

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

(Data summarized on December 12)

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 (Approx. 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 Dec 11, 2012 7:05 AM		Time of Sampling Dec 11, 2012 8:00 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	-	ND	-	40
Cs-134 (Approx. 2 years)	ND	-	ND	-	60
Cs-137 (Approx. 30 years)	ND	-	ND	-	90

* The density specified by the Reactor Regulation is converted from Bq/cm³ 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.

I-131: Approx. 0.50Bq/L, Cs-134: Approx. 1.1Bq/L, Cs-137: Approx. 1.4Bq/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.

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

(Data summarized on December 12)

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 (Approx. 330km South of Unit 1-4 Discharge Channel) (T-2)		/		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	Aug 13, 2012		Aug 13, 2012		/	
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	—	ND	—	/	/	40
Cs-134 (Approx. 2 years)	ND	—	ND	—	/	/	60
Cs-137 (Approx. 30 years)	ND	—	ND	—	/	/	90
H-3 (approx. 12yrs)	6.4	0.00	ND	—	/	/	60,000
All α	ND	—	ND	—	/	/	—
All β	ND	—	ND	—	/	/	—
Sr-89 (Approx. 51 days)	ND	—	ND	—	/	/	300
Sr-90 (Approx. 29 years)	4.4	0.15	0.22	0.01	/	/	30

* The density specified by the Reactor Regulation is converted from Bq/cm³ 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 All β around South Discharge channel were announced on August 14.
Nuclide analysis results of H-3, All α, All β at North of Unit 5-6 Discharge Channel were announced on October 3.

* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.

I-131: Approx. 0.49Bq/L, Cs-134: Approx.1.2Bq/L, Cs-137: Approx.1.6Bq/L, H-3: Approx. 2.9Bq/L,

All α: Approx. 0.087Bq/L, All β: Approx. 26Bq/L, Sr-89: Approx. 0.6Bq/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.

* Nuclides analysis of Sr-89 and Sr-90 were done by Japan Chemical Analysis Center.

(Evaluation)

Although Sr-90 was detected supposedly as a result of this accident, it is less than the density limit in the water which is specified by the announcement.

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

(Data summarized on December 12)

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 (Approx. 330km South of Unit 1-4 Discharge Channel) (T-2)		/		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	Sep 10, 2012		Sep 10, 2012		/	
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	—	ND	—	/	/	40
Cs-134 (Approx. 2 years)	ND	—	ND	—	/	/	60
Cs-137 (Approx. 30 years)	ND	—	ND	—	/	/	90
H-3 (approx. 12yrs)	3.1	0.00	ND	—	/	/	60,000
All α	ND	—	ND	—	/	/	—
All β	ND	—	ND	—	/	/	—
Sr-89 (Approx. 51 days)	ND	—	ND	—	/	/	300
Sr-90 (Approx. 29 years)	1.6	0.05	0.34	0.01	/	/	30

* The density specified by the Reactor Regulation is converted from Bq/cm³ 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 All β around South Discharge channel were announced on September 11.
Nuclide analysis results of H-3, All α, All β at North of Unit 5-6 Discharge Channel were announced on October 25.

* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.

I-131: Approx. 0.46Bq/L, Cs-134: Approx. 1.2Bq/L, Cs-137: Approx. 1.5Bq/L, H-3: Approx. 2.9Bq/L,

All α: Approx. 0.11Bq/L, All β: Approx. 25Bq/L, Sr-89: Approx. 0.3Bq/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.

* Nuclides analysis of Sr-89 and Sr-90 were done by Japan Chemical Analysis Center.

(Evaluation)

Although Sr-90 was detected supposedly as a result of this accident, it is less than the density limit in the water which is specified by the announcement.

