

March 25, 2011

Nuclear and Industrial Safety Agency

Survey result of workers' exposure in the turbine building of Unit 3 of Fukushima Dai-ichi Nuclear Power Station

1. As for the case mentioned in the title occurred yesterday, TEPCO reported the survey result with regard to the work environment as attached.
2. As a cause of this case, TEPCO assumed that the workers kept continuing work even though the individual dosimeters sounded alarm since they didn't notice the change of the work environment of the day from the previous day (23th).
3. For this reason NISA directed TEPCO orally to review the radiation control measures immediately and improve it from the point of recurrence prevention.

Press Releases

Press Release (Mar 25, 2011)

Result of the investigation on exposure to radiation of workers from cooperative companies at Unit3 in Fukushima Daiichi Nuclear Power Station(March 25, 2011)

This nuclear power station has been shut down because of Tohoku-Chiho Taiheiyou-Oki Earthquake.

On March 24, 2011, it was confirmed that 3 workers from cooperative companies who were in charge of cable laying work in the 1st floor and the underground floor of turbine building were exposed to the radiation dose of more than 170mSv. 2 of them were confirmed that their leg skins were contaminated. Although they were decontaminated by laundering, they were transferred to Fukushima Medical University hospital because there is possibility that they get a burn injury by beta ray. After medical examination at Fukushima Medical University Hospital, they were transferred to National Institute of Radiological Sciences in Chiba Prefecture on March 25 and stay for around four days to survey the situation. Investigation result of the water that the workers stepped in would be announced when it is reported. (previously announced)

We announce the investigation result of their working surroundings as mentioned below.

Radiation dose rate of surface of the water is approximately 400mSv/h.

Result of gamma-ray nuclide analyses based on sampling of puddle

location	Puddle in underground floor of turbine building of Unit 3
Name of nuclide	Concentration of sample(Bq/cm ³)
Cobalt60	Approximately 7.0×10^2
Technetium99m	Approximately 2.5×10^3
Iodine131	Approximately 1.2×10^5
Cesium134	Approximately 1.8×10^5
Cesium136	Approximately 2.3×10^4
Cesium137	Approximately 1.8×10^5
Barium140	Approximately 5.2×10^4
Lanthanum140	Approximately 9.4×10^3
Cerium144	Approximately 2.2×10^5
total	Approximately 3.9×10^5

We are assessing radiation dose of 2 worker's leg skin by beta ray.

We guess that this incident was caused because the workers regarded radiation dose of working area as low from survey result of radiation dose on March 23 and continued working without recognizing change of working conditions of the day although alarm of their dosimeter rang.

We thoroughly instruct our employees and workers of cooperative companies to recognize alarm of their dosimeter and evacuate when the alarm rings.

March 26, 2011

Nuclear and Industrial Safety Agency

Regarding the result of concentration measurement in the stagnant water on the basement floor of the turbine building of Unit 1 of Fukushima Dai-ichi Nuclear Power Station

Regarding the issue above, as the result of concentration measurement of each radioactive nuclide was reported from Tokyo Electric Power Company, it is informed as attached.

(Contact Person)

Mr. Toshihiro Bannai

Director, International Affairs Office,
NISA/METI

Phone:+81-(0)3-3501-1087

(Tentative Translation)

March 25th, 2011
Tokyo Electric Power Co.
Fukushima Dai-ichi NPS

Regarding the result of concentration measurement in the stagnant water on the basement floor of the turbine building of Unit 1 of Fukushima Dai-ichi Nuclear Power Station

Radioactive Nuclide	Concentration (Bq/cm ³)
Cl-38	1.6×10^6
As-74	3.9×10^2
Y-91	5.2×10^4
I-131	2.1×10^5
Cs-134	1.6×10^5
Cs-136	1.7×10^4
Cs-137	1.8×10^6
La-140	3.4×10^2

March 25, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 52nd Release)
(As of 19:30 March 25th, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Onagawa NPS, Tohoku Electric Power Co. Inc.; Fukushima Dai-ichi and Fukushima Dai-ni NPSs, Tokyo Electric Power Co. Inc. (TEPCO); Tokai Dai-ni NPS, Japan Atomic Power Co. Inc. as follows:

Major updates are as follows.

1. Exposure of Workers

On March 24th, three workers (All the people were the subcontractor's employees.) who were laying cables on the ground floor and the basement floor of the turbine building of Unit 3 were confirmed to be at the level of exposure more than 170mSv. Regarding the two of them, the attachment of radioactive material on the skin of both legs was confirmed. As the two workers were judged to have a possibility of beta ray burn, they were transferred to the Fukushima Medical University Hospital, and at 16:44 March 25th, all of the three workers arrived at the National Institute of Radiological Sciences in the Chiba Prefecture. The three workers had no serious problem in the condition of the whole body, were fully conscious and ambulatory. Currently, they are being examined concerning exposed dose and so on.

