<Reference>

Leakage from B Area South Tank

October 3, 2013

Tokyo Electric Power Company

東京電力

TEPCO

Outline

- On October 2, 2013, due to the possible overflow of rainwater from the dike (30 cm in height) by rainfall of Typhoon No.22, we decided to fill tanks as much as possible to avoid overflow despite difficulty in managing the usage of tanks.
- Particularly since there had been a water overflow in the B area South when Typhoon No.18 approached last month (on September 15), we transferred rainwater retained inside the dike of the B area South to other tanks in this and the other areas on October 2, for preventing overflow of rainwater in the dike of this area.
- Given that there is a slight slope in the B area South, we conducted the rainwater transfer while taking the slope into consideration in managing tank water levels. However, we ended up failing to secure sufficient margins, and leakage occurred between the top plate and side plate of a tank. Water having leaked from the tank reached the outside of the dike by through an inspection scaffold attached to the outer circumference of the tank.
- Water having leaked from inside the tank was the water treated by the desalination system (by reverse osmosis (RO)). We cannot deny the possibility of the water having flowed into the drainage channel C through a side ditch near the tank, and then flowed out into the ocean. We therefore placed sandbags at a side ditch in a location immediately short of the drainage channel C, thereby having implemented a water stopping measure.
- We estimate that the overflowed water amount to the outside of the dike is approximately 430L (a provisional value).
- **<u>The analysis results of the seawater obtained around the south discharge channel (*) at 7:00 am on October 3rd were as follows. Judging by these results, there has been no impact on the waters of the ocean.</u>**

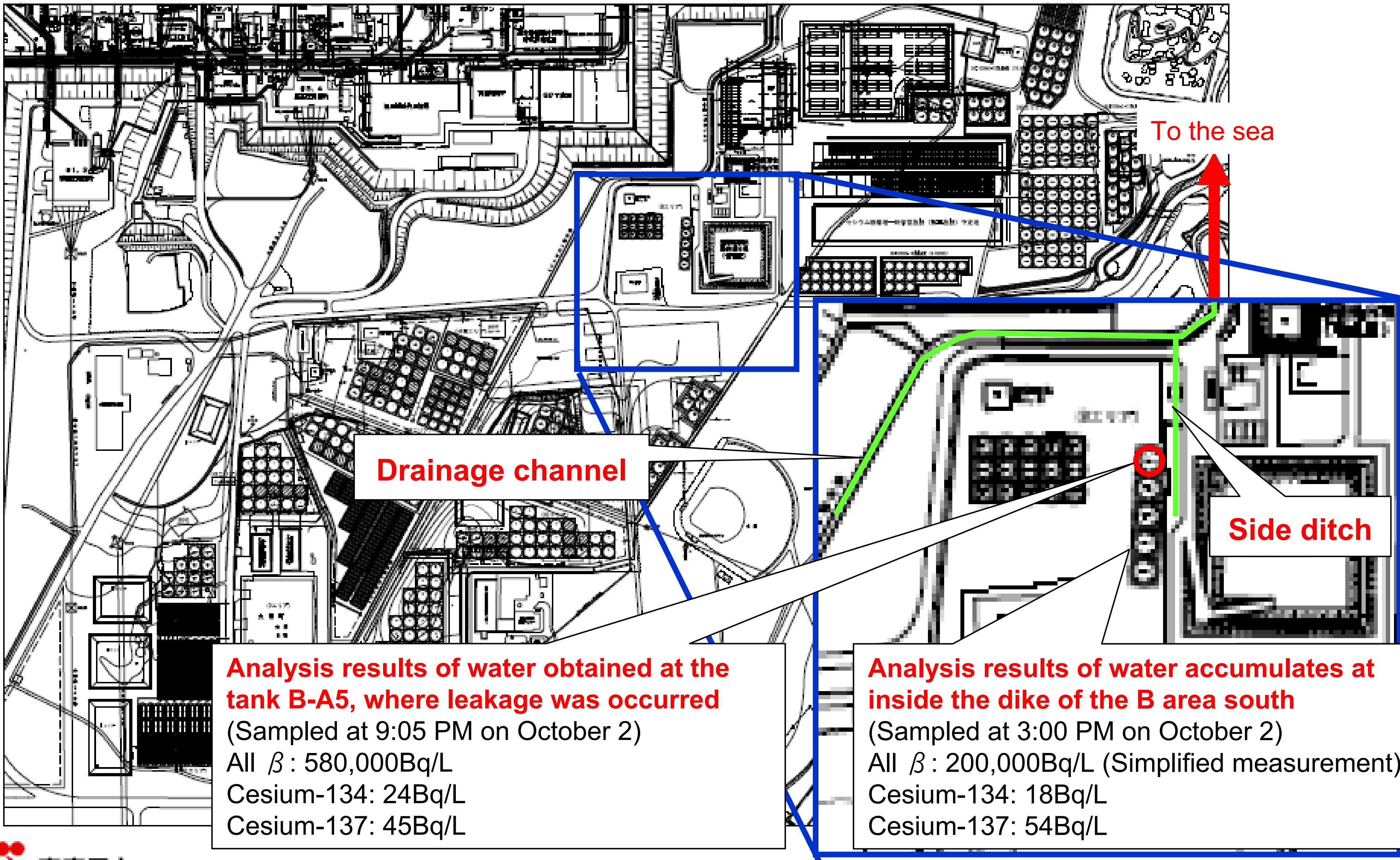
  (*) Point which locates around the exit of the drainage channel C and 330m south of Unit 1-4 water discharge channel (T-2)