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

(Data summarized on December 12)

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	Nov 4, 2012		Nov 9, 2012		Nov 3, 2012		
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	-	0.026	0.00	0.023	0.00	60
Cs-137 (Approx. 30 years)	0.0037	-	0.040	0.00	0.038	0.00	90
H-3 (approx. 12yrs)	ND	-	ND	-	ND	-	60,000
All α	ND	-	ND	-	ND	-	—
All β	ND	-	ND	-	ND	-	—
Sr-89 (Approx. 51 days)	ND	-	ND	-	ND	-	300
Sr-90 (Approx. 29 years)	ND	-	ND	-	ND	-	30

* The density specified by the Reactor Regulation is converted from Bq/cm³ 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 December 6 and 11.

* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.

Cs-134: Approx.0.0010Bq/L, H-3: Approx. 3.1Bq/L, All α: Approx. 3.2Bq/L, All β: Approx. 22Bq/L,

Sr-89: Approx. 0.02Bq/L, Sr-90: Approx. 0.02Bq/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.

* Nuclides analysis of Sr-89 and Sr-90 were done by Japan Chemical Analysis Center.

(Evaluation)

H-3, All α, All β, Sr-89 and Sr-90, were not detected in the sample collected this time.

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

(Data summarized on December 12)

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	Nov 8, 2012						
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)	0.039	0.00					60
Cs-137 (Approx. 30 years)	0.068	0.00					90
H-3 (approx. 12yrs)	ND	-					60,000
All α	ND	-					—
All β	ND	-					—
Sr-89 (Approx. 51 days)	ND	-					300
Sr-90 (Approx. 29 years)	0.011	0.00					30

* The density specified by the Reactor Regulation is converted from Bq/cm³ 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 December 6.

* When the measurement value is below the detection limit, "ND" is marked. The detection limits are as follows.

H-3: Approx. 3.1Bq/L, All α: Approx. 3.2Bq/L, All β: Approx. 20Bq/L, Sr-89: Approx. 0.02Bq/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.

* Nuclides analysis of Sr-89 and Sr-90 were done by Japan Chemical Analysis Center.

(Evaluation)

Although Sr-90 was detected supposedly as a result of this accident, it is less than the density limit in the water which is specified by the announcement.

Analysis Result of Pu in the Seawater

1. Measurement Result:

(Unit: Bq/L)

Place of Sampling	Date	Pu-238	Pu-239+Pu-240
15km Offshore of Fukushima Daiichi NPS, Upper Layer	November 4, 2012	N. D. [$<5.7 \times 10^{-6}$]	N. D. [$<5.7 \times 10^{-6}$]
Around 3km Offshore of Ukedo River, Upper Layer	November 9, 2012	N. D. [$<6.2 \times 10^{-6}$]	N. D. [$<6.2 \times 10^{-6}$]
3km Offshore of Fukushima Daiichi NPS, Upper Layer	November 3, 2012	N. D. [$<5.3 \times 10^{-6}$]	N. D. [$<5.2 \times 10^{-6}$]
3km Offshore of Fukushima Daini NPS, Upper Layer	November 8, 2012	N. D. [$<4.9 \times 10^{-6}$]	N. D. [$<4.9 \times 10^{-6}$]
The range of the past measurement results obtained in the ocean near Fukushima Daiichi and Daini Nuclear Power Stations (FY2001 - FY2008)*		—	ND $\sim 1.3 \times 10^{-5}$

[] shows below the detection limit.

*: Source "Report on the environmental radioactivity measurement around the Nuclear Power Plant (2009)", Committee on the safety technology of Nuclear Power Plants in Fukushima.

