

Evaluation of Environment Radiation Monitoring Results

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Nuclear Safety Commission

Nuclear Safety Commission (NSC) evaluates the Environmental Monitoring Results published by Ministry of Education, Culture, Sports, Science and Technology (MEXT). The evaluation results based on the information published between October 6 and 10, 2011 are described as below:

1. Ambient radiation dose around Fukushima Dai-ichi NPP

- Observation of ambient radiation dose rate at 20km or further from Fukushima Dai-ichi NPP found relatively higher dose rates locally at several measuring points. They however do not reach the level that might affect people's health.
- Regarding ambient radiation dose rate within 20km radius range of Fukushima Dai-ichi NPP, relatively higher dose rates were observed in northwestward.
- A part of the area at 20km or further from Fukushima Dai-ichi NPP where the integrated dose is so high that annual cumulative dose after the onset of the accident would potentially exceed 20mSv, was set to be "Deliberate Evacuation Area".
- High ambient dose spots not having regional extent as "Deliberate Evacuation Area", outside of "Deliberate Evacuation Area" and "Restricted Area", where ambient radiation dose rate is continually so high that their annual cumulative dose after the onset of the accident would exceed 20mSv are set to be "Specific Spots Recommended for Evacuation".

We need to further watch a variation of dose rate carefully, considering other factors such as weather and wind direction.

2. Dust sampling in the air around Fukushima Dai-ichi NPP

- With regard to the measuring result of the dust samples collected at 20km or further from Fukushima Dai-ichi NPP between October 3 and 7, Cs-134 and Cs-137 were detected. They were lower than the concentration limit (Note 1). In addition, I-131 and other radioactive materials were lower than the detection limit.

We need to further watch variations of dust sampling data carefully, considering other factors such as weather and wind direction.

3. Airborne monitoring

- In terms of ambient radiation dose rate and deposit of cesium in Tokyo prefecture and Kanagawa prefecture, airborne monitoring, measured through September 14 to 18 and adjusted to as of September 18, showed generally low tendency, but showed relatively higher dose distribution in some parts of the western and eastern parts of Tokyo prefecture.

4. Environmental sample around Fukushima Dai-ichi NPP

- Monitoring results collected between October 3 and 9 were obtained on the soil, weed and

fallout. The soil still showed relatively higher values; we further need continued measurement on the drinking water (tap water) and foods.

- With regard to the evaluation of soil distribution map on I-131 released by MEXT on September 21 and measurement of concentration of plutonium and strontium in soil released by MEXT on September 30, please refer to the meeting minute of the 74th Extraordinary meeting of the NSC (available only in Japanese).
- With regard to the measuring results of seawater collected around Fukushima Dai-ichi NPP and at the coast of Ibaraki prefecture between October 4 and 8, I-131, Cs-134 and Cs-137 were lower than the detection limit.
- With regard to the measuring results of seawater collected around Fukushima Dai-ichi NPP on September 12, Sr-89 and Sr-90 were detected. It seems that detected Strontium was released from Fukushima Dai-ichi NPP, because Sr-89 with a short half-life period was detected. However, they were lower than the concentration limit (Note 2).
- With regard to the measuring results of sea ground soil collected around Fukushima Dai-ichi NPP on September 12 and 15, Pu-239 and Pu-240 were detected. However Pu-238 was lower the detection limit, we cannot evaluate exactly the effect of incident from the results.
- With regard to the measuring results of sea ground soil collected around Fukushima Dai-ichi NPP on October 7, Cs-134 and Cs-137 were detected.

It is a matter of concern both domestically and internationally to grasp the concentration and distribution of radiological materials in marine environment. As the NSC showed in the report entitled “The Basic Ideas for Future Radiation Monitoring” on July 21, it is necessary to adopt the detection limits established for investigating the radioactivity level in the environment.

For the food distribution restrictions, be aware of the information announced by the Ministry of Health, Labor and Welfare (MHLW) regarding relevant intervention.

We also need to continue environmental monitoring by related organizations under the arrangement by MEXT, considering various elements such as weather change.

5. Environmental radioactivity level survey by prefecture

1) Ambient radiation dose rate

Some prefectures showed higher values compared with the average values obtained before the accident, however, their values do not affect people’s health.

2) Drinking water (tap water)

- Be aware of the information on relevant intervention announced by the MHLW.
- As far as the data on radioactivity level in drinking water by prefecture published by MEXT was evaluated, radioactive iodine and cesium were lower than the detection limit. They were lower than the indices to limit ingestion of food and drink (Note 3).

We consider that further monitoring is needed on a continuous basis.

(Note)

- (Note 1) Limits of the radioactivity in the air outside the peripheral monitoring area boundary as specified by the law are $5 \times 10^{-6} \text{Bq/cm}^3$ (5Bq/m³) for I-131, $2 \times 10^{-5} \text{Bq/cm}^3$ (20Bq/m³) for Cs-134 and $3 \times 10^{-5} \text{Bq/cm}^3$ (30Bq/m³) for Cs-137.
- (Note 2) Limits of the radioactivity in the water outside the peripheral monitoring area boundary as specified by the law are $4 \times 10^{-2} \text{Bq/cm}^3$ (40Bq/L) for I-131, $6 \times 10^{-2} \text{Bq/cm}^3$ (60Bq/L) for Cs-134, $9 \times 10^{-2} \text{Bq/cm}^3$ (90Bq/L) for Cs-137, $3 \times 10^{-1} \text{Bq/cm}^3$ (300Bq/L) for Sr-89 and $3 \times 10^{-2} \text{Bq/cm}^3$ (30Bq/L) for Sr-90.
- (Note 3) Indices to limit ingestion of drinking water shown on “Regulatory Guide of Emergency Preparedness for Nuclear Facilities” are 300Bq/kg for radioactive iodine and 200Bq/kg for radioactive cesium.