

Impact of Tsunami on the monitoring posts and the current situations

The seven monitoring posts (MP) installed along the site border of Fukushima Daini Nuclear Power Station continuously measure the air dose rate (radiation dose per hour). Due to the Tsunami accompanying the Tohoku-Chihou-Taiheiyou-Oki Earthquake, one of the seven monitoring posts (MP 7) was washed away and became incapable of measurement. A portable monitoring post was then used to conduct the measurement. Though MP-6 was also exposed to the Tsunami, it was still capable of measurement as the soundness of the equipments was maintained. MP-7 was newly manufactured and permanently installed on December 21, 2011. MP-6 was replaced on October 21, 2011 for the purpose of preventive maintenance. The measurement results acquired with the monitoring posts are available on our home page.

(<http://www.tepco.co.jp/nu/fukushima-np/f2/index-j.html>)



The outline of monitoring posts/Flow from measurement to announcement of results

A “low-range detector” measuring low radiation dose and a “high-range detector” capable of measuring high radiation dose are installed for each monitoring post. Equipments used to convert the detected radiation to radiation dose rate are installed in the building near the detectors. The air dose rate measurement results acquired with the monitoring posts are collected, recorded, summarized and analyzed by the data collection/processing system located in the Main Anti-earthquake Building, and are available on our home page.



MP-7
(Photo taken on July 24, 2012)



Data collection/processing system



TEPCO home page

Impact of Tsunami on the monitoring posts and the current conditions (Chart)

| | Exposure to Tsunami | Operation status right after the Tsunami | Current operation status (July 2012) |
|--------|---|--|--|
| MP - 1 | No | OK | OK |
| MP - 2 | No | OK | OK |
| MP - 3 | No | OK | OK |
| MP - 4 | No | OK | OK |
| MP - 5 | No | OK | OK |
| MP - 6 | Yes (The detectors and the equipments were partially exposed to the Tsunami) | OK (Still capable of measurement as the soundness of the equipments was maintained) | OK (Replaced on October 21, 2011) |
| MP - 7 | Yes (The detectors and the equipments were washed away by the Tsunami) | Not operable (Washed away by the Tsunami) | OK (Permanently installed on December 21, 2011) |

MP6 exposed to the Tsunami

MP-6 was capable of measurement even after the detectors, control panel and the equipments installed in the building were partially exposed to the Tsunami, as the soundness of equipments was maintained. The equipments were replaced from October 11 to 21, 2011, for the purpose of preventive maintenance.



1. MP-6 after the earthquake
(Photo taken on April 3, 2011)

The detectors and equipments installed in the building were partially exposed to the Tsunami.



2. Debris removal

(Photo taken on April 4, 2011)

Removed the debris brought by the Tsunami.



3. Detector after debris removal
(Photo taken on April 4, 2011)

The radiation environment surrounding the detector was changed as a result of debris removal, and MP-6 measurement values went down.



3. Replacement of detectors, etc.
(Photo taken on July 23, 2012)

The replacement of detectors and the equipments installed in the building was completed on October 21, 2012.

MP-7 washed away by the Tsunami

Since MP-7 was washed away by the Tsunami, measurement utilizing a portable monitoring post was started on March 21, 2011. Detectors were then installed and measurement utilizing a temporary monitoring post was started on June 13, 2011. The permanent installation was completed on December 21, 2011 allowing for measurement by the new monitoring post.



1. MP-7 before the earthquake
(Photo taken on March 17, 2004)



2. The detectors and the building washed away by the Tsunami
(Photo taken on April 24, 2011)



3. Temporary MP-7
(Photo taken on August 26, 2011)
Measurement utilizing the temporary monitoring post was started on June 13, 2011.



4. Newly installed MP-7
(Photo taken on July 24, 2012)
The permanent installation was completed on December 21, 2011.

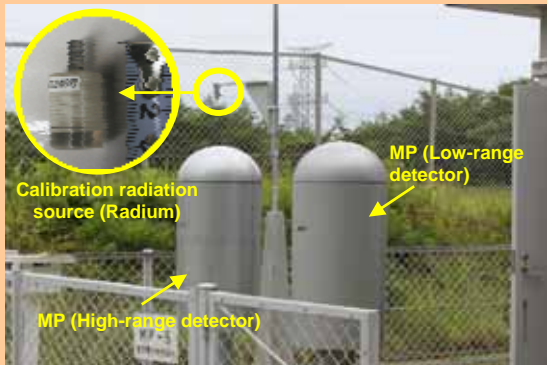
Regular inspection for the monitoring posts

From July 10 to August 2, 2012, the regular inspection (once a year) in accordance with the Special Measure of Nuclear Disaster Act was carried out. As a result of the inspection, no problem was found with the measurement equipments/facilities on all monitoring posts.

