

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

March 28, 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 March 27, 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 3, 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 March 27, 2012)

Attachment-1

| 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  | 114,104m <sup>3</sup> + 5,337m <sup>3</sup> | 134,100m <sup>3</sup> |
| Freshwater receiving tank              | 7,409m <sup>3</sup> 202m <sup>3</sup>       | 25,100m <sup>3</sup>  |
| Concentrated waste liquid storage tank | 5,473m <sup>3</sup> + 6m <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 | 949m <sup>3</sup> + 160m <sup>3</sup>   | 1,200m <sup>3</sup> |
| SPT(B)                   | 2,322m <sup>3</sup> + 178m <sup>3</sup> | 3,100m <sup>3</sup> |

2 Operational Upper limit

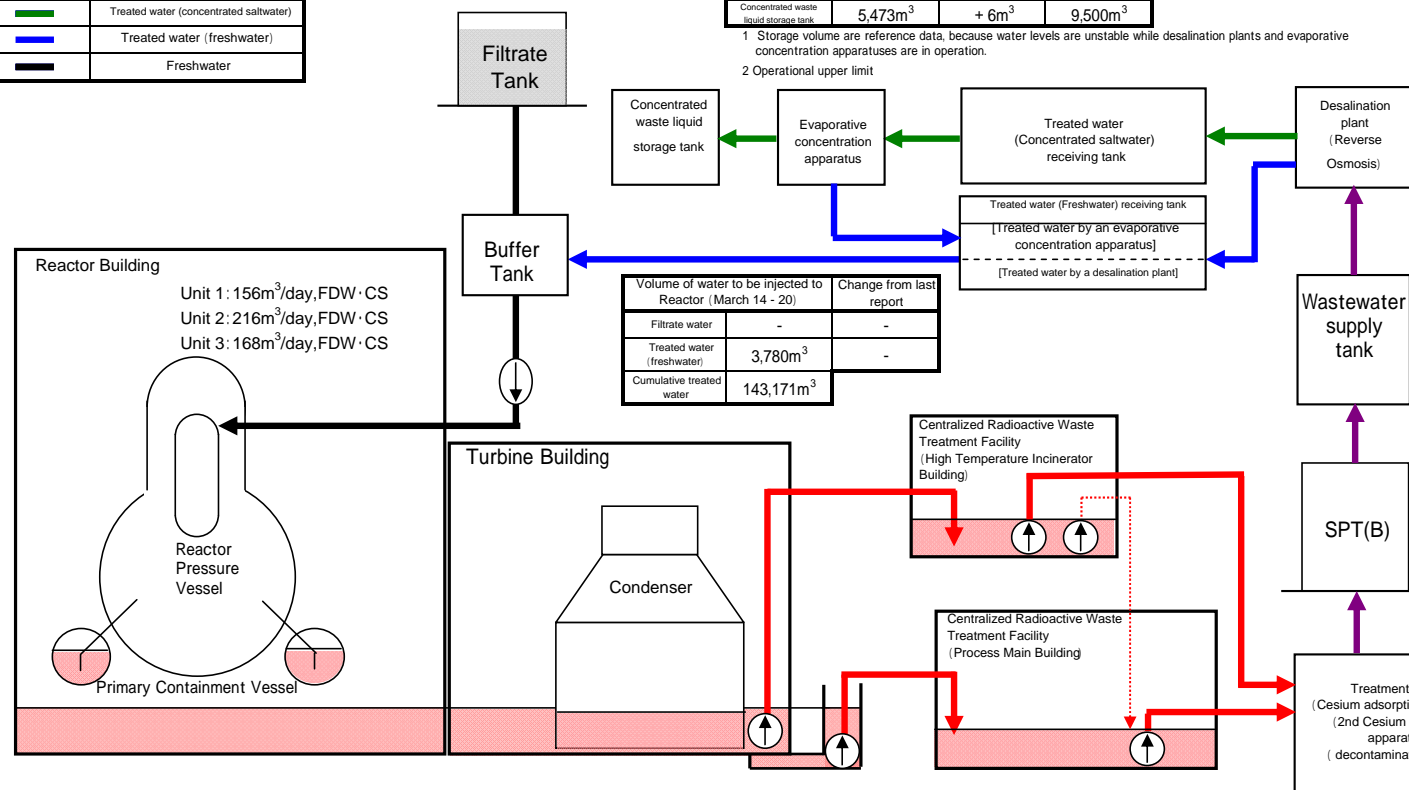
| Place of sampling                          | Radioactivity density 3                         |
|--|---|
| Process Main Building                      | 1.6E+05 Bq/cm <sup>3</sup> (sampled on Mar. 20) |
| Exit of cesium adsorption apparatus        | 1.8E+01 Bq/cm <sup>3</sup> (sampled on Mar. 20) |
| 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)



