Current Status and Recent Topics of Fukushima Daiichi NPS

September 18th, 2015

TEPCO

TOKYO ELECTRIC POWER COMPANY

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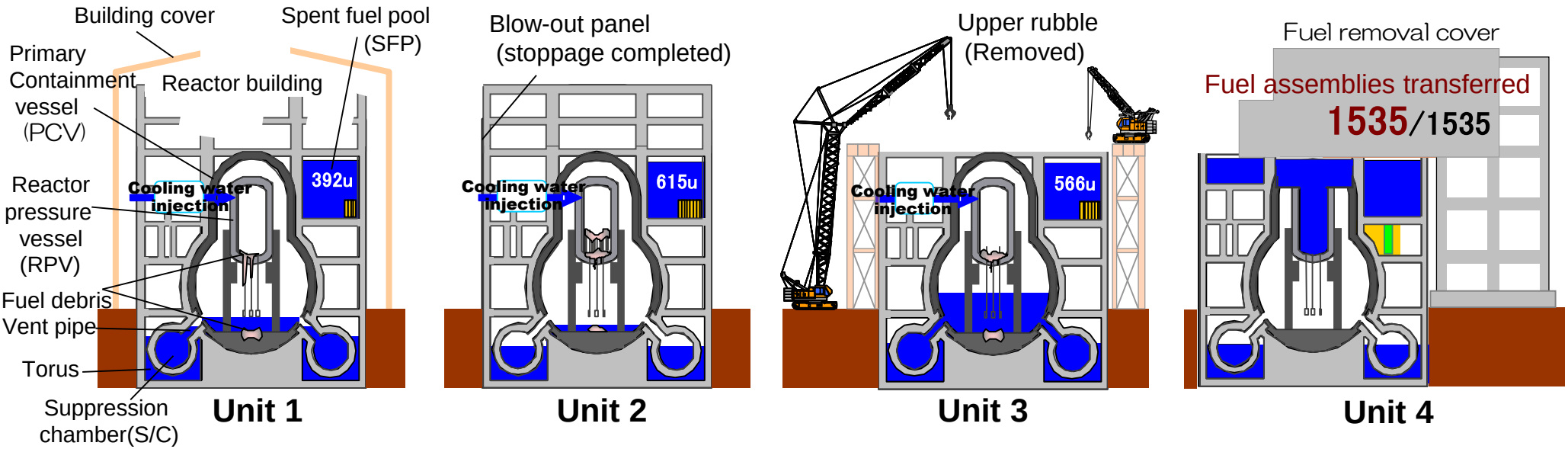
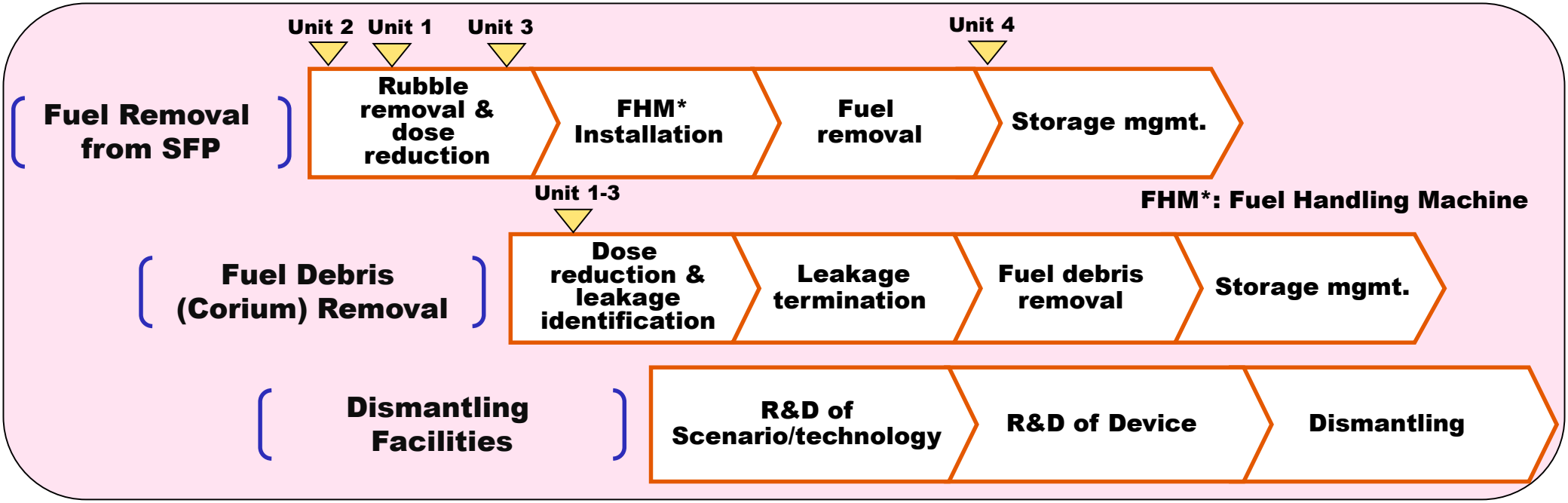
1-1. Current Status

All Units continue to be in cold shutdown (Unit 1, 2, 3, 4, 5 and 6)



