Situation of Storing and Treatment of Accumulated Water including Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station
(13th Release)

September 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 September 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 September 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.

We plan to transfer accumulated water keeping accumulated water 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

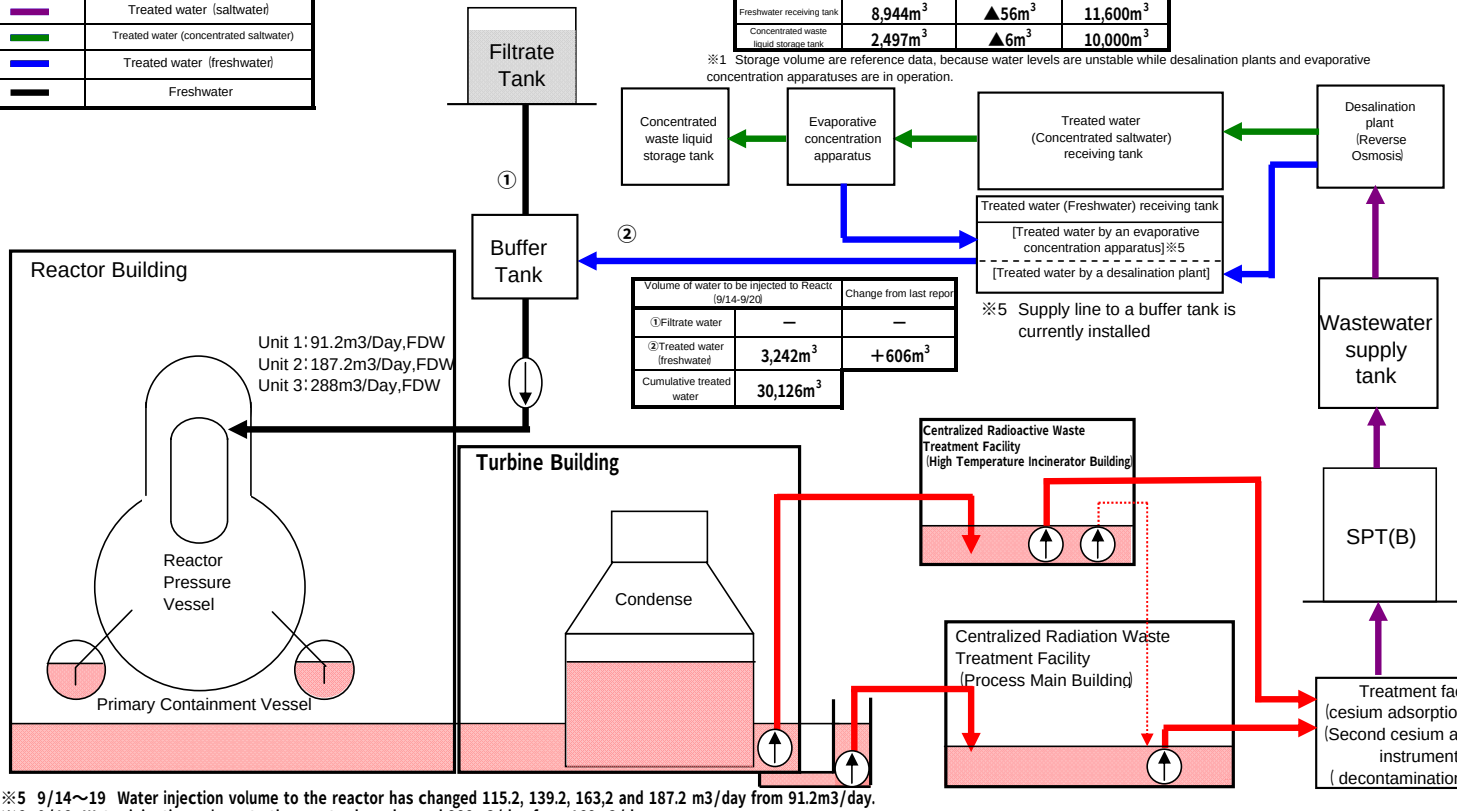
Attchment-1

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

	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
Concentrated saltwater receiving tank	49,007m³	+4,685m³	60,800m³
Freshwater receiving tank	8,944m³	▲56m³	11,600m³
Concentrated waste liquid storage tank	2,497m³	▲6m³	10,000m³

