Situation of Storing and Treatment of Accumulated Water including Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station
(26th Release)

December 21, 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 20, 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 27, 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.

Based on the view of limiting inflow of underwater to buildings and reducing the amount of emerged accumulated water, we are transferring accumulated water keeping its level in the building below OP. 3,000 considering water tank capacity.

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.

END

Storage and treatment of high level radioactive accumulated water (as of December 20, 2011)

Attachment-1

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

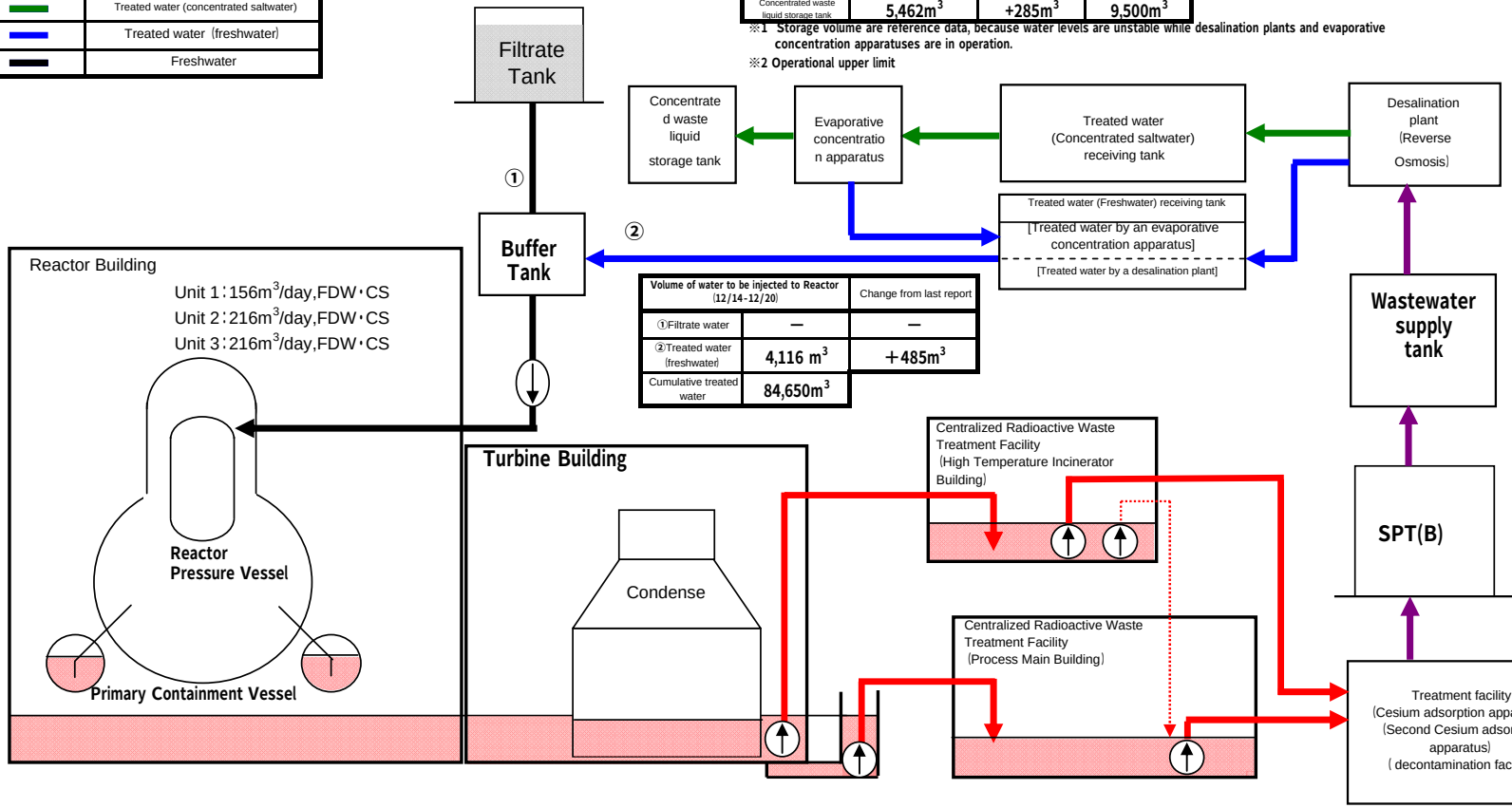
Storage volume ※1		Change from last report	Storage capacity ※2
Concentrated saltwater receiving tank	85,588m³	-464m³	130,900m³
Freshwater receiving tank	13,131m³	-1,761m³	25,100m³
Concentrated waste liquid storage tank	5,462m³	+285m³	9,500m³

