

“Dose reduction actions in Tsuruga-2 NPP”

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This is a presentation concerning an outline of exposure reduction activities at Tsuruga-2 NPP of the Japan Atomic Power. Although measures for exposure reduction, such as the installation of shielding, chemical decontamination, the improvement of water chemistry control and mockup training, have been conventionally implemented at Tsuruga-2 NPP, its collective dose has increased since the 15th periodical inspection, and so Zn injection was started for exposure suppression. Due to the effect of Zn injection, the dose rate of SG water room has been reduced by 40 to 50% compared with before the Zn injection.

In Tsuruga-2 NPP, some damage was discovered in the welded part of the SG inlet nozzle at the time of the 16th periodical inspection, and the elbow near the inlet nozzle was replaced. The planned dose of this operation was 1,600 man-mSv even after exposure reduction measures, such as decontamination inside the piping, shielding of lead and tungsten mat, the adoption of automatic and remote equipment and mockup training, were implemented. The Japan Atomic Power and the contractor Mitsubishi Heavy Industries took counsel together on further measures for exposure reduction and considered additional measures, such as:

- Installing (1) 3-cm thick SUS and (2) 2-cm thick lead shielding inside the SG water room.
- Decontaminating the surface inside the SG nozzle.
- Decontaminating the surface inside the hot-leg piping and establishing (1) 8-cm thick lead shielding and (2) 2-cm thick lead shielding.
- Installing a lead mat inside the piping and loop internal room.


When the effects of these additional measures were assessed and the collective dose was re-evaluated, it was reduced to 1,100 man-mSv, which was approved.

In addition, the dose of operators is controlled centrally by a wireless individual dose system at Tsuruga-2 NPP, and so the operators can carry out operations without relying on alarms.

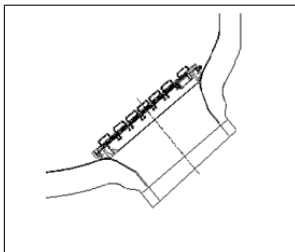
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Situation of installation of shield (2/3)


- Shielding for MCP Nozzle inside
- Shielding for SG nozzle inside



•Shield for MCP nozzle inside



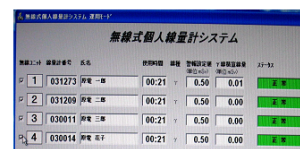
Shield for SG nozzle inside



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Wireless monitoring unit of the E.P.D

- Enable working without relying on the alarm



作業員番号	作業員氏名	作業時間	線量	線量率	線量率	線量率
1	031273 伊藤 一夫	00:21	0.50	0.01	0.01	0.01
2	031269 伊藤 二夫	00:21	0.50	0.00	0.00	0.00
3	030011 伊藤 三夫	00:21	0.50	0.00	0.00	0.00
4	030014 伊藤 四夫	00:21	0.50	0.00	0.00	0.00

Detail will be shown in another presentation of JAPC.