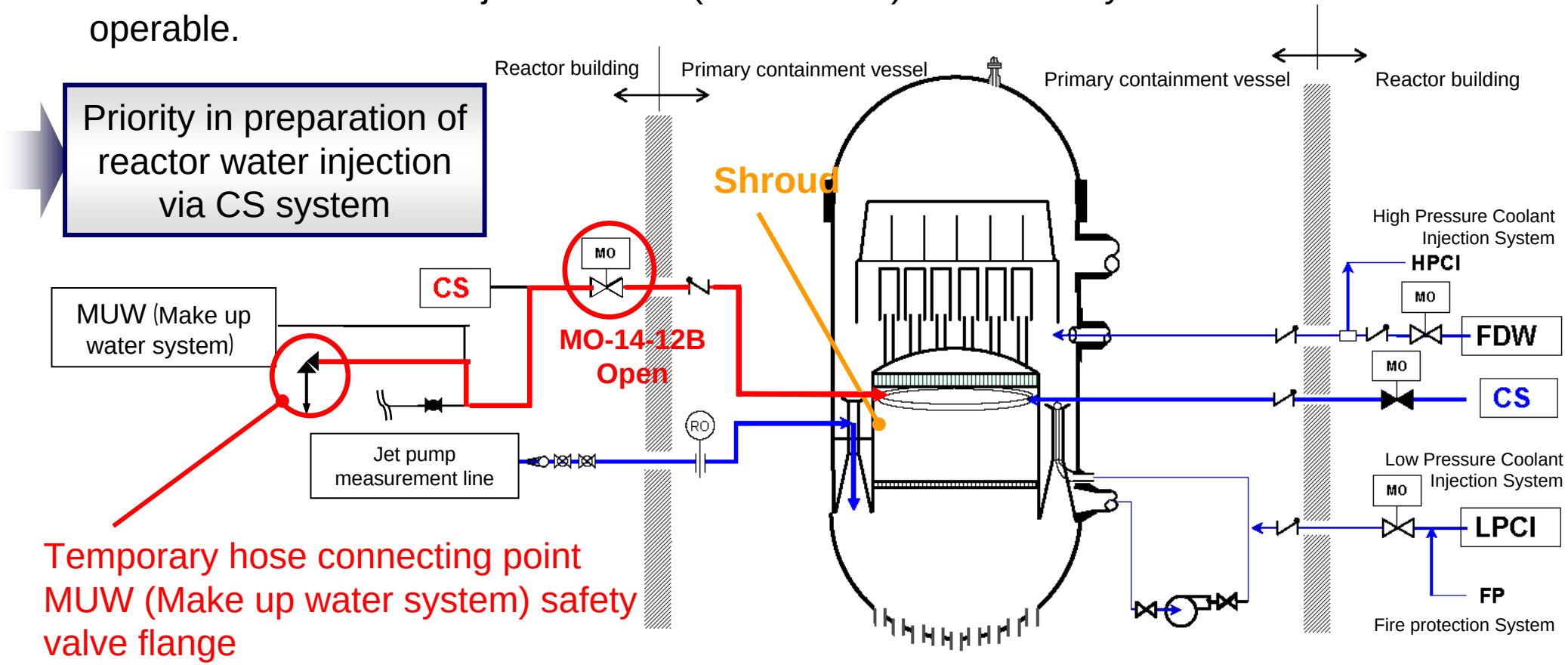
Water Injection by Core Spray System (CS) with High Cooling Efficiency in Addition to Feed Water System (FDW) of Unit 3 Currently in Operation

Use of CS System

- **Site Survey (Measurement of Radioactive Dose and Injecting Point etcetera) by Robot and Man on July 22 & 26**
- **Confirmation of Electric Operable Switching etcetera of Injection Valve (MO-14-12B) of CS System on August 3 & 9**

