

The current challenges and good practices in Japan

“Unit 2, Genkai Nuclear Power Plant

- Replacement Works for the Steam Generator and the Reactor Pressure Vessel Upper Head”

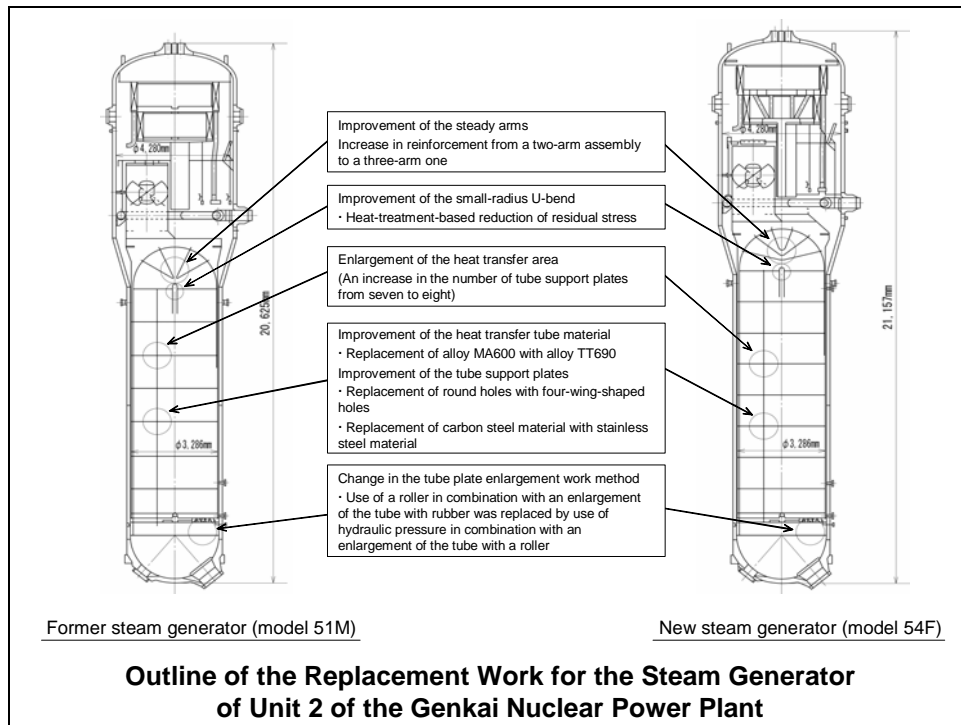
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Mr. Komori presented a various exposure reduction measures and effects that had been implemented on replacement works for the steam generator and the reactor pressure vessel upper head of Genkai Unit 2. In replacement works, the following measures were implemented:

- Use of various automatic remote work devices
- Decontamination of interiors of pipes, etc.
- Temporary shields
- Shortening of working time

The exposure dose rate at the time of replacement is estimated to have been greatly decreased (1/2~1/10) by effects of these measures. Moreover, dose rate of periodical inspection after replacement was decreased greatly due to the effects of replacement of the steam generator and RPV head.



Measures Taken to Reduce the Dose in Unit 2 of the Genkai Nuclear Power Plant and the Effects Achieved by the Measures Taken

Unit: (man·mSv)

| Description | Effect | | |
|--|--|-----------------------------|--------|
| | Before the measure was taken*2 | After the measure was taken | |
| Replacement work for the steam generator Track record value 0.88 man·Sv | Decontamination of the inner surface of the reactor coolant main pipe and application of a shielding plug to it | 651.15 | 49.98 |
| | Application of lead shielding on the outer surface of the reactor coolant main pipe | 869.98 | 403.83 |
| | Use of remote-operated automatic machines (automatic cutting machines, automatic edge preparation machines, and automatic welding machines for piping use)*1 | 128.59 | 47.58 |
| Replacement work for the reactor pressure vessel upper head Track record value 0.10 man·Sv | Reduction in working hours through the use of the automatic reactor vessel stud hole brushing machine | 2.49 | 0.87 |
| | Reduction in working hours through the use of the fully-automatic reactor vessel stud bolt handling machine | 16.50 | 9.22 |
| | Reduction in working hours through the integration of reactor vessel upper internals | 17.55 | 7.62 |

*1: This includes the effect of operability improvement resulting from training on mockups.

*2: Values calculated on the basis of exposure track records (dose values) under the assumption that the dose reduction measures are not taken