※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 Nov.29)
Before/ after evaporative concentration	9,000ppm / < 1ppm (Sampled on Nov.29)

Storage volume		change from last report	Storage volume ※2
Waste liquid supply tank	1,205m³	+348m³	1,200m³
SPT(B)	1,935m³	+1,071m³	3,100m³

※2 Operational Upper limit



Volume of water to be injected to Reactor (12/14-12/20)		Change from last report
①Filtrate water	—	—
②Treated water (freshwater)	4,116 m³	+485m³
Cumulative treated water	84,650m³	

Place of sampling	Radioactivity density ※3
Process Main Building	2.1E+05 Bq/cm³ (Sampled on Nov.29)
Exit of cesium adsorption apparatus	3.1E+01 Bq/cm³ (Sampled on Nov.29)
Exit of decontamination facility	—
High Temperature Incinerator Building	5.1E+05 Bq/cm³ (Sampled on Nov.29)
Exit of second cesium adsorption apparatus	8.8E-01 Bq/cm³ (Sampled on Nov.29)

※3 Data of Cs-137 are described above.

Nuclide	DF ※4,5
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)

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	approx.14,280m³	+460m³	OP.3,306	High Temperature Incinerator Building
Unit 2	approx.21,800m³	+1,600m³	OP.3,051	
Unit 3	approx.24,400m³	+300m³	OP.3,130	Process Main Building
Unit 4	approx.18,800m³	+300m³	OP.3,111	
Total	approx.79,280m³			

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (12/14-12/20)	Cumulative treated volume	Waste produced		Change from last report	Storage capacity
Process Main Building	approx.6,980m³	▲230m³	OP.1,547	approx.2,740m³	approx.192,080m³ ※6	Sludge	581m³	—	700m³ ※2
High Temperature Incinerator Building	approx.2,740m³	+210m³	OP.1,705			Used vessels	316 ※7	+4	393 ※8
Total	approx.9,720m³								

※2 Shows the operational limit.
※6 Including (cumulative treated volume:approx.73,460m3) of treated volume by the second cesium adsorption apparatus.
※7 Including 28 used vessels of the second cesium adsorption apparatus.
※8 Storage capacity will vary according to stored used vessels of the second cesium adsorption apparatus.

Note:
・Last report as of Dec 13, 2011
・Transferred from Units 2 and 3 to Process Main Building & High Temperature Incinerator Building.(Dec 17-18- Transfer from Unit 2 to process main building, High Temperature Incinerator Building. Dec15-17 Transfer from Unit 3 to Process Main Building)
・The first cesium adsorption apparatus and 2nd Cesium adsorption apparatus have been operated in parallel (First facility utilization factor: 32.6% (Plan: 35%))
・Dec 12: The second cesium adsorption apparatus suspended.
・From Dec 12 to 16, :the water was transferred from Unit 3 condensate storage tanks to Unit 3 turbine building.

