

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

April 11, 2012

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 (Units 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 April 10, 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 Units 1&2 and Units 3&4 building will be maintained around at the level of OP. 3,000, based on the stored amount in the Accumulated Water Storing Facilities and the operating situation of the radioactive material treatment equipment. Water is transferred to the Process Main Building and/or High Temperature Incinerator Building as Accumulated Water Storing Facilities.

Treatment is implemented considering the situation of storage and transfer of Accumulated Water Storing Facilities.

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

and stored and treated amount in the Accumulated Water Storing Facilities (including underpass area close to the High Temperature Incinerator Building), and other related data as of April 17, as shown in Attachment -2.

## **(2) Middle term forecast**

Regarding accumulated water in Unit 1&2 building and Unit 3&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. On the other hand, based on the view of limiting inflow of underwater to buildings and reducing the amount of emerged accumulated water, we are planning to transfer accumulated water keeping its level in the building around OP. 3,000 considering water tank capacity.

As for accumulated water of the Process Main Building and the High Temperature Incinerator Building, we are planning to treat the accumulated water considering the situation of construction of middle and low level waste water tanks, the operation factor of the radioactive material treatment instruments and duration for maintenance.

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 Facilities (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. However, it would be subject to change depending on the operation factor of the radioactive material treatment instruments and so on.

Also, the water treated at the radioactive material treatment equipment (fresh water and condensed salt water) can be stored in the middle and low level waste water tanks.

END

# Storage and treatment of high level radioactive accumulated water (as of April 10, 2012)

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	2
Concentrated saltwater receiving tank	120,446m <sup>3</sup>	+ 1,249m <sup>3</sup>	133,000m <sup>3</sup>	
Freshwater receiving tank	6,227m <sup>3</sup> *1*2	1,616m <sup>3</sup> *1	25,100m <sup>3</sup> *2	
Concentrated waste liquid storage tank	5,483m <sup>3</sup>	+ 5m <sup>3</sup>	9,500m <sup>3</sup>	

1 Storage volume are reference data, because water levels are unstable while desalination plants and evaporative concentration apparatuses are in operation.  
 2 Operational upper limit

		Chlorine density
Before/ after desalination	1,000ppm / <1ppm (sampled on Mar. 20)	
Before/ after evaporative concentration	6,900ppm / 2ppm (sampled on Dec. 20)	

Storage volume	change from last report	Storage volume	2
Waste liquid supply tank	563m <sup>3</sup>	445m <sup>3</sup>	1,200m <sup>3</sup>
SPT(B)	2,365m <sup>3</sup>	+1,213m <sup>3</sup>	3,100m <sup>3</sup>