Flow of the regular inspection (MP-5 high-range detector, Photo taken on July 18, 2012)

1. Confirmation of measurement values

Irradiate the monitoring post with a calibration radiation source (of a very low radiation dose which is harmless to humans) to confirm that the detector functions properly. Check the measurement values acquired during the irradiation on the monitoring panel in the building to see if the values are within the criteria.



1. Irradiate the monitoring post with a calibration radiation source



Check the measurement values on the monitoring panel.

2. Clean the detectors

Remove the cover from the monitoring post and clean the inside of it.



Cleaning the inside of the monitoring post

3. Inject nitrogen gas

Inject nitrogen gas in order to maintain the consistent humidity level inside the container storing the detector and ensure the detector accuracy.

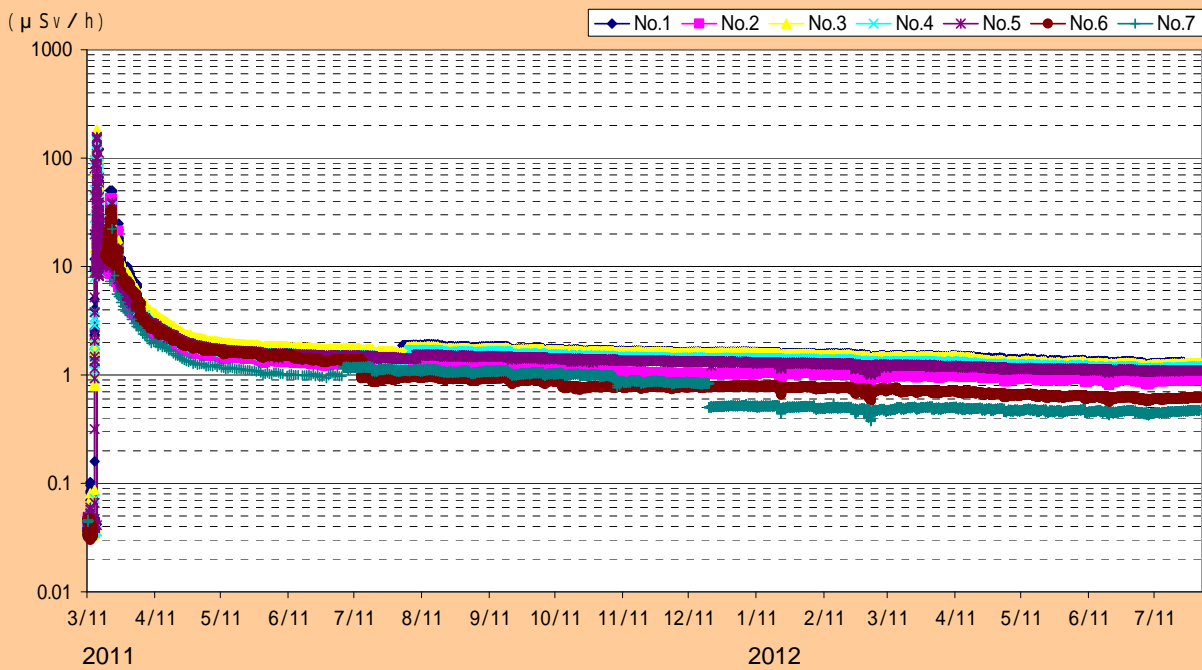


Nitrogen gas injection

Monitoring post measurement results (From March 11, 2011 to July 31, 2012)

- The radiation dose on the power station border exceeded $5 \mu\text{Sv/h}$ at 10:07 PM on March 14, 2011 (MP-1) and at 12:12 AM on March 15, 2011 (MP-3), which was judged to be an occurrence of a specified event (radiation dose increase on the site border) according to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. However, it was estimated that the specified event was caused by the radioactive materials released into the air due to the accident at Fukushima Daiichi Nuclear Power Station.
- After 9:30 AM on April 3, 2011, the radiation dose detected on the site border decreased to $5 \mu\text{Sv/h}$, and it was judged that the condition had recovered from the specified event stipulated by Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (radiation dose increase on the site border) at 8:23 AM on April 8, 2011.
- As of July 31, 2012, the range of measurement values acquired by MP-1 to 7 is $0.5\text{-}1.3 \mu\text{Sv/h}$.

Monitoring post measurement results acquired from March 11, 2011 to July 31, 2012



(Reference) Air dose rate within the grounds of Fukushima Daini Nuclear Power Station
(As of 4:30PM on July 31, 2012)