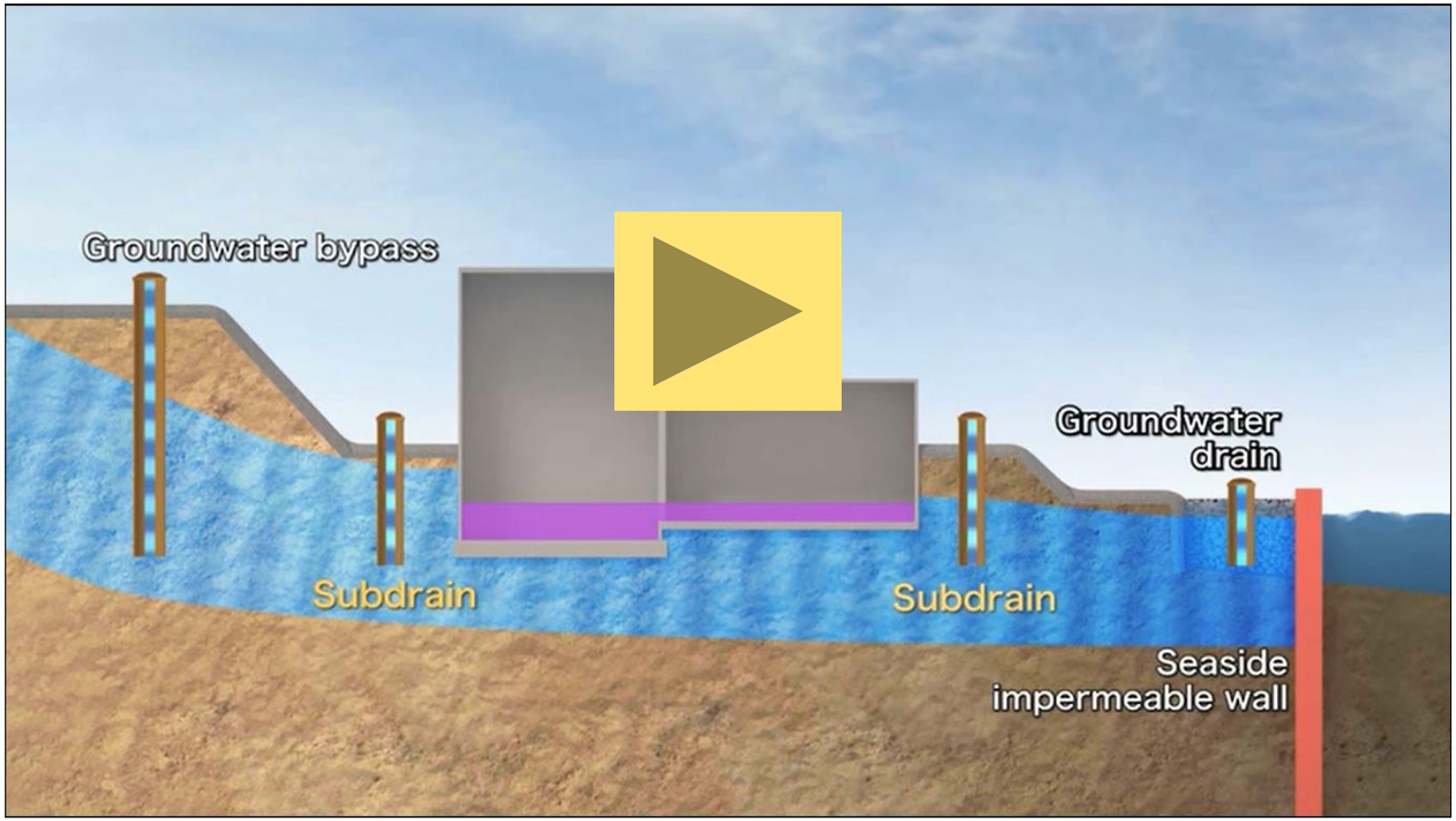
1-2. Main Works and Steps



- **Fuel removal from Unit 4 SFP was completed.(Dec. 22, 2014)**
- **Preparatory works for fuel removal from SFP and fuel-debris removal are ongoing at Unit 1, 2, 3.**

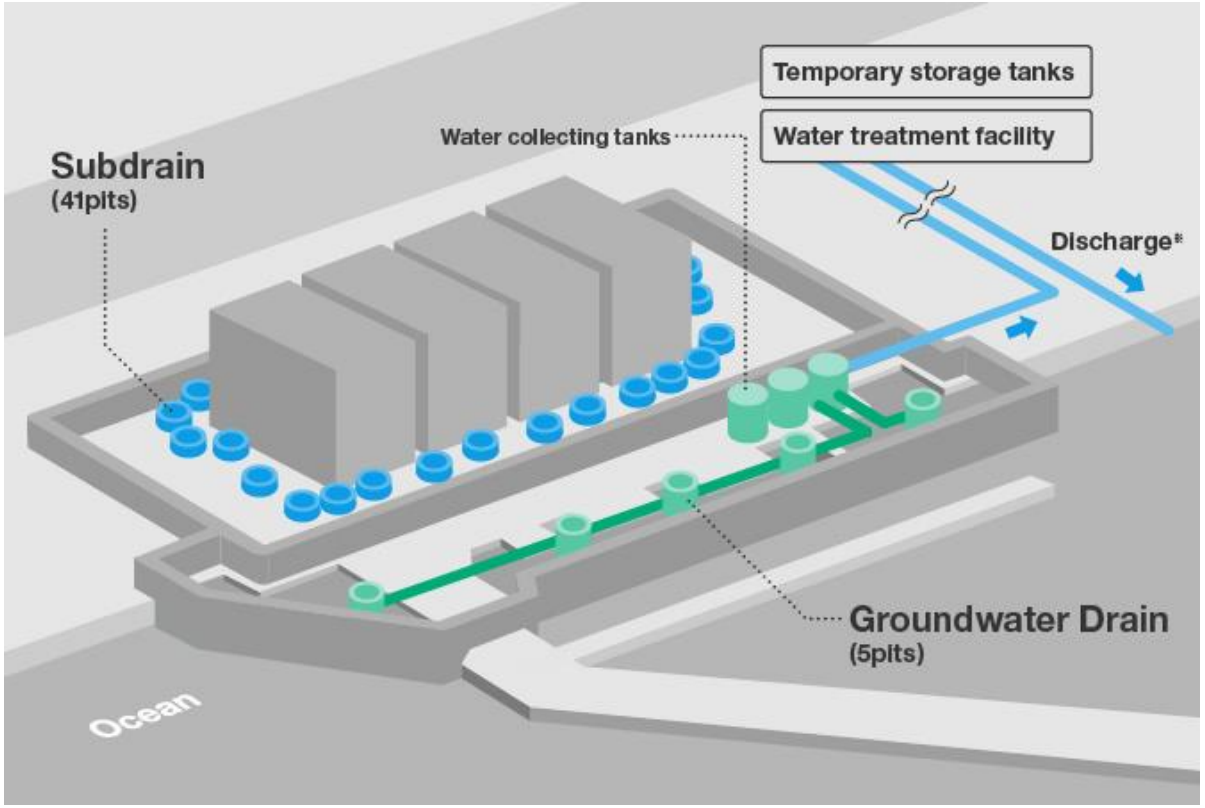
2-1. Subdrain and Seaside Impermeable Wall