2 Operational Upper limit

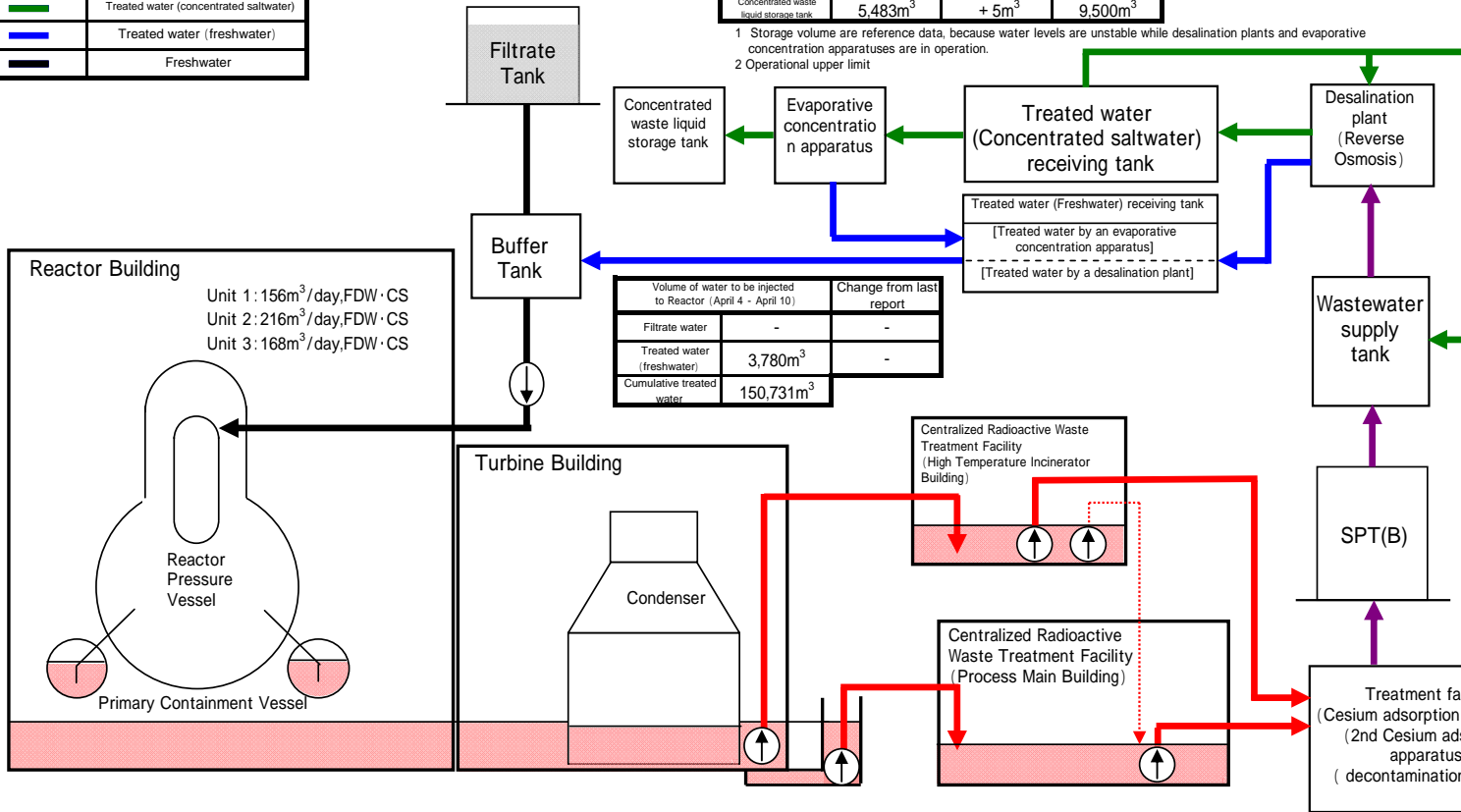
Place of sampling	Radioactivity density	3
Process Main Building	1.6E+05 Bq/cm <sup>3</sup> (sampled on Mar. 20)	
Exit of cesium adsorption apparatus	1.8E+01 Bq/cm <sup>3</sup> (sampled on Mar. 20)	
Exit of decontamination facility	-	
High Temperature Incinerator Building	1.6E+05 Bq/cm <sup>3</sup> (sampled on Mar. 20)	
Exit of second cesium adsorption apparatus	3.8E+00 Bq/cm <sup>3</sup> (sampled on Mar. 20)	

3 Data of Cs-137 are described above.

Nuclide	DF	4,5
I-131	-	( - )
Cs-134	9.2E+03	( 4.6E+04 )
Cs-137	8.9E+03	( 4.2E+04 )

4 Data sampled on Mar. 20 (operations of cesium adsorption facility - decontamination facility)

5 Data in parentheses are those sampled on Mar. 20 (operation of the 2nd Cesium adsorption apparatus)



Volume of water to be injected to Reactor (April 4 - April 10)	Change from last report
Filtrate water	-
Treated water (freshwater)	3,780m <sup>3</sup>
Cumulative treated water	150,731m <sup>3</sup>

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	approx. 14,100m <sup>3</sup>	300m <sup>3</sup>	OP.3,029	High Temperature Incinerator Building
Unit 2	approx. 22,400m <sup>3</sup>	100m <sup>3</sup>	OP.3,123	
Unit 3	approx. 24,800m <sup>3</sup>	+ 800m <sup>3</sup>	OP.3,207	Process Main Building
Unit 4	approx. 19,200m <sup>3</sup>	+ 500m <sup>3</sup>	OP.3,165	
Total	approx. 80,500m <sup>3</sup>			

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (March 28-April 3)	Cumulative treated	Waste produced	Change from last report	Storage capacity
Process Main Building	approx. 15,870m <sup>3</sup>	+ 780m <sup>3</sup>	OP.4,486	approx. 4,570m <sup>3</sup>	approx. 290,000m <sup>3</sup>	Sludge	581m <sup>3</sup>	700m <sup>3</sup> 2
High Temperature Incinerator Building	approx. 4,430m <sup>3</sup>	+ 1,440m <sup>3</sup>	OP.3,087			Used vessels	393 7	+ 4 1,137 8
Total	approx. 20,300m <sup>3</sup>							

2 Shows the operational limit.

6 Including approx. 1,570m<sup>3</sup> (cumulative treated volume: approx. 142,030m<sup>3</sup>) of treated volume by the 2nd Cesium adsorption apparatus.

