

Newly adopted Remote Monitoring System successfully reduces radiation exposure at Fukushima Daiichi Nuclear Power Station.

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Radiation associated work at Fukushima Daiichi Nuclear Power Station (1F) includes the management of contaminated water, radioactive wastes and removal of debris and fuel. These works includes high radiation exposure more than 500 man-mSv/yr. Some individuals exceeded 20 mSv/yr personal exposure dose. Reducing the radiation exposure to workers as low as reasonably achievable is an important mission for the radiation management at 1F. It is necessary to develop and implement effective radiation reduction systems for reducing workers exposure doses.

In order to achieve this, Remote Monitoring System (RMS), which can remotely monitor and notify the radiation environment and exposure to workers, was adopted. The high radiation area inside reactor building occasionally needs precise human work due to the limited access by remote robots. It is considered that the reduction of radiation exposure by RMS is particularly effective for workers who need to work in such high radiation areas.

The reduction of radiation dose with this system was tested at 1F-Unit 3 PCV (Primary Containment Vessel) with the radiation dose rate of 6-25mSv/h. The collective dose was 472.40 man-mSv and the reduction dose with RMS is evaluated 73.37 man-mSv.

This system will be installed more in 1F. The wearable display, which workers can know their own radiation environment in real time, will be developed to reduce radiation exposure in the high radiation area at 1F.