3. Three Policies for Measures to Counter Contaminated Water

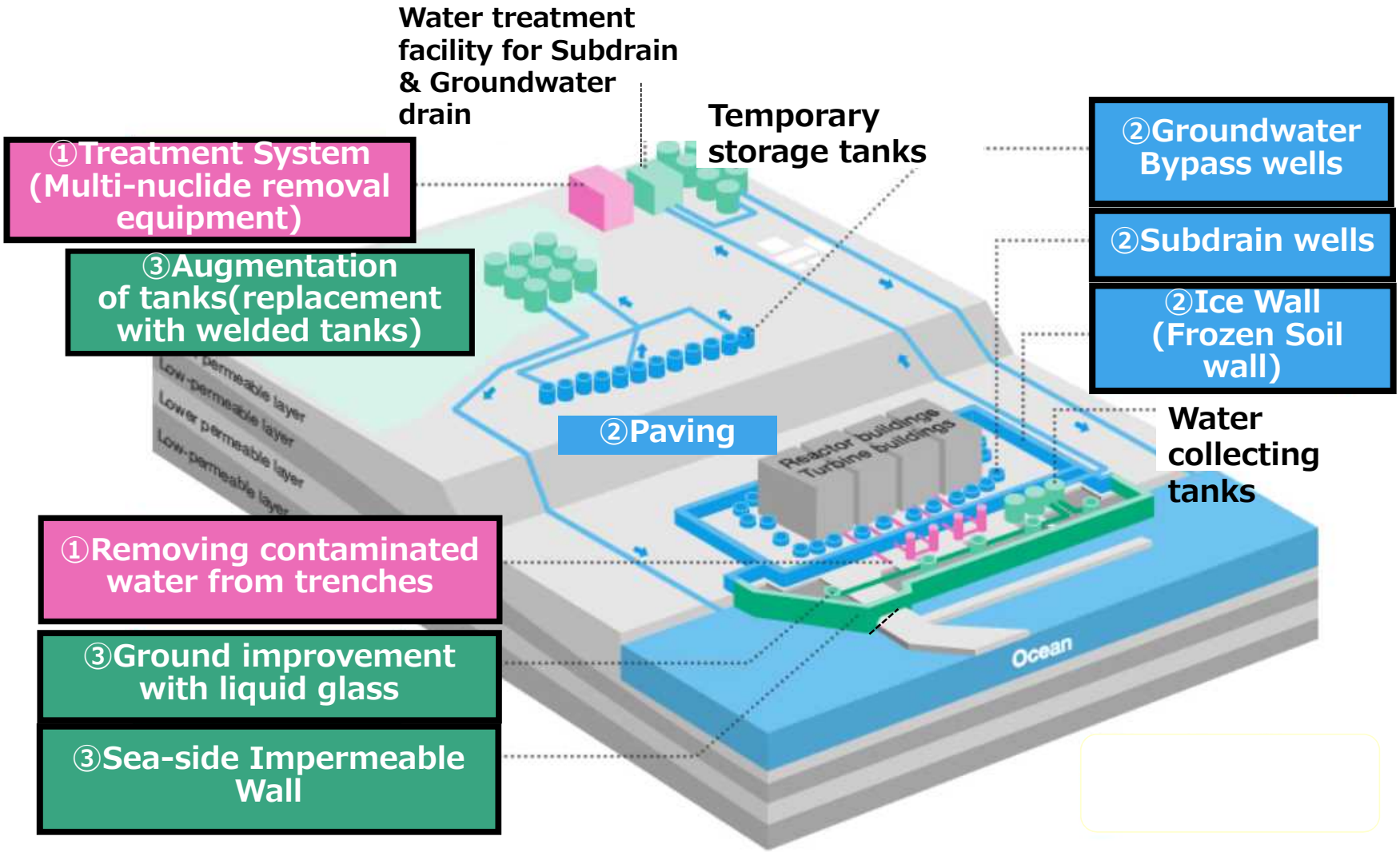
（1）Three Policies for Measures to Counter Contaminated Water ①

Three Policies

①Removing source of contamination

②Isolating fresh water from contaminated areas

③Preventing leakage of contaminated water



（1）Three Policies for Measures to Counter Contaminated Water ②

■The status of each measure is shown below.