7 Including 40 used vessels of 2nd Cesium adsorption apparatus.

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

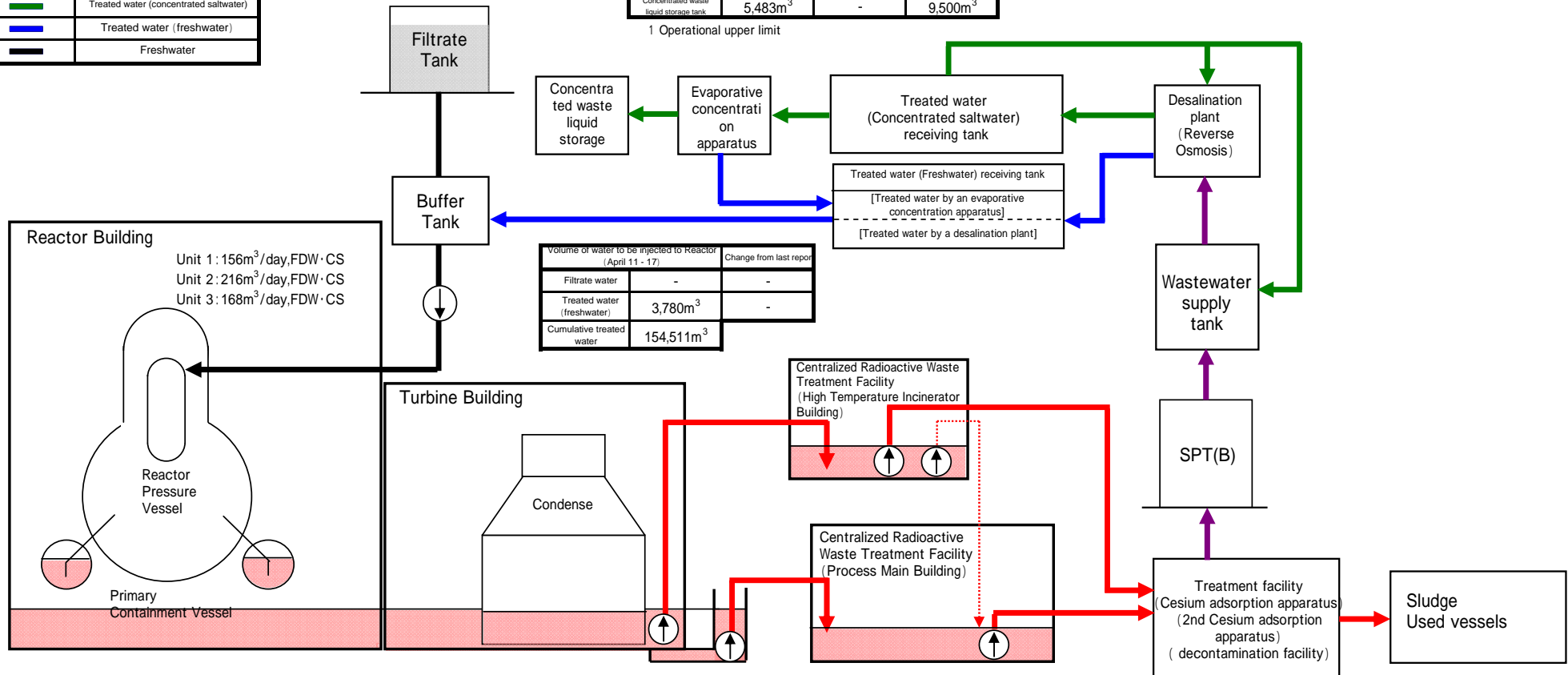
Note:  
 · The previous update was reported as of April 3, 2012  
 · On April 6, water transfer from Unit 2 was changed to Process Main Building from High Temperature Incinerator Building; From April 9, Water transfer from Unit 2 was suspended.  
 · On April 3, water transfer from Unit 3 was changed to High Temperature Incinerator Building from Process Main Building; From April 5, Water transfer from Unit 3 was suspended.  
 · The two line operation was conducted for Cesium Adsorption Apparatus and 2nd Cesium Adsorption Apparatus. (Capacity factor for Cesium Adsorption Apparatus: 35.7% (Projected: 35%), Capacity factor for 2nd Cesium Adsorption Apparatus: 18.7% (Projected: 75%)(Ref.))  
 · From April 5, 2nd Cesium Adsorption Apparatus was suspended. (Automatic suspend due to operator's unintended contact with control panel and leakage control for transfer pipe laying between water desalinations and concentrated water pool)  
 · On April 7, 8 Water transfer from Turbine Building of Unit 1 to Turbine Building of Unit 2 was conducted.  
 · Expansion of storage capacity of "Concentrated saltwater receiving tank" by tank addition and replace was conducted.  
 \*1 Error is corrected.  
 \*2 The approx. 300m<sup>3</sup> tank (included in the storage capacity) where the approx. 210m<sup>3</sup> water (included in the stored amount) collected from the drain is temporarily stored is separated.