  - Gross β: Below the detection limit value (detection limit value: 20 Bq/L)
  - Cesium-134: Below the detection limit value (detection limit value: 1.5 Bq/L)
  - Cesuim-137: Below the detection limit value (detection limit value: 1.2 Bq/L)

Chronological Order

- October 2
  - Around 8:30 AM
    Water level of this area was found to be maximum approx. 27cm.
  - 8:37 AM
    A pump for water collection was activated (water level of the tank: 97.8%).
    →9:35 AM the pump was suspended (water level of the area: maximum approx. 5cm water level of the tank: 98.3%).
  - Around 11:00 AM
    Water level of the area was found to be increasing again (water level of the area: maximum approx. 25cm).
  - 11:25 AM
    The pump for water collection was activated
    →12:39 PM The pump was suspended (water level of the area: maximum approx. 2cm water level of the tank: 98.6%).
  - Around 2:00 PM
    Water level of the area was found to be increasing again (water level of the area: maximum approx. 25cm).
  - Around 2:30 PM
    Distance between the top plate and water surface of this tank was found to be approx. 10cm (we performed visual inspection by opening a manhole on the center part of the top plate).
  - Around 5:00 PM – 7:00 PM
    Water inside this area was collected twice by a suction vehicle, and water level at this area has become substantially zero.
  - Around 8:00 PM
    A TEPCO employee who was dealing with another matter at the site, found leakage from around the top plate of the tank.
  - 8:05 PM
    Leaked water was found to be dropped to the outside of the dike.
  - 9:00 PM
    We took emergency measures to make leaked water to drop inside the dike by using sheet, etc.
  - 10:40 PM
    We piled sandbags in the side ditch (destination of water: drainage channel C) at the south of this area in order to prevent water from spreading to the outside of the area.

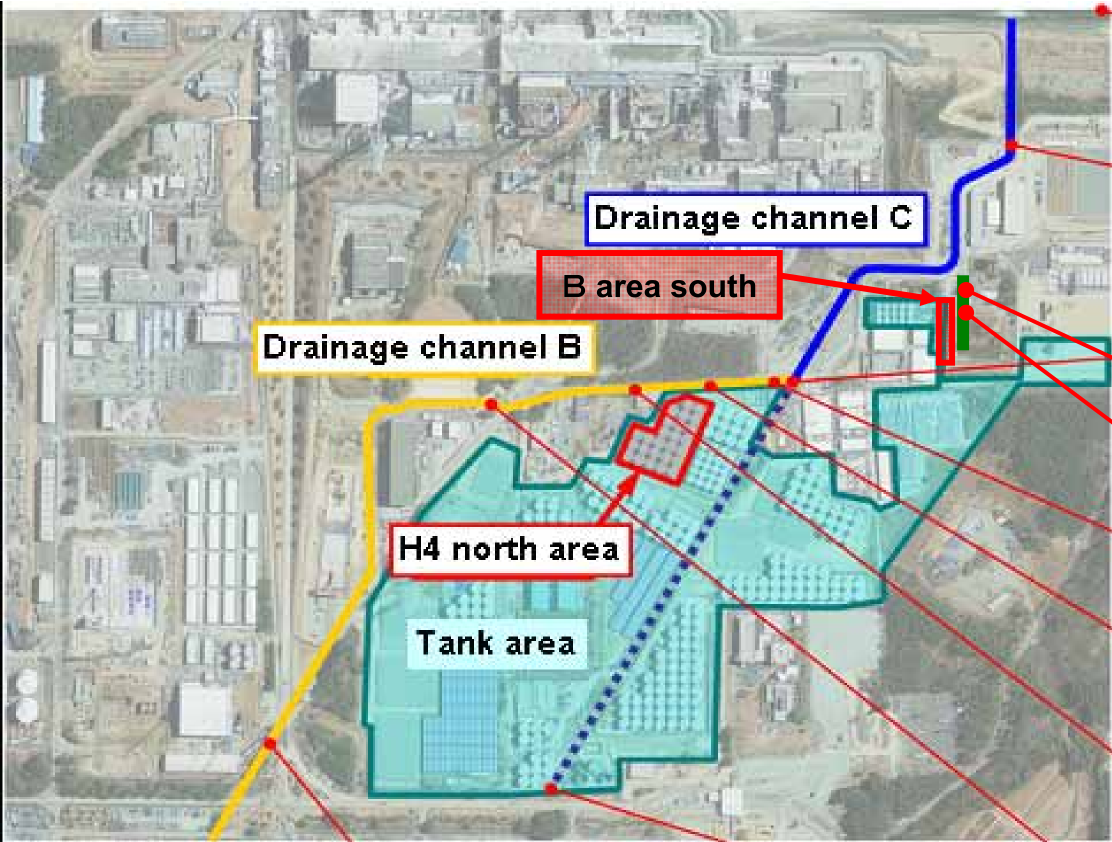
Simplified Site Map and the Sampling Result Obtained around the Tank