Measure		Status	
<1> Removing source of contamin-ation	①Purification with multi nuclide removal equipment (ALPS)	Completed RO concentrated water treatment in May, 2015	Continue operation
	② Removal of contaminated water from trenches	Completed in December, 2015	Completed
<2> Isolating fresh water from Contamin-ated Areas	③Pump up of groundwater through groundwater bypass wells	The accumulated amount of drainage to the sea : 259,000t (As of February, 2017)	Continue operation
	④Pump up of groundwater through subdrain wells	The accumulated amount of drainage to the sea : 280,000t (As of February, 2017)	
	⑤Ice Wall (Frozen soil wall)	All but five places on the landside are in freezing mode	Wall formation
	⑥Paving to prevent rain water seepage into soil	Completed planned area in Mar. 2016	Completed (100%)
<3> Preventing leakage of contami-nated water	⑦ Ground improvement with liquid glass	Completed in March, 2014	Completed
	⑧ Installation of sea side impermeable wall	Completed closure in October, 2015	Completed
	⑨Augmentation of tanks	Implementing replacement of flanged tanks with more reliable welded tanks and additional construction of welded tanks	Continue construction

4．Fuel Removal from the Spent Fuel Pools

（1） Roadmap Toward Decommissioning

Roadmap Target (formulated in Dec 2011, revised in Jun 2013 and Jun 2015)

Stabilization efforts

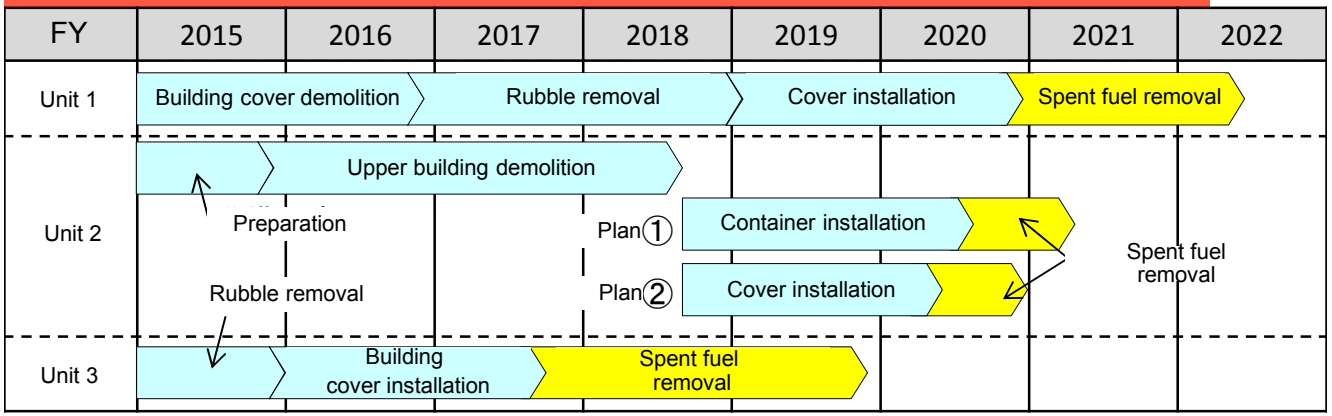
<Cold shutdown achieved>
- Cold shutdown
- Significantly reduce radiation release

Dec. 2011	Dec. 2013	30～40 years later
Phase 1	**Phase 2**	**Phase 3**
Period to commencement of fuel removal from the spent fuel pool (within 2 years)	Period to commencement of fuel debris※ removal (within 10 years)	Period to completion of Decommissioning measures (30 to 40 years in the future)

Started at Unit 4 on Nov.18, 2013.

※Fuel debris (Fuel, cladding and other material that melted and hardened again)

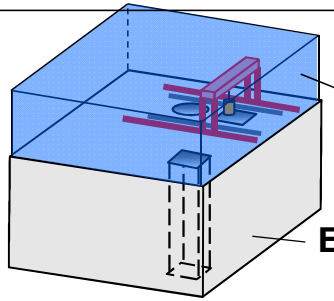
Spent fuel removal plan (Units 1, 2, and 3)



Unit 1

Removal of cover panels toward removal of fuel from spent fuel pool is complete

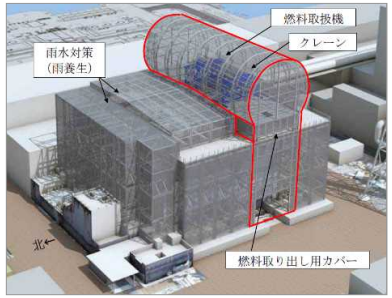
Unit 2



Fuel removal handling machine installed (image)

To facilitate the removal of fuel assemblies and fuel debris in Unit 2 , we decided to dismantle the whole rooftop above the highest floor of the Reactor Building.