# Storage and treatment of high level radioactive accumulated water (assumed situations as of April 17, 2012)

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	Change from last report	Storage capacity <sup>1</sup>
Concentrated saltwater receiving tank	125,414m <sup>3</sup> + 4,968m <sup>3</sup>	138,200m <sup>3</sup>
Freshwater receiving tank	6,719m <sup>3</sup> *1*2 + 492m <sup>3</sup>	25,100m <sup>3</sup> *2
Concentrated waste liquid storage tank	5,483m <sup>3</sup>	9,500m <sup>3</sup>

1 Operational upper limit



Volume of water to be injected to Reactor (April 11 - 17)	Change from last report
Filtrate water	-
Treated water (freshwater)	3,780m <sup>3</sup>
Cumulative treated water	154,511m <sup>3</sup>

Facility	Storage volume	Change from last report	Water level in T/B
Unit 1	approx. 14,200m <sup>3</sup>	+ 100m <sup>3</sup>	OP.3,165 (Unit2 T/B)
Unit 2	approx. 22,700m <sup>3</sup>	+ 300m <sup>3</sup>	
Unit 3	approx. 24,300m <sup>3</sup>	500m <sup>3</sup>	OP.3,144 (Unit3 T/B)
Unit 4	approx. 18,800m <sup>3</sup>	400m <sup>3</sup>	
<b>Total</b>	<b>approx. 80,000m<sup>3</sup></b>		

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (April 4 - 10)	Cumulative treated	Waste produced	Change from last report	Storage capacity
Process Main Building	approx. 13,880m <sup>3</sup>	1,990m <sup>3</sup>	OP.3,773	approx. 9,240m <sup>3</sup>	approx. 299,240m <sup>3</sup>	Sludge 581m <sup>3</sup>	-	700m <sup>3</sup> 1
High Temperature Incinerator Building	approx. 4,070m <sup>3</sup>	360m <sup>3</sup>	OP.2,787	2	2	Used vessels 399 3	+ 6	1,137 4
<b>Total</b>	<b>approx. 17,950m<sup>3</sup></b>							