Concerning the result of survey for the water that those workers stepped in, the dose rate on the surface of the water was about 400mSv/h and, as a result of gamma ray nuclide analysis of sampled water, the concentration of radioactive nuclide of the sample was about 3.9×10^6 Bq/cm³ in total of each nuclides.

2. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

• Injection of fresh water to the Reactor Pressure Vessel of Unit 1 was

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- started. (15:37 March 25th)
 - Water spray for Unit 3 by Kawasaki City Fire Bureau supported by Tokyo Fire Department was carried out. (From 13:28 till 16:00 March 25th)
 - Injection of fresh water to the Reactor Pressure Vessel of Unit 3 was started. (18:02 March 25th)
 - Water spray for Unit 4 using Concrete Pump Truck (50t/h) was started. (19:05 March 25th)
 - Power supply for the temporary pump for Residual Heat Removal Seawater System (RHRS) of Unit 6 was switched from the temporary to the permanent. (15:38 and 15:42 March 25th)

March 26, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 53rd Release)

(As of 08:00 March 25th, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Onagawa NPS, Tohoku Electric Power Co. Inc.; Fukushima Dai-ichi and Fukushima Dai-ni NPSs, Tokyo Electric Power Co. Inc. (TEPCO); Tokai Dai-ni NPS, Japan Atomic Power Co. Inc. as follows:

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

- As the result of concentration measurement in the stagnant water on the basement floor of the turbine building, $2.1 \times 10^5 \text{Bq/cm}^3$ of ^{131}I (Iodine) and $1.8 \times 10^6 \text{Bq/cm}^3$ of ^{137}Cs (Caesium) were detected as major radioactive nuclides.
- As the result of nuclide analysis at around the south Water Discharge Gate, $5.0 \times 10^1 \text{Bq/cm}^3$ of ^{131}I (Iodine) (1250.8 times higher than the limit of concentration of water outside the Environmental Monitoring Area) was detected (the details are in the appendix).

2. Action taken by NISA and other agencies

<Possibility of exposure of workers>

As for the two out of the three workers who carried out the work of laying cables, and who were confirmed the attachment of radioactive material on the skin of both legs, as the result of examination, the level of exposure of their legs was estimated to be from 2 to 6 Sv. The level of exposure of both legs and internal did not require medical treatment, and decided to monitor the progress in the hospital.

<Directive regarding foods and drinks>

The information on the items under suspension of shipment and

restriction of intake, as well as the restriction of drinking for tap-water was added in the attached sheet.

For more information:

NISA English Home Page

<http://www.nisa.meti.go.jp/english/index.html>

<Directive regarding foods and drinks>

Directive from the Head of Government Nuclear Emergency Response Headquarters to the Prefectural Governors of Fukushima, Ibaraki, Tochigi and Gunma was issued, which directed above-mentioned governors to suspend shipment and so on of the following products for the time being.

(1) Items under the suspension of shipment and restriction of intake (As of March 23rd)

Prefectures	Suspension of shipment	Restriction of intake
Fukushima Prefecture	Non-head type leafy vegetables, head type leafy vegetables, flowerhead brassicas (Spinach, Cabbage, Broccoli, Cauliflower, <i>Komatsuna</i> *, <i>Kukitachina</i> *, <i>Shinobufuyuna</i> *, Rape, <i>Tijirena</i> , <i>Santona</i> *, <i>Kousaitai</i> *, <i>Kakina</i> *, etc.), Turnip, Raw milk	Non-head type leafy vegetables, head type leafy vegetables, flowerhead brassicas (Spinach, Cabbage, Broccoli, Cauliflower, <i>Komatsuna</i> *, <i>Kukitachina</i> *, <i>Shinobufuyuna</i> , Rape, <i>Tijirena</i> , <i>Santona</i> *, <i>Kousaitai</i> *, <i>Kakina</i> *, etc.)
Ibaraki Pref.	Spinach, <i>Kakina</i> *, Parsley, Raw milk	
Tochigi Pref.	Spinach, <i>Kakina</i> *	
Gunma Pref.	Spinach, <i>Kakina</i> *	

*a green vegetable

(2) Restriction of drinking for tap-water (As of March 25th)

Scope under restriction	Local governments imposed restriction (water service)
All residents	Iitate-village, Fukushima Prefecture (Iitate small water service)
Babies	<Fukushima Prefecture> Date-city (Date-city Tsukidate small water service) Koriyama-city (Koriyama-city water supply service)