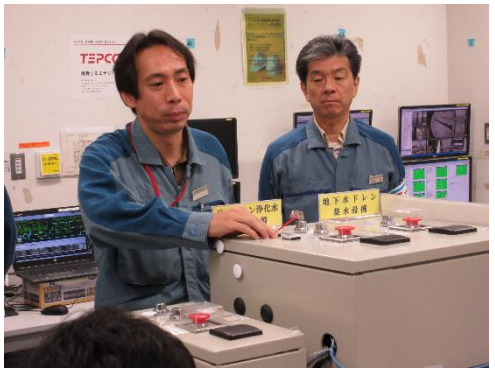
Video Title: Addressing water issues Subdrain and the seaside impermeable wall



http://www.tepco.co.jp/en/news/library/archive-e.html?video_uuid=w5x5rv2o&catid=61795

2-2. Subdrain and Groundwater Drain





<Discharge (September 14)>

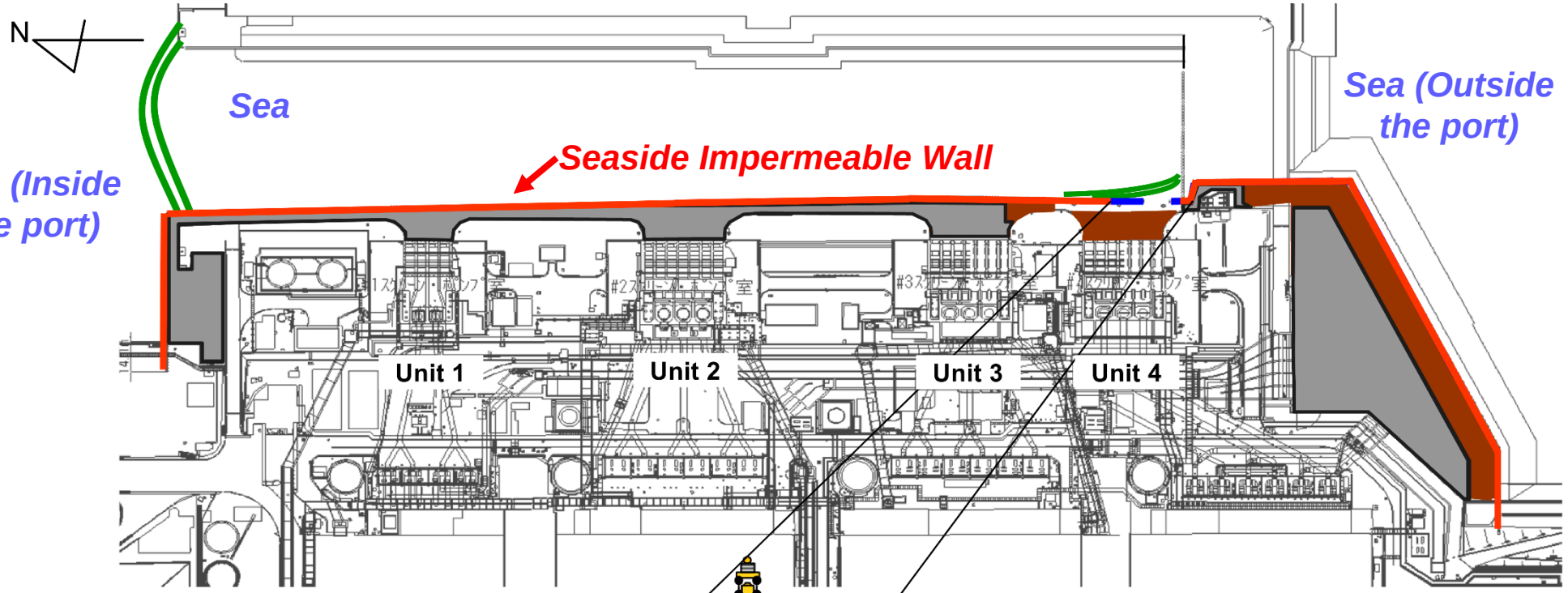
- **The subdrain and groundwater drain operations started. (September 3, 2015)**
- **The first discharge of 838 tons of groundwater which meets stringent water quality standards was completed. (September 14, 2015)**

2-3. Closing Operation of Seaside Impermeable Wall

<Steel Pipe Sheet-Piles>

- **Closing construction of the Seaside Impermeable Wall was started. (September 10, 2015)**

2-4. Closing Point of Seaside Impermeable Wall

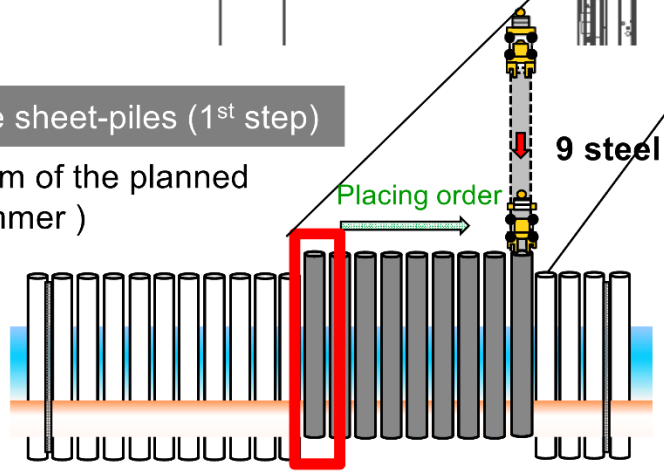


Seaside impermeable wall closing point:

9 steel pipe sheet-piles to be placed (approx. 10m extension)

Placing steel pipe sheet-piles (1st step)

Placing to within 1.5m of the planned depth (vibratory hammer)

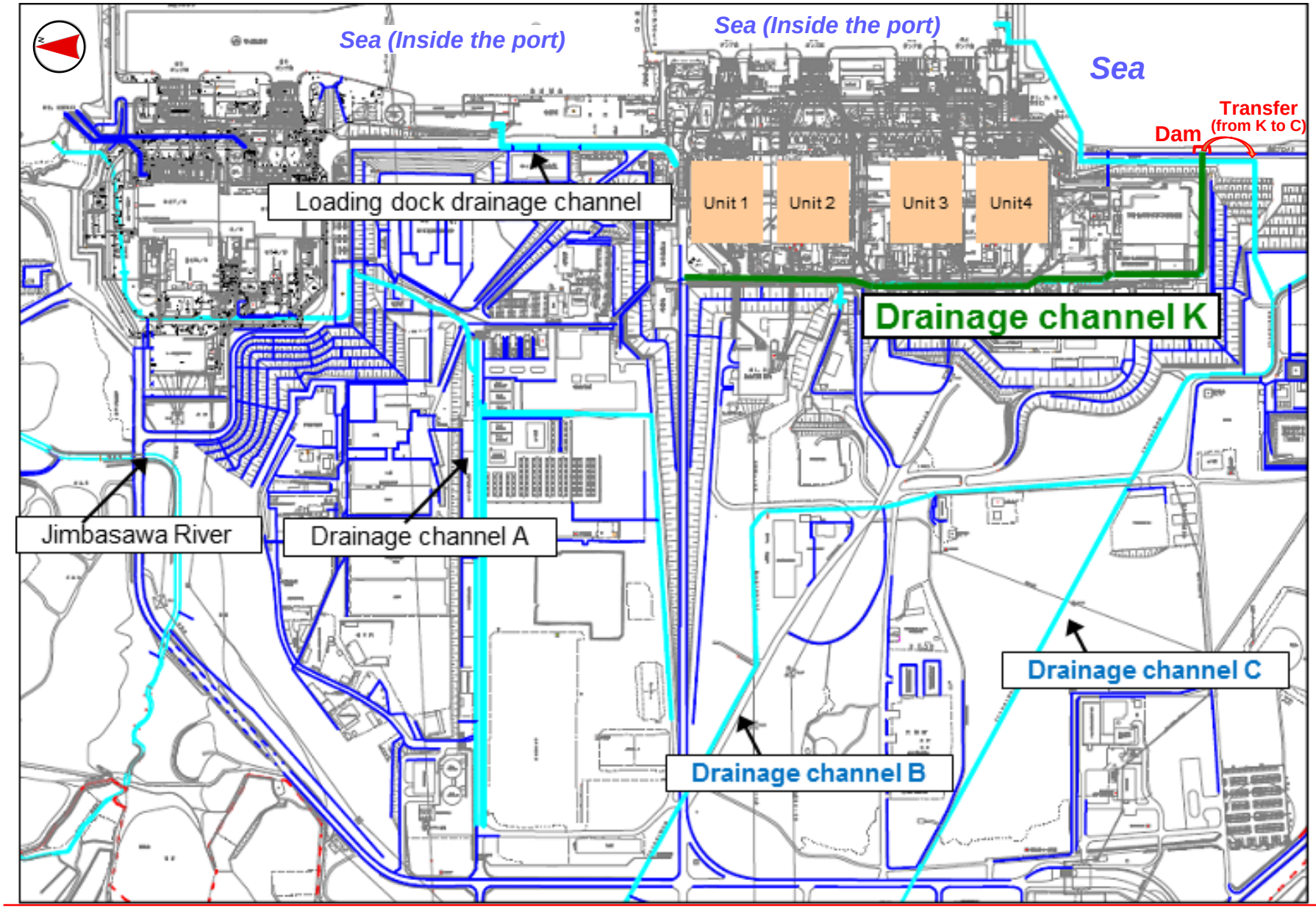


The steel pipe sheet-piles placed on September 10

- : Silt fence
- : Placing steel pipe sheet-piles completed
- : Connecting steel pipe sheet-piles completed
- : Filling with broken stone completed
- : Pavement construction completed

