Reference

Nuclides Analysis Result of the Radioactive Materials in the Seawater
< Coast, Fukushima Daiichi Nuclear Power Station >

(Data summarized on March 25)

Place of Sampling	North of Unit 5-6 Discharge Channel at Fukushima Daiichi NPS (Approx. 30m North of Unit 5-6 Discharge Channel)		Around South Discharge Channel of Fukushima Daiichi NPS (Appox. 1.3km South of Unit 1-4 Discharge Channel)		② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Time of Sampling	Mar 24, 2014 6:25 AM		Mar 24, 2014 5:40 AM		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
I-131 (Approx. 8 days)	ND(0.58)	-	ND(0.66)	-	40
Cs-134 (Approx. 2 years)	ND(0.74)	-	ND(0.66)	-	60
Cs-137 (Approx. 30 years)	ND(0.72)	-	ND(0.60)	-	90

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* Data of other nuclides is under evaluation.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* "ND" indicates that the measurement result is below the detection limit, which is provided in parentheses.

Nuclides Analysis Result of Radioactive Materials in the Seawater <1/4>

(Data summarized on March 25)

Place of Sampling (Place No.)	North of Unit 5-6 Discharge Channel at Fukushima Daiichi NPS (Approx. 30m North of Unit 5-6 Discharge Channel) (T-1)		Around South Discharge Channel of Fukushima Daiichi NPS (Appox. 1.3km South of Unit 1-4 Discharge Channel) (T-2-1)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Date of Sampling	Feb 10, 2014		Feb 17, 2014				
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
I-131 (Approx. 8 days)	ND(0.75)	—	ND(0.68)	—			40
Cs-134 (Approx. 2 years)	ND(0.80)	—	ND(0.71)	—			60
Cs-137 (Approx. 30 years)	ND(0.81)	—	0.64	0.01			90
H-3 (approx. 12yrs)	ND(1.7)	—	ND(1.4)	—			60,000
Gross α	ND(1.6)	—	ND(1.6)	—			—
Gross β	12	—	11	—			—
Sr-90 (Approx. 29 years)	0.017	0.00	0.030	0.00			30

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Nuclide analysis results of I-131, Cs-134, Cs-137 and Gross β were announced on Feb 11 and 18. Nuclide analysis results of H-3 were announced on Feb 14 a
* When the measurement value is below the detection limit, "ND" is marked.
* Nuclides analysis of Sr-90 was done by Japan Chemical Analysis Center.

(Evaluation)

Gross βand Sr-90 were detected supposedly as a result of this accident.

Nuclides Analysis Result of Radioactive Materials in the Seawater <2/4>

(Data summarized on March 25)

Place of Sampling (Place No.)	Around the North Discharge Channel of 2F (T-3) (Around Unit 3-4 Discharge Channel) (Approx. 10km from 1F)		South side of the Ukedo Port (T-6) (Approx. 5.5km north of Unit 5-6 Discharge Channel)				② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Date of Sampling	Feb 18, 2014		Feb 25, 2014				
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.13	0.00	0.055	0.00			60
Cs-137 (Approx. 30 years)	0.29	0.00	0.13	0.00			90
H-3 (approx. 12yrs)	ND	—	ND	—			60,000
All β	ND	—	ND	—			—

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Nuclide analysis results of Cs-134 and Cs-137 were announced on March 14.
* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.
  H-3: Approx. 0.30Bq/L, All β: Approx. 16Bq/L,
  As the detection limit may vary depending on the detectors and sample properties, there are cases where nuclides below the detection limit are detected.

(Evaluation)

H-3 and Gross β were not detected in the sample collected this time.

