Situation of Storage and Treatment of Accumulated Water including Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station (59th Release)

August 8, 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, 2011.

<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 Central Radioactive 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 August 7, 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 August 14, 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

Attachment-1

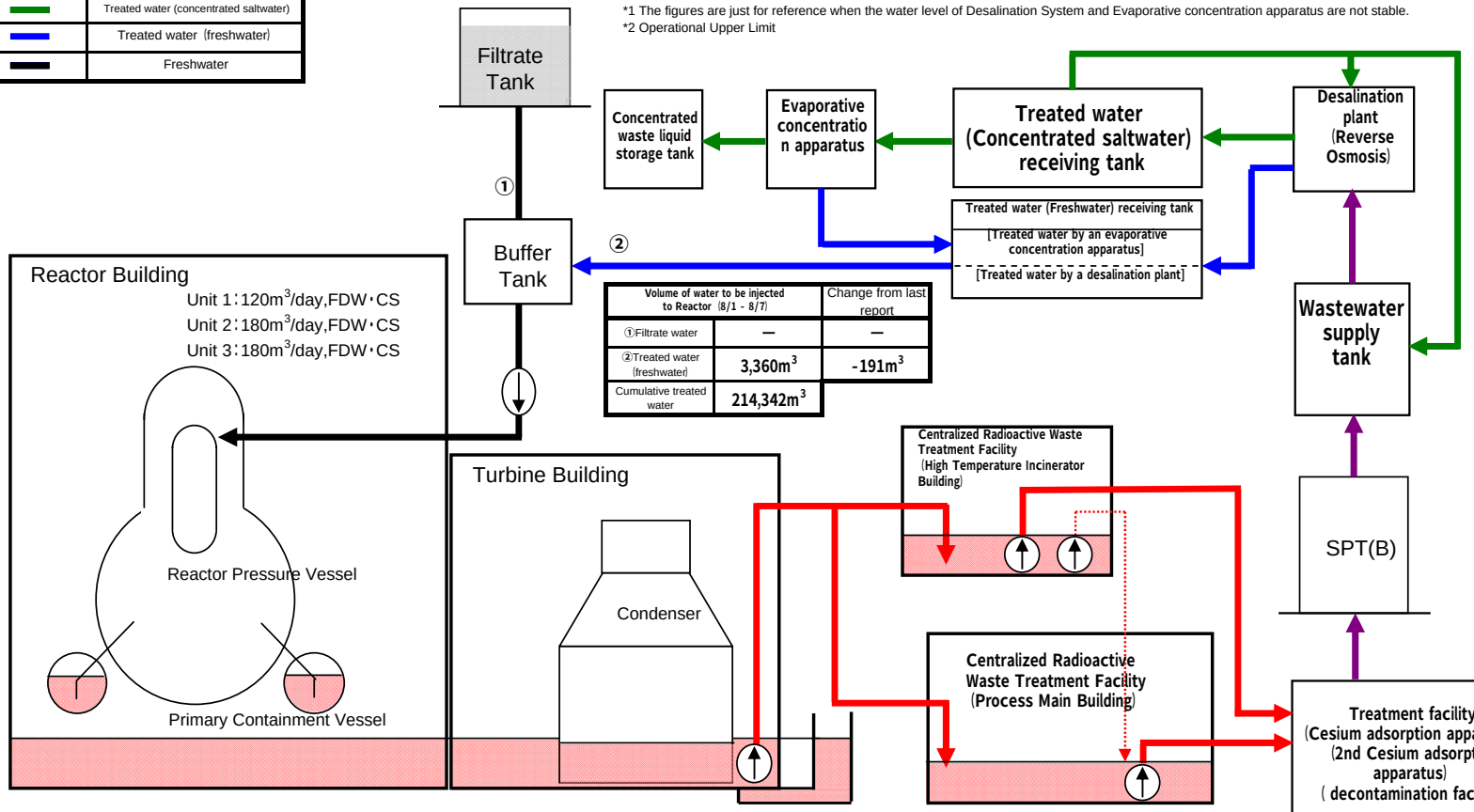
Storage and treatment of high level radioactive accumulated water (as of August 7, 2012)

	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	158,711m³	+2,754m³	174,100m³
Freshwater receiving tank	21,762m³	+795m³	25,100m³
Concentrated waste liquid storage tank	5,600m³	–	9,500m³

*1 The figures are just for reference when the water level of Desalination System and Evaporative concentration apparatus are not stable.
*2 Operational Upper Limit

	Chloride concentration
Before/After Desalination	2,300ppm / 7ppm (Sampled on 7/17)
Before/After Evaporative Concentration	6,900ppm / 2ppm (Sampled on 12/20)



Volume of water to be injected to Reactor (8/1 - 8/7)		Change from last report
①Filtrate water	–	–
②Treated water (freshwater)	3,360m³	-191m³
Cumulative treated water	214,342m³	

Storage volume		change from last report	Storage volume *2
Waste liquid supply tank	912m³	-58m³	1,200m³
SPT(B)	1,556m³	-470m³	3,100m³

*2 Shows the operational limit.