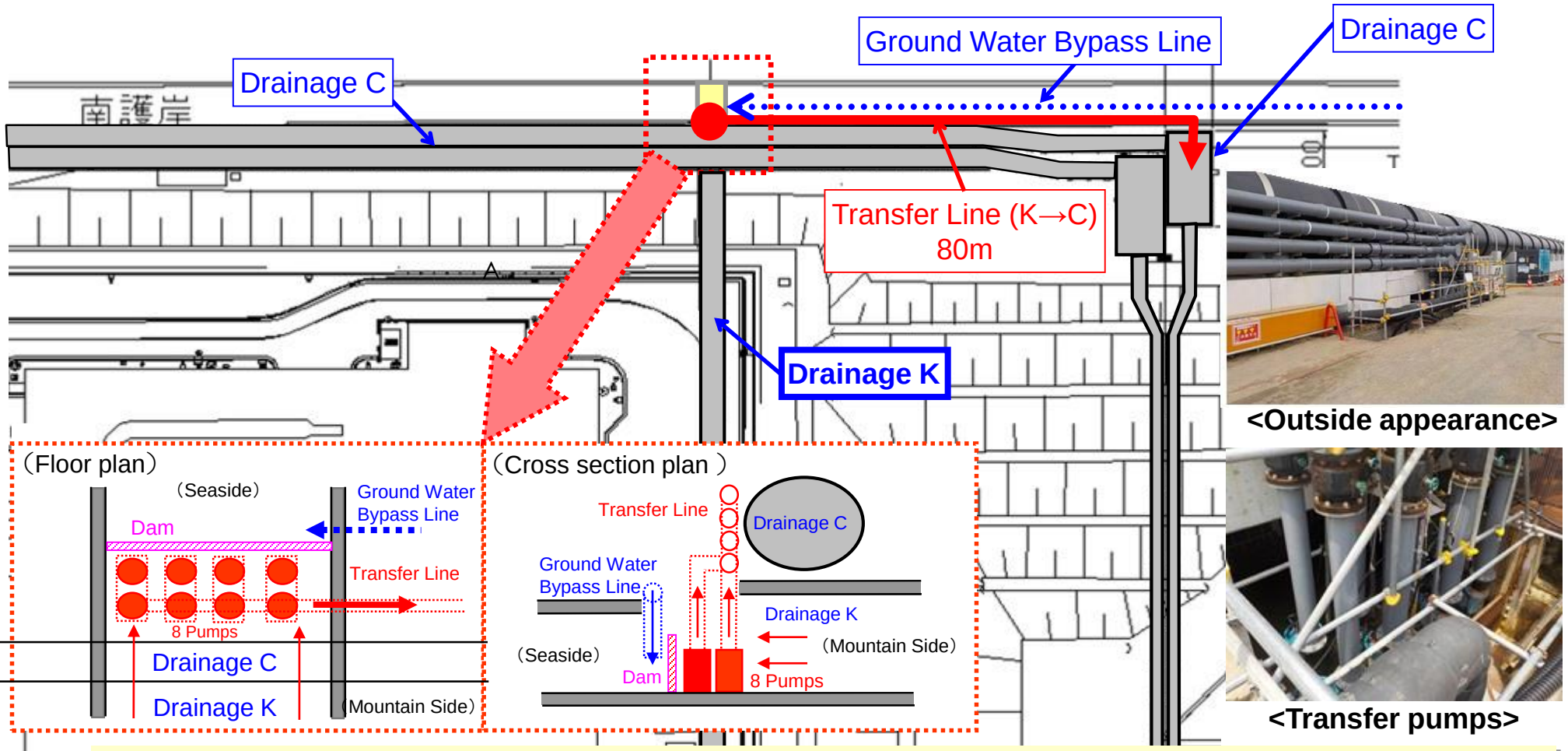
(As of September 9)

3-1. Location of Drainage Channel K



3-2. Inside Drainage Channel K

3-3. Transference from Drainage Channel K



<Outside appearance>

<Transfer pumps>

➢ **The water in "Drainage K," (by building a dam and also installing transfer pumps inside "Drainage K") has been transferred to "Drainage C", which leads to the port area.**

3-4. Drainage Channel K Overflow

Sep. 11, Article on TEPCO's Facebook
https://www.facebook.com/OfficialTEPCOen

Fukushima - Seawater radiation analysis outside the Fukushima Daiichi port shows safe, low levels.
New sampling measurement results: (Seawater of the south water outlet)
Cs-134: ND(1.1Bq/L), Cs-137: ND(1.3 Bq/L), Gross β: ND(18 Bq/L)
For more information, please visit
http://www.tepco.co.jp/…/nu/fukushima-np/f1/smp/index-e.html

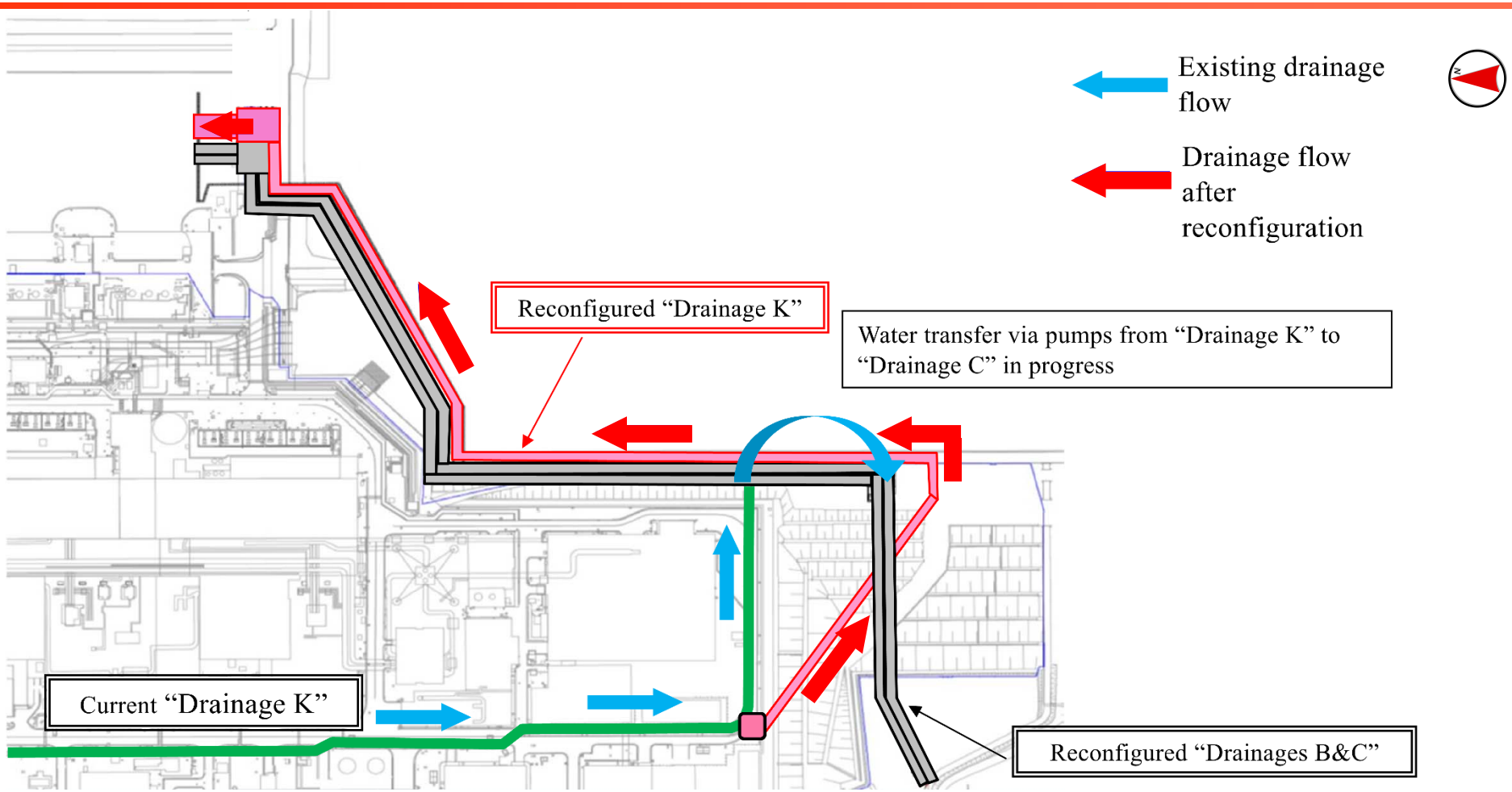
On September 9th and 11th, due to typhoon no.18 (Etau), heavy rain caused Fukushima Daiichi K drainage rainwater to overflow to the sea.
Sampling analysis results from the 9th are shown below:
Cs-134: 130Bq/L, Cs-137: 550Bq/L, Gross β: 970 Bq/L