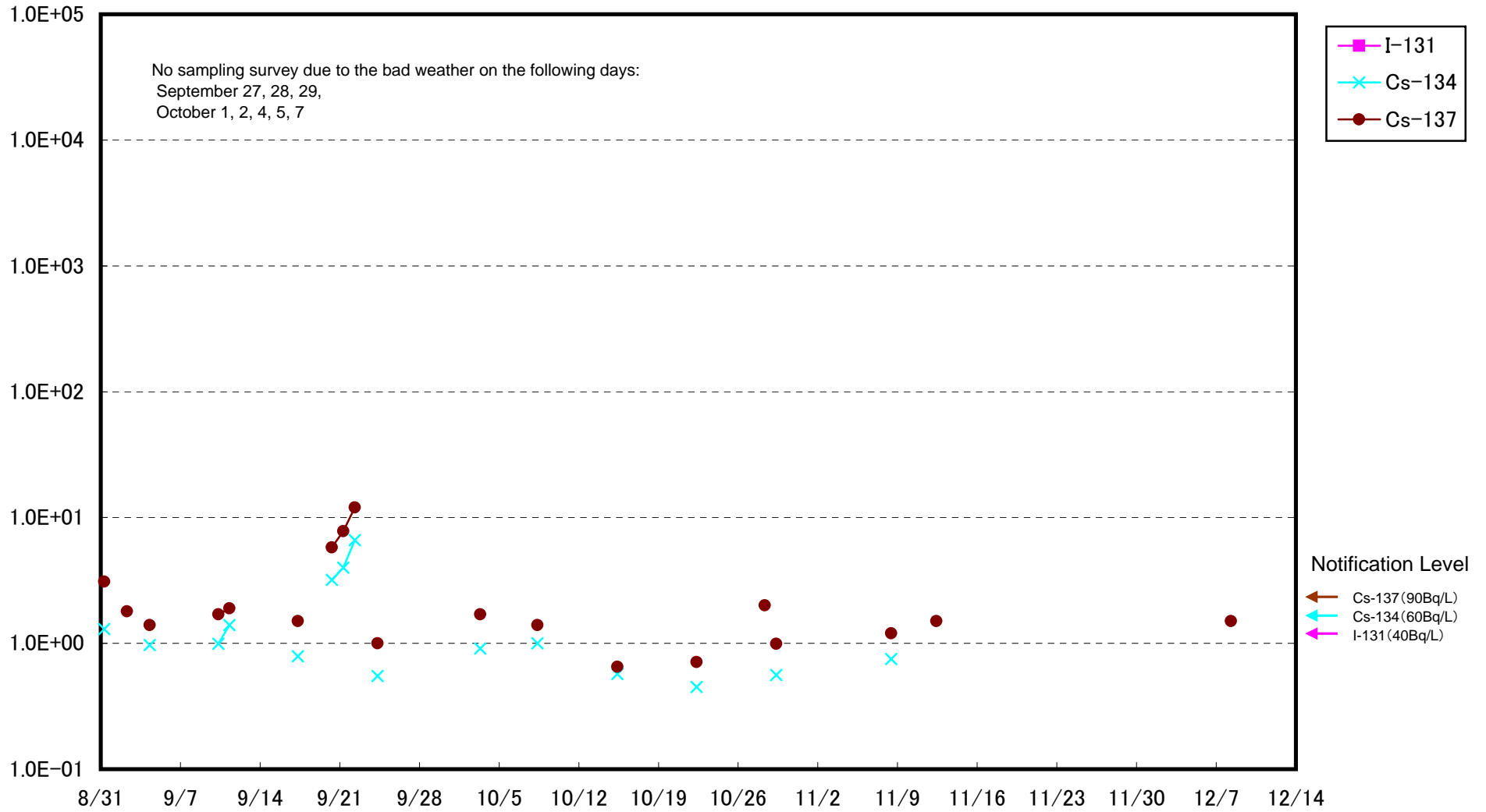
2. Analytical Institution: Japan Chemical Analysis Center