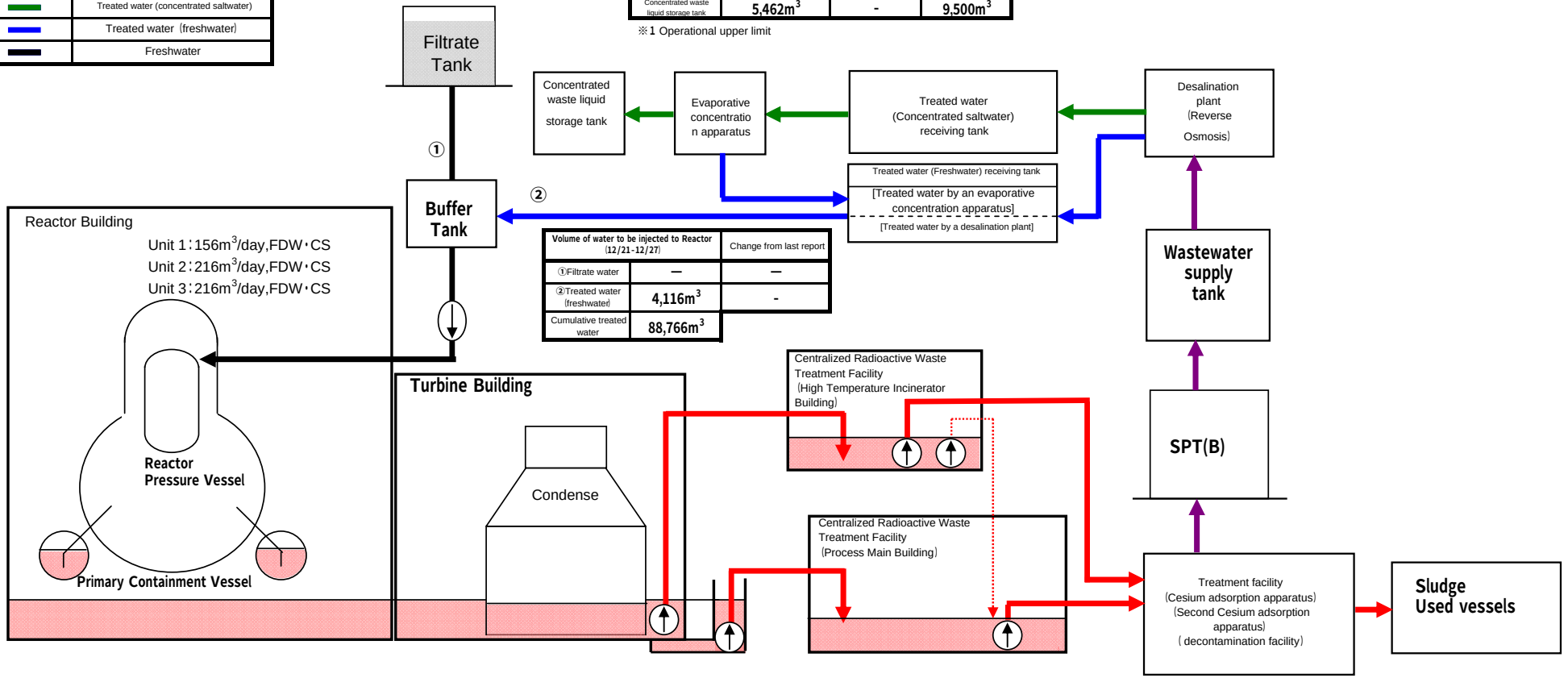
Storage and treatment of high level radioactive accumulated water (assumed situation as of December 27, 2011)

Attachment-2

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	83,926m³	▲1,662m³	130,900m³
Freshwater receiving tank	10,707m³	▲2,424m³	25,100m³
Concentrated waste liquid storage tank	5,462m³	-	9,500m³

※1 Operational upper limit



Volume of water to be injected to Reactor (12/21-12/27)		Change from last report
①Filtrate water	—	—
②Treated water (freshwater)	4,116m³	-
Cumulative treated water	88,766m³	

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	approx.14,130m³	-150m³	OP.3,062 (Unit 2 T/B)	High Temperature Incinerator Building
Unit 2	approx.21,900m³	+100m³		
Unit 3	approx.24,800m³	+400m³	OP.3,179 (Unit 3 T/B)	Process Main Building
Unit 4	approx.19,200m³	+400m³		
Total	approx.80,030m³			

