

**Situation of Storing and Treatment of Accumulated Water including Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station  
(14<sup>th</sup> Release)**

September 28, 2011  
Tokyo Electric Power Company

**1. Introduction**

This document is to report the following matters in accordance with the instruction of “Installment of treatment facility and storing facility of water including highly concentrated radioactive materials at Fukushima Daiichi Nuclear Power Station of the Tokyo Electric Power Company (Instruction) “(NISA No. 6, June 8, 2011), dated on June 9.

<Instruction>

TEPCO should report to NISA the situation of storing and treatment of the contaminated water in the Power Station and future forecast based upon the current situation have to be reported to NISA as soon as the treatment facility starts its operation. Also, subsequently, continued report has to be submitted to NISA once a week until the treatment of the accumulated water in the Centralized Radiation Waste Treatment Facility is completed.

**2. Situation of storing and treatment of accumulated water in the building (actual record)**

Stored amounts in each unit building (Unit 1 to 4 (including condensers and trenches)), and stored and treated amount in the Accumulated Water Storing Facility (including underpass area close to the High Temperature Incinerator Building), and other related data, as of September 27, are shown in the Attachment -1.

**3. Forecast of storing and treatment**

**(1) Short term forecast**

Water transfer is planned so that the levels of the accumulated water in Unit 1 and 2 and Unit 3 and 4 building will not exceed OP. 3,000, based on the stored amount in the Accumulated Water Storing Facility and the operating situation of the radioactive material treatment equipment. Water is transferred to the Process Main Building in principle, by securing enough capacity for stably accepting accumulated water in the Process Main Building.

Hence, priority for treatment is placed on the accumulated water in the Process Main Building in order to reserve the capacity for accepting the accumulated water in the building.

We assume stored amounts in each unit building (Unit 1 to 4 (including condenser and trench)),

and stored and treated amount in the Accumulated Water Storing Facility (including underpass area close to the High Temperature Incinerator Building), and other related data on October 4, as shown in Attachment -2.

**(2) Middle term forecast**

Regarding accumulated water in Unit 1 and 2 building and Unit 3 and 4 building, from the viewpoint of reducing the risks of discharging to the ocean and leaking into the groundwater, it is necessary to keep enough capacity for the accumulated water in the building until its level reaches OP. 4,000 and to keep the accumulated water level lower than the groundwater level.

We are transferring accumulated water keeping its level in the building below OP. 3,000 considering water injection amount increase to keep the reactor cold shutdown.

We forecast stored amounts in each unit building (Unit 1 to 4 (including condensers and trenches)), and storing and treatment situations in the Accumulated Water Storing Facility (including underpass areas close to the High Temperature Incinerator Building) for 3 months, as shown in Attachment -3.

Stored amounts in each building and the water storage equipment are forecasted to be unchanged in case transfer and treatment were implemented as scheduled without rain.

Also, the water treated at the radioactive material treatment equipment can be stored in the middle and low level waste water tanks, which are currently being installed.

END

# Storage and treatment of high level radioactive accumulated water (as of September 27, 2011)

Classification	
<span style="color:red">■</span>	High level radioactive water
<span style="color:purple">■</span>	Treated water (saltwater)
<span style="color:green">■</span>	Treated water (concentrated saltwater)
<span style="color:blue">■</span>	Treated water (freshwater)
<span style="color:black">■</span>	Freshwater