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



Volume of water to be injected to Reactr (9/14-9/20)		Change from last repor
①Filtrate water	—	—
②Treated water (freshwater)	3,242m³	+606m³
Cumulative treated water	30,126m³	

※5 Supply line to a buffer tank is currently installed

※5 9/14～19 Water injection volume to the reactor has changed 115.2, 139.2, 163,2 and 187.2 m3/day from 91.2m3/day.
※6 9/16 Water injection volume to the reactor has changed 288m3/day from 168m3/day.

	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	879m³	+168m³	1,200m³
SPT(B)	1,092m³	+28m³	3,500m³

Place of sampling	Radioactivity density ※2
Process Main Building	1.1E+06 Bq/cm³ (sampled 9/6)
Exit of cesium adsorption apparatus	8.2E+03 Bq/cm³ (sampled 9/6)
Exit of decontamination facility	3.8E+01 Bq/cm³ (sampled 9/6)
High Temperature Incinerator Building	6.5E+05 Bq/cm³ (sampled 9/6)
Exit of second cesium adsorption apparatus	ND (< 2.6E+00 Bq/cm³) (sampled 9/7)

※2 Data of Cs-137 are described above.

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

※3 Data sampled on Sep 6 (operations of cesium adsorption facility - decontamination facility)
※4 Data in parentheses are those sampled on Sep 6/7 (operation of the second cesium adsorption instrument)

Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	approx.16,310m³	▲520m³	OP.4,935	High Temperature Incinerator Building
Unit 2	approx.20,100m³	▲600m³	OP.2,812	
Unit 3	approx.24,700m³	▲700m³	OP.2,901	Process Main Building
Unit 4	approx.17,600m³	▲800m³	OP.2,945	
Total	approx.78,710m³			

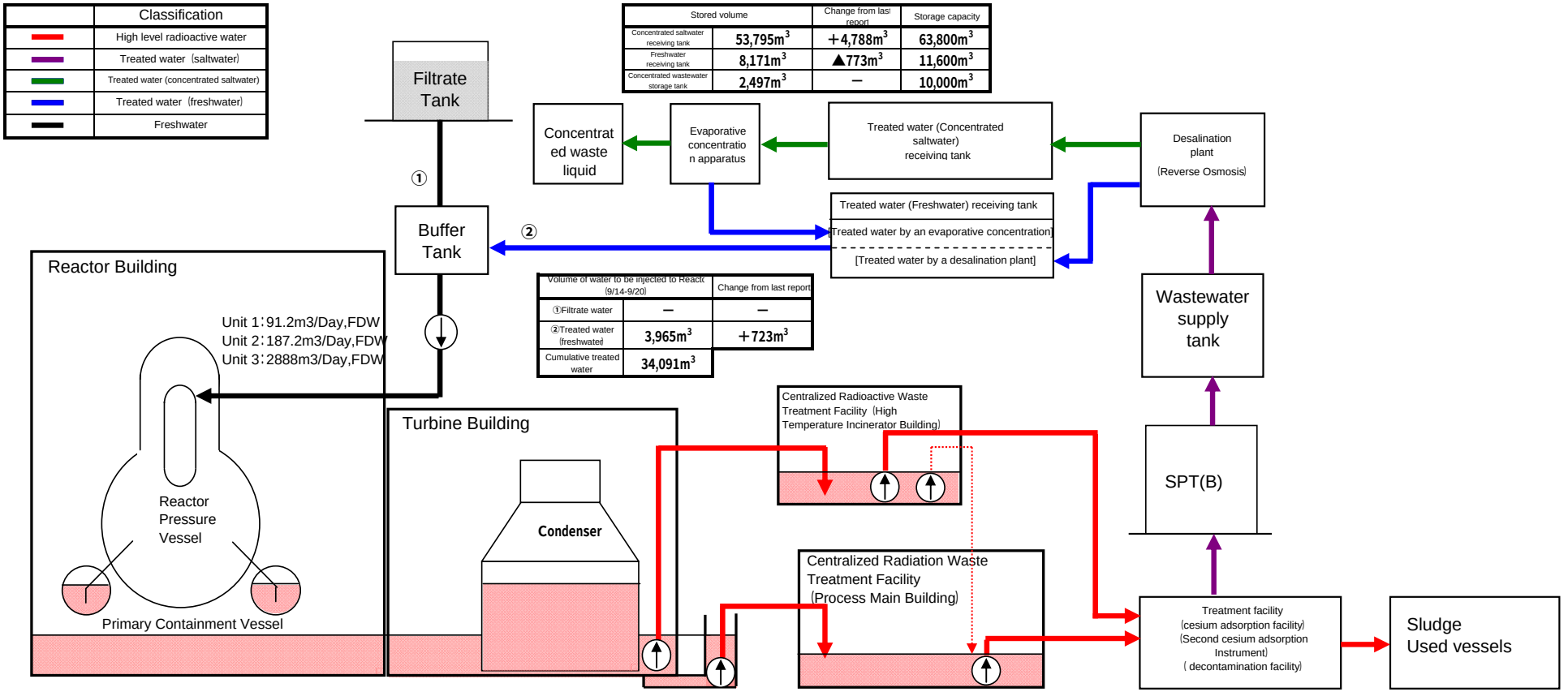
Storage Facility	Storage volume	Change from last report	Water level	Treated volume (8/24-8/30)	Cumulative treated volume	Waste produced		Change from last report	Storage capacity
Process Main Building	approx.16,250 m³	▲1,510m³	OP.4,616	approx.7,730m³ ※6	approx.97,030 m³ ※6	Sludge	581m³	+2m³	800m³
High Temperature Incinerator Building	approx.3,030m³	+360m³	OP.1,935			Used vessels	206 ※7	+19	393 ※8
Total	approx.19,280 m³								

