

Regarding the injection of nitrogen to the reactor containment vessel of Unit 2 at Fukushima Daiichi Nuclear Power Station (Summary)

(1) Expected effect to avoid hydrogen explosion due to the injection and its work procedures

Currently, because it is assumed that the inside of the reactor pressure vessel (RPV) is in steam atmosphere, the density of water vapor is high and the hydrogen density inside the primary containment vessel (PCV) generated inside the RCV or the PCV won't reach to the inflammable limit. Thus, the risk of hydrogen explosion is not high. However, there is a possibility that the hydrogen density becomes high and reaches to the inflammable limit because the generation of water vapor becomes lower and the generation of hydrogen due to water radiolysis continues, continuing to accelerate cooling the reactor. Therefore, we think that it is necessary to inject nitrogen.

(2) Environment impact due to radioactive material released from the PCV by the injection

The nitrogen injection slightly increases the amount of vapor per a certain period released from the PCV, however the total amount of radioactive material released to the environment, which is equal to the amount inside the vapor phase part of the PCV, does not change even if the nitrogen injection is done. Thus, it is considered that there is not a possibility that the nitrogen injection affects the surrounding environment.

(3) Environment impact due to radioactive material in the event that rapid hydrogen explosion occurs inside the PCV

Our evaluation result shows that the environment impact due to the injection is below the exposure dose limit (1mSv per annum) to the general public, thus the impact is negligible.

(4) Radiation exposure control method for the workers during the connection work between the nitrogen generator and the PCV

The injection work is conducted inside the PCV which is designated as high-dose area. We fully take care of the radiation exposure

control by selecting the injection point where the radiation dose is relatively low, implementing time management, confirming waiting area and flow line of the workers with the radiation dosage map and doing the work by the well-experienced operators.

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