| Facility | Storage volume               | Change from last report | Water level in T/B | Transfer to                           |
|----------|------------------------------|-------------------------|--------------------|---------------------------------------|
| Unit 1   | approx. 14,400m <sup>3</sup> | 200m <sup>3</sup>       | OP.3,155           | High Temperature Incinerator Building |
| Unit 2   | approx. 22,500m <sup>3</sup> | 600m <sup>3</sup>       | OP.3,137           | High Temperature Incinerator Building |
| Unit 3   | approx. 24,100m <sup>3</sup> | + 200m <sup>3</sup>     | OP.3,121           | High Temperature Incinerator Building |
| Unit 4   | approx. 18,700m <sup>3</sup> | + 100m <sup>3</sup>     | OP.3,087           | High Temperature Incinerator Building |
| Total    | approx. 79,700m <sup>3</sup> |                         |                    |                                       |

| Storage Facility                      | Storage volume               | Change from last report | Water level | Treated volume (March7-13)  | Cumulative treated volume     | Waste produced           | Change from last report | Storage capacity    |
|---------------------------------------|------------------------------|-------------------------|-------------|-----------------------------|-------------------------------|--------------------------|-------------------------|---------------------|
| Process Main Building                 | approx. 14,850m <sup>3</sup> | 3,490m <sup>3</sup>     | OP.4,193    | approx. 9,410m <sup>3</sup> | approx. 277,210m <sup>3</sup> | Sludge 581m <sup>3</sup> | -                       | 700m <sup>3</sup> 2 |
| High Temperature Incinerator Building | approx. 4,240m <sup>3</sup>  | + 870m <sup>3</sup>     | OP.2,925    | 6                           | 6                             | Used vessels 385 7       | -                       | 1,137 8             |
| Total                                 | approx. 19,090m <sup>3</sup> |                         |             |                             |                               |                          |                         |                     |

2 Shows the operational limit.

6 Including approx. 6,420m<sup>3</sup> (cumulative treated volume: approx. 134,760m<sup>3</sup>) of treated volume by the 2nd Cesium adsorption apparatus.

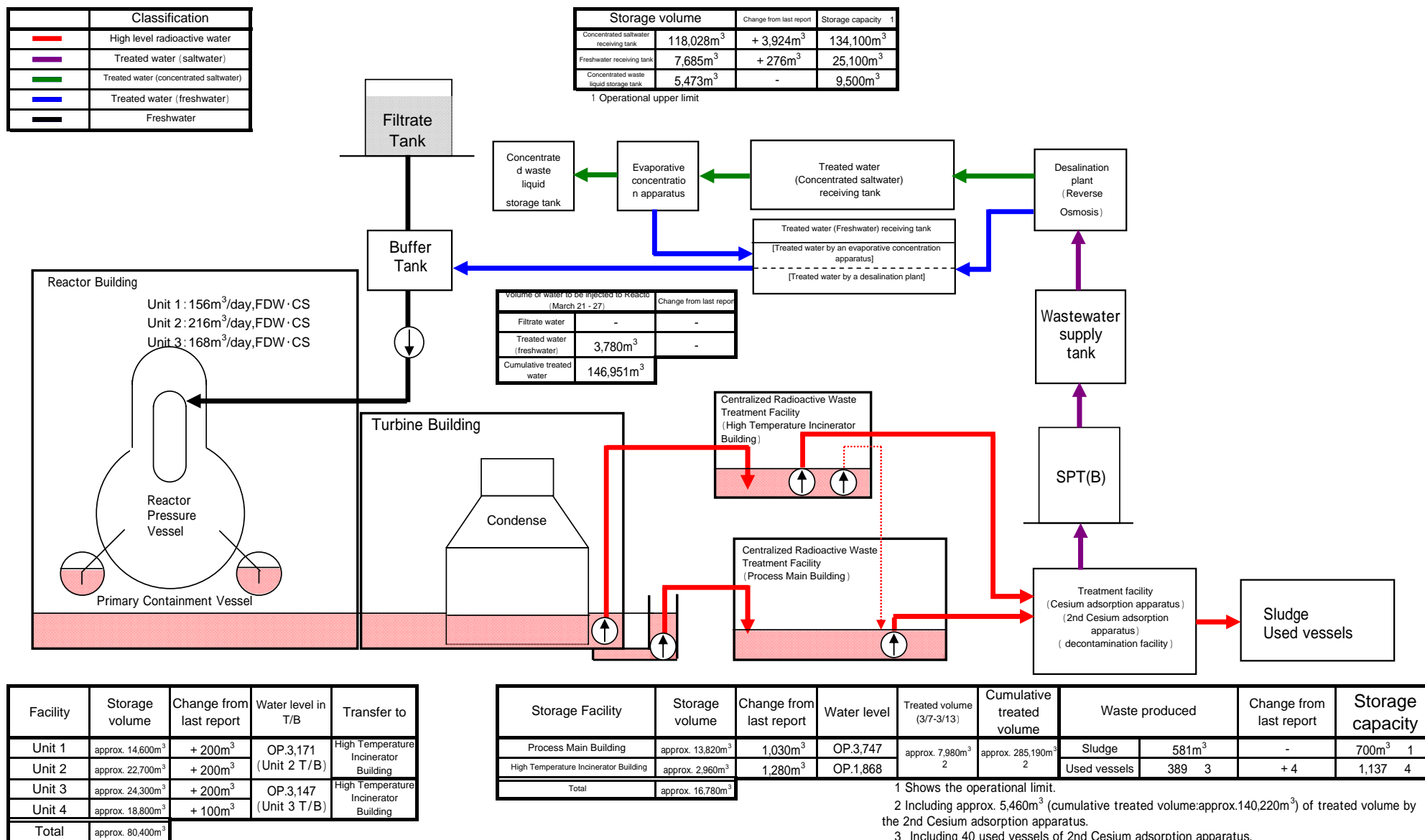
7 Including 40 used vessels of 2nd Cesium adsorption apparatus.