※7 Including approx. 3,870m3 (cumulative treated volume:approx.16,820m3) of treated volume by the second cesium adsorption facility.
※8 Including 9 used vessels of second cesium adsorption instrument.
※9 Storage capacity will vary according to stored used vessels of Second cesium adsorption instrument.

Note:
・Last report: as of Sepyrmbrt 13, 2011.
・Transferred from Unit 2 and 3 to process main building and high temperature incinerator building (Sep 13 switching transfer of water of Unit 2 from process main building to high temperature incinerator building, Sep 15 switching transfer of water of Unit 3 from high temperature incinerator building to process main building)
・September 13-14, cesium adsorption facility and decontamination facility paused due to maintenance work
・September 15- , cesium adsorption facility has been independently operated.
・September 14-16, water in the condensor of Unit 1 was treansferred to the turbine building of Unit 1.
・First cesium adsorption facility and second cesium adsorption facility has been operated in parallel (First facility utilization factor: 46.0%, Second facility utilization factor: 92.1% (reference)).
・All evapolative concentration apparatus paused

Attchment-2

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



Facility	Storage volume	Change from last report	Water level in T/B	Transfer to
Unit 1	approx. 16,220m3	▲90m3	OP.2,795 (Unit2 T/B)	High Temperature Incinerator Building
Unit 2	approx .20,000m3	▲100m3		
Unit 3	approx. 24,800m3	+100m3	OP.2,929 (Unit3 T/B)	High Temperature Incinerator Building
Unit 4	approx. 17,800m3	+200m3		
Total	approx. 78,820m3			

