

**Situation of Storing and Treatment of Accumulated Water including Highly Concentrated
Radioactive Materials at Fukushima Daiichi Nuclear Power Station
(24th Release)**

December 7, 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 December 6, 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 December 13, 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 December 6, 2011)

Classification	
■	High level radioactive water
■	Treated water (saltwater)
■	Treated water (concentrated saltwater)
■	Treated water (freshwater)
■	Freshwater

Storage volume ※1			
	Storage volume	Change from last report	Storage capacity ※2
Concentrated saltwater receiving tank	82,196m ³	+2,039m ³	107,700m ³
Freshwater receiving tank	14,651m ³	+3,014m ³	25,100m ³
Concentrated waste liquid storage tank	5,192m ³	+282m ³	9,500m ³

※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	1,700ppm / 3ppm (sampled on 11/29)
Before/ after evaporative concentration	9,000ppm / < 1ppm (sampled on 11/29)

Storage volume		
	Storage volume	change from last report
Waste liquid supply tank	822m ³	▲304m ³
SPT(B)	1,586m ³	▲316m ³

※2 Operational Upper limit

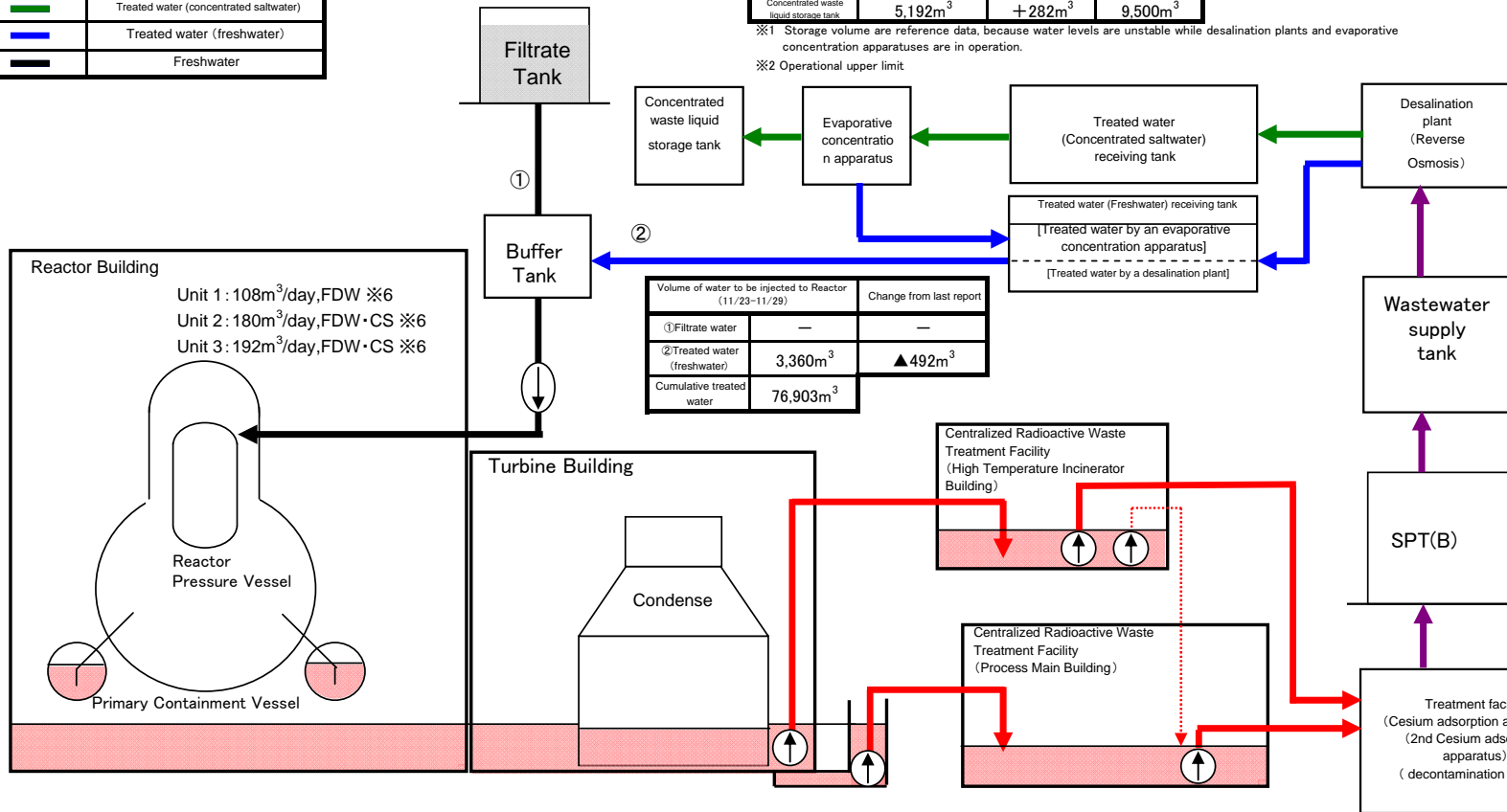
Radioactivity density ※3	
Place of sampling	Radioactivity density
Process Main Building	2.1E+05 Bq/cm ³ (sampled on 11/29)
Exit of cesium adsorption apparatus	3.1E+01 Bq/cm ³ (sampled on 11/29)
Exit of decontamination facility	—
High Temperature Incinerator Building	5.1E+05 Bq/cm ³ (sampled on 11/29)
Exit of second cesium adsorption apparatus	8.8E-01 Bq/cm ³ (sampled on 11/29)