3. Evaluation:

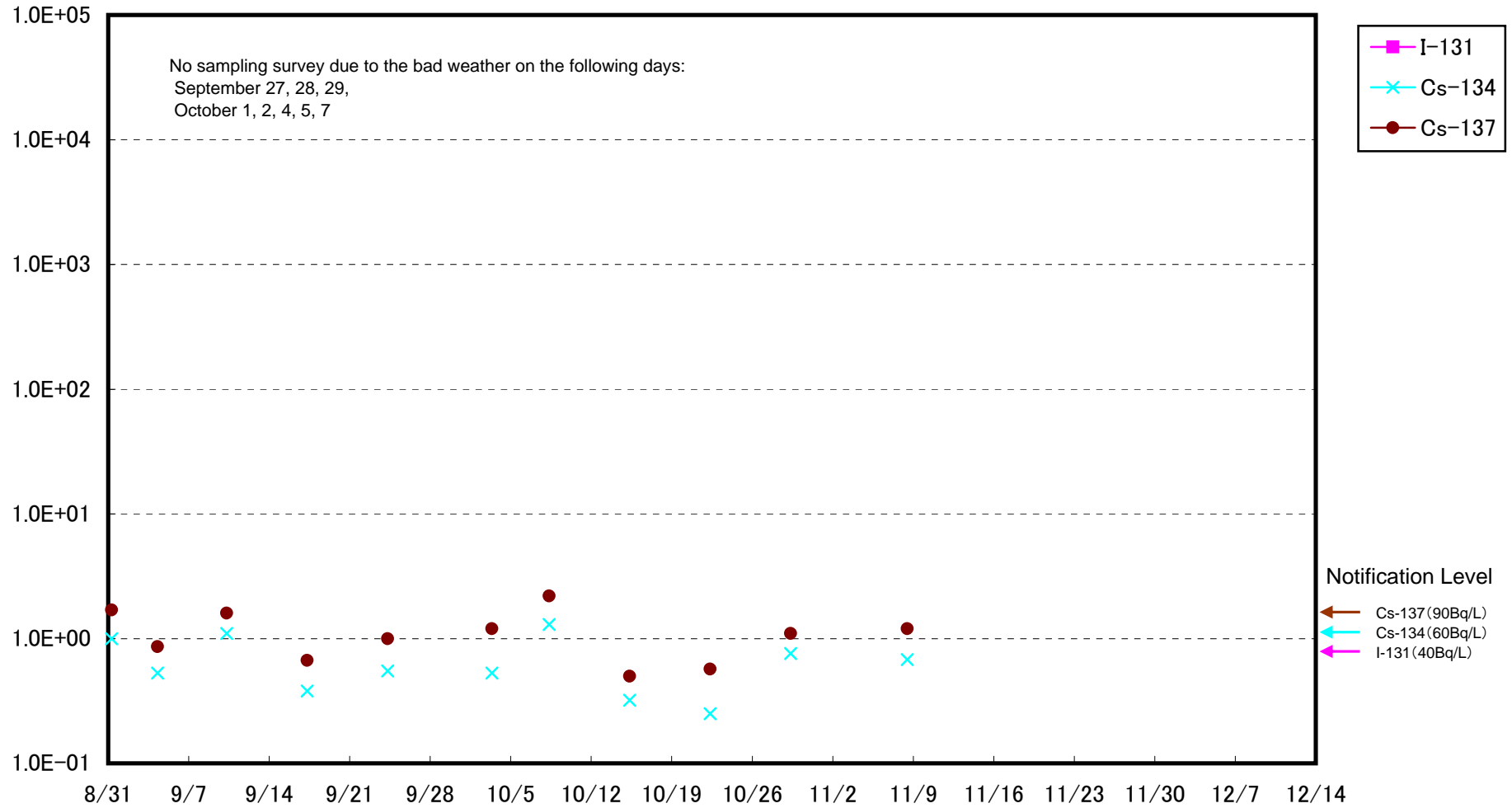
Pu-238 and Pu-239+Pu-240 were not detected in the sample collected this time.

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)



Notification Level

- ← Cs-137 (90Bq/L)
- ← Cs-134 (60Bq/L)
- ← I-131 (40Bq/L)

Sampling was conducted at around South Discharge Channel of Fukushima Daiichi NPS (approx. 330m south of Units 1-4 Discharge Channel) until November 25, 2012.