Unit 3



Fuel Removal Cover (Blueprint)

(2) Fuel Removal from the Spent Fuel Pool (Unit 4)

- **Fuel removal started on November 18, 2013.**
- **Removal of 1535 fuel bundles completed on December 22, 2014 as scheduled**
- **No risk from fuel remains at unit 4. This gives confidence to proceed to fuel removal at units 1, 2 and 3**

September 22, 2011

July 5, 2012

November 12, 2013: Completion of building steel framework (The volume of steel used is equivalent to those of Tokyo Tower.)

Process of removing fuel rods at SFP Unit 4

(3) Fuel Removal from the Spent Fuel Pool (Unit 3)

- **Removal of large pieces of rubble on the refueling floor and spent fuel pool was completed in 2015.**
- **Decontamination work was completed in June 2016 and shielding was completed in December 2016.**
- **In January 2017, the work for installing fuel removal cover started.**
- **Fuel removal will take place in the middle of FY2018.**

Before removal of large pieces of rubble

Mar. 2013

After removal of large pieces of rubble

Feb. 2016

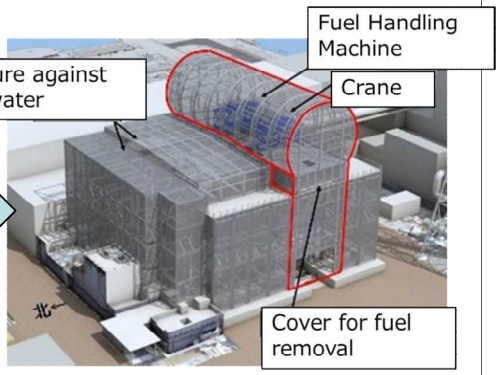
After Shielding

Dec. 2016

【Major Tasks in the Future】

①Shielding (complete) → **②Installing Cover & Fuel Handling Machine** → **③Undertaking Fuel Removal (Middle of FY2018)**

▲※Installing cover started in January 2017



(4) Fuel Removal from the Spent Fuel Pool (Unit 1)

Fuel removal to be started in FY 2020

The status of the Unit1 in 2011

Northwest side
(Jun. 2011)

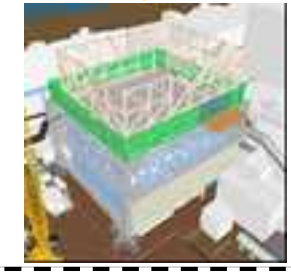
Southeast Side
(Jun. 2011)

Complete installation
(Oct. 2011)

The current status (Dismantling)

Removal of panels
(Sep. 2016)

Complete removal
(Nov. 2016)



Sheet for windbreak
to be installed
(Mar. 2017)

【Major Tasks in the Future】

①Removal of Panels (Complete) → **②Removal of rubble** → **③Deconta-mination** → **④ Shielding** → **⑤Installing Cover & Fuel Handling Machine**

※Currently investigation of rubble status on refueling floor and inside pools is underway

5. Toward Fuel Debris Removal

(1) Investigation of the Primary Containment Vessel (Unit 2) ①

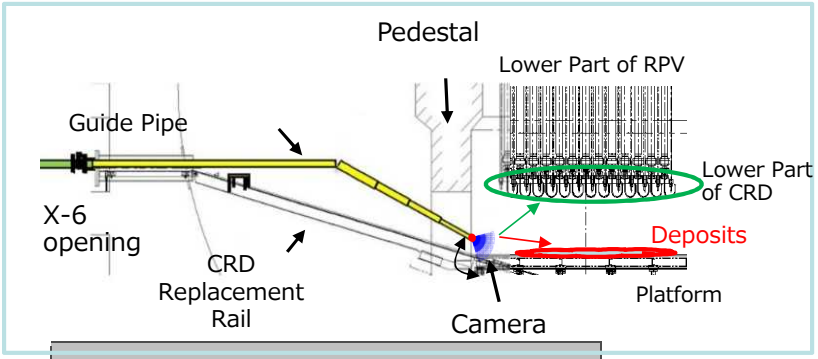
- **Exploration inside the PCV and at the bottom of the RPV was conducted in order to investigate conditions such as the location of fuel debris inside the PCV.**
- **X-6 opening was used as a path for devices shown below to proceed inside the pedestal.**

