

Plant Status of Fukushima Daiichi Nuclear Power Station

December 21, 2011

Tokyo Electric Power Company

<Draining Water on Underground Floor of Turbine Building (T/B) >

Status of highly concentrated accumulated radioactive water treatment facility and storage tank facility

[Treatment Facility]

- 6/17 20:00 Full operation of radioactive material removal instruments started.
- 6/24 12:00 Start of desalination facilities operation
- 6/27 16:20 Circulating injection cooling started.
- 8/7 16:11 Evaporative Concentration Facility has started full operation.
- 8/19 19:33 We activated 2nd cesium adsorption facility (System B) and started the treatment of accumulated water by the parallel operation of cesium adsorption instrument and decontamination instrument. At 19:41, the flow rate achieved a steady state.
- 12/20 8:58 We stopped the Cesium adsorption apparatus in order to adjust the water level of each turbine building and the Centralized Radiation Waste Treatment Facility (Miscellaneous Solid Waste compressing building [high temperature incinerator building] and Process Main Building). The water injection will not be affected since water will be injected to the reactor from the buffer tank which consists of desalinated water.
- 12/21 1:40 The alarm went off at the desalination facility (reverse osmosis membrane type) 2-2 which showed that the closing of the backwash water drain valve of the multimedia filter was not conducted within the designated time, which led to an automatic shutdown of the unit. We confirmed at the site that there was no water leak. Since we have enough desalinated water this will not influence the water injection. Desalination facility (reverse osmosis membrane type) 3 can be activated. We are now looking into this matter.

[Storage Facility]

- 6/8 ~ Large tanks to store and keep treated or contaminated water have been transferred and installed sequentially.

Accumulated water in vertical shafts of trenches and at basement level of building

Unit	Draining water source Place transferred	Status
Unit 2	·Unit 2T/B Central Radioactive Waste Treatment Facility [Process Main Building and Miscellaneous Solid Waste Volume Reduction Treatment Building (High Temperature Incinerator Building)]	· Started transfer from 13:57 on December 21
Unit 3	· Unit 3T/B Central Radioactive Waste Treatment Facility [Process Main Building]	· 14:22 on December 15 – 10:04 on December 17, Transferred
Unit 6	·Unit 6T/B Temporary tanks	·On December 20, no scheduled

Place transferred	Status of Water Level (As of 12/21 at 7:00)
Process Main Building	Water level: O.P.+ 1,551 mm(Accumulated total increase:2,768 mm) 4mm increase since 7:00 on December 20
Miscellaneous Solid Waste Volume Reduction Treatment Building (High Temperature Incinerator Building)	Water level: O.P.+ 1,716 mm(Accumulated total increase:2,442 mm) 11mm increase since 7:00 on December 20

Water level of the vertical shaft of the trench, T/B and R/B (As of December 21 at 7:00)

	Vertical Shaft of Trench	T/B	R/B
Unit 1	O.P. <+ 850 mm (No change since 7:00 on December 20)	O.P.+ 3,332 mm (26mm increase since 7:00 on December 20)	O.P.+ 4,242 mm (21mm decrease since 7:00 on December 20)
Unit 2	O.P.+ 3,119 mm (60mm increase since 7:00 on December 20)	O.P.+ 3,106mm (55mm increase since 7:00 on December 20)	O.P.+ 3,230 mm (56mm increase since 7:00 on December 20)
Unit 3	O.P.+ 3,176 mm (16mm increase since 7:00 on December 20)	O.P.+ 3,149 mm (19mm increase since 7:00 on December 20)	O.P.+ 3,389 mm (18mm increase since 7:00 on December 20)
Unit 4	-	O.P.+ 3,131 mm (20mm increase since 7:00 on December 20)	O.P.+ 3,137 mm (14mm increase since 7:00 on December 20)

<Monitoring of Radioactive Materials>

Nuclide Analysis of Seawater(Reference)

Place of sampling	Date of sampling	Time of sampling	Ratio of density limit (times)		
			I-131	Cs-134	Cs-137
Approx. 30m North of Discharge Channel of 5,6U, 1F	12/20	8:45	ND	0.05	0.04
Approx. 330m South of Discharge Channel of 1-4U, 1F	12/20	8:25	ND	ND	0.01
Approx. 7km South of Discharge Channel of 1,2U, 2F	12/20	8:00	ND	ND	0.01

·Others: samples from 1 location at the coast of Fukushima Daiichi Nuclear Power Plant (sampled on December 20) and from 9 locations offshore (sampled on December 19) showed ND for all three major nuclides (Iodine-131,Cs-134,137).