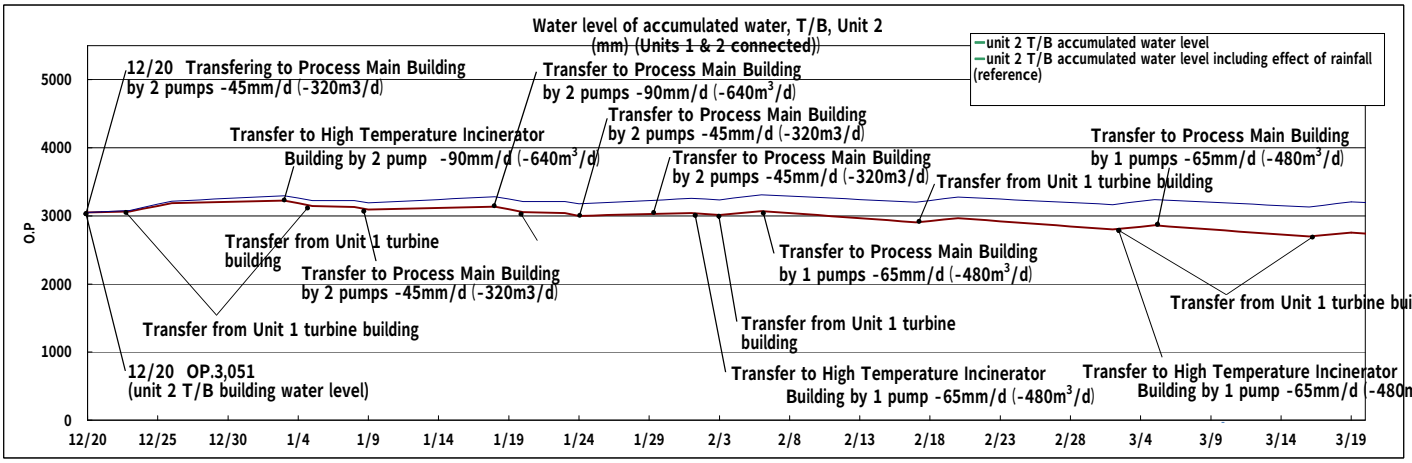
Storage Facility	Storage volume	Change from last report	Water level	Treated volume (12/21-12/27)	Cumulative treated volume	Waste produced		Change from last report	Storage capacity
Process Main Building	approx.9,900m³	+2,920m³	OP.2,378	30m³ ※2	Approx.192,110m³ ※3	Sludge	581m³	—	700m³ ※1
High Temperature Incinerator Building	approx.4,430m³	+1,690m³	OP.3,102			Used vessels	318 ※4	+2	393 ※5
Total	approx14,330m³								

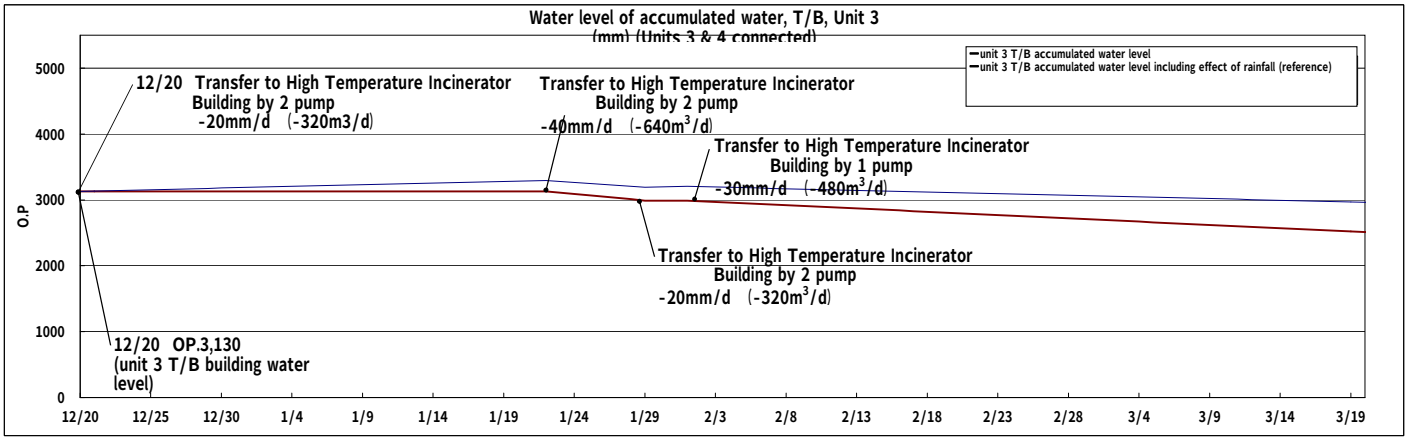
※1 Shows the operational limit.
※2 Actual treated volume by the time of the cesium adsorption apparatus stop
※3 Including cumulative treated volume(approx.73,460m3) of the second cesium adsorption apparatus.
※4 Including 28 used vessels of the second cesium adsorption apparatus.
※5 Storage capacity will vary according to stored used vessels of the second cesium adsorption apparatus.