	<p>Tamura-city (Tamura-city water service) Minami-soma-city (Minami-soma-city water service) Kawamata-town (Kawamata-town water service) Iwaki-city (Iwaki-city water supply service)</p> <p><Ibaraki Prefecture></p> <p>Tokai-village (Tokai-village water supply service) Hitachiota-city (Suifu area north small water service) (Kanasago-machi area water service) Kita-ibaraki-city Hitachi-city Kasama-city Furukawa-city</p>
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(Appendix)

Results of nuclide analysis in Seawater Sample

Sampling day & time	8:30 March 25th, 2011			
Sampling place	1F Near southern Water Discharge Gate (approx. 330m from water discharge gate of Unit 1~4 in south direction)			
Measuring method	Analysis of 500 ml Seawater Sample by Ge-Semiconductor Nuclide Analyzer in Fukushima Dai-ri NPS			
Measuring time	1,000 seconds			
Nuclide (Half life)	①Conc. of Radioactivity (Bq/cm ³)	②Conc. of Detection Limit (Bq/cm ³)	③Concentration limits specified in the Notice based on the Rules for Establishment, Operation, etc. of Commercial Power Reactor Bq/cm ³ (Concentration Limits in Water Outside the Environmental Monitoring Area shown in the 6th Column of Attached Table 2)	Ratio of ① to ③ (①/③)
Co-60 (approx. 5 days)	5.9E-02	2.0E-02	2E-01	0.3
Mo-99 (approx. 66 hours)	2.1E-01	1.7E-01	1E+00	0.2
I-131 (approx. 8 days)	5.0E+01	6.2E-02	4E-02	1250.8
I-132 (approx. 2 hours)	3.3E+00	7.7E-02	3E+00	1.1
Te-132 (approx. 3 days)	2.2E-01	4.0E-02	2E-01	1.1
Cs-134 (approx. 2 years)	7.0E+00	3.9E-02	6E-02	117.3
Cs-136 (approx. 13 days)	8.0E-01	3.9E-02	3E-01	2.7
Cs-137 (approx. 30 years)	7.2E+00	3.5E-02	9E-02	79.6
Ba-140 (approx. 13 days)	1.2E+00	1.5E-01	3E-01	3.9
La-140 (approx. 2 days)	5.8E-01	1.3E-02	4E-01	1.4

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March 26, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 54th Release)
(As of 12:00 March 25th, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Onagawa NPS, Tohoku Electric Power Co. Inc.; Fukushima Dai-ichi and Fukushima Dai-ni NPSs, Tokyo Electric Power Co. Inc. (TEPCO); Tokai Dai-ni NPS, Japan Atomic Power Co. Inc. as follows:

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

- Injection of fresh water to Reactor Pressure Vessel of Unit 2 was started.
(10:10 March 26th)

2. Action taken by NISA and other agencies

<Directive regarding foods and drinks>

The information on the restriction of drinking for tap-water (tap-water supply service which continues to taking action) was added in the attached sheet.

For more information:

NISA English Home Page

<http://www.nisa.meti.go.jp/english/index.html>

<Directive regarding foods and drinks>

Directive from the Head of Government Nuclear Emergency Response Headquarters to the Prefectural Governors of Fukushima, Ibaraki, Tochigi and Gunma was issued, which directed above-mentioned governors to suspend shipment and so on of the following products for the time being.

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Ibaraki Pref.	Spinach, <i>Kakina</i> *, Parsley, Raw milk	
Tochigi Pref.	Spinach, <i>Kakina</i> *	
Gunma Pref.	Spinach, <i>Kakina</i> *	

*a green vegetable

(2) Restriction of drinking for tap-water (As of 00:00 March 25th)

Scope under restriction	Water service (Local governments imposed restriction)
All residents	Iitate small water service (Iitate-village, Fukushima Prefecture)
Babies · Water service which continues	<Fukushima Prefecture> Date-city Tsukidate small water service (Date-city) Koriyama-city water supply service (Koriyama-city)

<p>to take action</p>	<p>Minami-soma-city water service (Minami-soma-city) Kawamata-town water service (Kawamata-town) Iwaki-city water supply service (Iwaki-city)</p> <p><Ibaraki Prefecture> Tokai-village water supply service (Tokai-village) Suifu area north small water service (Hitachiota-city) Kita-ibaraki-city water service (Kita-ibaraki-city) Hitachi-city water service (Hitachi-city) Kasama-city water service (Kasama-city) Furukawa-city water service (Furukawa-city) Toride-city water service (Toride-city)</p> <p><Tochigi Prefecture> Utsunomiya-city water supply service (Utsunomiya-city)</p>
<p>• Tap-water supply service which continues to take action</p>	<p>Kita-Chiba wide area tap-water supply service</p>