The source of overflowed water was rain and its dosage did not get mixed with contaminated water from the reactor buildings.
From the sampling result of the 9th, TEPCO concluded that slightly tainted rainwater had overflowed to the sea; however, the new sampling measurement results show no impact to the ocean.

Some media has mistakenly quoted TEPCO, saying that "TEPCO confirmed hundreds of tons of contaminated water flowed into the ocean." But this is incorrect information.
We have not confirmed any significant amount of contaminated water have overflowed into the ocean.
TEPCO will keep monitoring the ocean to ensure the water quality. Multiple precautionary measures have been designed to protect the nearby ocean waters. http://www.tepco.co.jp/…/…/planaction/waterprocessing-e.html

➢Due to heavy rains, rainwater overflowed from "Drainage K" to the sea.

3-5. Drainage Channel K Reconfiguration



➢ **“Drainage K” will be reconfigured so that the water will flow into the port area in FY2015, and the drainage will be managed inside the port area.**

3-6. Sampling result

As of 12:00 AM on September 14, 2015

1. Analysis Results of Seawater Obtained around Fukushima Daiichi NPS
(Area around the Outside of the Port of Fukushima Daiichi NPS)

September 14, 2015
Tokyo Electric
Power Company

Unit: Bq/L "ND"s below indicate that the measurement results are below the detection limits, and the detection limit of each radioactive material is provided in parentheses.
The figures provided below for each point are the latest ones of "Detailed Analysis Results in the Port, around the Discharge Channel and the Bank Protection of Fukushima Daiichi NPS".

Northeast side of the port entrance

Cs-134	: ND(0.60)	Sampled on 9/7
Cs-137	: ND(0.58)	Sampled on 9/7
Gross β	: ND(17)	Sampled on 9/7
Tritium	: ND(1.6)	Sampled on 8/31

East side of the port entrance

Cs-134	: ND(0.78)	Sampled on 9/7
Cs-137	: ND(0.59)	Sampled on 9/7
Gross β	: ND(17)	Sampled on 9/7
Tritium	: 4.0	Sampled on 8/31

Southeast side of the port entrance

Cs-134	: ND(0.55)	Sampled on 9/7
Cs-137	: ND(0.68)	Sampled on 9/7
Gross β	: ND(17)	Sampled on 9/7
Tritium	: ND(1.6)	Sampled on 8/31

South side of the south breakwater

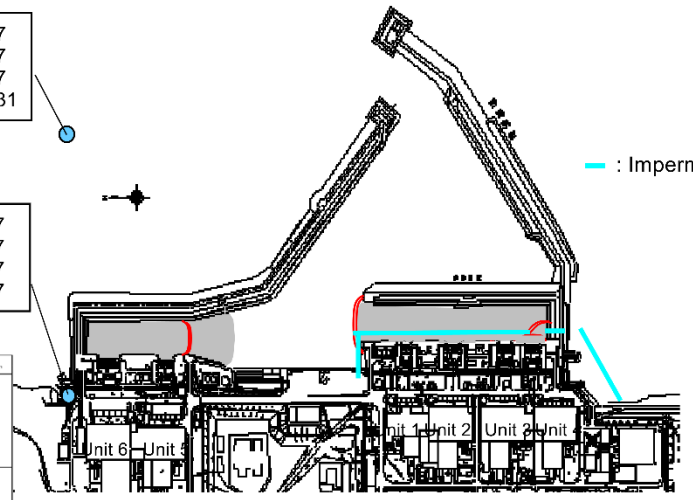
Cs-134	: ND(0.63)	Sampled on 9/7
Cs-137	: ND(0.69)	Sampled on 9/7
Gross β	: ND(17)	Sampled on 9/7
Tritium	: ND(1.6)	Sampled on 8/31

North side of the north breakwater

Cs-134	: ND(0.66)	Sampled on 9/7
Cs-137	: ND(0.63)	Sampled on 9/7
Gross β	: ND(17)	Sampled on 9/7
Tritium	: 3.1	Sampled on 8/31