Place of Sampling	Radioactivity density *3
Process Main Building	1.1E+05 Bq/cm³ (Sampled on 6/19)
Exit of cesium adsorption apparatus	3.4E-01 Bq/cm³ (Sampled on 6/19)
Exit of decontamination facility	–
High Temperature Incinerator Building	4.7E+04 Bq/cm³ (Sampled on 7/17)
Exit of second cesium adsorption apparatus	ND(<3.5E-01 Bq/cm³) (Sampled on 7/17)

*3 Data of Cs-137 are described above.

Nuclide	DF *4,5
I-131	– (–)
Cs-134	1.2E+05 (5.6E+04)
Cs-137	3.2E+05 (1.3E+05)

*4 Data sampled on June 19 (operations of cesium adsorption facility - decontamination facility)
*5 Data in parentheses are those sampled on July 17 (operation of the 2nd Cesium adsorption apparatus)

Facility	Storage volume	Change from last report	Water level in T/B
Unit 1	Approx.14,000m³	-400m³	OP.2,650
Unit 2	Approx.23,400m³	-200m³	OP.3,269
Unit 3	Approx.25,000m³	-700m³	OP.3,221
Unit 4	Approx.19,600m³	-400m³	OP.3,220
Total	Approx.82,000m³		

Storage Facility	Storage volume	Change from last report	Water level	Treated volume (8/1-8/7)	Cumulative treated	Waste produced		Change from last report	Storage capacity
Process Main Building	Approx.17,250m³	+140m³	OP.4,879	Approx.6,600m³ *6	Approx.409,950m³ *6	Sludge	597m³	–	700m³ *2
High Temperature Incinerator Building	Approx.4,620m³	+850m³	OP.3,245			Used vessels	428 *7	–	1,137 *8
Total	Approx.21,870m³								

*2 Shows the operational limit.
*6 Including approx. 6,600m³ (cumulative treated volume:approx.252,110m³) of treated volume by the 2nd Cesium adsorption apparatus.
*7 Including 50 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: July 31, 2012.
- On July 31, water transfer from Unit 2 to High Temperature Incinerator Building was stopped. On August 1, water transfer from Unit 2 to High Temperature Incinerator Building was restarted.
- From July 29, water transfer from Unit3 to High Temperature Incinerator Building is under operation.
- 2nd Cesium Adsorption Apparatus is under operation: Availability factor 78.6% (Projected: 75%))
- From June 21, Cesium Absorption Instrument was stopped.
- From August 3 to August 5,water transfer from Unit 1 T/B to Unit 2 T/B was conducted.
- Storage capacity of the concentrated saltwater receiving tank is increased by adding tanks.