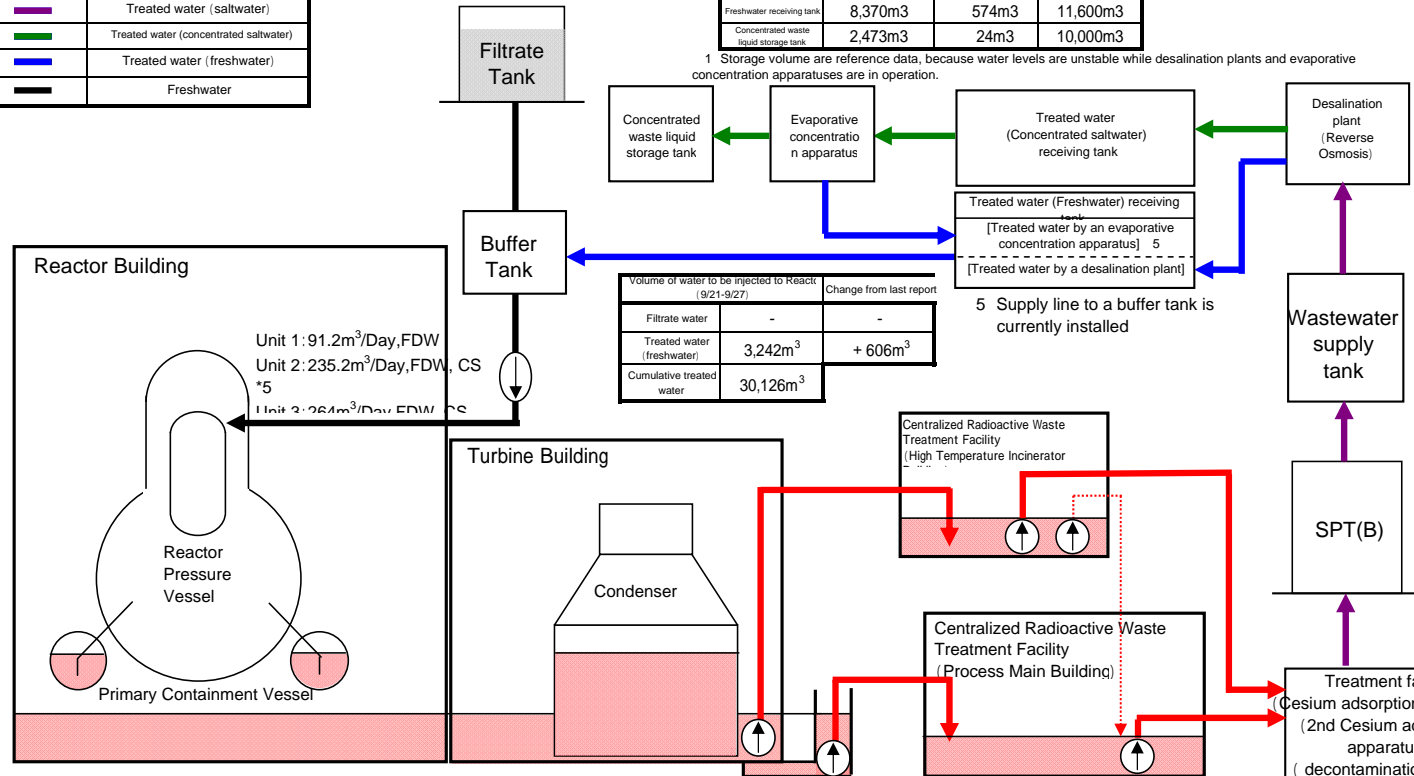
Storage volume 1		
	Change from last report	Storage capacity
Concentrated saltwater receiving tank	53,297m <sup>3</sup> + 4,290m <sup>3</sup>	63,800m <sup>3</sup>
Freshwater receiving tank	8,370m <sup>3</sup> 574m <sup>3</sup>	11,600m <sup>3</sup>
Concentrated waste liquid storage tank	2,473m <sup>3</sup> 24m <sup>3</sup>	10,000m <sup>3</sup>

Chlorine density	
Before/ after desalination	5,200ppm / 20ppm (Sampled on Sep. 6)
Before/ after evaporative concentration	12,000ppm / < 1ppm (Sampled on Aug. 16)

Storage volume		
	change from last report	Storage volume
Waste liquid supply tank	942m <sup>3</sup> + 63m <sup>3</sup>	1,200m <sup>3</sup>
SPT(B)	1,617m <sup>3</sup> + 525m <sup>3</sup>	3,500m <sup>3</sup>

Place of sampling	Radioactivity density 2
Process Main Building	1.1E+06 Bq/cm <sup>3</sup> (Sampled on Sep. 6)
Exit of cesium adsorption apparatus	8.2E+03 Bq/cm <sup>3</sup> (Sampled on Sep. 6)
Exit of decontamination facility	3.8E+01 Bq/cm <sup>3</sup> (Sampled on Sep. 6)
High Temperature Incinerator Building	6.5E+05 Bq/cm <sup>3</sup> (Sampled on Sep. 6)
Exit of second cesium adsorption apparatus	D (< 2.6E+00 Bq/cm <sup>3</sup> ) (Sampled on Sep. 6)

Nuclide	DF 3,4
I-131	- ( - )
Cs-134	2.7E+04 ( > 1.7E+05 )
Cs-137	2.9E+04 ( > 2.5E+05 )



Volume of water to be injected to Reactor (9/21-9/27)		
	Change from last report	
Filtrate water	-	-
Treated water (freshwater)	3,242m <sup>3</sup> + 606m <sup>3</sup>	
Cumulative treated water	30,126m <sup>3</sup>	

5 Supply line to a buffer tank is currently installed

5 9/22 ~ 26 Water injection volume to the reactor has changed to 211.2 and 235.2 m<sup>3</sup>/day from 187.2m<sup>3</sup>/day.