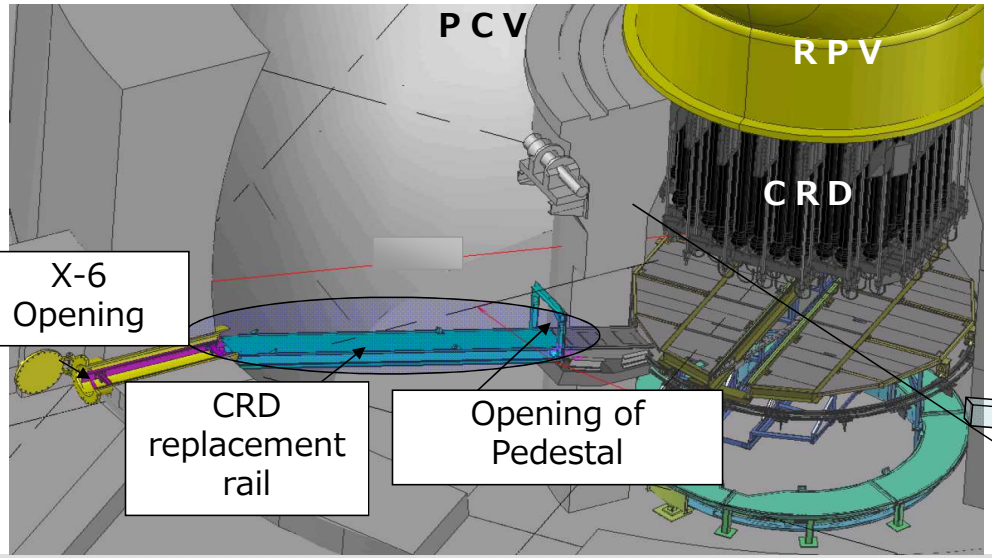
Robot for Survey

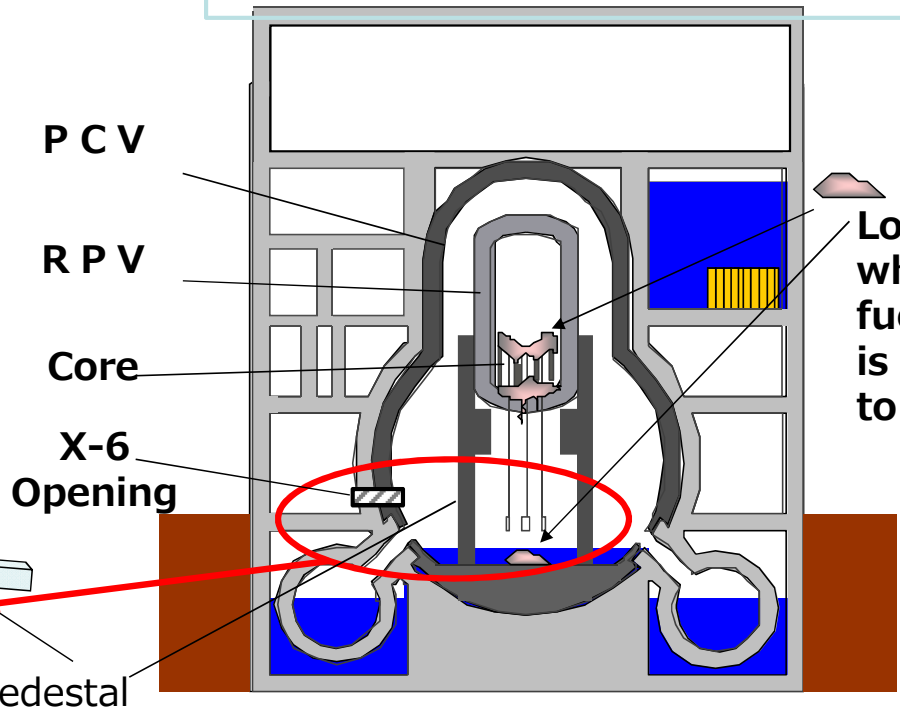
The head camera with a lamp had a tilting and panning function. The robot also has a dosimeter and a thermometer.

The Guide pipe had a camera with a tilting and panning function.