North side of Unit 5,6 discharge channel

Cs-134	: ND(0.70)	Sampled on 9/7
Cs-137	: 0.86	Sampled on 9/7
Gross β	: 10	Sampled on 9/7
Tritium	: 2.0	Sampled on 9/7



Around the south discharge channel

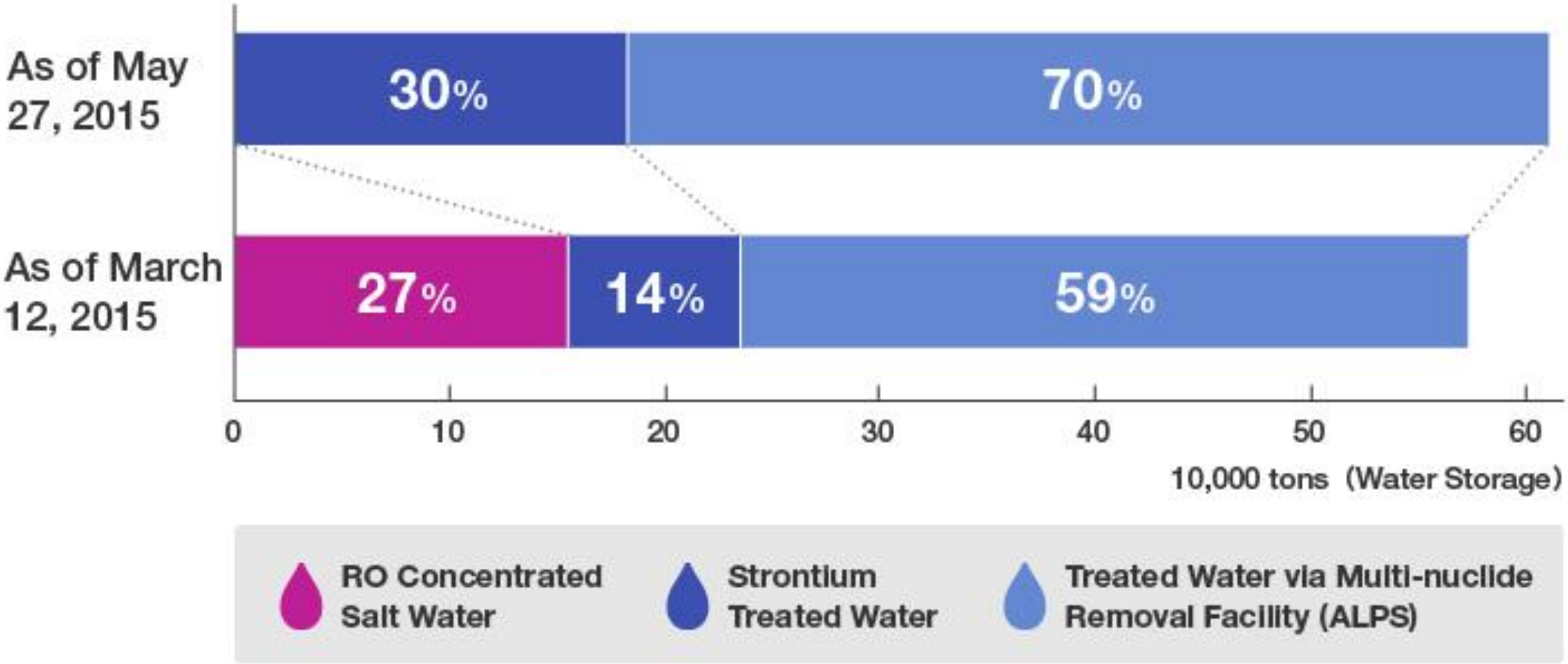
Cs-134	: ND(0.62)	Sampled on 9/7
Cs-137	: ND(0.65)	Sampled on 9/7
Gross β	: 11	Sampled on 9/7
Tritium	: ND(1.4)	Sampled on 9/7

	Cs-134	Cs-137	H-3	Sr-90
Concentration Limit Specified by the Rule for the Installation, Operation, etc. of Commercial Nuclear Power Reactors (the concentration limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2)	60	90	60,000	30
WHO Guidelines for drinking-water quality	10	10	10,000	10

Concentration Limit Specified by the Rule: Concentration Limit Specified by the Rule for the Installation, Operation, etc. of Commercial Nuclear Power Reactors (the density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2)

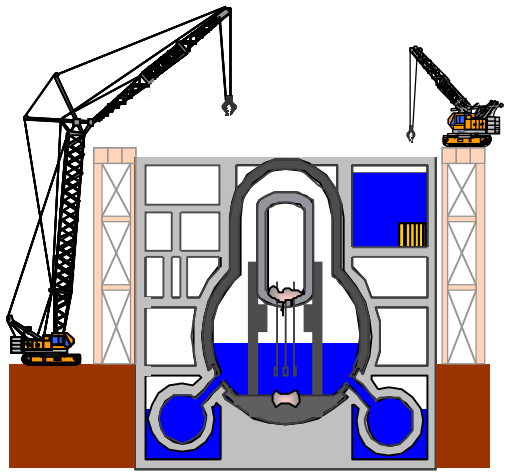
➢No effects to the sea found (far below govt. concentration limit) due to drainage overflow.