6 9/22 Water injection volume to the reactor has changed to 264m<sup>3</sup>/day from 288m<sup>3</sup>/day.

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	Approx.17,030m <sup>3</sup>	+ 720m <sup>3</sup>	OP.5,026	High Temperature Incinerator Building
Unit 2	Approx.20,300m <sup>3</sup>	+ 200m <sup>3</sup>	OP.2,840	
Unit 3	Approx.25,900m <sup>3</sup>	+ 1,200m <sup>3</sup>	OP.3,055	Process Main Building
Unit 4	Approx.18,700m <sup>3</sup>	+ 1,100m <sup>3</sup>	OP.3,098	
Total	Approx.81,930m <sup>3</sup>			

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (8/24-8/30)	Cumulative treated volume	Waste produced		Change from last report	Storage capacity
Process Main Building	Approx.16,160m <sup>3</sup>	90m <sup>3</sup>	OP.4,593	Approx.8,160m <sup>3</sup>	Approx.105,190m <sup>3</sup>	Sludge	581m <sup>3</sup>	-	800m <sup>3</sup>
High Temperature Incinerator Building	Approx.3,420m <sup>3</sup>	+ 390m <sup>3</sup>	OP.2,260	7	7	Used vessels	220 8	+ 14	393 9
Total	Approx.19,580m <sup>3</sup>								

7 Including approx. 3,870m<sup>3</sup> (cumulative treated volume: approx.21,260m<sup>3</sup>) of treated volume by the 2nd Cesium adsorption apparatus.

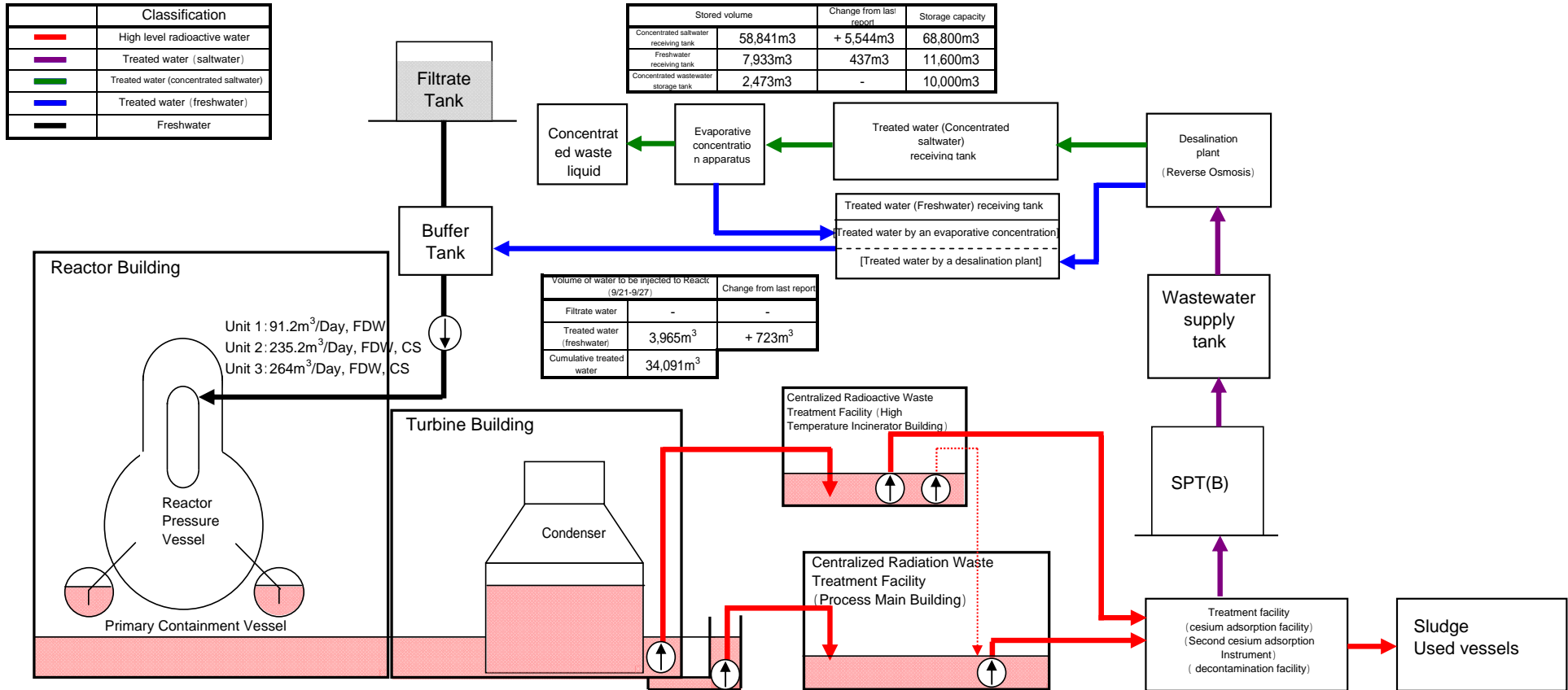
8 Including 10 used vessels of 2nd Cesium adsorption apparatus.