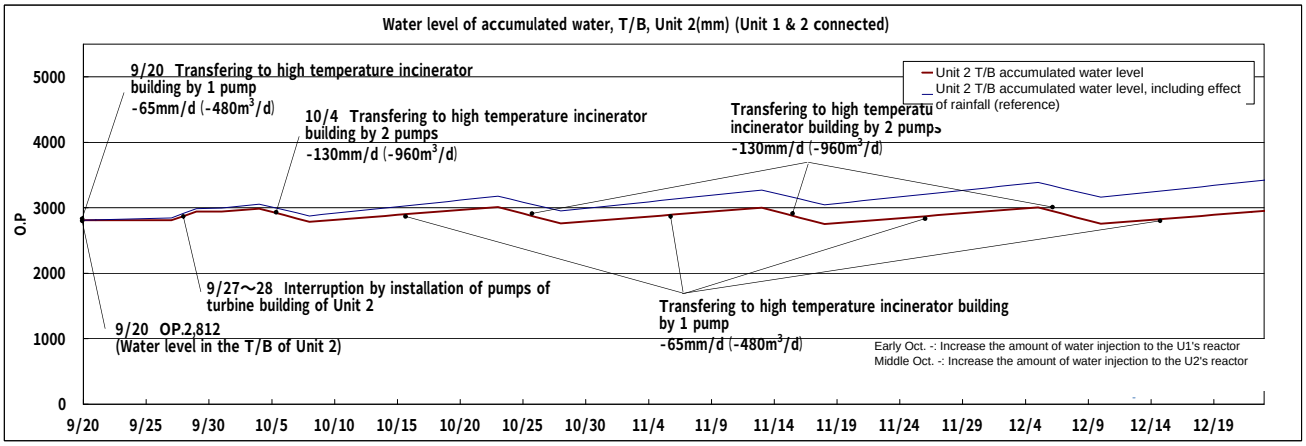
Storage Facility	Storage volume	Change from last report	Water level	Volume to be treated (9/21-9/27)	Cumulative treated volume	Waste produced		Change from now	Storage volume
Process Main Building	approx.14,150 m3	▲2,100m3	OP.4,069	7,980m3 ※1	approx.105,010m3 ※1	Sludge	581m3	–	800m3
High Temperature Incinerator Building	approx.4,030 m3	+1,000m3	OP.2,763			Used vessels	219 ※2	+13	393※3
Total	approx.18,180 m3								

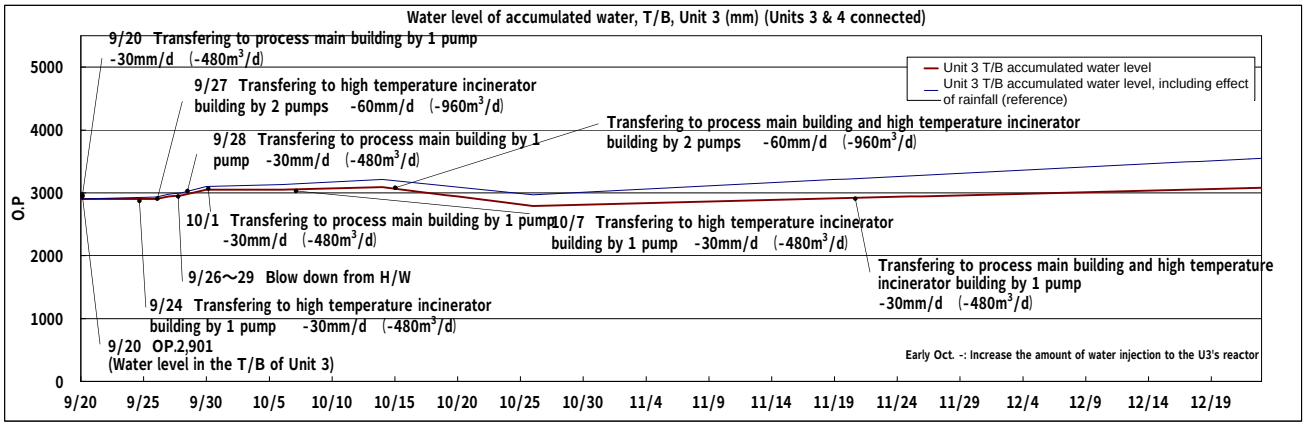
※1 Including approx. 3,780m3 (cumulative treated volume:approx.20,600m3) of treated volume by the second cesium adsorption facility.
※2 Including 10 used vessels of second cesium adsorption instrument.
※3 Storage capacity will vary according to stored used vessels of second cesium adsorption instrument.