Nuclides Analysis Result of Radioactive Materials in the Seawater <3/4>

(Data summarized on March 25)

Place of Sampling (Place No.)	15km Offshore of Fukushima Daiichi NPS (T-5) Upper Layer		3km Offshore of Ukedo River (T-D1) Upper Layer		3km Offshore of Fukushima Daiichi NPS (T-D5) Upper Layer		② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Date of Sampling	Feb 18, 2014		Feb 19, 2014		Feb 19, 2014		
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	ND	—	0.015	0.00	0.022	0.00	60
Cs-137 (Approx. 30 years)	0.0038	0.00	0.039	0.00	0.052	0.00	90
H-3 (approx. 12yrs)	ND	—	0.34	0.00	0.35	0.00	60,000
Gross α	—	—	—	—	—	—	—
Gross β	ND	—	ND	—	ND	—	—
Sr-90 (Approx. 29 years)	—	—	—	—	—	—	30

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Nuclide analysis results of Cs-134, Cs-137 obtained at 3km Offshore of Ukedo River (T-D1) and 3km Offshore of Fukushima Daiichi NPS (T-D5) were announced on March 14, 2014.
* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.
  Cs-134: Approx. 0.0011Bq/L, H-3: Approx. 0.30Bq/L, Gross β: Approx. 16Bq/L
  As the detection limit may vary depending on the detectors and sample properties, there are cases where nuclides below the detection limit are detected.

(Evaluation)

H-3 was detected supposedly as a result of this accident.

Nuclides Analysis Result of Radioactive Materials in the Seawater <4/4>

(Data summarized on March 25)

Place of Sampling (Place No.)	3km Offshore of Fukushima Daini NPS (T-D9) Upper Layer						② Density Limit Specified by the Reactor Regulation (Bq/L) (The density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2.)
Date of Sampling	Feb 18, 2014						
Detected Nuclides (Half-life)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	①Density of Sample (Bq/L)	Scaling Factor (①/②)	
Cs-134 (Approx. 2 years)	0.0099	0.00					60
Cs-137 (Approx. 30 years)	0.030	0.00					90
H-3 (approx. 12yrs)	ND	—					60,000
Gross α	—	—					—
Gross β	ND	—					—
Sr-90 (Approx. 29 years)	—	—					30

* The density specified by the Reactor Regulation is converted from Bq/cm^3 to Bq/L.
* In the case of more than 2 nuclides, the sum of scaling factors to density limits is compared to 1.
* Nuclide analysis results of Cs-134, Cs-137 were announced on March 14, 2014.
* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.
  H-3: Approx. 0.30Bq/L, Gross β: Approx. 15Bq/L
  As the detection limit may vary depending on the detectors and sample properties, there are cases where nuclides below the detection limit are detected.

(Evaluation)

H-3 and Gross β were not detected in the sample collected this time.

Analysis Result of Pu in the Seawater

1. Measurement Result: (Data summarized on March 25)

(Unit: Bq/L)

Place of Sampling	Date	Pu-238	Pu-239+Pu-240
1F, North of Unit 5-6 Discharge Channel	Feb 4, 2014	N.D. [5.7×10^{-6}]	$(9.0\pm2.3)\times10^{-6}$
1F, Around South Discharge Channel		N.D. [5.8×10^{-6}]	$(9.5\pm2.4)\times10^{-6}$
15km Offshore of Fukushima Daiichi NPS, Upper Layer	Feb 3, 2014	N.D. [6.5×10^{-6}]	N.D. [6.3×10^{-6}]
Around 3km Offshore of Ukedo River, Upper Layer	Feb 5, 2014	N.D. [5.0×10^{-6}]	N.D. [5.1×10^{-6}]
3km Offshore of Fukushima Daiichi NPS, Upper Layer		N.D. [5.7×10^{-6}]	N.D. [6.1×10^{-6}]
3km Offshore of Fukushima Daini NPS, Upper Layer	Feb 3, 2014	N.D. [6.6×10^{-6}]	$(6.1\pm2.0)\times10^{-6}$
The range of the past measurement results obtained in the ocean near Fukushima Daiichi and Daini Nuclear Power Stations (FY2001 - FY2008)*		–	ND～1.3×10^{-5}

[ ] shows below the detection limit.

*: Source "Report on the environmental radioactivity measurement around the Nuclear Power Plant (2011)", Committee on the safety technology of Nuclear Power Plants in Fukushima.