4. Contaminated Water Treatment



➢**The treatment of stored water except residual water in the bottom of the storage tanks was completed, which will help reduce the risks attributed to contaminated water. (May 27, 2015)**

5. Rubble Removal from Unit 3 SFP



- **The removal of Fuel Handling Machine from Unit 3 Spent Fuel Pool was completed. (August 2, 2015)**

6-1. Expansion of Full-face Mask Unnecessary Area

Full-face mask necessary area

Full-face mask or Half-covered face mask necessary area

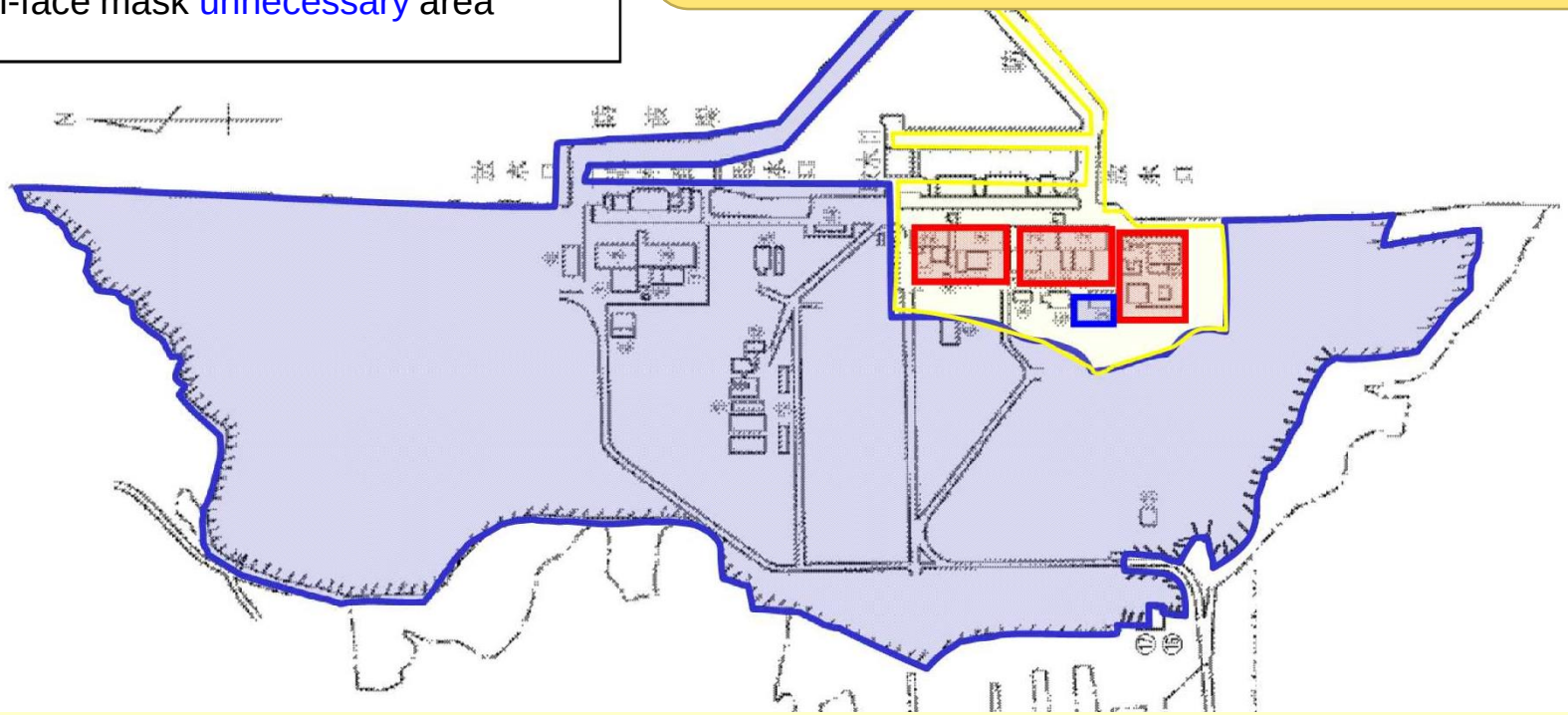
Full-face mask unnecessary area


Full-face mask


Half-covered face mask


Dust control mask


Surgical mask



➢**The area where full-face masks need not be worn was expanded to approx. 90% of the site. (From May 29, 2015)**

6-2. Expansion of Full-face Mask Unnecessary Area

	Measurement results [Bq/cm3]		
No.	Cs-134	Cs-137	Total
1	< 4.0E-07	< 3.6E-07	Not Detected
2	< 3.3E-07	< 2.8E-07	Not Detected
3	< 3.2E-07	< 2.1E-07	Not Detected
4	< 2.6E-07	< 2.4E-07	Not Detected
5	< 2.5E-07	< 2.7E-07	Not Detected
6	< 2.7E-07	< 2.7E-07	Not Detected
7	< 3.3E-07	< 3.2E-07	Not Detected
8	< 3.3E-07	< 2.8E-07	Not Detected
9	< 3.4E-07	< 2.1E-07	Not Detected
10	< 2.9E-07	< 2.4E-07	Not Detected
11	< 3.5E-07	< 2.2E-07	Not Detected
12	< 3.4E-07	< 2.2E-07	Not Detected

	Measurement results [Bq/cm3]		
No.	Cs-134	Cs-137	Total
13	< 3.8E-07	< 3.2E-07	Not Detected
14	< 3.8E-07	< 3.6E-07	Not Detected
15	< 3.2E-07	< 2.8E-07	Not Detected
16	< 3.0E-07	< 2.8E-07	Not Detected
17	< 3.4E-07	< 3.3E-07	Not Detected
18	< 3.2E-07	< 2.9E-07	Not Detected
19	< 6.6E-07	5.1E-07	5.1E-07
20	< 3.0E-07	3.9E-07	3.9E-07
21	< 3.1E-07	5.3E-07	5.3E-07
22	< 2.3E-07	5.0E-07	5.0E-07
23	< 3.1E-07	< 3.0E-07	Not Detected
24	< 2.5E-07	< 2.8E-07	Not Detected

The density of radioactive materials in the air was measured and confirmed that it is under the standard for wearing masks.

7. Large Rest House

Video Title: Start of operation of the large rest house

http://www.tepco.co.jp/en/news/library/archive-e.html?video_uuid=ysoq049s&catid=69631