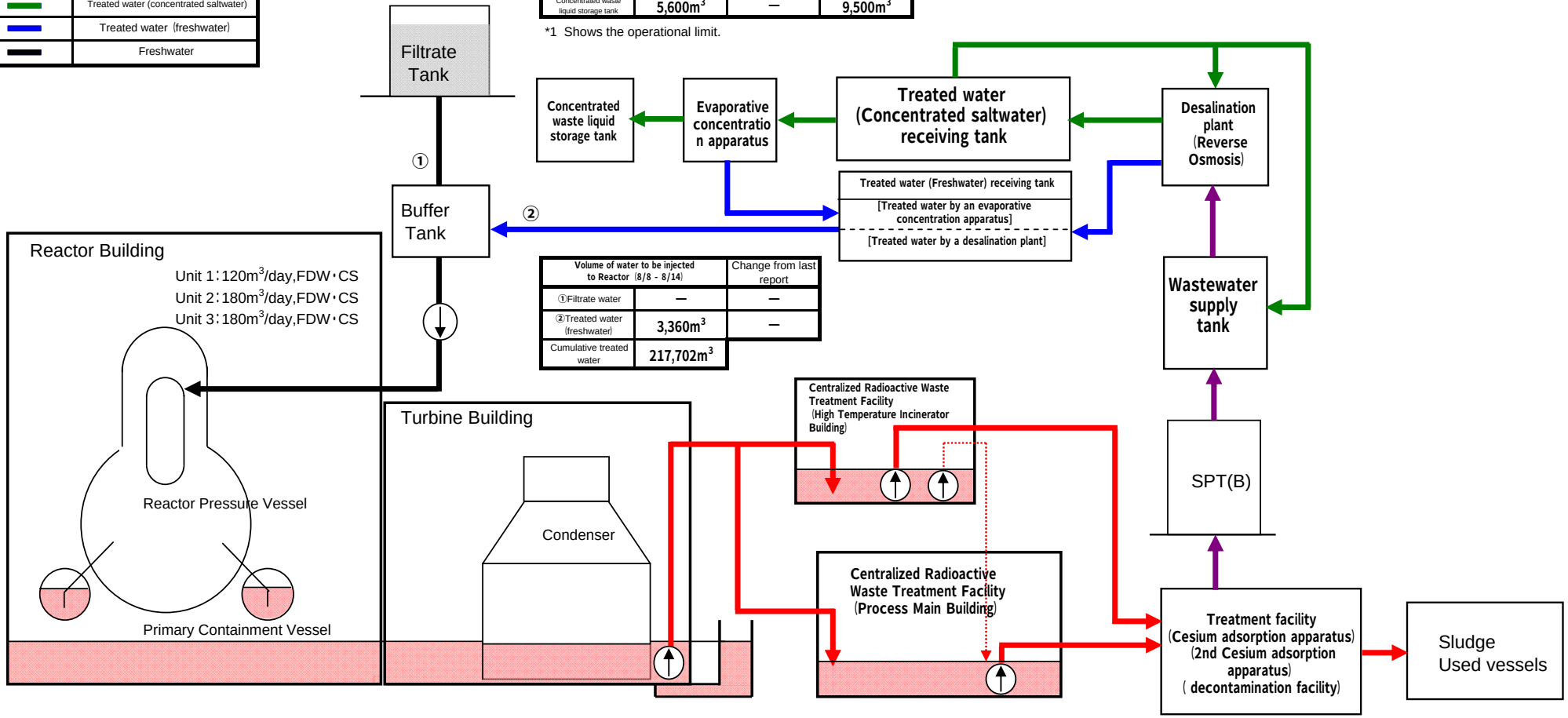
Attachment-2

Storage and treatment of high level radioactive accumulated water (August 14, 2012)

	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	161,315m³	+2,604m³	174,100m³
Freshwater receiving tank	22,938m³	+1,176m³	31,400m³
Concentrated waste liquid storage tank	5,600m³	—	9,500m³

*1 Shows the operational limit.



Volume of water to be injected to Reactor (8/8 - 8/14)		Change from last report
①Filtrate water	—	—
②Treated water (freshwater)	3,360m³	—
Cumulative treated water	217,702m³	

Facility	Storage volume	Change from last report	Water level in T/B
Unit 1	Approx.14,100m³	+100m³	OP.3,337 (Unit 2 T/B)
Unit 2	Approx.23,900m³	+500m³	
Unit 3	Approx.25,800m³	+800m³	OP.3,325 (Unit 3 T/B)
Unit 4	Approx.20,300m³	+700m³	
Total	Approx.84,100m³		

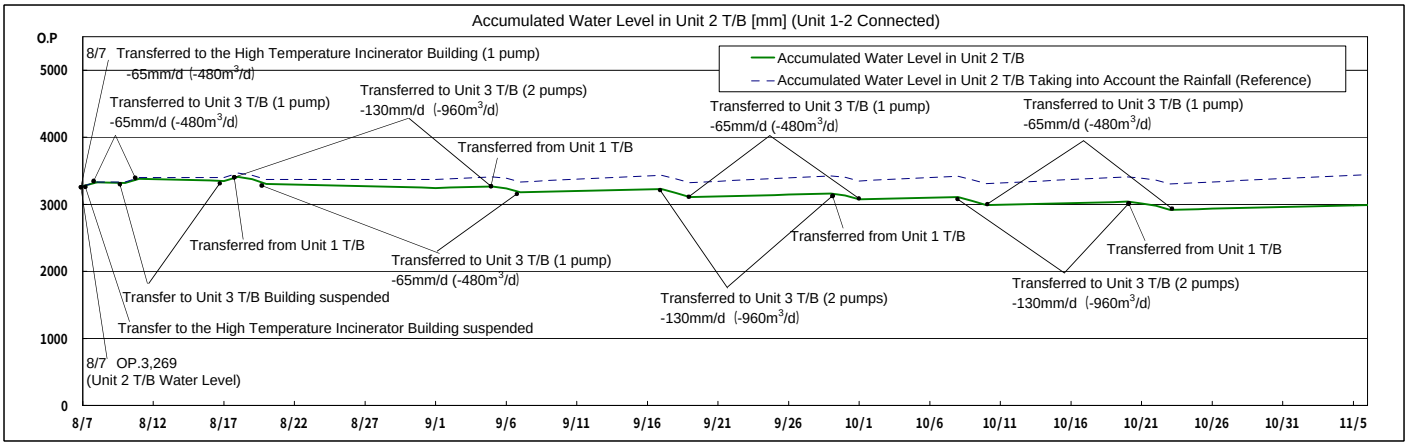
Storage Facility	Storage volume	Change from last report	Water level	Treated volume (8/8 - 8/14)	Cumulative treated	Waste produced		Change from last report	Storage capacity
Process Main Building	Approx.14,260m³	-2,990m³	OP.3,938	Approx.7,140m³ *2	Approx.417,090m³ *2	Sludge	597m³	—	700m³ *1
High Temperature Incinerator Building	Approx.4,400m³	-220m³	OP.3,058			Used vessels	434 *3	+6	1,137 *4
Total	Approx.18,660m³								