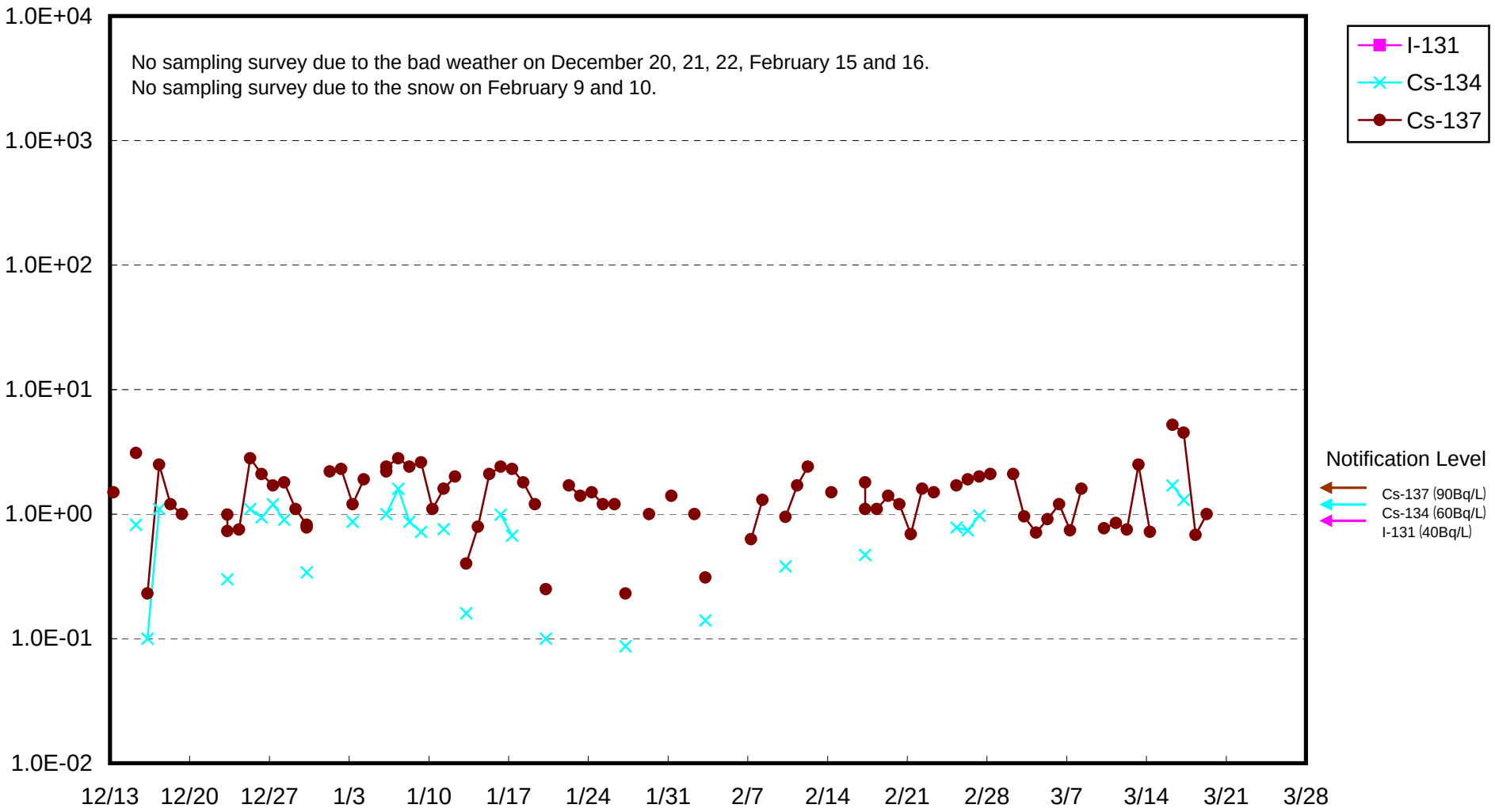
2. Analytical Institution: Japan Chemical Analysis Center

3. Evaluation:

Given that the density level of Pu-239+Pu-240 detected at North of Unit 5-6 Discharge Channel, Around South Discharge Channel and Around 3km Offshore of Fukushima Daini NPS on February 3 and 4, 2014 is within the range of the past density measurements conducted along the seacoasts of 1F and 2F, it cannot be stated with absolute certainty that the presence of these particles is due to

End

Radioactivity Density of the Seawater at 1F Units 5-6 North Discharge Channel (Bq/L)



Radioactivity Density of the Seawater at 1F South Discharge Channel (Bq/L)