Analysis results of water obtained at the tank B-A5, where leakage was occurred
(Sampled at 9:05 PM on October 2)
All β: 580,000Bq/L
Cesium-134: 24Bq/L
Cesium-137: 45Bq/L

Analysis results of water accumulates at inside the dike of the B area south
(Sampled at 3:00 PM on October 2)
All β: 200,000Bq/L (Simplified measurement)
Cesium-134: 18Bq/L
Cesium-137: 54Bq/L

Sampling Results Obtained in the Side Ditch Connected to the Drainage Channel



T-2
Seawater near the south water outlet (the drainage channel exit)

C-2
Drainage channel C OP. 35m exit

C-1
Junction of the drainage channels B and C

X-1 Point immediately short of the junction with the drainage channel C

X-2
Side ditch next to the tank

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B-3 Point immediately short of the junction with the drainage channel C

B-2
Downstream of B-1

B-1
Point that showed a high dose equivalent rate on August 21

B-0-1 Point near Fureai Intersection in the drainage channel B

C-0 Point near the main gate in the drainage channel C

B-0
Upstream of B-1

*

Point immediately short of the junction of the side ditch near the tank and the drainage channel C (X-1)
(Sampled at 11:10 PM on October 2)
All β: 15,000Bq/L
Cesium-134: 120Bq/L
Cesium-137: 310Bq/L

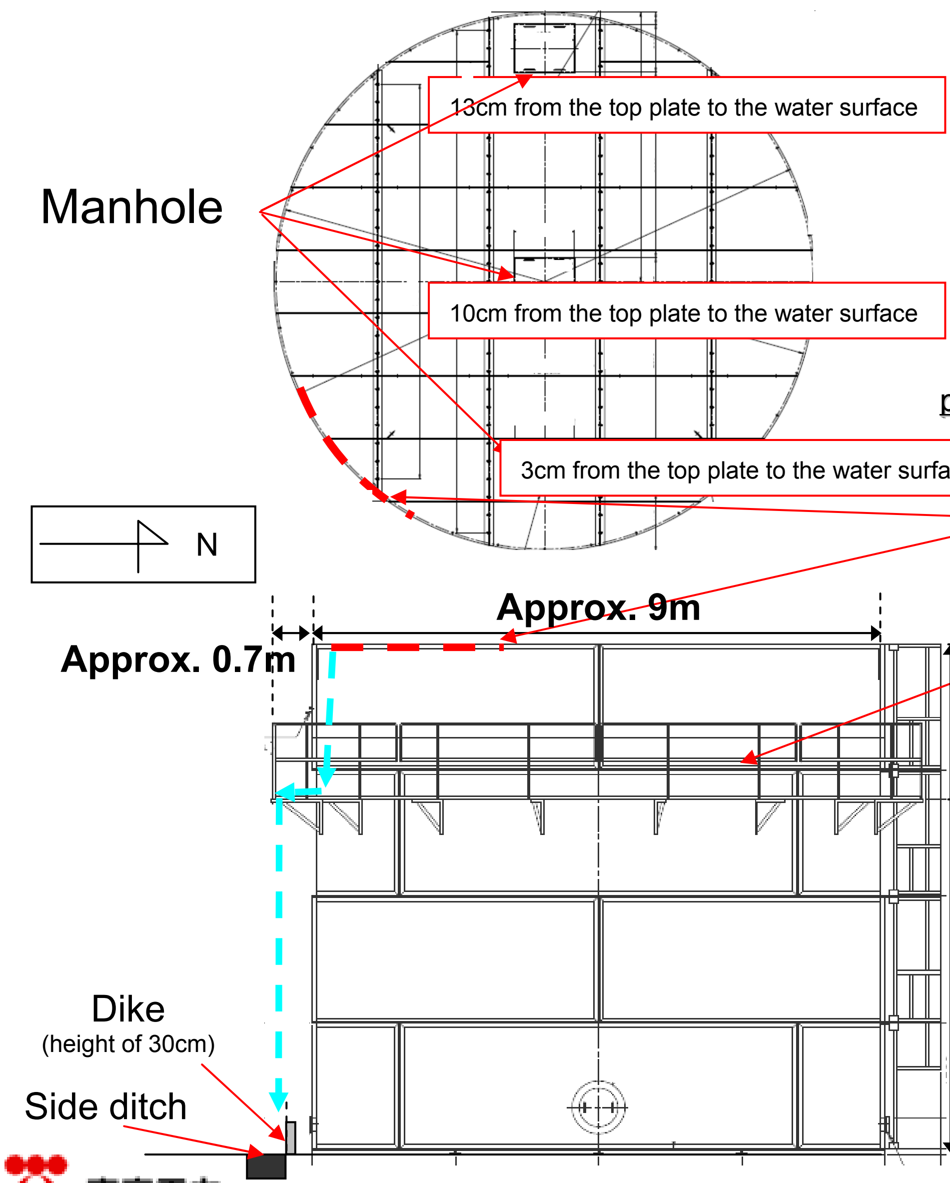
Point where water stop work was performed by installing sandbags at the side ditch in front of the drainage channel (X-2)
(Sampled at 11:00 PM on October 2)
All β: 5,200Bq/L
Cesium-134: 66Bq/L
Cesium-137: 170Bq/L