※3 Data of Cs-137 are described above.

DF ※4,5	
Nuclide	DF
I-131	— (—)
Cs-134	6.3E+03 (> 4.5E+05)
Cs-137	6.8E+03 (5.8E+05)

※4 Data sampled on Nov. 29 (operations of cesium adsorption facility - decontamination facility)

※5 Data in parentheses are those sampled on Nov. 29 (operation of the 2nd Cesium adsorption apparatus)



Volume of water to be injected to Reactor (11/23-11/29)		
	Volume	Change from last report
① Filtrate water	—	—
② Treated water (freshwater)	3,360m ³	▲492m ³
Cumulative treated water	76,903m ³	

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	Approx.14,410m ³	+260m ³	OP.3,567	High Temperature Incinerator Building
Unit 2	Approx.20,800m ³	▲800m ³	OP.2,901	
Unit 3	Approx.22,900m ³	▲300m ³	OP.2,947	Process Main Building
Unit 4	Approx.17,600m ³	▲500m ³	OP.2,942	
Total	Approx.75,710m ³			

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (11/30-12/6) ※6	Cumulative treated volume ※6	Waste produced	Change from last report	Storage capacity
Process Main Building	Approx.9,860m ³	+690m ³	OP.2,364	Approx.7,520m ³	Approx.182,660m ³	Sludge	—	700m ³ ※2
High Temperature Incinerator Building	Approx.2,380m ³	▲870m ³	OP.1,403			Used vessels	303 ※7	393 ※8
Total	Approx.12,240m ³						+5	

※2 Shows the operational limit.
 ※7 Including approx. 4,810m³ (cumulative treated volume: approx. 69,480m³) of treated volume by the 2nd Cesium adsorption apparatus.
 ※8 Including 26 used vessels of 2nd Cesium adsorption apparatus.
 ※9 Storage capacity will vary according to stored used vessels of 2nd Cesium adsorption apparatus.