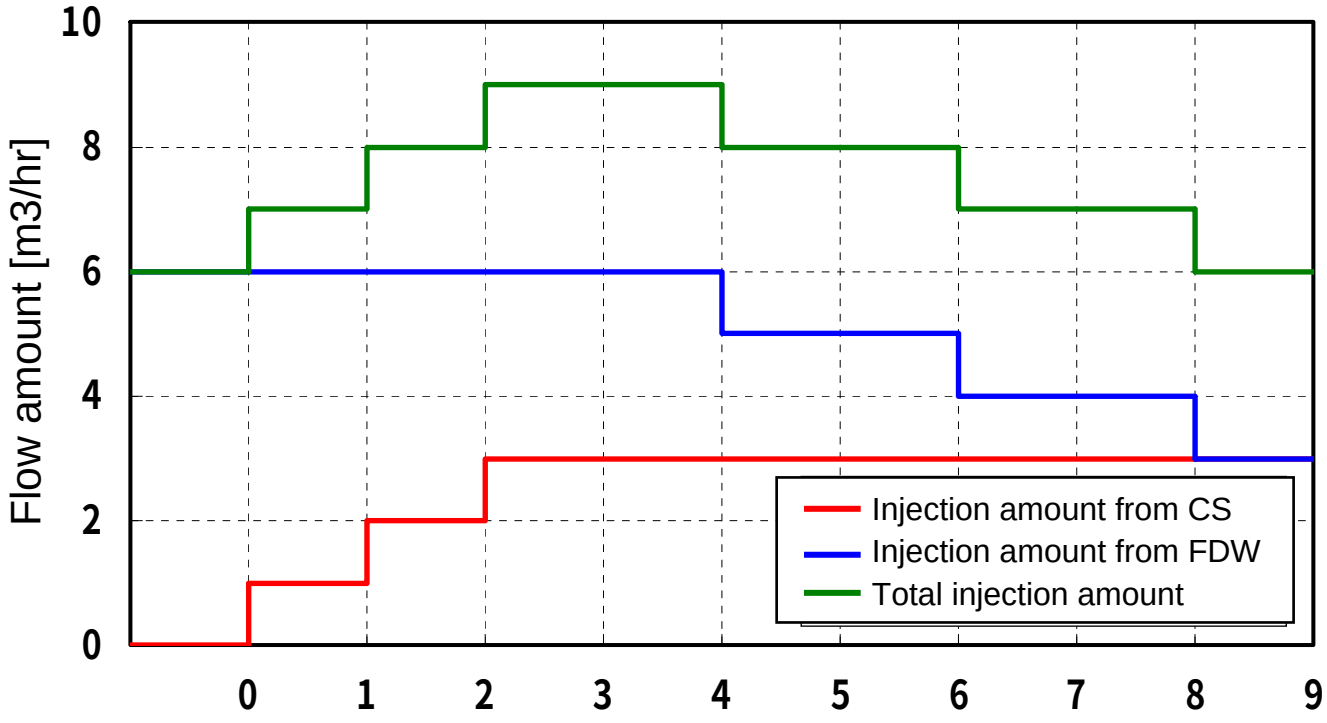
Selected Reactor Injection Line (CS Line)

- Based on the site survey, we selected the CS system with efficient cooling potential and the jet pump measurement line which measures flow of the jet pump.
- We confirmed that the injection valve (MO-14-12B) for the CS system could be electric operable.



Flow Adjustment after Addition of CS Line (FDW→FDW+CS)

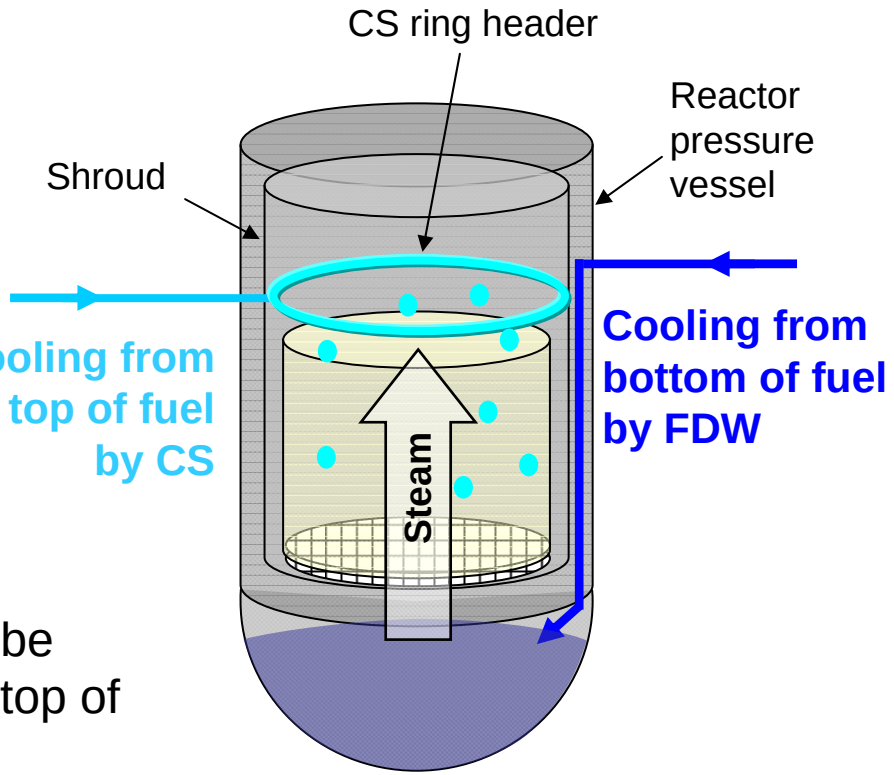
- The flow of FDW is kept at 6m³/h and the flow of CS is increased gradually from 1m³/h to 2m³/h and to 3m³/h. Each flow will be kept for 1 day and monitor RPV temperature.
- After the above procedure, the flow of CS is kept at 3m³/h and the flow of FDW is reduced gradually from 6m³/h to 5m³/h, to 4m³/h and to 3m³/h. Each flow will be kept for 2 days and monitor RPV temperature.



Amount of water injection

Expected Effects, Verification Method and Schedule

- Expected Effects
  - Temperatures of inside fuel and core internals will be reduced due to change from steam cooling to direct cooling by coolant water.
  - The aforementioned temperature reductions will contribute to reduction of degree of superheat and top of reactor pressure vessel.



- Verification Method
  - The effects on temperature reduction of reactor pressure vessel by water injection from CS will be verified by confirming temperature reduction at top of reactor pressure vessel.
- Schedule
  - Test of removal of safety valve and installation of fixtures will be conducted at Unit 5 on August 22.
  - Works (removal of safety valve, hose laying and connection and On-Off operation of MUW) will be conducted on August 25.
  - The CS system will be commissioned on August 26.