Guide Pipe for Pre-survey





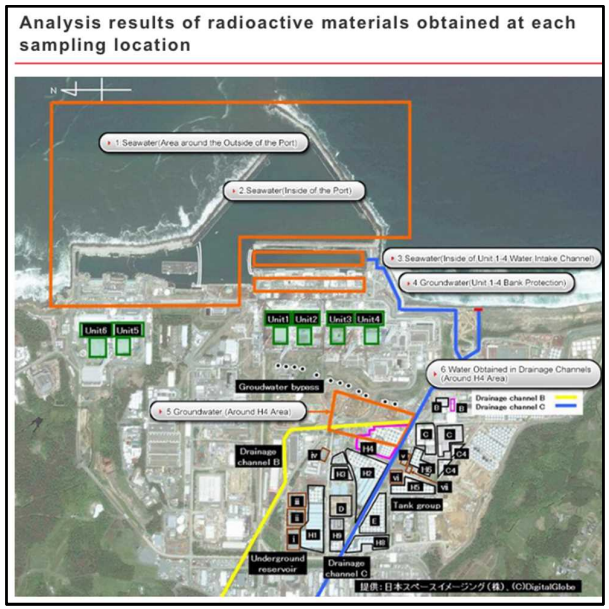


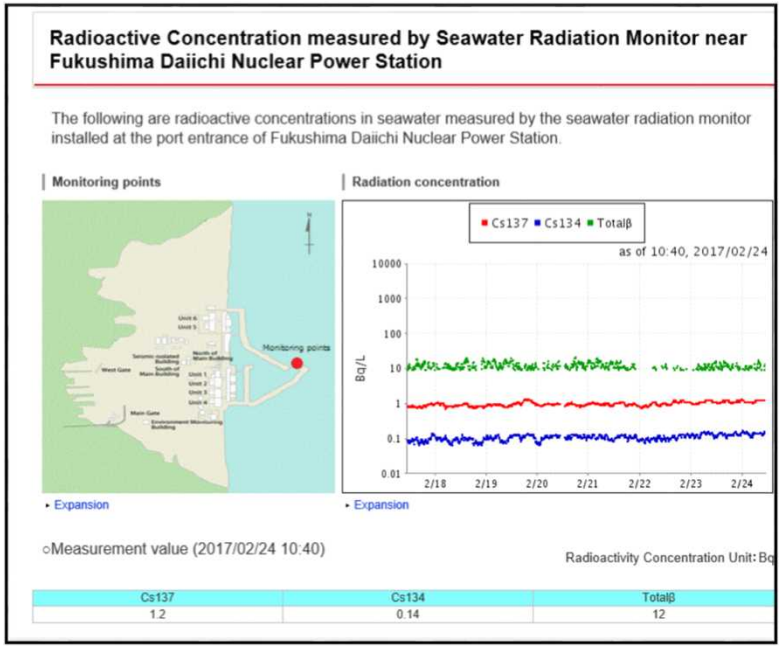
6. Information Sharing and Communication

(1) Information Sharing and Communication

- In accordance with agreements, TEPCO reports to local governments about the progress of decommissioning tasks. TEPCO also informs them of any accidents and troubles at Fukushima site.
- TEPCO reviewed how to report the results of data analysis so that the latest data of radioactive dose can be easily accessible.
- More visualized information and video footage is available to enhance the understanding of decommission work.
- The layout of website (http://www.tepco.co.jp/nu/fukushima-np/index-j.html) was reviewed to make search of specific topics easy.

<Example of website>





<Results of radiation level >

<Explanation of Roadmap >

(2) Two-Way Communications with Local Residents

Explanation at public meeting

- **Status Updates with regards to decommissioning are given to the public at the regular public meetings hosted by Fukushima Prefecture**

Left : Ishizaki, Representative of the Fukushima Revitalization Headquarters

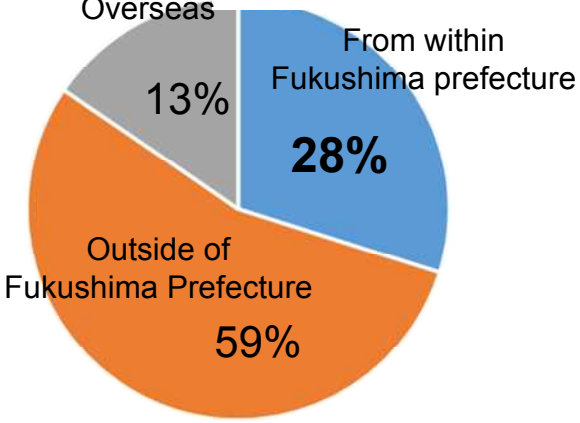
Right : Masuda, Chief Decommissioning Officer, President of Fukushima Daiichi Decontamination and Decommissioning Engineering Company

Opinions to TEPCO have been reflected to decommissioning measures

Invitation to Site Visits

- **Inviting prefectural government and organizations**
- **Percentage of visitors from within the prefecture has increased to 30% (from 20% in FY2014)**

【FY2015】



Number of visitors: 6,723

More than 17,000 visitors since the accident

Example of a comment received: “Decommissioning is a big undertaking done with the cutting edge technology”

Briefings

- **Briefings are held on the issue of great concern to residents**

【Briefing held in Hirono Town】
(December 2015)

Participants: 29
Explanation on :
- The current state of dismantling the Unit 1 building cover
- Overview of the training yard facility in Hirono Town

Thank you for your kind attention!!

TEPCO

Fukushima Daiichi NPS Map