<Cooling of Spent Fuel Pools >(As of December 21 at 11:00)

Unit	Cooling type	Status of cooling	Temperature of water in Pool
Unit 1	Circulating Cooling System	Under operation	11.0
Unit 2	Circulating Cooling System	Under suspension	18.2
Unit 3	Circulating Cooling System	Under operation	12.9
Unit 4	Circulating Cooling System	Under operation	20

[Unit 4] · 11/29 ~ We started operation of the ion exchange equipment to remove salt from spent fuel pool.

[Unit 2] · 12/19 3:06, 12/20 5:04 The alarm went off which showed that the flow rates at the inlet and the outlet of the primary system pump of the Fuel Pool Cooling and Filtering System was substantially different. We confirmed the site and recognized no leak of water. Later we implemented a vibration experiment on the instrumentation piping and confirmed that the alarm had stopped. The Fuel Pool Cooling and Filtering System has been in normal operation and there is no problem in cooling.

· 12/20 15:03 The same system stopped due to inspection of flow monitor of the Fuel Pool Cooling and Filtering System. The temperature of the spent fuel pool was 15.4 at the time of the stop. The stop is planned to last until around 2:00pm on Dec. 23. Since the estimated increase of the temperature of the spent pool is approx. 21 for that period, there is no problem on that increase.

<Water Injection to Pressure Containment Vessels >(As of December 21 at 11:00)

Unit	Status of water injection	Feed-water nozzle Temp.	Reactor pressure vessel Bottom temp.	Pressure of primary containment vessel
Unit 1	Injecting freshwater (Feed Water System: Approx.4.4 m ³ /h,Core Spray System: Approx.2.0 m ³ /h)	29.9	30.5	107.2 kPaabs

Unit 2	Injecting freshwater (Feed Water System: Approx.2.8 m ³ /h,Core Spray System: Approx.6.0 m ³ /h)	58.9	61.7	111 kPaabs
Unit 3	Injecting freshwater (Feed Water System: Approx.2.9 m ³ /h,Core Spray System: Approx.6.0 m ³ /h)	53.8	60.8	101.6 kPaabs

[Unit 1] · 12/21 5:05 Decrease in water injection was confirmed and we adjusted water injection from the reactor feed water system from approx 4.3 m³/h to 4.5 m³/h, and water injection from the core spray system from approx. 1.8 m³/h to 2.0 m³/h.

[Unit 4] [Unit 5] [Unit 6] · No major change

<Others>

- 10/7 ~ Continuously implementing water spray using water after purifying accumulated water of Unit 5 and Unit 6 to prevent spontaneous fire of trimmed trees and diffusion of dust.
- 12/19 18:00 Since the monitoring results of the decontamination of radioactivity material and hydrogen density at the Primary Containment Vessel (PCV) gas controlling system which was in a test run was stable, we started regular operation of this system.
- 12/21 At 11:28, trial operation was conducted for Unit 5 residual heat removal system pump (A) which has been stopped due to the tsunami on March 11. Because its soundness was confirmed, it was resumed to be on stand-by at 12:49. Reactor cooling was temporarily suspended while switching pumps in trial operation, but there is no problem regarding cooling.
- 12/21 Regarding nitrogen injection to the PCV and gas exhaust amount from the PCV gas controlling system, based on the past operation, change in nitrogen injection amount and gas exhaust amount from the gas controlling system was conducted. At 14:52, injection of nitrogen to the PCV was adjusted from approx. 16 m³/h to approx. 10 m³/h. At 15:15. A gas exhaust amount from gas controlling system was adjusted from approx. 40 m³/h to approx. 32 m³/h.

End