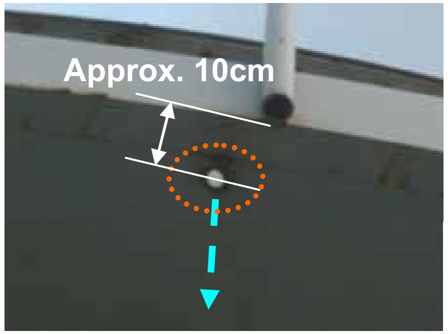
Estimated cause of the leakage from the tank which occurred in a situation where water inside the dike was being transferred to the tank

- There are five tanks in the same area, connected to each other in series with connection pipes and separation valves. The ground level on which each tank stands differs, since there are slight downward slopes from the mountain side to the sea side (from West to East)

- Due to continuous rainfall, we transferred the water inside the dike to the tanks in which there were additional space to put water in, by pumps to prevent rainwater inside the dike from overflowing. On October 2, responding to the water level inside the dike, we conducted transferring twice. During this procedure, the tanks reached almost full capacity. Therefore, our presumption is, that water level inside the tank B-A5 which is located nearest to the sea side, installed at the lowest level, reached its top plate, leading to the water leakage from between the top plate and the side panel.

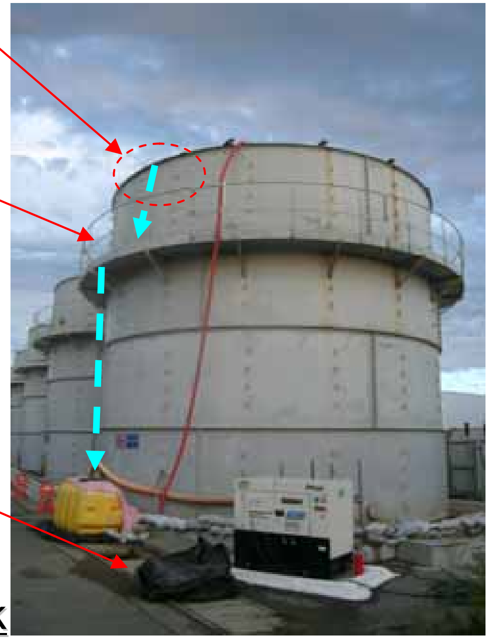
Drawings of the Tank





Enlarged image of the bottom part of the scaffold for inspection

Bottom part of the scaffold for inspection



Appearance of the tank

Image of the Leakage from the Top Plate of the Tank

- Water level of the tank is being monitored by a water gauge installed in the west end tank (B-A1).
- As a target water level, tank was used at the maximum of 98% of the capacity (approx. 50cm from the top plate). (We have followed this target when we collected water for the first time. However, we have exceeded this target for the second time collection, since we had to pump up water from the dike urgently. As a result, there was no margin left to prevent water from leaking.)
- Water of the east end tank (B-A5) was reached to the top plate, since there is a slight slope.
- Leaked water from the tank was dripped to the outside of the dike via the scaffold for inspection, which was installed at the circumference of the tank.