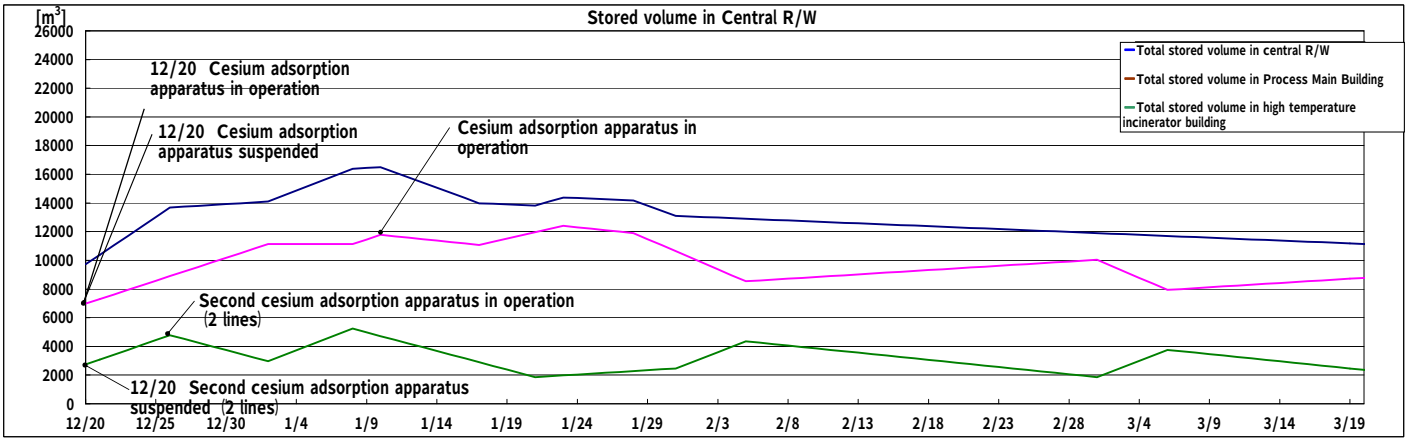
Note:
・Water in Unit 2 and Unit 3 will be transferred to Process Main Building and High Temperature Incinerator Building. (We will start anti-icing operation.)
・The cesium adsorption apparatus will be stopped. (We stopped Cesium adsorption apparatus on December 20. We will not assumethe facility utilization factor due to it.)
・The second cesium adsorption apparatus will be kept inactive.
・Water will be transferred from Unit 1 to Unit 2turbine building.

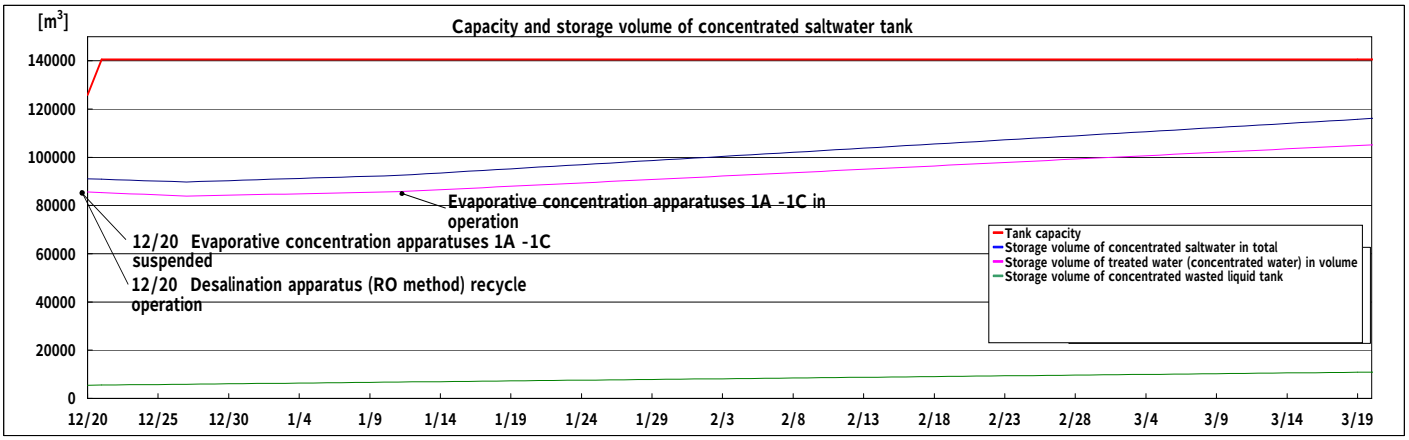
Simulation result of the treatment of accumulated water in T/B, Units 1 to 4

Attachment-3









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.