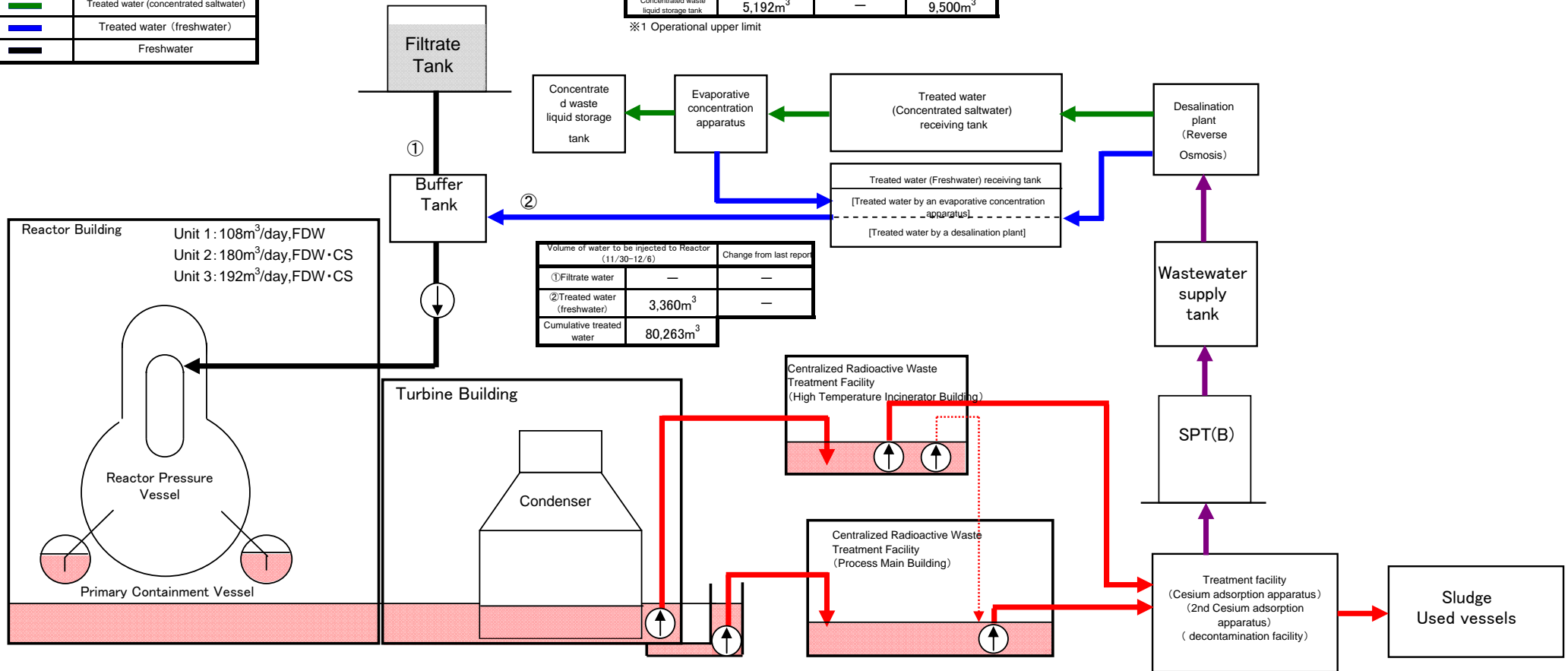
Note:
 • Last report as of November 29, 2011
 • Transferred from Units 2 and 3 to Process Main Building & High Temperature Incinerator Building. (11/30 transfer from High Temperature Incinerator Building to unit 2 interrupted, from 12/5 transfer from unit 3 to Process Main Building interrupted)
 • First Cesium adsorption apparatus and 2nd Cesium adsorption apparatus have been operated in parallel (First facility utilization factor: 32.3% (Plan: 30%), Second facility utilization factor: 57.3 % (Plan 45%) (reference))
 • December 3 stopped Cesium adsorption apparatus due to power suspension.

Storage and treatment of high level radioactive accumulated water (assumed state of November , 2011)

Classification	
█	High level radioactive water
█	Treated water (saltwater)
█	Treated water (concentrated saltwater)
█	Treated water (freshwater)
█	Freshwater

Storage volume		Change from last report	Storage capacity ※1
Concentrated saltwater receiving tank	86,228m ³	+4,032m ³	116,200m ³
Freshwater receiving tank	13,979m ³	▲672m ³	25,100m ³
Concentrated waste liquid storage tank	5,192m ³	—	9,500m ³

※1 Operational upper limit



Volume of water to be injected to Reactor (11/30-12/6)		Change from last report
① Filtrate water	—	—
② Treated water (freshwater)	3,360m ³	—
Cumulative treated water	80,263m ³	

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	Approx.14,040m ³	▲370m ³	OP.2,968 (Unit 2 T/B)	High Temperature Incinerator Building
Unit 2	Approx.21,200m ³	+400m ³		
Unit 3	Approx.24,300m ³	+1,400m ³	OP.3,125 (Unit 3 T/B)	Process Main Building
Unit 4	Approx.18,900m ³	+1,300m ³		
Total	Approx.78,440m ³			

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (12/7-12/13)	Cumulative treated	Waste produced		Change from last report	Storage capacity
Process Main Building	Approx.7,140m ³	▲2,720m ³	OP.1,591	6,720m ³	Approx.189,380m ³ ※2	Sludge	581m ³	—	700m ³ ※1
High Temperature Incinerator Building	Approx.2,070m ³	▲310m ³	OP.1,144			Used vessels	310 ※3	+7	393 ※4
Total	Approx.9,210m ³								

※1 Shows the operational limit.