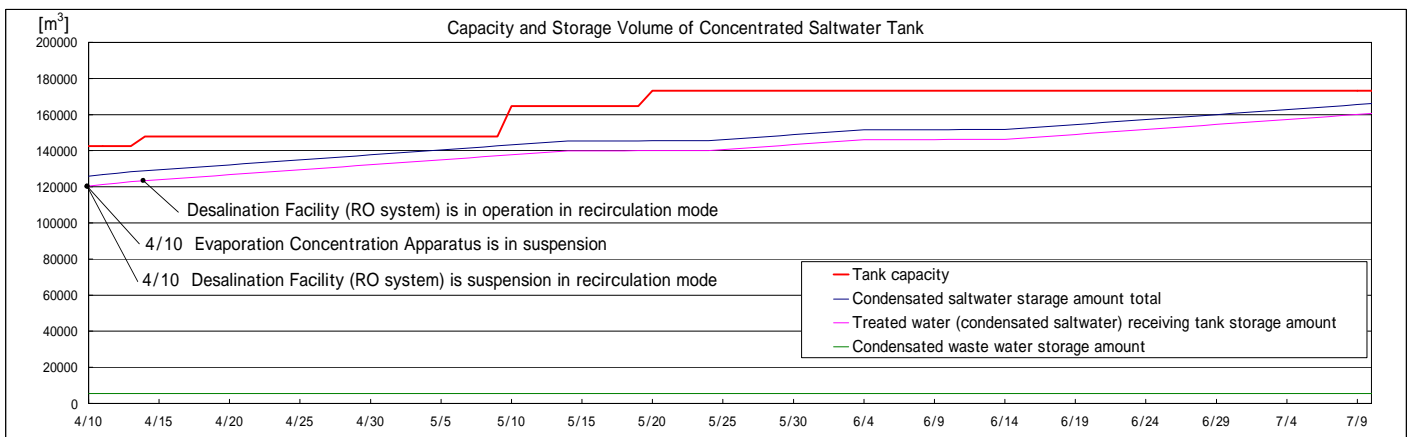
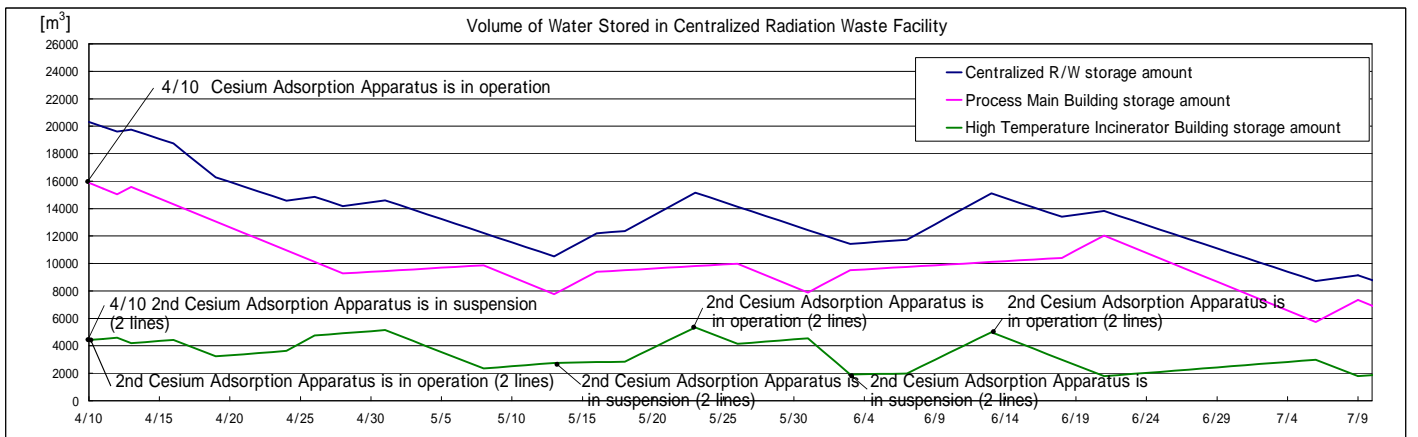
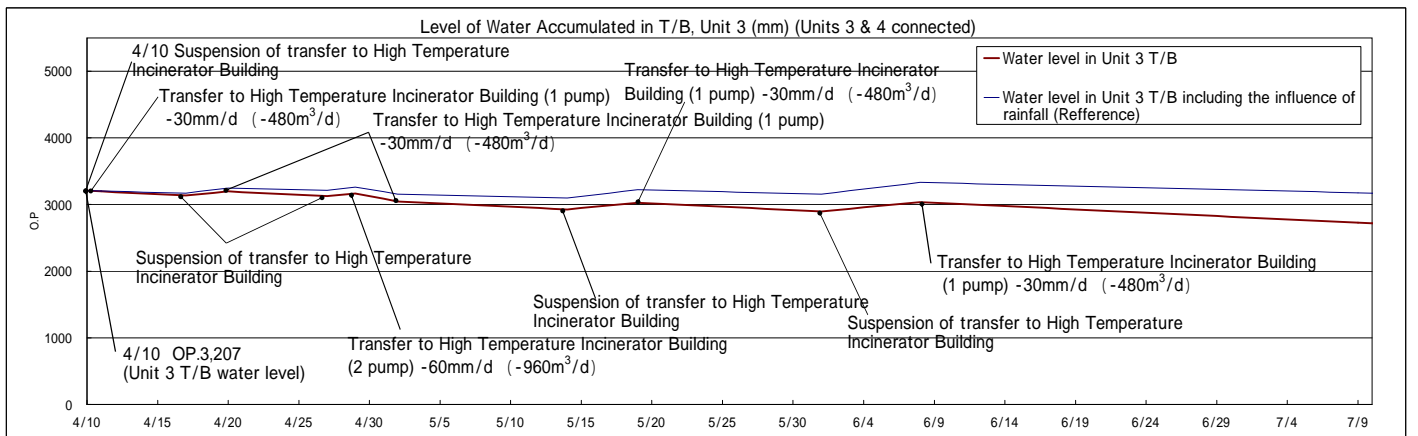
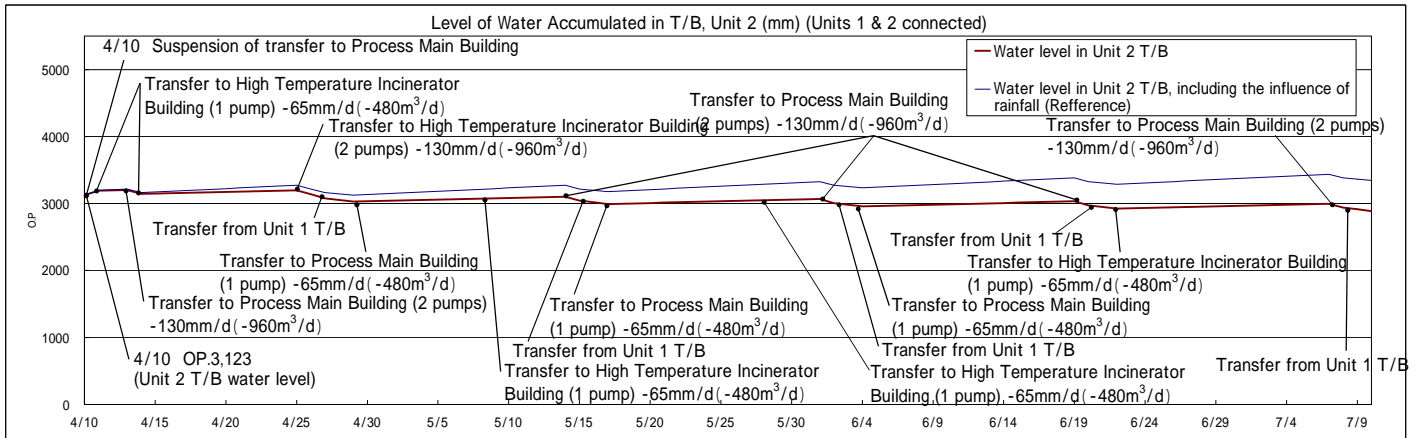
- 1 Shows the operational limit.
- 2 Including approx. 6,300m<sup>3</sup> (cumulative treated volume: approx. 148,330m<sup>3</sup>) of treated volume by the 2nd Cesium adsorption apparatus.
- 3 Including 40 used vessels of 2nd Cesium adsorption apparatus.
- 4 Storage capacity will vary according to stored used vessels of 2nd Cesium adsorption apparatus.

**Note:**

- On April 11, Water transfer from Unit 2 to Process Main Building and High Temperature Incinerator Building is scheduled.
- On April 10, Water transfer from Unit 3 to High Temperature Incinerator Building is scheduled.
- Operation of Cesium Adsorption Apparatus is scheduled (Capacity factor for Cesium Adsorption Apparatus: 35%).
- On April 10, operation of 2nd Cesium Adsorption Apparatus is scheduled (Capacity factor for Cesium Adsorption Apparatus: 75% (Ref.)).
- Expansion of storage capacity of "Concentrated saltwater receiving tank" by tank addition and replace is scheduled.

\*1 Error is corrected.

\*2 The approx. 300m<sup>3</sup> tank (included in the storage capacity) where the approx. 210m<sup>3</sup> water (included in the stored amount) collected from the drain will be kept separated.



Note: - Amount of water treatment is assumed to be 1,320m<sup>3</sup>/d (It can be adjusted according to level of accumulated water in T/B)  
 - Assume 5mm increase per day of accumulated water level of T/B including influences of rainfall considering 3-year-averaged rainfall near 1F from August to October.