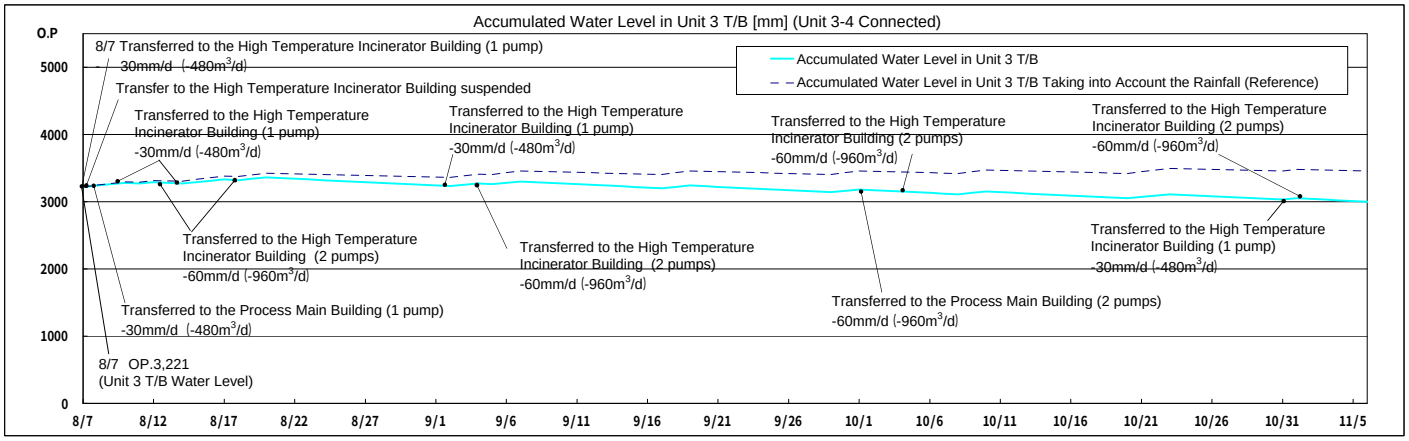
*1 Shows the operational limit.
*2 Including approx.3,360m³ (cumulative treated volume:approx.255,470m³) of treated volume by the 2nd Cesium adsorption apparatus.
*3 Including 50 used vessels of 2nd Cesium adsorption apparatus.
*4 Storage capacity will vary according to stored used vessels of 2nd Cesium adsorption apparatus.