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

Note:

- The previous update was reported as of March 20, 2012
- The high level accumulated water was transferred from Units 2 and 3 to Process Main Building and Temperature Incinerator Building. (On March 20, the transfer from Unit 2 was switched from Process Main Building to High Temperature Incinerator Building. From March 24 to 26, the transfer from Unit 3 to High Temperature Incinerator Building was temporarily suspended. From March 26, the transfer from Unit 3 has been suspended.)
- The two line operation was conducted for Cesium Adsorption Apparatus and 2nd Cesium Adsorption Apparatus. (Capacity factor for Cesium Adsorption Apparatus: 35.6% (Projected: 35%), Capacity factor for 2nd Cesium Adsorption Apparatus: 76.4% (Projected: 75%)(Ref.))
- On March 20 and 21, the transfer from Unit 1 Turbine Building to Unit 2 Turbine Building was conducted.
- From March 26, the treatment apparatuses (Cesium Adsorption Apparatus and 2nd Cesium Adsorption Apparatus) has been shutdown (due to dealing with the water leakage around the concentrated water tank area of desalination plant.)
- The tank capacity of "concentrated saltwater tank" has changed by adding tanks.

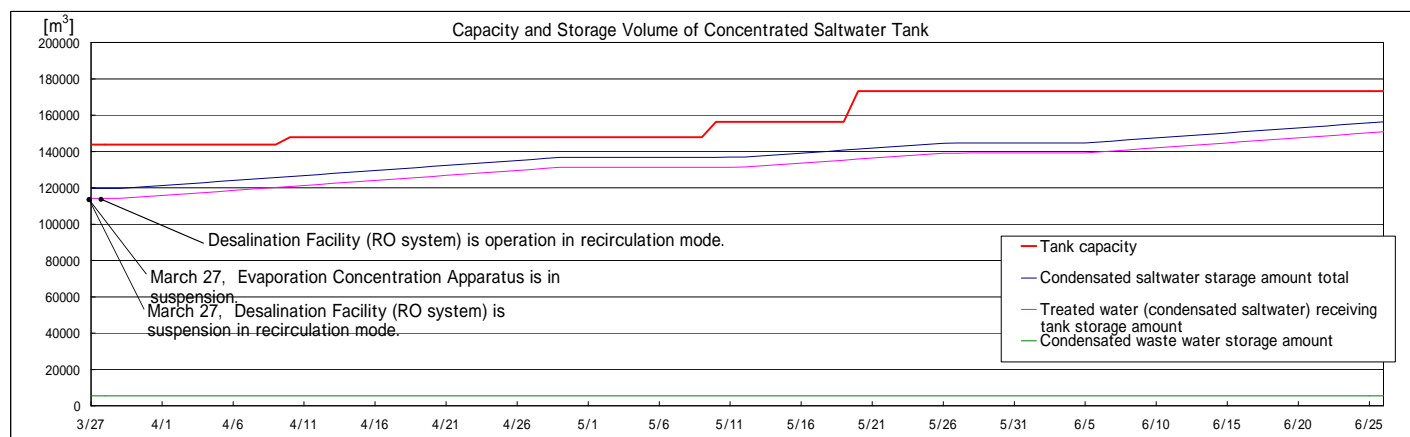
# Storage and treatment of high level radioactive accumulated water (assumed situations as of April 3, 2012)



## Note:

- Water transfer from Unit 2 and 3 to Process Main Building and High Temperature Incinerator Building is scheduled. (The transfer from Unit 2 to High Incinerator Building is planned. After resuming the transfer from Unit 3 to Process main Building, the place to be transferred to will be switched to High Incinerator Building.)
- The two line operation is scheduled for Cesium Adsorption Apparatus and 2nd Cesium Adsorption Apparatus (Projected capacity factor of Cesium Adsorption Apparatus: 30%, Projected capacity factor of 2nd Cesium Adsorption Apparatus: 65% (Ref.))
- The treatment apparatuses (Cesium Adsorption Apparatus and 2nd Cesium Adsorption Apparatus) are planned to be suspended (due to dealing with the water leakage around the concentrated water tank area of desalination plant.)
- Cesium Adsorption Apparatus is planned to be suspended due to stopping power supply.

Attachement-3



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