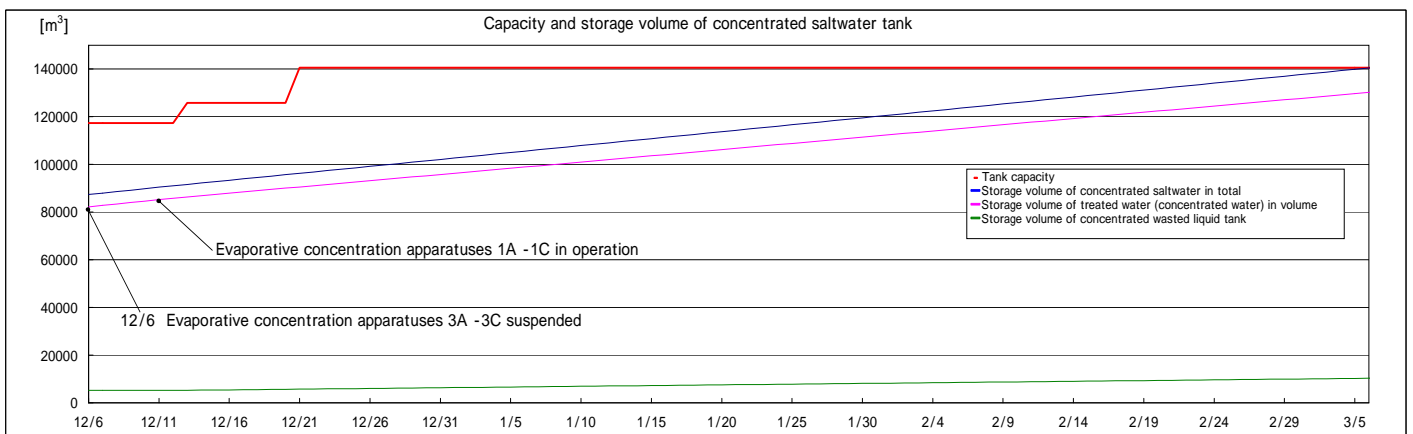
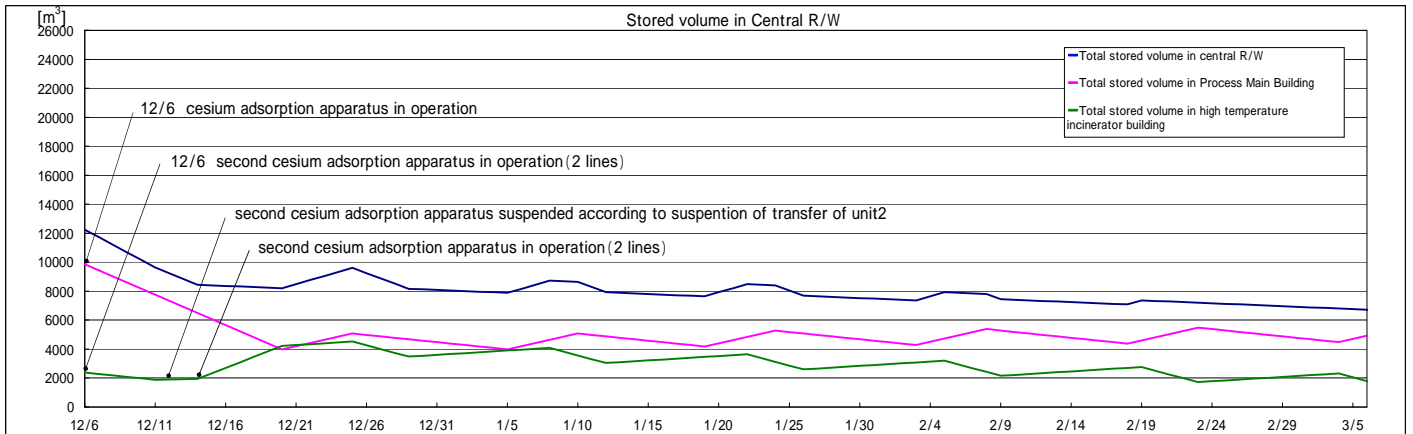
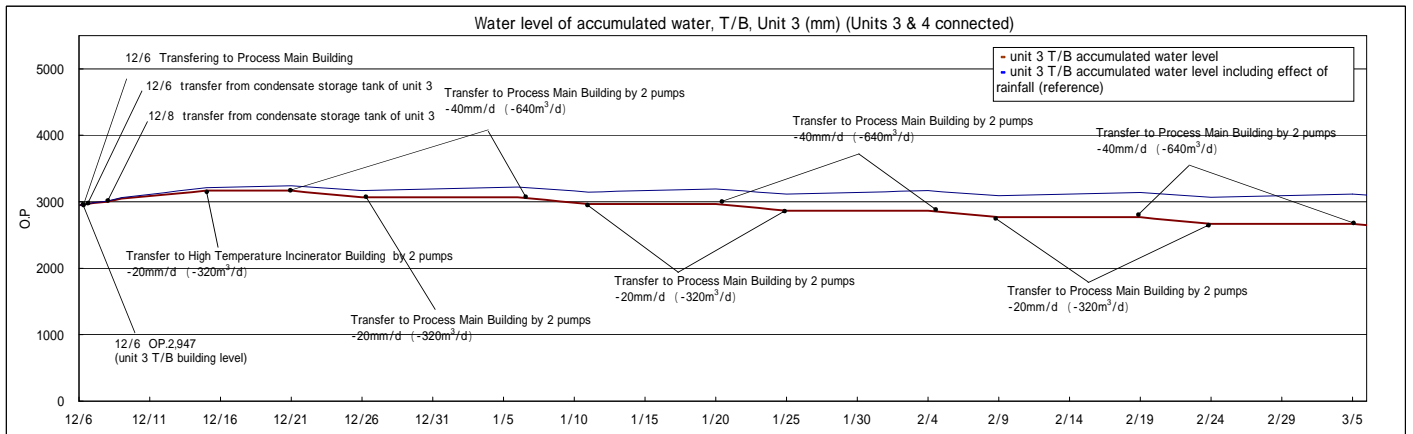
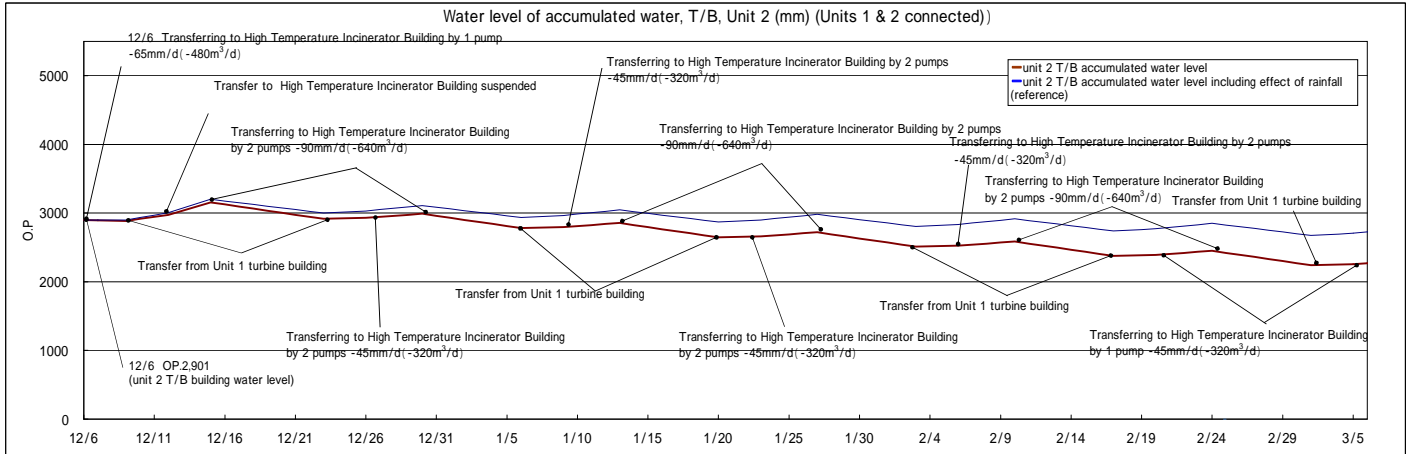
※2 Including approx. 3,780m³ (cumulative treated volume: approx. 73,260m³) of treated volume by the 2nd Cesium adsorption apparatus.

※3 Including 26 used vessels of 2nd Cesium adsorption apparatus.

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

Note:

- Water in Unit 2 and Unit 3 will be transferred to High Temperature Incinerator Building and Process Main Building. (Transferring from Unit 2 to High Temperature Incinerator Building will be temporarily stopped)
- First Cesium adsorption apparatus and 2nd Cesium adsorption apparatus will be operated in parallel (First facility utilization factor: 35%, Second facility utilization factor: 45% (reference)).
- Treatment facilities (first Cesium adsorption apparatus and 2nd Cesium adsorption apparatus) will be temporarily stopped due to the power cut
- Transfer from turbine building of unit 1 to turbine building of unit 2 planned.



Note - Amount of water treatment is assumed to be 1,020m³/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 in case we consider 3-year-averaged rainfall near 1F from August to October.
 - From mid December pump transfer amount will be changed in order to prevent hoses from freezing.