9 Storage capacity will vary according to stored used vessels of 2nd Cesium adsorption apparatus.

**Note:**

- Last report: as of September 20, 2011.
- Transferred from Unit 2 and 3 to process main building and high temperature incinerator building (Sep 22-25 two pumps at Unit 2 were operated temporally.)
- First Cesium adsorption apparatus and 2nd Cesium adsorption apparatus have been operated in parallel (First facility utilization factor: 44.3%, Second facility utilization factor: 69.9% (reference)).
- From Sep 23, 2nd Cesium adsorption apparatus (A, B systems) under operation
- All evaporative concentration apparatus paused

# Storage and treatment of high level radioactive accumulated water (assumed situations as of October 04, 2011)



	Stored volume	Change from last report	Storage capacity
Concentrated saltwater receiving tank	58,841m <sup>3</sup>	+ 5,544m <sup>3</sup>	68,800m <sup>3</sup>
Freshwater receiving tank	7,933m <sup>3</sup>	437m <sup>3</sup>	11,600m <sup>3</sup>
Concentrated wastewater storage tank	2,473m <sup>3</sup>	-	10,000m <sup>3</sup>

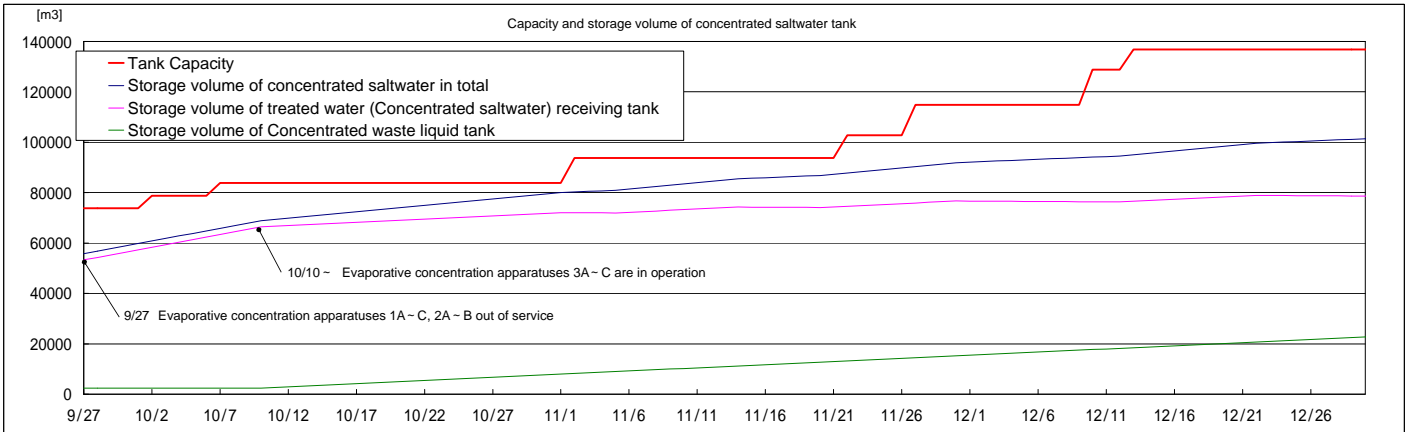
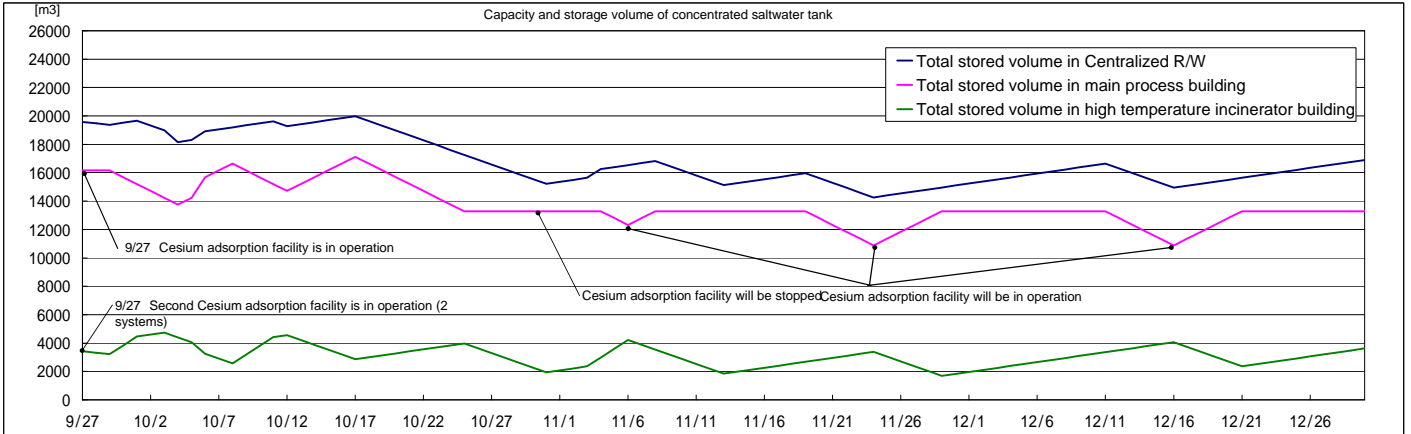
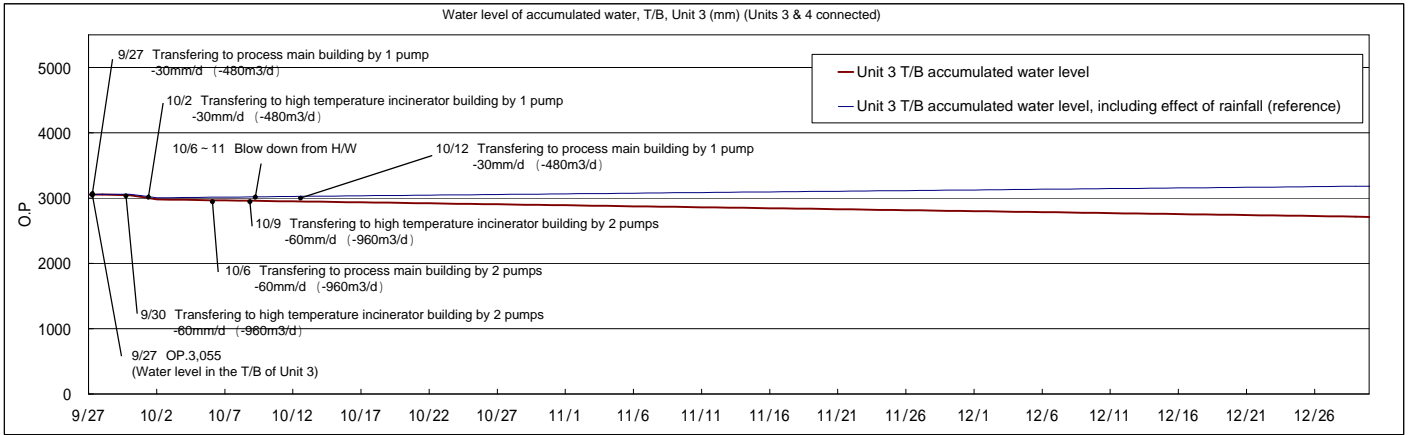
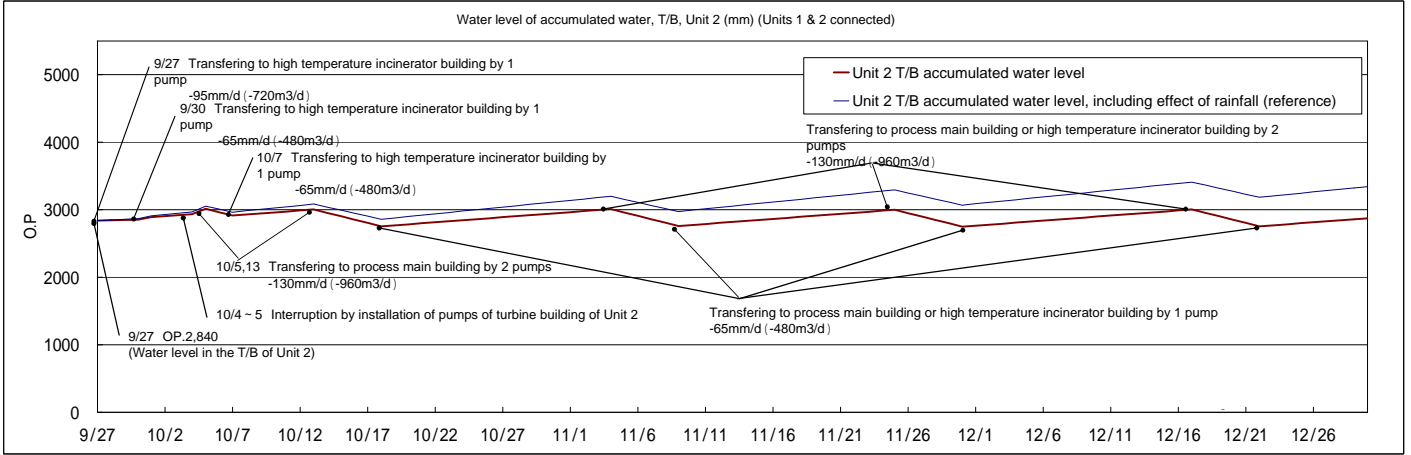
	Volume of water to be injected to Reactor (9/21-9/27)	Change from last report
Filtrate water	-	-
Treated water (freshwater)	3,965m <sup>3</sup>	+ 723m <sup>3</sup>
Cumulative treated water	34,091m <sup>3</sup>	