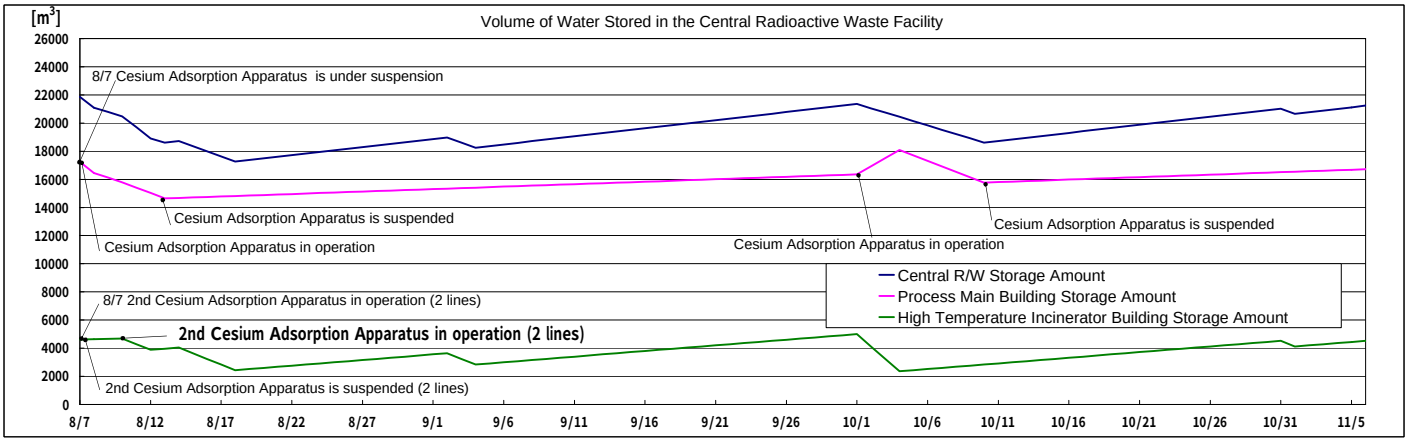
Note:
-On August 7, water transfer from Unit 2 to the High Temperature Incinerator Building was stopped. On August 8, water transfer from Unit 2 to Unit 3 Turbine Building will be started and temporarily stopped.
-On August 7, water transfer from Unit 3 to the High Temperature Incinerator Building was stopped and switched to the Process Main Building and the High Temperature Incinerator Building.
-Operation of Cesium Absorption Apparatus is scheduled: Availability Factor 45% (Projected)
-Operation of 2nd Cesium Absorption Apparatus is scheduled: Availability Factor 40% (Projected)
-Due to reliability improvement work, 2nd Cesium Absorption Apparatus will be temporarily stopped.
-Storage capacity of Freshwater receiving tank will be increased by adding tanks.

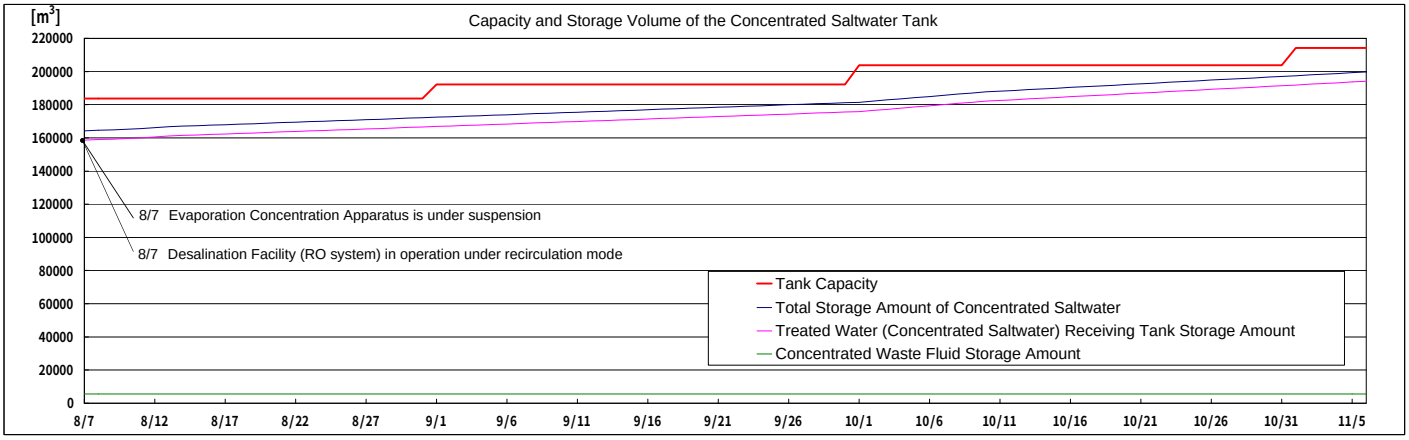
Attachment-3

Simulation Results of Accumulated Water Treatment in Unit 1-4 T/B









Note

- The treated water volume is assumed to be 900m^3/d (Subject to change depending on the level of water accumulated in T/B).
- The accumulated water level in T/B is a simulation result in consideration of flactuation of water level such as recent rainfall, inflow of groundwater, and etc.
- The accumulated water level in T/B is assumed to increase by 5mm daily, taking into consideration the average rain fall in the surrounding area of Fukushima Daiichi Nuclear Power Station (August-October in the past 3 years)