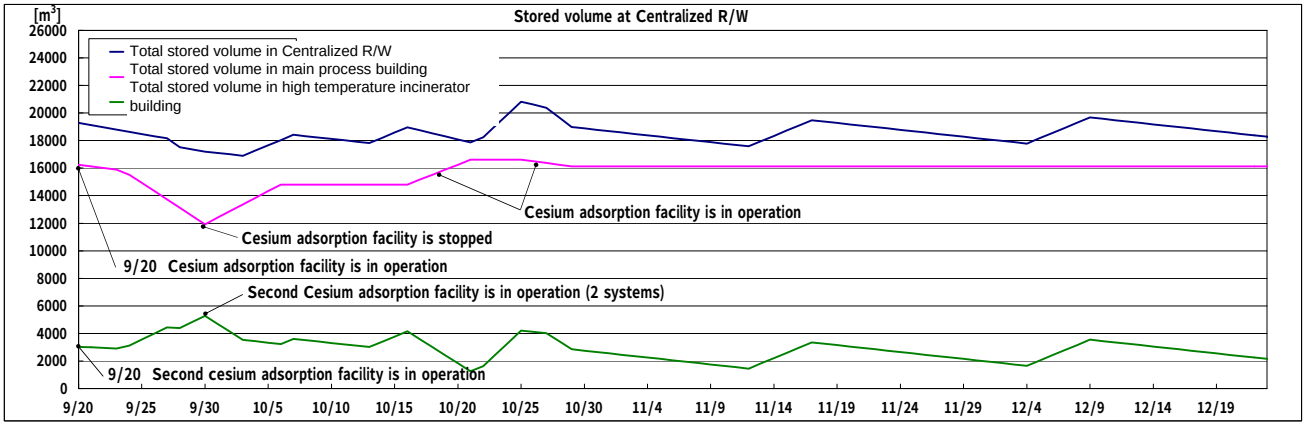
Note:
- Water of Unit 2 and Unit 3 will be transferred to process main building and high temperature incinerator building (Water of Unit 3 will be transferred from process main building to high temperature incinerator building)
- First cesium adsorption facility and second cesium adsorption facility will be operated in parallel (First facility utilization factor (expected) : 50%, Second facility utilization factor (expected): 90% (reference)).
- All the evapolate concentration apparatus will be stopped.
- Water in the condensor of Unit 3 will be transferred to the turbine building of Unit 3.

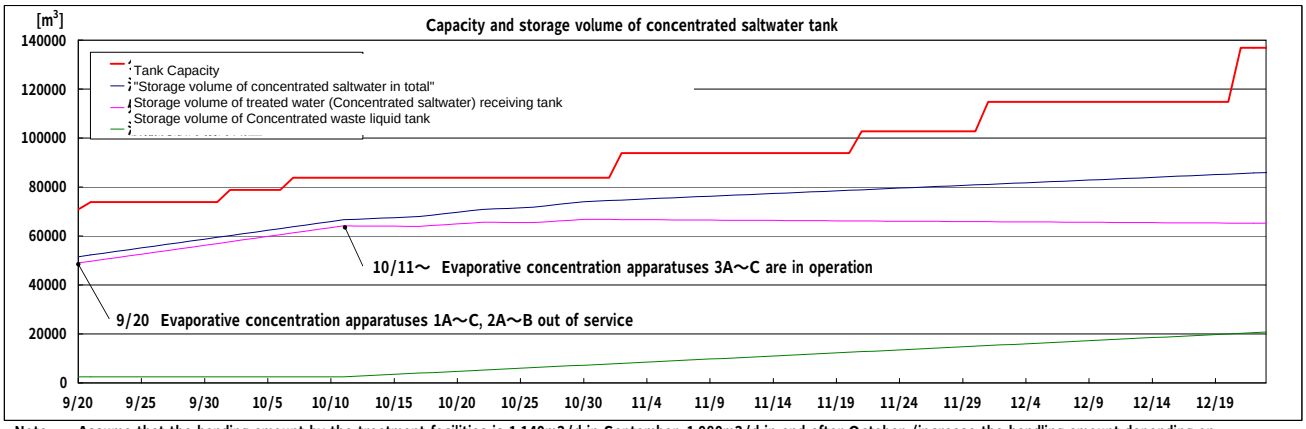
Simulation result of the treatment of accumulated water in T/B, Unit 1～4

Appendix-3









Note
- Assume that the handing amount by the treatment facilities is 1,140m3/d in September, 1,080m3/d in and after October. (increase the handling amount depending on the situation like the water 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.
- Assume that the volume of water injection to the reactor after the increase is twice as much as that of current volume.