Facility	Storage volume	Change from this report	Water level in T/B	Transfer to
Unit 1	Approx. 16,710m <sup>3</sup>	320m <sup>3</sup>	OP.2,924 (Unit2 T/B)	High Temperature Incinerator Building
Unit 2	Approx. 20,900m <sup>3</sup>	+ 600m <sup>3</sup>		
Unit 3	Approx. 25,400m <sup>3</sup>	500m <sup>3</sup>	OP.2,994 (Unit3 T/B)	High Temperature Incinerator Building
Unit 4	Approx. 18,300m <sup>3</sup>	400m <sup>3</sup>		
Total	Approx. 81,310m <sup>3</sup>			

Storage Facility	Storage volume	Change from last report	Water level	Volume to be treated (9/21-9/27)	Cumulative treated volume	Waste produced		Change from this report	Storage volume
Process Main Building	Approx. 14,330m <sup>3</sup>	1,830m <sup>3</sup>	OP.4,115	9,240m <sup>3</sup> 1	Approx. 114,430m <sup>3</sup> 1	Sludge	581m <sup>3</sup>	-	800m <sup>3</sup>
High Temperature Incinerator Building	Approx. 4,550m <sup>3</sup>	+ 1,130m <sup>3</sup>	OP.3,193			Used vessels	232	2	+ 12
Total	Approx. 18,880m <sup>3</sup>								

- 1 Including approx. 5,880m<sup>3</sup> (cumulative treated volume: approx. 27,140m<sup>3</sup>) of treated volume by the second cesium adsorption facility.
- 2 Including 14 used vessels of second cesium adsorption instrument.
- 3 Storage capacity will vary according to stored used vessels of second cesium adsorption instrument.

Note:  
 · Water of Unit 2 and Unit 3 will be transferred to process main building and high temperature incinerator building (Water of Unit 3 will be transferred from process main building to high temperature incinerator building (temporarily two pumps))  
 · First cesium adsorption facility and second cesium adsorption facility will be operated in parallel (First facility utilization factor (expected) : 40%, Second facility utilization factor (expected): 70% (reference)).  
 · All the evaporate concentration apparatus will be stopped.



注記 - Amount of water treatment is assumed to be 1320m3/d (It can be adjusted according to level of accumulated water in T/B.)  
 - Amount of water injection into nuclear reactor is assumed to be double of the previous amount.  
 - Assume 5mm increase per day of accumulated water level of T/B including influences of rainfall in case we consider 3-year-averaged rainfall near 1F from August to October.